UNISYS

BTOS

Burroughs Terminal Emulator (BTE)

Programming Guide

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About This Manual

Purpose

This manual enables system administrators and
programmers to install and configure BTE and supports
them in writing programs for operators and data entry
clerks using BTE.

Scope

This manual describes installing, configuring, operating,
and writing programs for BTE. It explains key
programming, data transmission, and printing and gives
the control sequences, escape sequences, and data comm
codes for all BTE functions.

Audience

This manual is written for system adminstrators and
programmers who know the principles of data
communication and have fundamental programming skills.

How to Use This Document

To:	You Must:	Read Sections and Appendices:
Run BTE	Install, configure, and invoke BTE	1, 2, 2, A
Restrict and grant access to BTE configuration options selectively	Understand what BTE security levels do and how to set them	6
Configure BTE to fit your specific needs	Use the set-up menus and understand the options	4, 5, A
Specify character sets for non-USA countries	Specify which character set you want	2, 4

Monitor information from host application and BTE environment	Know the status line format	3
Enable and display multiple environments	Configure multiple environments and invoke a split-screen view	4, 5
Change key functions	Use key programming	7, E
Create forms that limit text entry to specific fields	Use forms mode	8
Locate single characters within a page of data	Use search mode	9
Create highlighted text	Use the highlight commands	10
Write host application programs	Know the codes and sequences that invoke BTE functions	11, 12, 13
Transmit data	Understand the BTE transmit function	12
Operate a printer through BTE	Configure BTE for the printer and know the print commands and restrictions	13

Organization

Section 1, "Overview," gives hardware, software, and memory requirements and lists the files on the product disk.

Section 2, "Software Installation," gives step-by-step instructions on how to install BTE and how to invoke BMULTI and BTE.

Next you must configure BTE, assign valid addresses for
the BTE environments, and set the security levels
(Sections 4, 5, and 6).

The rest of this manual discusses specific BTE features.
They are:

□ 132-column mode (Section 4)

□ Key Programming (Section 7)

□ Forms Mode (Section 8)

□ Search Mode (Section 9)

□ Highlighting, Extended Characters, and Diacritics
  (Section 10)

□ Commands (Section 11)

□ Data Transmission (Section 12)

□ Printer Interface (Section 13)

Related Product Information

*BTOS Burroughs Terminal Emulator (BTE) Operations
Guide*

*BTOS Burroughs Multipoint Communications Service
(BMULTI) Operations and Programming Guide*

BTOS Standard Software Operations Guide (SSOG)

BTOS Context Manager Operations Reference Manual

Office Management System (OMS) II Operations Guide

*BTOS Intelligent Data Communications Module System
Software (IDMSS) Operations Guide*

BTOS B-NET Administration and Operations Guide

BTOS Status Codes Reference Manual

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Overview

Hardware Requirements

□ B 26, B 27, B 28, or B 38 workstation

Optional Hardware

□ B 24 TWS peripherals, including when attached to an XE 520 processor
□ Any BTOS systems printer

Software Requirements

The following must be installed before you install BTE:

□ BTOS level 8.0 or higher
□ BMULTI 7.0 or higher

Optional Software

□ Context Manager level 3.0 or higher (with a multipartition operation system)

   Note: Local hard disk storage is recommended if Context Manager is going to be used with the swapping option. All BTE environments must be in local mode before BTE can be swapped out by Context Manager.

□ Office Management System II (OMSII) 3.0 or higher
□ BNET 2.1.3 or higher

Memory Requirements

□ 184K to run the first environment, in addition to the memory required to run BMULTI
□ 240K maximum (three environments enabled)
□ 508 sectors of hard disk space for BTE files

In a typical user environment running BMULTI, BTE, and Context Manager, the master workstation needs 768K of memory. BTE requires a minimum of 512K .

BTE Files

All files are in the <Sys> directory.

Install.sub
XEInstall.sub
BTEFile.sub
FdSys.Version
BTE.run
BTEStart.run
BTEConfigfile1
BTEConfigfile2
BTEConfigfile3
BTEFunctionCodeFile
BTEUpLoTransfile1
BTEUpLoTransfile2
BTEUpLoTransfile3
BTEUpLoTransfile4
BTEUpLoTransfile5
BTEUpLoTransfile6
BTEUpLoTransfile7
BTEConstants1
BTEHelpfile1
BTELptf
BTEPtrf

Font Files

Font files (listed by country) determine which characters
are generated.

BTEFont1.B25	USA
BTEFont1.B27	USA
BTE Font1.VE1	USA
BTEFont2.B25	UK
BTEFont2.B27	UK
BTE Font2.VE1	UK
BTEFont3.B25	France
BTEFont3.B7	France
BTE Font3.VE1	France
BTEFont4.B25	Netherlands
BTEFont4.B27	Netherlands
BTE Font4.VE1	Netherlands
BTEFont5.B25	Germany
BTEFont5.B27	Germany
BTE Font5.VE1	Germany
BTEFont6.B25	South Africa
BTEFont6.B27	South Africa
BTE Font6.VE1	South Africa
BTEFont7.B25	Canada
BTEFont7.B27	Canada
BTE Font7.VE1	Canada

BTE Features

Security

The BTE security system allows three levels of access to
the set-up menus.

Menus

BTE configuration is menu-driven. From set-up mode, you select one of several menus, select an option in the menu, then specify a value for the option. When you've specified all the options, you select one of several save commands to store the new set-up values.

BTE indicates set-up errors while you're configuring to help you select compatible option values.

Multiple Environments

You can configure and display up to three environments. This allows you to run three different host application programs and to access three different host computers at once on one workstation.

132-Column Mode

You can configure BTE environments to display data in 132 columns.

Software Installation

Note: BMULTI must be installed and configured on your system in order to install BTE.

The BTE run file is named differently from the previous release. If you are using the Context Manager, make sure it is configured accordingly.

When you use BTE to access BMULTI at a remote node (through B-NET), error code 33 may appear if BTE was configured with an incorrect node name. To initially install the node name, either install BMULTI locally (then de-install after the BTE node name is configured) or access BTE from the node itself. If you choose the latter, a BTE configuration file must be created and copied onto the remote node.

To install BTE:

1 Make a back-up working copy of the BTE disk. (See the *BTOS Operations Guide* for information on creating back-up disks.)

2 Insert the BTE working disk into floppy disk drive [F0].

3 At the Command line type **Software Installation** and press GO.

   The necessary files are copied, and the commands necessary to run BTE are created.

4 After a pause, follow the prompt that appears.

5 After another pause, a list of countries and their codes appears. Type the appropriate number. (Record this number. You will type it later beside *Language Version* in the System Partitions and International menu). Press GO. • ·

6 When the cursor returns to the Command line, type **Install BMULTI** and press GO.

   Note: If error code 65 appears, BMULTI has been configured incorrectly. If error code 8401 appears, BMULTI has already been installed or Spooler is installed on the same channel on which you're trying to install BMULTI. If BMULTI is already installed, go ahead to the next step. If Spooler is installed on the same channel, either disable it or reconfigure BMULTI to run on another channel.

7 Type **B T E** and press GO.

   Note: If error code 33 appears, BMULTI hasn't been installed yet. You may have to go back to step 6 to install BMULTI. If error code 203 appears, a file is missing. Restore it by copying it from the installation disk.

8 Remove the disk and store it in a safe place.

The Function Control Strip

You received a function control strip with your BTE
software. This strip contains descriptions of what the
function keys (F1 to F10) do. The lower row describes the
key function. The upper row describes the SHIFT-key
function. Put the function control strip in the depression
above these keys for quick reference.

The BTE Screen

A new screen appears with six asterisks (******) and a
blinking cursor in the upper left corner. The asterisks
mean that the system has been successfully configured
according to the default configuration option values and
BTE is ready for operation. The cursor indicates where
input from the keyboard will appear on the screen. Before
you can access the host, however, you must assign a valid
address to each enabled BTE environment. See the *Address*
option in the Environment Datacomm Options menu in
Section 4.

At the bottom of the screen are three status lines:
application, environment, and system status lines.
"Reading the Screen" explains what these lines mean.

Configuration Files

The default configuration files are BTEConfigfile1,
BTEConfigfile2, and BTEConfigfile3. The number indicates
which environment they are valid for. You can create
other configuration files for each environment by copying
BTEConfigfile to a file with a different name. To use this
new file:

1 At the Command line type **B T E** and press RETURN.

2 Type the prefix of the file (excluding the number) and
press GO.

BTE automatically adds the suffix *1*, *2*, or *3*. Any
configuration changes you make in set-up mode will be
written to this file. To use this configuration file
hereafter, specify it when you enter BTE. BTE will not
run if no configuration file exists for environment 1.

Exiting BTE

To exit BTE, press F8. (F8 is the LOCAL key. BTE must be
in local mode to exit.) Then press FINISH and GO.

Screen and Keyboard

Keyboard Cursor and Data Comm Pointer

BTE gets input from the keyboard and from the host. The *keyboard cursor* appears as a blinking underline, or rectangle on the screen. It indicates where keyboard input will appear next.

The *data comm pointer* (DCP) is invisible. All data from the host is displayed on the screen at the DCP position.

You can move the cursor and the DCP to affect where data will appear on the screen (see Section 11).

Reading the Screen

The bottom three lines of the BTE screen are status lines. They give specific information about the application, the environment, and the BTE system as a whole. The following descriptions reflect BTE default messages. Some messages can be configured (see the System Messages menu in Section 4 for information).

Status Line Information

The *application status line* is the top status line. It displays messages from a host application program. The information that appears on this line varies widely; often it's blank.

The *system status line* is the bottom status line. It displays *ENQ*, *RCV*, and the numbers of the enabled environments. A number beside *ENQ* is highlighted when the host tries to send data to that environment and can't because BTE is in local mode. A number beside *RCV* is highlighted when the host sends data to that environment. The system status line may also display the date, time, and system directory you're working in.

Figure 3-1 shows a typical screen with the BTE status lines (the application status line in this example is blank). The numbers *1 2 3* beside *ENQ* and *RCV* indicate that all environments have been enabled.

Figure 3-1   Status Lines
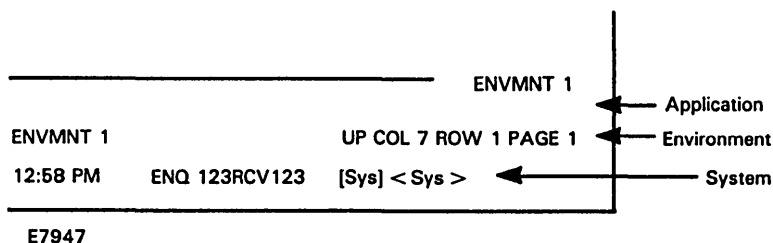
The *environment status line* is the middle status line. It gives information specific to the keyboard environment (the environment you're working in at the time). The messages that appear here can be configured via the System Messages menu. The information it gives appears in this order:

Status	Environment	System	Cursor
messages	ID	messages	position

A typical status line:

BUFFER OVERFLOW   ENVMNT   1 CTRL   UP COL   7 ROW   1 PAGE   2

This line says that a buffer overflow has occurred, that you're in environment 1, that the page is in CTRL mode (*CTRL*), that only uppercase letters will be displayed on the screen (*UP*), and that the cursor is in column 7, row 1, page 2.

□ **Status messages**: These are nonfatal warnings or messages. They indicate buffer overflow, keystroke loss, printer error, receive error, or which page received data. To clear a status message, press F8 (LOCAL).

□ **Env ID**: *ENVMNT 1*, *ENVMNT 2*, or *ENVMNT 3* appears, depending on which environment you're working in (the keyboard environment).

□ **System messages** include the following:

Message	Meaning
CTRL	BTE is in CTRL mode.
FORM	Page is in forms mode.
INS/PG	Inserting data shifts everything from the cursor to the end of the page.
INS/LN	Inserting data shifts everything from the cursor to the end of the line.
SEARCH	BTE is in search mode.
UP	Only uppercase letters appear on screen as you type them.
LO	Upper- and lowercase letters appear on screen as you type them as long as lowercase lockout option is OFF. See "Environment Keyboard Options" menu in Section 4.

□ **Cursor position:** This tells you what column, row, and page the cursor is in.

132-Column Format

Each environment can be configured to display data in 40, 80, or 132 columns per line via the Chars per Line option in the Environment Buffers menu.

Virtual and Real 132-Column Mode

Because most workstations can display only 80 characters per screeen, the 132-column display is virtual. To view the remaining columns in a 132-column mode environment, scroll horizontally using SHIFT-right arrow and SHIFT-left arrow.

B 27 workstations can display a real 132-column mode—all 132 columns can be visible at once with reduced characters. You can "zoom" between real and virtual 132-column mode using CODE-Z.

Window Display

In a split-screen view, one window can display 132 columns while others display 40 or 80 columns. However, if one environment displays a real 132-column format with the requisite reduced characters (B 27 only), the other environments displayed also show text in reduced characters, whether they are in 132-column mode or not.

Cursor Movement and Highlights ·

The cursor is always within the display. If it moves beyond the visible columns, the display automatically scrolls horizontally to keep it in view.

Horizontal scrolling may move the highlight codes off the screen to the left of displayed characters. If this happens, the highlight codes remain in effect.

LEDs

The keyboard LEDs reflect BTE modes and states in relation to the host computer. (See Figure 13-1 for how the BTE states are coordinated.) Your keyboard may have LEDs on the keys and in the upper right corner. They correspond to the LEDs listed beneath them.

Figure 3-2 **K3 LEDs**

/\/ ENQ			
(NOT USED)	(F3)	LOCAL (F8)	RCV (F9)	XMIT (F10)
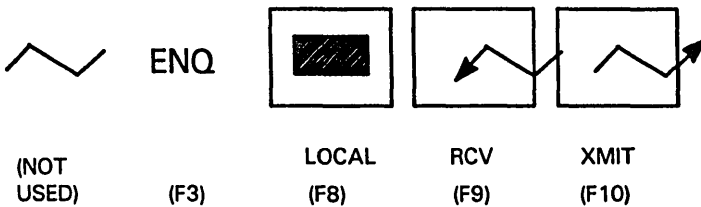
E7948

Note: The LEDs reflect the following functions only when they are lit.

Lit LED	Meaning
F1	Not used.
F2	Forms mode. BTE is in forms mode, and keyboard operators can enter data only in the unprotected fields. Press SHIFT-F2 to take BTE out of forms mode and turn the LED off.
F3	ENQ. The host is trying to send a message but can't because BTE is in local mode. (Press F9 to put BTE in RCV mode.)
F8	LOCAL. BTE is in local mode. To exit BTE, F8 must be lit.
F9	RCV. BTE is ready to receive data from the host.
F10	XMIT. BTE is transmitting information to the host.
OVERTYPE	BTE is in overtype mode. To return to insert mode press OVERTYPE again.
LOCK	Letters appear only in uppercase when typed. To turn off the function, press LOCK again. The LOCK LED will go off. Upper- and lowercase letters will appear when you type (as long as the Lowercase Lockout option is off; it's in the Environment Keyboard Options menu).

Function Keys

Each function key is described by the function control strip that comes with the software. The strip fits into the depression on the keyboard just above the function keys. Following are descriptions of BTE function keys, SHIFT-function keys, and other keys with special BTE functions.

F1 (HOME)

Nonforms: Moves the cursor to column 1, row 1.

Forms: Moves the cursor to the first data entry postion in the first unprotected field: the left side in US fields; the right side in GS fields. If the cursor is in the home position, all unprotected fields are printed.

SHIFT-F1 (CLEAR)

Nonforms: Clears the page; moves the cursor to column 1, row 1.

Forms: When the CLR Function option is set to *CLEARS ALL*, cursor moves home, page is cleared, and goes into nonforms mode.

When CLR Function is *CLEARS UNPROTECTED*, cursor moves to first unprotected field and unprotected fields are cleared.

F2 (FORM ENABLE)

Nonforms: Puts page in forms mode.

Forms: No effect.

SHIFT-F2 (FORM DISABLE)

Nonforms: No effect.

Forms: Takes page out of forms mode (and puts it into nonforms mode).

F3 (PRINT)

Nonforms: Data from home to cursor is sent to printer with a form feed. If cursor is in home position, entire page is printed.

Forms: Data in unprotected fields from home to cursor is sent to the printer with a form feed. Protected data is printed as blanks.

SHIFT-F3 (PRINT ALL)

Nonforms: Data from home to cursor is sent to printer with a form feed. If cursor is in home position, the entire page is printed.

Forms: Data in protected and unprotected fields from home to cursor is printed, with a form feed. If cursor is on or before the data entry position of the first unprotected field, data in all unprotected and protected fields is printed.

F4 (CL EOL)

Nonforms: Clears data from the cursor to the end of the line.

Forms: When cursor is in a US field, clears text from cursor to end of the field.

When the cursor is in the data entry position of a GS field, clears entire field. If the cursor is in a GS field, but not in the data entry position, the key has no effect.

SHIFT-F4 (CL EOP)

Nonforms: Clears data from the cursor to the end of the page.

Forms: Clears data in the unprotected fields from the cursor to the end of the page. When the cursor is in the data entry position of a GS field, clears the entire field and all unprotected fields from the cursor to the end of page.

When the cursor is in a GS field but not in the data entry position, the key has no effect.

When the cursor is in a protected field, the key has no effect.

F5 (LINE INSERT)

Nonforms: Inserts a blank line below the cursor line and discards the last line in page. The cursor moves to the beginning of the inserted line.

Forms: No effect.

SHIFT-F5 (LINE DELETE)

Nonforms: Deletes the line containing the cursor. Moves up remaining lines in page. The cursor moves to the beginning of the line. A blank line is inserted at the end of the page.

Forms: No effect.

F6 (CTRL)

Forms and Nonforms: Sets CTRL mode and begins a control sequence. *CTRL* appears in the environment status line. Also cancels CTRL HOLD mode. To exit CTRL mode, press F6 again. Pressing a key not part of a valid CTRL sequence also exits CTRL mode.

SHIFT-F6 (CTRL HOLD)

Forms and Nonforms: Enters CTRL HOLD mode. BTE remains in CTRL mode after a valid control sequence has ended. However, an invalid control sequence cancels CTRL HOLD mode. Also, pressing CTRL cancels CTRL HOLD mode.

F7 (SPCFY)

Sends cursor location to host in forms and nonforms mode.

Related option: SPCFY Key Sends (in Environment Keyboard Options menu).

□ When the option is *ASCII*, the cursor location is sent as <ESC> " *cr where:*

" = 22 hex

c = cursor column + 31

r = cursor row + 31

□ If the column or row number is greater than 96, c or r is set to 1F hex.

□ When the option is *HEX*, the cursor location is sent as
  <ESC> " *cc rr where*

  " = 22 hex

  cc = cursor column in hex starting from 01

  rr = cursor row in hex starting from 01

□ Set this option to *HEX* when characters/line or
  lines/page are greater than 96.

Related option: SPCFY Key Sends Page Number (in
Environment Keyboard Options menu).

□ When the option is *ON* and the SPCFY Key Sends is set
  to *ASCII*, the cursor location is sent as <ESC> " *c r p where:*

  " = 22 hex

  c = cursor column + 31

  r = cursor row + 31

  p = page number + 31

□ If the column or row number is greater than 96, *c* or *r* is
  set to *1F*.

□ When the option is *ON* and SPCFY Key Sends is *HEX*,
  the cursor location is sent as <ESC> " *cc rr pp where*:

  " = 22 hex

  cc = cursor column in hex starting from 01

  rr = cursor row in hex starting from 01

  pp = page number in hex starting from 01

SHIFT-F7 (SPCFY)

Same as F7.

F8 (LOCAL)

Puts BTE in local mode. Turns on the LOCAL LED; turns
off the ENQ, RCV, and XMIT LEDS. Exits CTRL mode if it
was in CTRL mode when the key was pressed. Clears error
messages on the system status line.

SHIFT-F8 (LOCAL)

Same as F-8.

F9 (RCV)

Puts BTE into RCV mode if it was in local mode. Turns off the LOCAL and ENQ LEDs and turns on the RCV LED. The DCP moves to the cursor position.

SHIFT-F9 (RCV)

Same as F9.

F10 (XMIT)

Note: The scope of any transmit function is the cursor page. See Section 12, "Data Transmission," for more information on the BTE transmit function. GO performs the same function as F10.

When BTE is in local or RCV mode, F10 has several effects:

> DCP moves to the cursor position and the data in the page is transferred into the data comm buffer.
> LOCAL and RCV LEDs are turned off.
> XMIT LED is turned on.

Related option: Line at a Time XMIT (in Environment Datacomm Options menu).

□ When the option is *ON*, data is transmitted one line at a time.

□ When the option is *OFF*, as much as one page at a time can be sent, depending on the cursor position and how other options are set (see Section 12).

□ If the data comm buffer overflows, the data that did not fit into the buffer is lost, BTE enters XMIT mode, and *BUFFER OVERFLOW* appears on the environment status line.

BTE Keyboard Functionality

This subsection describes the functions of the BTE keys in nonforms and forms mode, and how those functions are affected by set-up options. (See Section 4 for more information on each option). Key functions in other modes are described in the sections for those modes. The keys are listed alphabetically. For a detailed discussion of keyboard commands, see Section 10, "Commands: From Keyboard and Data Comm."

Note: A beep may sound if you press a key with no function. Also, the ½, ¼, and ¢ keys generate no display for USA versions.

Arrow Keys

Nonforms/Forms: Moves the cursor in the direction of the arrow. If the cursor moves outside the range of the screen, the screen is scrolled to keep the cursor in view.

SHIFT-Arrow Keys

Scrolls the data in the direction of the arrow until the column or row boundary is displayed. SHIFT-right arrow and SHIFT-left arrow work only when the keyboard environment is in 132-column mode.

BACKSPACE

Nonforms/Forms: Moves the cursor one space left (same as left arrow). If BTE is in insert mode, BACKSPACE deletes the character to the left as well.

SHIFT-BACKSPACE

Same as BACKSPACE.

CLEAR

See SHIFT-F1.

FORM DISABLE

See SHIFT-F2.

CLEAR END OF LINE

See F4.

CLEAR END OF PAGE

See SHIFT-F4.

CODE

Nonforms/Forms: No effect.

SHIFT-CODE

No effect.

DELETE

Nonforms: Deletes character at cursor location and shifts all characters from the cursor to the end of the line left.

Forms

Cursor Position	Key Function
In a protected field	None.
In a US field	Deletes the character at the cursor position and shifts all characters from the cursor to the end of the field to the left.
In a GS field and not in the data entry position	None.
In a GS field and in the data entry position	Deletes the character at the cursor position and shifts all characters in the field to the right.

DELETE LINE

See SHIFT-F5.

FINISH

Exits BTE. Press FINISH and GO.

GO

Same function as F10.

HELP

Displays the first BTE help screen.

SHIFT-HELP

Same as HELP.

HOME

See F1.

LINE INSERT

See F5.

LOCAL

See F8.

LOCK

Nonforms/Forms: Toggles CAPS lock mode and LOCK LED.

MARK

Nonforms: Displays an ETX character, which affects the data comm buffer loading algorithm (see XMIT). (*Related option*: ETX Advance, in the Environment Data Comm Options menu, Section 4.)

Related Option: Line at a Time XMIT (in Environment Datacomm Options menu)

□ When the option is *ON*, the cursor moves to the mobile home column of the current line.

□ When the option is *OFF*, the cursor moves to the mobile home column and row.

Forms

Cursor Position	Key Function
In a protected field	The alarm sounds if enabled.
In a US field	Same as in nonforms.
In a GS field and not in the data entry position	The alarm sounds if enabled.
In a GS field and in the data entry position	Same as in nonforms.

SHIFT-MARK

Same as MARK.

Forms: Sounds the alarm.

NEXT

In nonforms mode, acts as TAB. In forms mode, moves the cursor to the next unprotected field. In search mode, moves the cursor to the next instance of the search character. In search *and* forms mode, begins the search and moves the cursor to the first instance of the search character or the next unprotected field, whichever is first.

NEXT PAGE

Nonforms/Forms: Displays the next page of the keyboard environment. If the cursor is in the last page, the first page is displayed. The status lines change to reflect the status of the new page.

SHIFT-NEXT PAGE

Same as NEXT.

PREV PAGE

Nonforms/Forms: Displays the preceding page of the keyboard environment. If the cursor is in the first page, the last page is displayed. The status lines and LEDs reflect the status of the new page.

SHIFT-PREV PAGE

Same as PREV PAGE.

RCV

See F9.

RETURN

Moves the cursor to the beginning of the line.

Nonforms

Related Option: RET Function (in Environment Keyboard Options menu).

□ If the option is *CR*, the cursor moves to the first column of the same line.

□ If the option is *CR/LF*, the cursor moves to the first column of the next line. If the cursor is on the last line, it moves to the first line.

Related Option: CR Character Display from Keyboard (in Environment Video Options menu).

□ If the option is *ON* and CTRL mode is on, the CR character is not displayed.

□ If the option is *ON* and CTRL mode is off, the CR character is displayed at the cursor position before the cursor is moved.

□ If the option is *OFF*, the CR character is not displayed.

Forms

Related Option: CR Character Display from Keyboard (in Environment Video Options menu).

Option	CTRL Mode	Cursor Position	CR Displayed
ON	ON	Irrelevant	NO
ON	OFF	Protected field	NO
ON	OFF	US field	YES
ON	OFF	GS field, not data entry position	NO
ON	OFF	GS field, in data entry position	YES

SCROLL DOWN

Moves the bottom line down off the screen and shifts the remaining lines down. The top line is filled with the previous line from the display store. When the first line in the display store is showing at the top of the screen, SCROLL DOWN has no effect.

If the cursor moves to another page as a result of the command, the status lines change to reflect the status of the new page.

SHIFT-SCROLL DOWN

Shifts down data on the screen 10 lines at a time.

SCROLL UP

Moves the top line up off the screen and shifts the
remaining lines up. The bottom line is filled with the next
line from the display store. When the last line in the
display store is showing at the bottom of the screen,
SCROLL UP has no effect.

If the cursor moves to another page as a result of the
command, the status lines change to reflect the status of
the new page.

SHIFT-SCROLL UP

Shifts up data on the screen 10 lines at a time.

SHIFT

No function.

SPCFY

See F7.

TAB

Nonforms: Tabs the cursor right to the next tab stop if
tabs are set. If no tabs are set, it moves the cursor home.

Related Option: HT Displayed on TAB FUNCTION from
Keyboard (in Environment Video Options menu)

If the option is *ON*, an HT character is displayed at the
cursor position before the cursor moves to the next tab
stop or home.

If the option is *OFF*, an HT character is not displayed.

Forms

Related Option: HT Displayed on TAB FUNCTION from
Keyboard (in Environment Video Options menu)

Option Status	HT Character
ON and the cursor is in a US field	Displayed at the cursor position and the cursor moves to the first data entry position of the next field. If the next field is a GS field, another HT character is written at the left side of this field and the cursor is moved right to the data entry position.
ON and the cursor is in a GS field	Not displayed. If the next field is a GS field, another HT character is written at the left side of this field and the cursor is moved right to the data entry position.
OFF	Cursor moves to the data entry position of the next unprotected field.

SHIFT-TAB

Nonforms: The cursor moves left to the previous tab if
tabs are set. If no tabs are set, the cursor moves home. If
the cursor is at the first tab stop in the page, it moves to
the last tab stop.

Forms: The cursor moves left to the first data entry
position of the previous unprotected field. If the cursor is
in the first unprotected field in the page, it moves to the
last unprotected field.

XMIT

See F10 and Section 12.

Configuring BTE

To configure BTE, you enter set-up mode and change the values of the options that appear in the 10 set-up menus.

The first part of this section contains 10 worksheets representing 10 set-up menus. The worksheets are followed by explanations of the options that appear in each menu. The second part of this section explains basic configuration.

Menu Worksheets

The worksheets that follow represent each BTE set-up menu with options and default values. Refer to them as you read the descriptions of the menu options.

Each environment menu worksheet has a *1* beside the title. This indicates that configuration changes in that menu affect Environment 1. A *2* or *3* beside the title indicates that the changes affect environment 2 or 3. System menus do not have numbers; changes to a system menu affect all environments. See "Configuring Different Environments" under "Configuration Tasks," later in this section.

Security Levels

The worksheets reflect Level I security. If your BTE menus do not display all the options on the worksheets, you are probably working at Level II or III security and some of the options have been restricted.

You need a password to enter Levels I and II. The examples in this section give the default passwords. Section 6 discusses security and passwords in detail.

A Note about Partition and Buffer Sizes

Partition size refers to the size of an environment. Buffer
size refers to the various buffers each environment has.
Consequently, the sum of an environment's buffers must
be equal to or smaller than the environment's partition
size. The relevant menus are the System Partitions and
International menu—where you allot environment
partitions, and the Environment Buffers menu (1, 2, or
3)—where you allot buffer sizes for each environment.

When you change partition sizes, all data in each
environment is lost on reconfiguration. When you change
buffer sizes, all data in the environment whose buffers
you changed is lost on reconfiguration.

Figure 4-1   **How BTE Menus Are Arranged**

E7986
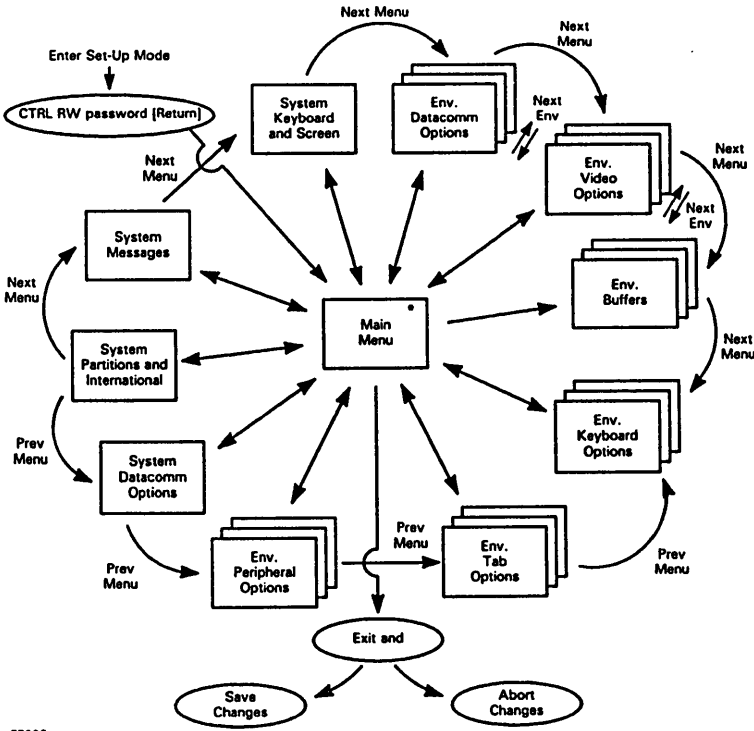
Figure 4-2   Main Set-Up Menu

```
                          MAIN SET-UP MENU                        All options
                                                                 are command
                                                                 options unless
     ENVIRONMENT MENUS                                           marked
                                                                  otherwise:
         DATACOMM OPTIONS           VIDEO OPTIONS                (ch) choice
  ·      BUFFERS                     KEYBOARD OPTIONS

         TAB OPTIONS                 PERIPHERAL OPTIONS

     SYSTEM MENUS

         DATACOMM OPTIONS           PARTITIONS AND INTERNATIONAL

         MESSAGES                   KEYBOARD AND SCREEN

     Access Mode: (ch) NORMAL




     SAVE ONE ENV TO FILE   LOAD ONE ENV FROM FILE   LOAD ONE DEFAULT ENV

     EXIT AND RECONFIGURE ONE ENV   EXIT AND ABORT ALL SET-UP CHANGES
```

Using the Worksheets

Record the changes you want to make to the set-up
options on the worksheets, and save them for future
reference. These are the steps you'll follow:

	Worksheet	**Task**
1	Main menu	Highlight the menu titles that contain options that you've changed or want to change.
2	Each option menu	Highlight the options you have changed or will change, cross out the default value, and mark in the new value. Differentiate among options you've changed in each of the different environments by putting (*1*), (*2*), or (*3*) beside each value.

The different option fields (choice, text, and command) are
explained under "Configuration Tasks" later in the section.

Main Set-Up Menu

Main Set-Up Menu is the main directory. All BTE option
menus are listed here in order, reading from left to right.

Environment Menus

Environment Menus is a heading, not an option. The items
listed under it are environment menu titles. A separate
menu exists for each enabled environment. Each
environment is configured independently; the numbers
that appear beside menu headings indicate the
environment.

System Menus

System Menus is also a heading. The items listed under it
are system menu titles. These menus have values that
affect all enabled environments.

Configuration Commands

Two lines of commands at the bottom of the menu are
configuration commands. After you configure the option
menus, you must return here to choose how you want to
save your changes.

Note: In the following commands, the *ONE* changes to *ALL* if the changes
you made affect more than one environment.

□ **Save One Env To File**   Writes to the file any changes
   you've made in the menus. This makes it a permanent
   change. *Saving . . . Done* appears on your screen for
   each environment that is saved.

□ **Load One Env From File**   Loads stored configuration
   values from the BTE configuration file. These are the
   values you wrote to the file most recently:
   Loading . . . Done appears on your screen for each
   environment that is loaded.

□ **Load One Default Env**   Loads default values for all
environments (*ONE* in message changes to *ALL*) if you
have done one of the following:

Entered a system menu

Entered security mode (chosen *Security* for the Access
Mode choice option)

Entered the menu of another environment

Loading . . . Done appears on your screen for each
environment that is loaded.

□ **Exit and Reconfigure One Env**   Exits set-up mode and
rewrites the changes you've just made in the option
menus or in security.

□ **Exit And Abort All Set-Up Changes**   Exits set-up mode
and discards all changes you just made in all the option
menus. (Security changes are not aborted.)

Figure 4-3   Environment Datacomm Options Menu

```
┌──────────────────────────────────────────────────────────────┐
│              Environment Datacomm Options 1                    │ All options
│                                                                │ are choice
│   Address: (t)        0   0        VT Page Advance:     OFF    │ options unless
│   DC1 Function:    STAY IN RCV     SO/SI XLT           OFF     │ marked
│   DC2 Function:    TOGGLE FORMS    SO/SI XTN           OFF     │ otherwise:
│   CR Interpretation:   CR/LF       SOH Clears Screen:  OFF     │ (c) command
│   LF Interpretation    LF          SOH Exits Forms:    ON      │    (t) text
│   RCV Mode Hold:       ON          ETX Advance:        OFF     │
│   FF Clears Tabs:      OFF         Line At A Time Xmit: OFF    │
│   Xmit Printer Status  OFF         Form Xmit To Cursor: ON     │
│   Node Name:                                                   │
│                                                                │
│                                                                │
│   MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES(c) │
└──────────────────────────────────────────────────────────────┘
```

Figure 4-4   Environment Video Options Menu

```
                    Environment Video Options 1

  Alternate US Char:(t)    5B

  Alternate RS Char:(t)    5D

  Lines Per Screen:        24

  Environment ID:(t)       ENVMNT 1

  Form Delimiters Visible: YES

  Visible Cursor:          YES

  Datacomm ETX Display:  OFF          Auto Form Field Advance:  ON


  CR CHARACTER Display
    From Datacomm:    OFF             From keyboard:        OFF


  HT Displayed on TAB Function
    From Datacomm:    OFF             From Keyboard:        OFF



  MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES(c)
```

All options
are choice
options unless
marked
otherwise:
(c) command
(t) text

Figure 4-5   Environment Buffers Menu

```
                    Environment Buffers 1

  BUFFERS

     Total Environment Memory: (au)  8400

     Total Remaining Memory: (au)    196

     Display Store Size: (au)        3840

     Display Store Overhead: (au)    12


     Keyboard Queue:                 256

     Datacomm:                       2048

     Key Programs:                   256

     Printer Buffer:                 2048


  DISPLAY

     Lines Per Page:                 24

     Chars Per Line: (ch)            80

     Number of Pages:                2

  MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES (c)
```

All options
are text
options unless
marked
otherwise:
(ch) choice
(au) automatically
calculated

Figure 4-6   Environment Keyboard Options Menu

```
                    Environment Keyboard Options 1

    CLR Function:                  CLEARS UNPROTECTED            All options
                                                                are choice
    Cursor Wrap Around:            ON                           options unless
                                                                marked
    RET Function:                  CR/LF                        otherwise:

    Column End Alarm: (t)               80                      (c) command
                                                                (t) text
    Row End Alarm: (t)                  24 ·

    Lower Case Lockout:            OFF

    Keyboard Lockout:              OFF

    SPCFY Key Sends Page Number:   OFF

    SPCFY Key Sends:               ASCII




    MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(s)  RESTORE ENTRIES(c)
```

Figure 4-7   Environment Tab Options Menu

```
                    Environment Tab Options 1
                                                                All options
                                                                are choice
                                                                options unless
                                                                marked
        1       2       3       4       5       6       7       8   otherwise:
    123456789012345678901234567890123456789012345678901234567890123456789 0   (c) command
    ⌒     ⌒     ⌒     ⌒     ⌒     ⌒     ⌒     ⌒
        9      10      11      12      13
    123456789012345678901234567890123456789012
    ⌒     ⌒     ⌒     ⌒     ⌒     ⌒     ⌒


    Tabs:                     FIXED
    Retain Tabs on Configuration:  OFF
    Clear Variable Tabs (c)




    MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES (c)
```

Figure 4-8   Environment Peripheral Options Menu

```
                    Environment Peripheral Options I                        All options
                                                                            are choice
    PRINTER                                                                  options unless
    Extend Line:              OFF                                            marked
                                                                            otherwise:
    Translate Control Char:   YES                                            (t) text
    Control Code Mapping: (t)                                                (c) command

            00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
            00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
            10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
            10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F


    Prompt for Printer's Name:   NO

    Close Printer After Print:   OFF

    Printer Selection:           SPECIFIED BELOW

    Name: (t)  BTEPRINTERFILE



    MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES(c)
```

Figure 4-9   System Datacomm Options Menu

```
                    System Datacomm Options
                                                                    All options
    Fast Select Enable:    ON                                        are choice
                                                                    options unless
    Beep on NAK:           ON                                        marked
                                                                    otherwise:
                                                                    (c) command












    MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES(c)
```

Figure 4-10   System Partitions and International Menu

```
┌─────────────────────────────────────────────────────────────┐
│              System Partitions and International             │   All options
│                                                              │   are text
│   WARNING: Changes to this menu will reset all environments  │   options unless
│            upon exit                                         │   marked
│                                                              │   otherwise:
│   INTERNATIONAL                                              │   (c) command
│                                                              │   (au) automatically
│     Language Version:              1                         │       calculated
│                                                              │
│   SYSTEM BUFFERS (all sizes in characters)                   │
│                                                              │
│     Total Available Memory:(au)    35000                     │
│                                                              │
│     Total Remaining Memory:(au)  26600                       │
│                                                              │
│     Environment 1 (Address 1):      8400                     │
│                                                              │
│     Environment 2 (Address 2):         0                     │
│                                                              │
│     Environment 3 (Address 3):         0                     │
│                                                              │
│                                                              │
│                                                              │
│     MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  RESTORE ENTRIES(c) │
└─────────────────────────────────────────────────────────────┘
```

Figure 4-11   System Messages Menu

```
┌─────────────────────────────────────────────────────────────┐
│                      System Messages                         │
│   Column Indicator:      COL       Row Indicator:       ROW  │  All options
│                                                              │  are text
│   Uppercase Indicator:   UP        Lowercase Indicator:  LO  │  options unless
│                                                              │  marked
│   Insert Page Indicator: INS/PG    Insert Line Indicator: INS/LN │  otherwise:
│                                                              │  (c) command
│   Page Indicator:        PAGE      Receive Mode Indicator: RCV │
│                                                              │
│   Control Mode Indicator: CTRL     Forms Mode Indicator:  FORM │
│                                                              │
│   ENQ Mode Indicator:    ENQ       Password (Level II):  ( MODE ) │
│                                                              │
│   Search Mode Indicator: SEARCH    Password (Level I):   ( LEV1 ) │
│                                                              │
│                                                              │
│   Buffer Overflow Msg:   BUFFER OVERFLOW                     │
│                                                              │
│   Printer Error Msg:     PRINTER ERROR                       │
│                                                              │
│   Receive Error Msg:     RECEIVE ERROR                       │
│                                                              │
│   Keystroke Lost Msg:    KEYSTROKE LOST                      │
│                                                              │
│   Receiving Page Msg:    RECEIVING - P                       │
│                                                              │
│     MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  RESTORE ENTRIES(c) │
└─────────────────────────────────────────────────────────────┘
```

Figure 4-12   System Keyboard and Screen Menu

```
                    System Keyboard and Screen
                                                            All options
    KEYBOARD                                                are choice
                                                            options unless
                                                            marked
      Alarm Level:      ON                                  otherwise:
                                                            (c) command
    SCREEN

      Video:            NORMAL

      Byte Config Available:  YES













    MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  RESTORE ENTRIES(c)
```

Environment Datacomm Options

Address

Type any two ASCII characters to specify the data comm
address assigned by the system administrator. You cannot
enter values 00 through 1F hex (control characters). If
multiple environments have the same address, error code
10 appears.

DC1 Function

STAY IN RCV   Keeps BTE in RCV mode after receiving a
message from the host.

LINE CLR

1 Clears from the pointer to the end of the pointer line in
   a nonforms page
2 Clears field from pointer to end of field in US field
3 Clears entire field in GS field when initiated from keyboard

DC2 Function

TOGGLE FORMS   Puts a nonforms page into forms mode
or puts a forms page into nonforms mode.

ADVANCE DCP   Moves the DCP one position to the right.
As the DCP moves, it wraps around lines—moving from
the last position in one line to the first position in the next
line—and jumps from the last position of the page to the
first position of the page.

)

CR Interpretation

CR/LF Moves the DCP moves to the first position of the
next line. CR (carriage return) moves the DCP to the first
position of the line it's in; LF (line feed) moves the DCP
down to the next line. If the DCP is on the bottom line,
last column, the DCP moves to the home position.

CR Moves the DCP to the first column of the line it's in.

LF Interpretation

LF Moves the DCP down to the next line in the same
column—the line feed (LF) function.

CR/LF Identical to CR/LF above (see CR Interpretation).

RCV Mode Hold

OFF Exits RCV mode and enters local mode after it
receives a message from the host.

ON Keeps BTE in RCV mode after it receives a message
from the host. If you receive messages frequently, this
eliminates the need to press RCV to receive each one.

Xmit Printer Status

OFF Does not transmit printer errors to the host.

ON Transmits a printer status message to the host when
a printer error occurs.

FF Clears Tabs

OFF Moves the cursor to the home postion and clears the
page but does not clear variable tabs.

ON Clears variable tabs, moves the cursor to the home
position, and clears the page.

Node Name

Type the node name that specifies the B-NET node. *Node
Name* must include curly braces (a B-NET restriction), and
its maximum length is 12 characters, including the braces.
If the option is left blank, local BMULTI is accessed.

VT Page Advance

OFF   Vertical tabs cannot be set.

ON   Sets vertical tabs if BTE has been configured for 32
lines per page. The vertical tabs are set on lines 1, 9, 17,
and 25. CTRL right arrow moves the cursor down to the
next vertical tab setting. CTRL left arrow moves the
cursor up.

SO/SI XLT

SO/SI XLT stands for SO/SI Translation.

Affects transmission of data. See "Extended Characters" in
Section 10 for more information.

OFF   When the SO/SI XTN option is *OFF*, sends the
reverse video attribute as an SO character and the
underline attribute as an SI character. When the SO/SI
XTN option is *ON*, sends the reverse video attribute as
<ESC> ' . (escape apostrophe period) and the underline
attribute as <ESC>' / (escape apostrophe slash).

ON   Same as when SO/SI XTN option is *ON*.

SO/SI XTN

SO/SI XTN stands for SO/SI Extension.

See Section 10, subsection "Extended Characters" for more
information.

OFF   Does not switch between extended and standard
character sets when BTE receives or transmits an SO or SI.

ON   Gives the control codes SO and SI the same functions as <ESC> SO and <ESC> SI.

SOH Clears Screen

OFF   Displays the current screen while receiving a message from the host displayed at the DCP position.

ON   Clears the screen before receiving a message from the host.

SOH Exits Forms

ON   Takes the DCP page out of forms mode when BTE receives an SOH character. No effect in nonforms mode.

OFF   Keeps the DCP page in forms mode when BTE receives an SOH character. No effect in nonforms mode.

ETX Advance

OFF   Has no effect.

ON   Moves the DCP right one space.

Line At A Time Xmit

OFF   See Section 12 for a description of what data is sent to the host under what conditions.

ON   Aligns the DCP to the cursor and loads the data on the cursor line into the data comm buffer. See Section 12.

Form Xmit to Cursor

ON   Transmits the data in unprotected fields from the home position to the cursor position. The page must be in forms mode. No effect in nonforms mode.

OFF   Transmits data from all unprotected fields on the page. The page must be in forms mode. No effect in nonforms mode.

Environment Video Options

Alternate US Character

Type any value from 20 to FF hex to define the alternate
character for the US character. The US character creates a
left-justified unprotected field in a forms page. Entering
forms mode translates the alternate character into the US
character that the host can recognize.

Alternate RS Character

Type any value from 20 to FF hex to define the alternate
character for the RS character. The RS character ends any
field in a forms page. Entering forms mode translates the
alternate character into the RS character that the host can
recognize.

Lines per Screen

Lines per Screen is a choice option. RETURN toggles the
choices between 12 and 24. This determines how many
lines appear on the screen at one time. If you choose 12
lines per screen, only half the screen is used to display
that environment in full-screen view.

Environment ID

Type any eight ASCII characters to uniquely identify each
of the three BTE environments.

Form Delimiters Visible

YES   Displays forms field characters.

NO   Does not display forms field characters.

Visible Cursor

YES Displays the keyboard cursor.

NO Does not display the keyboard cursor.

Datacomm ETX Display

OFF Does not store ETX at DCP location.

ON Stores ETX at DCP location if the DCP is in a nonforms page.

Auto Form Field Advance

ON Moves cursor automatically from the US field to the next unprotected field in a forms page when the current unprotected field has been filled.

OFF Does not move cursor to the next unprotected field when the current field has been filled. NEXT moves the cursor to the next unprotected field.

CR Character Display from Datacomm

OFF Does not display CR character at the DCP position.

ON Displays CR character at the DCP position if the DCP is not on a forms field character.

CR Character Display from Keyboard

OFF Does not display CR character at the cursor position when RETURN is pressed.

ON Displays CR character at the cursor position if the cursor is not on a forms field character when RETURN is pressed.

HT Displayed on TAB Function from Datacomm

OFF   Does not display TAB character when *TAB* is
received from the host.

ON   Displays TAB character wherever *TAB* is received
from the host.

HT Displayed on TAB Function from Keyboard

OFF   Does not display TAB character when *TAB* is
entered from the keyboard.

ON   Displays TAB character wherever *TAB* is entered
from the keyboard.

Environment Buffers

Note: Any change to buffer sizes in this menu resets all buffers for the
affected environment upon reconfiguration (the number beside the title tells you
which one is affected). All data in that environment is lost.

Total Environment Memory

You cannot enter the Total Environment Memory field; the
figure it shows is the amount you entered in the System
Partitions and International menu beside the
corresponding environment. Whatever amount you entered
there influences all calculations made here.

Total Remaining Memory

You cannot enter the Total Remaining Memory field. It is
calculated automatically and is recalculated each time you
reconfigure the options in the menu.

Display Store Size

You cannot enter the Display Store Size field. It is calculated automatically. It is the product of(Lines per page) * (columns per line) * (number of pages). The minimum amount it can be is 1920 bytes.

Display Store Overhead

You cannot enter the Display Store Overhead field. It is calculated automatically. It is the product of (number of pages * 6).

Keyboard Queue

Type a decimal number to represent the number of bytes you want for the keyboard queue. It determines how many keystrokes are stored during fast typing.

Note: This option is in effect only when the Keyboard Lockout option, in the Environment Keyboard Options menu, is *ON*. When it is, the keyboard queue stores keystrokes during receiving and transmitting data to the host. ESC— from the host processes the keys in the queue. From the keyboard, LOCAL clears the queue.

Datacomm

Type a decimal number. This number determines how much data (sent to or received from the host) can be buffered before processing.

Key Programs

Type a decimal number. Any entry of 2048 bytes (2K) or less does not affect the Total Remaining Memory sum. Any entry over 2048 bytes does. Try it by entering *2048*, then *0005*: The Total Remaining Memory won't change. Now type *2049* and notice that the Total Remaining Memory does change. The next subsection explains why. (See also Section 7, "Key Programming.")

There are two key programs buffers. Key Programs Buffer
I is 2K large and is on the scratchpad; Key Programs
Buffer II is larger than 2K. Whenever you reconfigure
your key programs buffer size to hold more than 2K, BTE
switches over to Key Programs Buffer II without letting
you know and decrements the Total Remaining Memory
Size; you lose access to all programs in Key Programs
Buffer I for the time.

Key Programs Buffer I can write key programs
permanently to disk. Key Programs Buffer II cannot; the
key programs in Key Programs Buffer II are lost when you
exit BTE.

Information is not transferred between the key programs
buffers. If you are in Key Programs Buffer I, have
programmed the A, B, and C keys, and decide you want
more room, you can rewrite your key programs buffer size
to be larger than 2K. When you do this BTE automatically
switches you to Key Programs Buffer II and you lose
access to the reprogrammed A, B, and C keys in Key
Programs Buffer I. When you write the key programs
buffer size back down to 2K, you recover the key
programs that reside in Key Programs Buffer I. However,
if Key Programs Buffer I contains key programs occupying
2K of memory and you rewrite the key programs buffer
down to 1K, you will lose half the key programs.

Printer Buffer

Type a decimal number. This figure determines how much
data can be sent to the printer at one time.

Lines per Page

Type the number of lines you want BTE to allot to each
page in an environment. Valid choices range from 1 to 256.

Chars per Line

The choices are toggled between 40, 80, and 132. In
132-column mode, you can scroll the page horizontally to
view all 132 columns using the SHIFT-Right Arrow and
SHIFT-Left Arrow keys.

Number of Pages

Type a decimal number, making sure you have enough
memory for your choice. This figure determines the
number of pages the Display Store will be configured to
represent. The maximum number of pages is 24.

Environment Keyboard Options

CLR Function

CLEARS UNPROTECTED Clears unprotected fields in a
forms page when CL PAGE (SHIFT-F4) is pressed.

CLEARS ALL Exits a forms page from forms mode and
clears the page when CL PAGE or CL FORMS (SHIFT-F4)
is pressed.

Cursor Wrap Around

ON Moves the cursor from last column of last line in the
page to the home position of the same page as data is
entered from the keyboard. Page may scroll in order to
keep the cursor in view.

OFF Keeps the cursor on the last column of the last line
in the page and overwrites the last character as data is
entered.

RET Function

CR/LF   Moves the cursor to the first position of the next line. CR (carriage return) moves the cursor to the first position of the line it's in; LF (line feed) moves the cursor down to the next line. If the cursor is on the bottom line, last column, the cursor moves to the home position.

CR   Moves the cursor moves to the first column of the line it's in.

Column End Alarm

Specifies the last column the cursor can move to without causing a beep. Type a decimal number from 1 to 133 (entering 133 disables column end alarm). The operation of this feature is dependent on the row alarm end setting.

Row End Alarm

Specifies on which row the cursor causes a beep. Type a decimal number from 1 to 256. The operation of this feature is dependent on the column end alarm setting.

Lower Case Lockout

OFF   Displays upper- and lowercase characters as they are typed, as long as the LOCK LED is not lit.

ON   Displays only uppercase characters as they are typed.

Keyboard Lockout

OFF   Disables a keyboard queue. All keystrokes during keyboard lockouts are lost.

ON   Enables a keyboard queue. During keyboard lockouts, all keystrokes are stored in the keyboard queue buffer (see Environment Buffers menu). <ESC> ▬ from the host causes BTE to process the stored keystrokes. LOCAL clears the keyboard queue.

1192358

SPCFY Key Sends Page Number

OFF Specifies the cursor position by row and column
when SPCFY (F7) is pressed.

ON Specifies the cursor position by row, column, and
page when SPCFY (F7) is pressed.

SPCFY Key Sends

ASCII Sends the cursor position to the host in ASCII.

HEX Sends the cursor positionx to the host in hex.

For detailed information on SPCFY (F7), see Section 3.

Environment TAB Options

Tab Ruler

To use the tab ruler:

1 Use the arrow keys to select the TABS option.
2 Press RETURN until the option shows *VARIABLE*.
3 Move the cursor to the top ruler using the arrow keys.
  This ruler sets tabs in columns 1–80 (depending on
  screen configuration).
4 Move the cursor along the ruler using SPACEBAR.
5 Type an **x** in each column where you want to set a tab.
  This is echoed on the screen. If you pass the column
  you want, use BACKSPACE to return. You can overtype
  previously entered tabs or press DELETE to delete tabs
  and spaces between tabs.
6 When you reach the end of the ruler, press RETURN.
  This locks in your tab settings.
7 Repeat steps 1 through 6 for the lower ruler to set tabs
  in columns 81-132.
8 To save your changes, the in Tabs on Configuration
  option must be set to *ON*.

Notes

When the TABS option is set to *FIXED*:

1 Any tab stops you enter on the tab ruler are ignored

2 The *Clear Variable Tabs* command is disabled

To clear fixed tab settings, set the TABS option to *VARIABLE*; this automatically clears all tabs.

Options

Tabs

Specifies the type of horizontal tab stops to be used.

FIXED   Sets tabs automatically at each eighth column.

VARIABLE   Sets tabs in any column. See "Tab Ruler."

Retain Tabs On Configuration

OFF   Does not keep variable tab stops when BTE is reconfigured.

ON   Keeps variable tab stops when BTE is reconfigured.

Clear Variable Tabs

This is a command option—When you select this command and press RETURN, all tab stops entered into both rows of the tab ruler are cleared.

Environment Peripheral Options

Extend Line

OFF   Does not send a carriage return at the end of every line.

ON   Sends a carriage return at the end of every line.

Translate Control Char

YES Ignores the "Control Code Mapping" option and prints control codes as spaces.

NO Does not map control codes to spaces. The Control Code Mapping option becomes operational.

Control Code Mapping

Control Code Mapping functions when the Translate CTRL Char option is set to *NO*.

Control Code Mapping allows you to map BTE control codes to printable characters. However, the BTE control character must be displayed on the screen for the mapping to work. (BTE options such as *HT Displayed on TAB Function* and *CR Character Display From Datacomm* are useful for this function.)

For example, to print forms delimiters as printable characters, map hex code 1D (the GS character) to hex code 5B. The printer will then print "[" for the unprintable GS delimiter.

Note: Do not map any control characters on the screen to any code that might affect the functionality of the printer in use. Refer to your printer manual for control code interpretation.

Rows one and three represent BTE control codes. These values cannot be ovewritten. The ASCII/EBCDIC Translate Chart in Appendix B gives the BTE functions for each control code (the codes are in ASCII).

In rows two and four, overwrite the codes to specify the alternate code. The printer interprets the alternate code instead of the BTE code just above it. Refer to your printer manual for the printer control code interpretations.

Prompt for Printer's Name

NO Does not display the printer menu when the print command is invoked from the keyboard. Printing occurs as it has been configured from this menu.

YES Displays the printer menu is displayed whenever the print command is invoked from the keyboard. (CTRL SPACEBAR F CTRL also invokes the printer menu.) The menu displays the following three options, which you can then modify.

Close Printer After Print

Affects only direct printing.

OFF Keeps the print byte stream open after a print command is issued. To print you must exit BTE.

ON Closes the printer byte stream after a print command issued. You can print right away, without exiting BTE.

Printer Selection

Serial A, Serial B, Parallel, and *Specified Below* are the choices. These names specify either a disk file or printer ports through which the BTE workstation is cabled to the printer. *Serial A, Serial B,* and *Parallel* refer to direct printing. *Specified Below* refers to the name of the printer disk file that you specify using the next option.

Name

Specify a printer file name or the device port you want to use to print. The Printer Selection option must be toggled to *SPECIFIED BELOW* in order for BTE to use the name you specify. The default is BTEPrinterFile. To use spooled printing, make sure the BTOS Queue Manager and Spooler are installed.

System DataComm Options

Fast Select Enable

ON Accepts fast select messages in any mode (not just receive ready mode).

OFF Accepts fast select messages only when it is in receive ready mode.

Beep on NAK

ON Enables a beep when BTE sends a negative acknowledgment of a select received from the host.

OFF Disables a beep when BTE sends a negative acknowledgment of a select received from the host.

System Partitions and International

Changes made to this menu reset the environment buffers menus when you exit. Check the buffers menu of each enabled environment to be sure enough memory has been allotted for each.

Any change to partition sizes resets all buffers for all enabled environments upon reconfiguration. Data in all environments is lost.

Setting an environment's partition to 0 automatically disables it.

You cannot disable Environment 1.

Note: If the current configuration's partition size is different from the default (8400), selecting the *Load One Default Env* command will change the *One* in the Main Menu commands to *All*. Similarly, if the current configuration's partition size is different from what was last saved in the file, selecting the *Load One Env From File* command will change the *One* in the Main Menu commands to *All*. In both cases, all enabled environments will be reconfigured and the data in those environments will also be lost!

Language Version

The default country font is loaded when you load the
software. Type the number of the country code you
entered when you intalled the software (Section 2). The
two-digit code specifies which character set will be used.
To change the country code, reinstall BTE and specify the
new code at that time.

Total Available Memory

The total available memory sum is calculated
automatically. It reflects the total available memory,
35,000 bytes.

Total Remaining Memory

The total remaining memory sum is calculated
automatically. It reflects the memory you can still assign
to an environment. It is the remainder of the total system
memory minus the number of bytes already allocated to all
environment and system buffers.

Environment 1

Environment 1 is the first address assigned in BTE. Any
decimal number between 8400 and 35,000 is valid, if
enough memory is available. You cannot assign a 0 value
to this address. 8400, the default value, allots a single
environment two pages with 24 lines and 80 characters
per line. To move the cursor over in the field press the
SPACEBAR. Lock in your entry by pressing RETURN.

Environment 2

Environment 2 is the second address. The entry must be a
decimal value and either a zero, which disables the
environment, or between 8400 and 26,600, if enough
memory is available (at least 8400 must be reserved for
Environment 1.) To move the cursor over in the field press
the SPACEBAR. Lock in your entry by pressing RETURN.

Environment 3

Environment 3 is the third address. The entry must be in decimal and either a zero, which disables the environment, or between 8400 and 26,600, if enough memory is available (at least 8400 must be reserved for Environment 1.) To move the cursor over in the field press the spacebar. Lock in your entry by pressing RETURN.

System Messages

Most messages are configurable.

The passwords are not displayed on the menu.

To load the default system messages, *Load Default Env* at the bottom of the Main Set-Up menu must indicate *ALL* environments when you execute the command.

System Keyboard and Screen

Alarm Level

ON Enables a beep.

OFF Disables a beep.

Byte Config Available

The byte configuration option has a minimum security of Level II. The default is Level I. See "The R H Command" in Appendix D.

YES Enables configuration using the byte configuration method. See Appendix D.

NO Disables configuration using the byte configuration method.

Video

NORMAL Regular screen display.

HALF-BRIGHT Dim character display.

Configuring BTE

The task of implementing the changes you have made on the worksheets includes:

□ Entering set-up mode

□ Selecting menus, options, and commands

□ Configuring three types of option values: text, choice,and command

□ Configuring different environments

□ Saving configuration changes

Figure 4-13   **Entering Set-Up Mode**

Step	Action	Result
1	Press CTRL.	*CTRL* appears on status line.
2	Type **RW.**	The password prompt appears. To enter on Level III, go to step 4.
3	Type the password (**LEV1** for Level I, **MODE** for Level II) Passwords must be typed exactly as they've been configured in the System Messages menu.	It appears as asterisks in the highlighted box.
4	Press RETURN.	The Main Set-Up menu appears.
5	Go to the next task, "Selecting Menus, Options and Commands" (Figure 4-14)	

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Figure 4-14   **Selecting Menus, Options, and Commands**

Step	Action	Result
1	Enter set-up mode (follow instructions in Figure 4-13).	The Main Set-Up menu appears on the screen.
2	Use the arrow keys to move the cursor to *Video Options*.	*Video Options* is highlighted.
3	Press RETURN.	The Video Options menu appears on the screen.

You select options and commands in the same way you select menus.

Configuring Three Types of Option Values: Choice, Text, Command

Figure 4-15   Choice Options

Step	Action	Result
1	Enter the Video Options menu (follow the instructions in Figure 4-14).	The Video Options menu appears.
2	Using the arrow keys, select *Visible Cursor*.	*Visible Cursor* is highlighted.
3	Press RETURN several times.	*NO* and *YES* appear alternately. These are the valid choices for this choice option.
4	Press RETURN until the value you want appears. Press the arrow keys to move the cursor out of the field.	The value displayed becomes operational when you save the changes and exit set-up mode.

Figure 4-16   **Text Options**

Step	Action	Result
1	Enter the Video Options menu.	The Video Options menu appears.
2	Using the arrow keys, select *Alternate US Character.*	*Alternate US Character* is highlighted.
3	Type the ASCII code of the character you want it to have (these characters are discussed in Section 8, "Forms Mode.")	The new value overwrites the original value. This is a text option.
4	Press an arrow key.	The original value reappears as the cursor moves out of the field.
5	Repeat step 3 and press RETURN.	Your text value is now locked in.
6	Press the arrow keys.	You exit the field with your text intact. The value displayed becomes operational when you save the changes and exit set-up mode.

Figure 4-17 Command Options

Step	Action	Result
1	Enter the Video Options menu.	The Video Options menu appears.
2	Using the arrow keys, select *NEXT MENU*.	*NEXT MENU* is highlighted.
3	Press RETURN.	The next menu in the cycle, The Environment Buffers menu, appears on the screen. *NEXT MENU* is a command option. After you select it and press RETURN, it executes a set-up mode function.

Figure 4-18   **Configuring Different Environments**

Step	Action	Result
1	Enter the Video Options menu.	The Video Options menu appears.
2	Notice the number beside the menu title.	It indicates what environment you are configuring options for.
3	Select *NEXT ENV* at the bottom of the menu and press RETURN.	The environment number beside the menu title changes, and all menu options return to default values. (*NEXT ENV* is a command option.)
4	Change the option values to what you want.	You have configured options for a second environment.
5	Repeat steps 3 and 4.	You have configured options for the third BTE environment.

Note: The NEXT ENV command does not change the keyboard environment. When you exit set-up mode, you return to the keyboard environment you were in before you entered set-up mode.

Figure 4-19   Saving Configuration Changes

Step	Action	Result
1	Enter the Main Set-Up menu.	The Main Set-Up menu appears.
2	Notice the six options at the bottom.	These are command options.
3	Select *LOAD ONE DEFAULT ENV* and press RETURN.	The default values for the options in the current environment are restored when *ONE* appears. Default values for options in all environments are restored when *ALL* appears.

The save and reconfiguration commands are explained in detail on the page opposite the Main Set-Up menu worksheet.

Multiple Environments

The BTE screen can display up to three environments
concurrently. To display multiple environments, two or
three BTE environments must be enabled and correctly
configured. The two set-up menus involved in the
procedure are the System Partitions and International
menu and the Environment Buffers menu. This section
consists of an exercise in enabling and configuring three
environments.

Note: BTE must already be in set-up mode before you begin (see "Entering
Set-Up Mode" in Section 4).

Step 1

Make a photocopy of Figure 5-1 and return the original to
the manual. You may need the worksheet again if you
reconfigure.

Step 2

Enter the System Partitions and International menu. In
this menu you partition the size of each environment. If
you want to disable environments 2 or 3, enter a zero
beside it. (You cannot disable environment 1.) See the
System Partitions and International menu and "Text
Options" (Figure 4-16) in Section 4 for information on how
to use the menu.

Step 3

After you've assigned partitions for each environment,
copy the figure that appears beside *Total Remaining
Memory* onto your worksheet under that heading. You
must keep track of exactly how much memory remains as
you go along.

Step 4

Enter the sizes you gave each environment in step 2 onto the worksheet beside Partition Size under the entries *ENVMNT 1*, *ENVMNT 2*, and *ENVMNT 3*.

Step 5

Return to the Main Menu and select the Environment Buffers 1 menu. The top entry, *Total Environment Memory*, should reflect the amount you allotted to environment 1 in the System Partitions and International menu and the Partition Size on your worksheet. Notice the next three entries in the menu: *Total Remaining Memory*, *Display Store Size*, and *Display Store Overhead*. They are calculated automatically as you allot amounts for the bottom seven options, highlighted in Figure 5-2.

Figure 5-1   Multiple Environment Set-Up Worksheet

Figure 5-2   Using The Environment Buffers Menu

```
                          Environment Buffers 1

  BUFFERS                                                    from System
                                                             Partitions and
      Total Environment Memory: (eu)  6400    ◄───          International menu

      Total Remaining Memory: (au)      196

      Display Store Size: (eu)          3840   ────────
      Display Store Overhead: (eu)       12


      ┌─────────────────────────────────────┐
      │ Keyboard Queue:              256     │
      │ Datacomm:                   2048     │
      │ Key Programs:                256     │
      │ Printer Buffer:             2048     │
      │                                      │
      │ DISPLAY                              │
      │ Lines Per Page:               14   ┐ │
      │ Chars Per Line (ch):          80   │ │
      │ Number of Pages:               2   ┘ │
      └─────────────────────────────────────┘

  MAIN MENU(c)  NEXT MENU(c)  PREV MENU(c)  NEXT ENV(c)  RESTORE ENTRIES (c)
```

Display Store Size and Overhead

Using the arrow keys, move to the last three options under
Display on the menu: *Lines Per Page*, *Chars Per Line*, and
Number of Pages. These features affect your work and
each requires memory. If you use up too much memory on
a page that has 256 lines, for example, you may limit the
number of pages the environment can have. You must
decide what features you want each environment to have,
and then determine if there is enough memory to provide
for them.

Step 6

Use the bottom of the worksheet to calculate Display Store Size: *(characters per line) *(lines per page) * (number of pages)*

and the page overhead: *number/pages * 6*

Enter the results in the worksheet table. This chart will help you with the calculations. Keep in mind the possible ranges for each feature:

      Characters per line: 40, 80, or 132
      Lines per page: 1 to 256
      Pages: 1 to 24

(Char/Ln	•	Ln/Pg	•	Pages)	+	(Pg • 6)	–	Bytes
(40	•	12	•	4)	+	(4 • 6)	–	1944
(80	•	12	•	2)	+	(2 • 6)	–	1932
(132	•	12	•	2)	+	(2 • 6)	–	3180
(40	•	12	•	24)	+	(24 • 6)	–	11664
(80	•	12	•	24)	+	(24 • 6)	–	23184
(40	•	24	•	2)	+	(2 • 6)	–	1932
(80	•	24	•	1)	+	(1 • 6)	–	1926
(132	•	24	•	1)	+	(1 • 6)	–	3174
(40	•	24	•	24)	+	(24 • 6)	–	23184
(80	•	24	•	18)	+	(18 • 6)	–	34668
(132	•	24	•	11)	+	(11 • 6)	–	34914
Display Store Size					+	Overhead	–	Buffer Size

A configuration of fewer than 1920 bytes (when 40 characters per line is not configured) is not valid and has not been listed.

Step 7

On the worksheet, fill in the amounts you need for the other buffers. See Table 7-1 for buffer capacities and sizes in bytes.

Buffer	Size in Bytes	Capacity
Datacomm Buffer	960	One page 24 lines by 40 columns
	1920	One page 48 lines by 40 columns
	4096	Maximum capacity: one page 30 lines by 132 columns or one page 102 lines by 40 columns
Keyboard Queue	40	One line of 40 characters
	400	Ten lines of 40 characters
	960	One page of 24 lines by 40 characters
Printer Buffer	1332	One page 10 lines by 132 columns
	1920	One page of 24 lines by 80 columns or one page of 48 lines by 40 columns.
Key Programs (See Section 7 for more information)	10	One key program assigning one key a sequence of 8 standard character keystrokes or 4 extended character keystrokes.
	50	Five key programs identical to the one above.

Type the amounts in the menu. Use the SPACEBAR to move the cursor; press RETURN to lock in the entries.

An error message appears if the configuration is invalid or too large for the total available space. See "Buffer Size" under the Environment Buffers menu in Section 4 before you decide how large to make the key programs buffer.

Figure 5-3 shows the relationship of BTE buffers with the host. The arrows show the direction in which data moves between buffers. For example, data is sent from the display buffer to the printer buffer and from there to the printer.

Figure 5-3   **BTE Buffers**
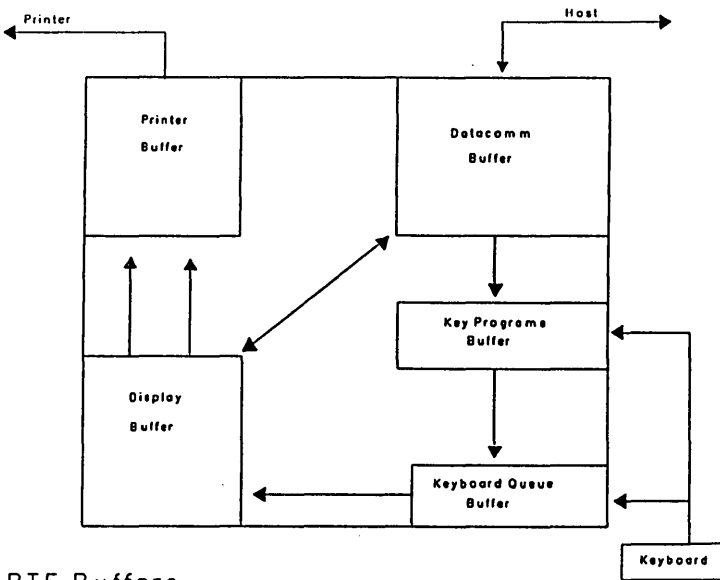
BTE Buffers

Step 8

Repeat steps 5, 6, and 7 for environment 2 and
environment 3. The NEXT ENV command at the bottom of
Environment Buffers 1 menu will take you to the Buffers
menu for the other two environments.

Step 9

Enter the Environment Datacomm Options menu for each
enabled environment and assign each a valid address. If
you omit this step, the environments will not be able to
receive or transmit any data to the host. Exit and
reconfigure the workstation.

Displaying Multiple Environments

Note: This subsection assumes that you have configured BTE for multiple
environments and have exited the set-up mode.

Full-Screen View

In full-screen view, which is the default, the entire screen
displays the keyboard environment. Whenever you enter
BTE, regardless of how many environments you've
configured, full-screen view appears with environment 1
as the keyboard environment.

Changing Environments

To change the keyboard environment, use one of the
following commands:

> CTRL NEXT PAGE takes you to the next environment
> CTRL PREV PAGE takes you to the previous
> environment
> CTRL J n, takes you directly to environment n

Split-Screen View

Split-screen view displays two or three windows on the
screen at one time. You can still enter data from the
keyboard into only one window (one environment) at a
time, but you can view more than one environment
simultaneously. (An environment must be enabled before it
can appear as a window in a split-screen view.)

CTRL X enables multiple window configuration. CTRL Z
allows you to switch between full-screen and split-screen
views.

Figure 5-4   **Choosing a Split-Screen View**

Step	Action	Result
1	Enter BTE (multiple environments already configured).	BTE screen appears.
2	Press CTRL X.	*Window Configuration: Full Screen* appears at the bottom of the screen.
3	Press RETURN several times until the split-screen view you want appears.	The available options for window configuration appear. If you see *Configuration Error: 10* it means the same address has been assigned to more than one environment. Each environment must have a unique address. The address option is in the Environment Datacomm Options menu.
4	Press GO.	Menu line disappears and last option is executed.

Figure 5-5   Changing Environments in Split-Screen View

Step	Action	Result
1	Press CTRL **X** while in environment 1.	*Window Configuration: Full Screen* appears.
2	Press RETURN.	*Window Configuration: Windows 1 & 2* appears. Note: Env 1 and Env 2 must be enabled.
3	Press GO.	The menu line disappears. The screen displays two windows with *ENVMNT 1* and *ENVMNT 2*. You are in split-screen view. The cursor is visible in the top window (ENVMNT 1). This is the keyboard environment.
4	Press CTRL **J** 2.	The cursor appears to move from the top window to the bottom window. Environment 2 (bottom window) is now the keyboard environment.

Figure 5-6   **Zooming Between Split-Screen and Full-Screen View**

Step	Action	Result
1	Repeat steps 1 through 3 from Figure 5-5.	You're in split-screen view. Environment 1 (top window) is the keyboard environment.
2	Press CTRL Z.	Environment 1 (top window) "zooms" into full-screen view.
3	Press CTRL J 2.	The split-screen view reappears. The cursor is visible in environment 2 (bottom window), now the keyboard environment.
4	Press CTRL Z.	Environment 2 (bottom window) "zooms" into full-screen view.
5	Press CTRL J 1.	Split-screen view returns and Environment 1 (top window) is the keyboard environment.

Note: In order to follow the procedure in Figure 5-7, , you must be working on a B 27, environment 1 must be configured to 132 columns, and environment 2 must be configured to 80 columns. (*Chars per Line* is in the Environment Buffers menu.)

Figure 5-7   Zooming Between Real and Virtual 132-Column Mode (for B
              27 workstations)

Step	Action	Result
1	Follow steps 1 through 3 of Figure 5-5.	You're in split-screen view. Environment 1 (top window) is the keyboard environment.
2	Type at least one line of text into environment 1.	Environment 1 displays only 80 columns at a time although it has 132 columns per page. This is called *virtual* 132-column mode. The text scrolls as you fill columns beyond 80.
3	Press CTRL NEXT PAGE and enter at least one line of text.	Environment 2 becomes the keyboard environment. The text wraps around after 80 columns are filled.
4	Press CTRL PREV PAGE.	Environment 1 becomes the keyboard environment.
5	Press CODE-Z.	Environment 1 displays all 132 columns on the screen in reduced characters. This is called *real* 132-column mode. Environment 2 is displayed in the same character size as environment 1 and does not fill width of screen.
6	Press CODE-Z.	Environment 1 returns to virtual 132-column mode. Environment 2 returns to normal character size and now fills width of screen.
7	Press SHIFT-left arrow.	Environment 1 data scrolls left to display remaining columns.
8	Press SHIFT-right arrow.	Environment 1 data scrolls right to display first columns of data.
9	Press CODE-Z.	Environment 1 returns to real 132-column mode. Environment 2 returns to the reduced character size.

Security

This section discusses the BTE security system in general and explains how to:

□ Enter security mode

□ Change passwords

□ Change the access level of menus

□ Change the access level of options in menus

Three Levels of Security

BTE has three levels of security that provide three levels of configuration capability. Security changes cannot be aborted.

Level I

Level I is the highest security level and requires a password. A user of Level I security controls the menus and options that Level II and Level III users access. In addition, Level I users can change the Level II password. The default Level I password is LEV1 and must be entered in uppercase. Installation managers should use this level.

Menu restrictions made from Level I affect Levels II and III. Menu access made from Level I affects only Level II.

Level II

Level II is the middle security level and requires a password. A user of Level II controls the menus and options Level III users access. Level II users cannot give Level III users access to menus and options they themselves cannot access. The default Level II password is MODE and must be entered in uppercase.

Level III

Level III requires no password. If a Level I or Level II password is entered incorrectly, security defaults to Level III.

Figure 6-1 gives the procedure for entering set-up mode at Level II security. To enter at Level I, use the Level I password. To enter at Level III, press RETURN at the password prompt.

Figure 6-1   Entering Security Mode on Level II

Step	Action	Result
1	Press CTRL RW.	The screen displays the password prompt.
2	Type the Level II password in the highlighted box. Press RETURN. (The default is **MODE**—all uppercase.)	You enter the Main Set-Up menu.
3	Select *Access Mode* using the arrow keys. Press RETURN.	*Security* replaces *Normal*. BTE is in security mode. Certain menu titles dim. These items are available to Level III users. Menus not available to you (as Level II users) do not appear.

In security mode, you can toggle access to menus and options by selecting an item and pressing MARK. When an item brightens it is restricted from the security levels below; when it dims it is accessible to the security levels below.

To restrict access of an entire menu:

1 Enter the Main Set-Up menu.

2 Enter security mode.

3 Select a menu title.

4 Press MARK until the menu title brightens.

5 Exit and reconfigure.

To grant access to an option within a menu:

1 Enter the Main Set-Up menu.

2 Enter security mode.

3 Enter the menu of the desired option.

4 Select the option.

5 Press MARK until the option dims.

6 Exit and reconfigure.

Security Messages

ITEM AT MINIMUM SECURITY LEVEL: You cannot make this item available at a lower level. For example, the BYTE CONFIGURATION AVAILABLE option cannot be made available to Level III users. The PASSWORD LEVEL I cannot be made available to Level II users.

ITEM AT MAXIMUM SECURITY LEVEL: You cannot further restrict this item, such as a menu title or the NEXT ENV command.

)

Passwords

To change a password, enter set-up mode and the System
Messages menu. If no password option is visible, it has
already been restricted by Level I users. Level III users do
not need a password to enter set-up mode and do not have
access to the password options.

When you assign and configure passwords, make each
password unique. Figure 6-2 shows how to change the
Level II password from Level I.

Document and store the Level I password in a safe place,
where it can be referenced by installation personnel. This
prevents the need to reset when an employee leaves the
company.

Figure 6-2 Changing Level II Password

Step	Action	Result
1	Enter BTE. (Type **B T E** at Command line. Press GO.)	The BTE screen appears.
2	Press CTRL **RW**.	The password prompt appears.
3	Type the Level I password in the highlighted box. Press RETURN. (The default is **LEV1**—with uppercase letters.)	The Main Set-Up menu for Level I appears.
4	Select *Messages* (using arrow keys). Press RETURN.	The System Messages menu appears.
5	Select *Password (Level II)*	The box across from *Password (Level II)* is highlighted.
6	Type **BTE2**. Press RETURN.	The cursor moves to the beginning of the field; the entry is locked in.
7	Select *MAIN MENU* (at bottom left of menu). Press RETURN.	The Main Set-Up menu appears.
8	Select *Exit and Reconfigure ALL Env* (at bottom left of Main Menu). Press RETURN.	You exit set-up mode with Level II password reconfigured to BTE2.

Figure 6-3   **Changing Level I Password**

Step	Action	Result
1	Repeat steps 1-4 of Figure 6-2.	The System Messages menu appears.
2	Select *Password (Level I)*.	The box across from *Password (Level I)* is highlighted.
3	Type **BTE1**. Press RETURN.	The cursor moves to the beginning of the field; the entry is locked in.
4	Select *MAIN MENU* (at bottom left of menu). Press RETURN.	The Main Set-Up menu appears.
5	Select *Exit and Reconfigure ALL Env* (at bottom left of Main Menu). Press RETURN.	You exit set-up mode with Level I password reconfigured to BTE1.

Changing Security Level Access to a Menu

Figure 6-4 outlines the procedure used to restrict the Messages menu from Level II users.

Figure 6-4   Restricting Access to Menu

Step	Action	Result
1	Enter BTE. (Type **B T E** at the Command line. Press GO.)	The BTE screen appears.
2	Press CTRL. Type **RW** and the Level I password. Press RETURN.	The Main Set-Up menu appears.
3	Select *Access Mode* using the arrow keys. Press RETURN.	*Security* replaces *Normal.* BTE is in security mode. Certain menu titles dim. These items are available to lower-level users. Menus not available to you do not appear.
4	Select *Messages* and press MARK.	You've toggled the security restriction of the Messages menu. (If *Messages* brightens, it is restricted from Level II and Level III users. If it dims, it is accessible to lower-level users.
5	Press MARK until *Messages* brightens.	The Messages menu is restricted from lower-level users.
6	Select *Exit and Reconfigure ALL Env* (at bottom left of menu). Press RETURN.	You exit set-up mode with the Messages menu restricted.
7	Repeat step 2 using the Level II password.	The Main Set-Up menu appears, but the Messages menu is not displayed. Level II users cannot access it.

Changing Security Level Access to an Option Within a Menu

Use the procedure outlined in Figure 6-5 to restrict access to an option within a menu.

Figure 6-5   Restricting Access to Option in Menu

Step	Action	Result
1	Repeat steps 1-3 of Figure 6-4.	BTE enters security mode of Level I.
2	Select *Messages* and press MARK until it dims.	Messages menu is accessible to Level II and III users.
3	With messages still selected press RETURN.	The Messages menu appears.
4	Select *Password (Level II)*. Press MARK.	*Password (Level II)* brightens; it is restricted from Level II users.
5	Select *MAIN MENU* (at bottom left of menu). Press RETURN.	The Main Set-Up menu appears.
6	Select *Exit and Reconfigure ALL Env* (at bottom left of Main Menu). Press RETURN.	BTE exits set-up mode with Level II password restricted.
7	Press CTRL. Type **RW** and the Level II password. Press RETURN.	Main Set-Up menu appears for Level II users.
8	Select *Messages* and press RETURN.	Messages menu appears. *Password (Level II)* does not appear. Level II users cannot access it.

Key Programming

Key programming is assigning a sequence of keystrokes to one key. Once the key is programmed, pressing it sends the entire sequence to the display. This feature is helpful for quickly entering any sequence of keystrokes that you use frequently, such as a log-on procedure or a commonly used form.

A key program is defined only for the environment in which it was created. Thus, a single key can be programmed differently in each of three environments.

Selecting the Key to Program

The CODE and CODE-SHIFT function keys (CODE-F1 through CODE-SHIFT-F10) have no default values assigned to them and are ideal for key programming. Use caution when you program CTRL, LOCAL, or any other key whose function you need to use to operate BTE.

Creating and Storing Key Programs

Key programs are created as a string of bytes and can be saved temporarily or permanently. The first byte of the string defines the matrix value for the key being programmed (see Appendix E for a keyboard layout with the matrix values for each key). The last byte ends the program for that key. All other bytes make up the key program.

All functions except the following can be used in key programs.

□ CODE Z

□ CTRL Z

□ CTRL X

□ CTRL NEXT PAGE

□ CTRL PREV PAGE

□ CTRL J n

Permanent Storage

To save a key program permanently (during times when
you exit BTE), you must write the key program to the
configuration file. (Only key programs in Key Programs
Buffer I can be saved permanently. See "Key Program
Buffer Size" in Section 4.) You make key programs in the
Key Programs Buffer I permanent in two ways:

1 Press CTRL, type **RW** and the password, and press
  CTRL again, then type **RP**xxxx. (You can perform this
  sequence from Level I or Level II security only.)

2 Enter set-up mode and at the bottom of the Main Set-Up
  menu, select *Save One Env To File* and press RETURN.

Two K bytes (2048 keystrokes) exist in the configuration
file for saving key programs permanently. Overhead uses
two bytes for each key programmed (one for the code of
the key being programmed and one for the end-of-program
code). One byte is required for each standard character in
the key program. Two bytes are required for each
extended character. Configuration file parameters
determine the size of the key programs buffer. *BUFFER
OVERFLOW* is displayed on the status line if you exceed
allocated memory space during key programming.

Certain keys cannot be programmed. These keys are noted
in Appendix E for each keyboard type.

Key Programming from the Keyboard

CTRL SPACEBAR L CTRL

To program a key from the keyboard, use the following
procedure. The key program is executed as you enter it
and is stored in whichever key programs buffer you've
configured BTE to use. (See "Key Programs Buffer Size" in
Section 4.)

1 Press CTRL SPACEBAR **L** CTRL.

2 Press the key to be programmed (see Appendix E for nonprogrammable matrix codes).

If you press one of the keys with a nonprogrammable matrix code, key programming stops.

3 Enter one or more keystrokes as the key program.

Until you terminate the program (step 4), all additional keystrokes become part of the program. For example, if you use the arrow keys to edit on the screen, those keystrokes are included in the key program.

The key programs buffer byte count decrements by one byte for each standard character entered and two bytes for each extended character. If the bytes left in the buffer reaches 0 and you press another key, *BUFFER OVERFLOW* is displayed; key programming stops, and the unfinished key program is lost.

4 Press LOCAL to end the key program.

Restrictions

Key programs cannot be nested. For example, suppose that the X key is programmed to display *ABC*. If you program F1 to display X, X is displayed and not the key program *ABC*.

All valid key sequences are executed as they are entered into the key program, except for CTRL **RW**—the sequence for entering set-up mode. For example, if you press CTRL SPACEBAR **L** CTRL **a b** F10, *a* and *b* are transmitted to the host. Only the CTRL **RW** sequence entered in a key program is executed later when the programmed key is pressed.

Simple Program Deletions

To delete a key program and return the key to its original function:

1 Press CTRL SPACEBAR **L** CTRL

2 Press *twice* the key to be deprogrammed or press once for the key to have no function

3 Press LOCAL

CTRL RHxxxx

With this method you enter set-up mode, display the scratchpad in hex at the address *xxxx*, and then write key programs into the scratchpad directly.

1 Press CTRL, type **RW** and the password (don't press RETURN).

2 Press CTRL **RH** (**R** and **H** must be in uppercase) and type *xxxx* where *xxxx* is the location in the scratchpad where you want to begin writing key programs. The screen displays *xxxx* along with 16 bytes of scratchpad memory. 0102 for *xxxx* gives the beginning location of the key programs buffer.

3 Begin each key program with the key's matrix code (see Appendix E), then the function codes and/or character codes (in hex) you want in the key program, and end the key program with 00.

4 To save the changes, press CTRL **RC***xxxx*. You must do this before you view another 16 bytes of the scratchpad if the changes are to be saved. If all changes are syntactically correct (all values are hexadecimal and are in the proper place on the screen), BTE responds with an ACK on the status line. If the values are incorrect, BTE responds with a NAK and the values are not saved.

5 After writing and saving the key programs, press LOCAL to exit byte configuration.

See Appendix D for more information on byte configuration.

Key Programming from the Host

Keys can be programmed from the host using escape sequences. There are three methods of key programming via data comm, but only methods 1 and 2 are recommended. All three methods use the <ESC> RB sequence to allocate space in memory for the key programs buffer, if necessary.

Method 1: <ESC> RK

Method 1 programs only the CODE-function keys and
CODE-SHIFT-function keys. When you send <ESC> RK, all
key programs associated with the keys are lost. (See
Appendix E for function key codes.) The maximum
number of keys you can program through this sequence is
20. The general procedure is outlined in Figure 7-1.

Figure 7-1   The <ESC> RK Sequence

Step	Action	Result
1	ESC RBcccddddppp	To reserve area in key programs buffer if key program is larger than allocated buffer size. *ccc* specifies data comm buffer size in hex; it must be less than 4096 bytes. *dddd* specifies display memory size in hex. *ppp* specifies key programs buffer size in hex; it must be less than or equal to 2K in order to be saved permanently. *Result* If the memory is available, six asterisks appear. If the memory is not available, an error message appears.
2	ESC RKppp {C ff..f A9} * A9 { }* can be repeated up to 20 times (one for each key programmed). Keys are programmed automatically by sequence. The first 10 programs are assigned to CODE-F1 through CODE-F10; the next 10 programs are assigned to SHIFT-CODE-F1 through SHIFT-CODE-F10.	To program: CODE-function keys and SHIFT-CODE function keys. *ppp* specifies a 3-byte field in hex; indicates total number of byte pairs to be sent to BTE address. This value sould be less than the key programs buffer size, otherwise BUFFER OVERFLOW is displayed on a status line. *C* matrix code for key to be programmed from 01-20. *ff..f* function codes (in ASCII) for key to be programmed (see Appendix E). *A9* Key program end code (LOCAL key).

Example: <ESC> RK

In the following example, CODE-F1 is programmed to display *ABCD*, and CODE-F2 is programmed to display *A* and to perform a return. All other function key programs are cleared.

Command	ASCII	Hex (via Data Comm)
<ESC>	EC	1B
RK	RK	52, 4B
00B	00B	30, 30, 42
Code-F1	95	39, 35
A	41	34, 31
B	42	34, 32
C	43	34, 33
D	44	34, 34
Key Program End Code	A9	41, 39
Code-F2	96	39, 36
A	41	34, 31
RETURN	D6	44, 36
Key Program End Code	A9	41, 39
Escape Sequence End Code	A9	41, 39

When you include extended characters in the sequence, you must include an ECC (8c hex) sequence before each one.

<ESC> RK programming ignores key location values and assigns programs by sequence. The first 10 programs are assigned to CODE-F1 through CODE-F10. The next 10 programs are assigned to CODE-SHIFT-F1 through CODE-SHIFT-F10.

Method 2: <ESC> RD

Method 2 is the most versatile way to program from the host. It provides these advantages over other data comm methods:

□ Key programming is not restricted to the CODE-F1 through CODE-SHIFT-F10 keys.

□ You can program any number of keys in any order in one escape sequence without losing all the key programs in the key programs buffer.

□ When you enter a new key program into the key programs buffer, it automatically overwrites the old program for that key.

□ It checks for a possible key programs buffer overflow.

Any key except those listed in Appendix E can be programmed through data comm by using the following <ESC> RD sequence:

Figure 7-2 The <ESC> RD Sequence

Step	Action	Result
1	ESC RBcccddddppp	To reserve area in key programs buffer if key program is larger than allocated buffer size. *ccc* specifies data comm buffer size in hex; it must be less than 4096 bytes. *dddd* specifies display memory size in hex. *ppp* specifies key programs buffer size in hex; it must be less than or equal to 2K in order to be saved permanently. *Result* If the memory is available, six asterisks appear. If the memory is not available, an error message appears.
2	ESC RD {C ff..f 00} 00	To selectively program a key or group of keys. Recommended for new applications. C matrix code for key to be programmed (see Appendix E). ff..f function codes (in ASCII) for key to be programmed (See Appendix E). 00 program end code.

Example: The <ESC> RD Sequence

In the following example, SHIFT-F1 is programmed to
display *ABC* and *a* is programmed to display *BTE*.

Command	ASCII	Hex
<ESC>	EC	1B
RD	RD	52, 44
SHIFT-F1	A1	41, 31
A	41	34, 31
B	42	34, 32
C	43	34, 33
Key Program End Code	00	30, 30
a	32	33, 32
B	42	34, 32
T	54	35, 34
E	45	34, 35
Key Program End Code	00	30, 30
Escape Sequence End Code	00	30, 30

Extended Characters

When you include extended characters in an <ESC> RD
sequence, you must include an ecc (8c hex) sequence
before each one.

Method 3 <ESC> RH

Method 3 is not recommended because with it you can
write anywhere in the key programs buffer, and may
overwrite existing key programs without realizing it. You
can also reprogram any key. Anything you don't overwrite
remains intact. The general procedure to follow is outlined
in Figure 7-3.

Figure 7-3   The <ESC> RH Sequence

Step	Action	Result
1	ESC RBcccddddppp	To reserve area in key programs buffer if key program is larger than allocated buffer size. *ccc* specifies data comm buffer size in hex; it must be less than 4096 bytes. *dddd* specifies display memory size in hex. *ppp* specifies key programs buffer size in hex; it must be less than or equal to 2K in order to save it permanently. *Result* If the memory is available, six asterisks appear. If the memory is not available, an error message appears.
2	ESC RT010202	Causes BTE to transmit start address of key programs buffer size (hex locations 102 and 103).
3	ESC RH hhhhpp {C ff..f 00} *00 *Valid for any programmable key. All programs after an invalid matrix code are lost.	*hhhh* key value of start address obtained in step 2 the first time the sequence is performed. *pp* a 2-byte field in hex; indicates total length of the pairs of bytes that follow. *C* matrix code for key being programmed (see Appendix E). *ff..f* function codes in ASCII for key to be programmed (see Appendix E). 00 program end code.
4	ESC RC, or ESC RP	To save temporarily. To save permanently.

Example: The <ESC> RH Sequence

The following sequence begins at 0180 (hex) in the scratchpad and programs the *a* key to display *0125*, *A* to display *ABCD*, and CODE-F1 to perform a clear function and display *x*:

<ESC> RH 0180 11 32 30 31 32 35 00

42 41 42 43 44 00

95 80 78 00 00 <ESC> RC

Key Programming Notes

Extended Character Code Function

You enter extended characters into key programs in one of two ways. With the CTRL space L CTRL sequence, simply press the key that has been assigned the extended character value to incorporate it into the program. With the CTRL RH sequence, you must enter the Extended Character Code (ECC—8c hex) before the hex value of the extended character. The ECC indicates that the code that follows is a character code, not a function code. The host must always send an ECC and the extended character code.

Tips and Shortcuts

1 If you accidentally program the CTRL key, you can delete the error by pressing:

□ SHIFT-CTRL

□ SPACEBAR

□ L

□ SHIFT-CTRL

□ CTRL

□ CTRL

□ LOCAL

2 To save time during data entry, enter frequently used forms into key programs. You will then be able to generate a particular form with a single keystroke. To save space, you can program keys to ask the host to send BTE the key programs that contain forms at the start of each workday.

3 Do not program the LOCAL key.

4 Key programs are lost when you reconfigure the key programs buffer size to be smaller than the present key programs within it, or if you use the <ESC> RK sequence without reprogramming every key.

Forms Mode

Forms mode provides a structured data entry capability
for communicating with host application programs. A
typical form consists of various fields containing headings,
prompts, messages, and data entry areas. Some fields are
protected; they cannot be overwritten. Other fields, the
data entry fields, are unprotected. See Figure 8-1 for an
example of a form with protected and unprotected fields.

Note: The sample forms in this section include boxes as a means for
identifying fields. It is not possible to reproduce these boxes when creating forms.

Creating Forms

A form can be created from the keyboard or from the host.
It must be created in nonforms mode, with delimiters
beginning and ending each field. It must have at least one
unprotected field. Forms mode is invoked by one of several
commands. Once in forms mode, only the data entry fields
(unprotected fields) in the form can be overwritten from
the keyboard.

Figure 8-1   Sample Form with Protected and Unprotected Fields

Shaded Text	Protected; transmittable
Normal Text	Protected; nontransmittable
[ ]	Left justified; unprotected
[ ]	Right justified; unprotected

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Form Fields and Their Characteristics

There are four types of form fields. Each field can begin
on one line and end on another line. If a field is not ended
with an end delimiter (an RS character), it continues to
the end of the page.

Left-Justified, Unprotected, US Starting Delimiter

Keyboard operators enter data into these fields just as it is
entered in nonforms mode: Text can be entered anywhere
in the field and the cursor moves one space right with
each keystroke until the last position in the field is
reached. The data in this field is transmittable. It is
defined by a US starting delimiter.

Right Justified, Unprotected, GS Starting Delimiter

Keyboard operators must enter data into this field from
the rightmost position. The cursor doesn't move; the text
shifts left. When the field is filled with text, the leftmost
character is lost if an additional character is added at the
right. This type of field is often used to align numbers.
The data in this field is transmittable. It is defined by a
GS starting delimiter.

Transmittable, Protected, FS Starting Delimiter

The text is entered from the host, or before forms mode is
invoked. The text in these fields can serve as prompts and
labels for unprotected fields (such as Last Name, First
Name, and so on) or for form numbers to help track the
forms returned to the host. The data in this field is
transmittable.

Nontransmittable, Protected, No Delimiters

The text is entered from the host, or before forms mode is invoked. The text in these fields usually serves as headings, titles, or information about the form for the keyboard entry operator. The data in this field cannot be transmitted to the host unless search mode is in effect. See Section 9 for additional information on search mode.

To create each unprotected field (US or GS) in nonforms mode, enter the following:

1 A starting delimiter (US or GS character)
2 Enough spaces to allow desired data entry
3 An ending delimiter (RS character or another starting delimiter—see "Contiguous Fields" later in this section)

To create each transmittable protected field, enter the following:

1 A starting delimiter (FS character)
2 The text to be protected (prompt, heading, etc.)
3 An ending delimiter (RS character or another starting delimiter—see "Contiguous Fields" later in this section)

To create each nontransmittable protected field, do not enter delimiters. Enter text in any of the following areas:

□ Between home and the first delimiter
□ Between the ending delimiter of one field and the starting delimiter of the next field
□ Between the last ending delimiter and the end of the page

Delimiters

Delimiters must be entered to begin and end each field.
Each field begins with a unique starting delimiter:

▶   US character starts each left-justified field (unprotected US).

▲   GS character starts each right-justified field (unprotected GS).

◆   FS character starts each transmittable field (protected).

◀   RS character can end all fields.

The graphic symbol for each delimiter appears on the
screen both when a form is created (in nonforms mode)
and when it is used (in forms mode).

Delimiter Characteristics

□ Delimiters cannot be overwritten in forms mode.

□ Delimiters cannot be added to the form in forms mode.

□ Delimiter graphic symbols can be configured to be
   invisible. See Section 4, "Configuring BTE" and the Form
   Delimiters Visible option in the Environment Video
   Options menu.

□ Alternate delimiters can be configured. See "Alternate
   Delimiters" later in this section.

Entering Delimiters

Enter delimiters from the keyboard by using control
sequences or alternate delimiters. To enter delimiters from
the host, the appropriate hex code must be sent.

From the Keyboard

To specify delimiters from the keyboard, enter CTRL H x where x is one of the following characters: < ? – >

CTRL H ?   ▶ US begins left-justified unprotected fields.

CTRL H –   ▲ GS begins right-justified unprotected fields.

CTRL H <   ◆ FS begins transmittable protected fields.

CTRL H >   ◀ RS can end all transmittable fields.

From the Host

To send delimiters from the host, use the hex code for that delimiter (see Table 8–1). The host can also send hex codes for characters that are configured as alternate delimiters.

Table 8–1   Delimiters

Delimiter Character & Graphic Symbol	Description	Keyboard Sequences	Hex Code From Host	Alternate Delimiter	Host Sequences
US ▶	Begins left-justified unprotected fields	CTRL H ?	1F	Allowed	ESC ' ?
GS ▲	Begins right-justified unprotected fields	CTRL H –	1D	None	ESC ' –
FS ◆	Begins transmittable protected fields	CTRL H <	1C	None	ESC ' <
RS ◀	Can end all fields	CTRL H >	1E	Allowed	ESC ' >

Figure 8-2   Sample Form

```
                        ◆ ▆INTEROFFICE MEMO▆ ◀

  ◆ ▆DATE▆ ◀        ◆ ▆September 1, 1986▆ ◀

  ◆ ▆TO▆ ◀          ◆ ▆Christopher Thompson▆ ◀

  ◆ ▆FROM▆ ◀        ◆ ▆Suzanne Cohen▆ ◀

  ◆ ▆SUBJECT▆ ◀     ◆ ▆Expenses▆ ◀

                    ◆ ▆Here are last month's expenses from▆ ◀

                    ◆ ▆the Data. Processing Department.▆ ◀


     Enter Items:                        Enter Amounts:

  ▶ ▆Paper                   ▆ ◀   ◆ ▆$▆ ◀ ▲▆         350.00▆ ◀

  ▶ ▆Office Supplies         ▆ ◀   ◆ ▆$▆ ◀ ▲▆          50.00▆ ◀

                                         ◆ ▆▆▆▆▆▆▆ ◀

                         ◆ ▆TOTAL $▆ ◀ ▲▆         400.00▆ ◀


  ◆ ▆Regards,▆ ◀
```

```
(FS)              (RS)
 ◆ ▆Shaded Text▆ ◀          Protected; transmittable

    Normal Text             Protected; nontransmittable
(US)              (RS)
 ▶ ▆           ▆ ◀          Left justified; unprotected
(GS)              (RS)
 ▲ ▆           ▆ ◀          Right justified; unprotected
```

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Contiguous Fields

To create a form that contains several contiguous fields,
use the starting delimiter of each succeeding field to end
the preceding field. For example, to create contiguous left–
and right–justified fields, do the following:

1 Enter a US delimiter (▶).
2 Enter enough spaces for data entry.
3 Enter a GS delimiter (▲) for the next field.
4 Repeat steps 1 and 2 for each field that you want to create.
5 To end the last field, enter an RS character (◀).

The following is an example of five contiguous left- and
right-justified fields.

▶Left-▲and right-justified▶unprotected▲contiguous fields◀

Alternate Delimiters

It is possible to configure a character as an alternate
delimiter for the US character and the RS character. Doing
so allows the use of a single character (instead of a
CTRL **H** sequence) to enter a delimiter.

To set each alternate delimiter, choose a character that
will not be used anywhere else on the form. Enter that
character in the Alternate US Char option in the
Environment Video Options menu. Enter a different
character in the Alternate RS Char option. See Section 4,
the Environment Video Options menu. (The default
alternate delimiters are *[* and *]*.)

In nonforms mode, the characters are displayed. When
forms mode is invoked, the characters are converted to US
and RS characters and their graphic symbols are
displayed.

Any character can be set as an alternate delimiter;
however, it should be chosen carefully. For example,
selecting the blank character is not recommended because
a page of blanks could result in a page of delimiters (no
fields).

Forms Options

The following options affect forms mode operations. See Section 4 for information on using each menu.

□ *SOH Exits Forms* (in the Environment Datacomm Options menu).

□ *DC2 Function* can be set to TOGGLE FORMS (in the Environment Datacomm Options menu).

□ *Auto FORM Field ADVANCE* (in the Environment Video Options menu).

□ *Form Delimiters Visible* (in the Environment Video Options menu).

Using Forms

Each form is created in nonforms mode and then used in forms mode. To invoke forms mode, a form must be displayed and it must contain at least one unprotected field. If a form is not displayed when an attempt to invoke forms mode is made, nonforms mode remains in effect and the cursor moves to the home position.

Invoking and Exiting Forms Mode

From the Keyboard

When forms mode is invoked, the cursor moves to the form's home position—the first data entry position in the first unprotected field.

Invoking Forms Mode	Exiting Forms Mode
CTRL W	CTRL Q
FORM ENABLE key (F2)	FORM DISABLE (SHIFT-F2)

When forms mode is successfully invoked and the cursor page is in forms mode, the environment status line displays FORM.

From the Host

Invoking Forms Mode	Exiting Forms Mode
<ESC> W	<ESC> X
	DC2
	SOH

To invoke forms mode from the host, the DCP page must contain a form. FORM is displayed in the environment status line only if the DCP page is the same as the cursor page. If not, FORM is not displayed until the cursor is moved to that page. See Section 11 for additional information.

Data Entry From the Keyboard

If the cursor page is in forms mode, only unprotected fields can be used for data entry. Delimiters are the only characters that cannot be entered. How data must be entered into the unprotected fields is discussed under "Forms Fields and Their Characteristics" at the beginning of this section.

Data Entry from the Host

If the DCP page is in forms mode, the host can enter text into both protected and unprotected fields; however, it cannot overwrite delimiters. When the host enters data into unprotected fields, the data is entered from left to right, regardless of whether the field is right– or left–justified.

Data Transmission

Depending on several conditions, different data is transmitted. All options that affect data transmission are in the Environment Datacomm Options menu. Details are provided in Section 12. Some highlights are:

◻ If the *Form Xmit to Cursor* option is on, transmittable data between the mobile home position and the cursor is sent to the host.

◻ If an ETX character is on the page, transmittable data from the home position to the ETX character is sent to the host.

◻ If the *Form Xmit to Cursor* option is on, and an ETX character is on the page, transmittable data from the cursor to the ETX character is sent to the host. If, however, the cursor is positioned after the ETX character, only the data before the ETX is sent to the host.

◻ If the *Line At A Time Xmit* option is on, transmittable data from the left margin of the cursor line to the cursor is sent to the host.

◻ CTRL XMIT always sends transmittable data on a line-at-a-time basis. Its operation is identical to that of *Line At A Time Xmit* when that option is on.

◻ If search mode is in effect, all fields including "nontransmittable fields" are sent to the host.

From the Keyboard

To transmit a form's data to the host, the cursor can be in any location in the form. The keyboard operator can do either of the following:

◻ Press XMIT.

◻ Press CTRL XMIT to transmit a line at a time.

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From the Host

If the DCP page is in forms mode, the host can send the
following sequence to transmit that form's data:

◻ <ESC> (

The criteria for loading the data comm buffer is similar to
the transmit operation from the keyboard. The only
difference is that the DCP position is a point of reference
instead of the cursor position.

Search Mode

Keyboard operators can use search mode to locate a specified character within a page of text. While search mode is in effect, it is possible to search one character and then choose whether or not to overwrite it.

Search Mode Operations

The default search character is a broken vertical bar: | (7C hex).

Each search is conducted on a one–page basis; when a search reaches the end of a page, it continues from the home position of that page. When no more search characters exist, the cursor returns to the home position (in nonforms mode).

To search other pages, press NEXT PAGE or PREV PAGE and then reactivate the search by pressing NEXT.

When searching for a lowercase character, uppercase characters will not be found. Similarly, when searching for an uppercase character, lowercase characters will not be found.

Table 9-1 describes search mode operations. For information on using search mode in forms mode, see "Nonforms Mode Vs. Forms Mode" later in this section.

Note: Invoking search mode and specifying the search character can be performed in either order.

Table 9-1   Search Mode Commands

Operation	From the Keyboard	From the Host
To invoke search mode	CTRL A The environment status line displays *SEARCH*.	<ESC> E The environment status line displays *SEARCH*.
To specify the search character	CTRL E *x* Note: *x* represents the search character.	<ESC> – *x* Note: *x* represents the search character.
To specify an extended character	Same as specifying a standard character.	See this command in Section 11.
To activate the search	NEXT The cursor automatically moves to the first search character.	
To overwrite	Type the character. The search character is overwritten and the cursor moves to the next search character. To deactivate the search, press a nontext key (such as CTRL). The search will not continue unless it is reactivated by pressing NEXT.	
To exit search mode	CTRL S The environment status line no longer displays *SEARCH*.	<ESC> F To exit search mode, the KBC page and the DCP page must be the same. The environment status line no longer displays *SEARCH*.

Programmed Keys

If the operator specifies the search character using a key that has been programmed, the first character of the key program will be used as the search character. If the program contains more than one character, the remaining characters in the key program will be interpreted as if entered from the keyboard.

Nonforms Mode Vs. Forms Mode

Search mode operations vary, depending on whether search mode is invoked when the page is in forms mode or nonforms mode.

Search Operations In Nonforms Mode

When search mode is invoked, you must activate the search by pressing NEXT. The search begins from the cursor position on the screen. The cursor moves to the first character found in the search, moving left to right, top to bottom.

You can specify the search character either before or after invoking search mode. You can also use the default search character (broken vertical bar: I).

If a search character still exists, the cursor moves to the first search character.

If the search character is not overwritten, press NEXT to move the cursor to the next search character.

If the search character is overwritten, the cursor moves to the next search character.

Search Operations In Forms Mode

When search mode is invoked, the search is automatically activated. The search begins from the cursor position, moving left to right, top to bottom.

Because search mode is automatically activated when search is invoked, the default search character (broken vertical bar: I) is used. If, however, you specify a search character before invoking search mode, that search character is used.

If a search character still exists, the cursor moves to the first search character, including both protected and unprotected fields. The cursor also moves to the first data entry position in unprotected fields, whether they are search characters or not. When this happens, press NEXT to reactivate the search.

If the search character is found, and it is not overwritten, press NEXT to move the cursor to the next search character.

If the search character is overwritten, the cursor moves to the next search character.

You cannot search right-justified fields.

You can search left-justified fields from any position within the field, provided you press NEXT when you first enter the field.

If a search character does not exist, the cursor moves to the home position.

If a search character does not exist, the cursor moves to the home position, which is the data entry position in the first unprotected field. The search is deactivated.

If a form is transmitted while both search mode and forms mode are in effect, all fields are transmitted to the host, including "nontransmittable protected fields."

Highlighting, Extended Characters, and Diacritics

Highlighting

BTE highlight commands can highlight specific portions of text or change the video mode of an entire page. Five different highlight attributes can be invoked: blinking, bright, underline, reverse, and security. Two commands end any highlighting attribute. The video mode can be normal or reverse.

Commands

Command	Hex Code	Start Character	Description
CTRL H8	18	CAN	Blinking
CTRL H:	1A	SUB	Bright
CTRL H/	0F	SI	Underline
CTRL H .	0E	SO	Reverse: Interchanges the background and character
CTRL H9	19	EM	Security: Similar to password regions where characters aren't displayed
CTRL H>	1E	RS	Ends highlight field and displays an RS character. (Highlighting otherwise extends to the end of the line.)
CTRL H7	17	ETB	Ends highlight field. (Highlighting otherwise extends to the end of the line.)
CTRL I			Normal video mode for a page (light characters on dark background). Use <ESC> O from the host.
CTRL U			Reverse video mode for a page (dark characters on light background). Use <ESC> N from the host.

To Highlight Text

Enter the highlight command, the desired text, and the highlight end command. Highlight commands are specific to the attribute, but end highlight commands are general and will end any type of highlight field. If no end highlight command is used, a highlight field ends at the end of the line.

To Highlight Existing Text

Because each highlight command takes up a space on the screen, BTE must be in insert mode when you invoke the commands in order to avoid overwriting existing text.

To enter insert mode, press OVERTYPE if its LED is lit. (If the OVERTYPE LED is not lit, BTE is already in insert mode and the status line shows INS/LN.) A space will be inserted at the cursor position. Invoke the desired highlight command. A highlight character (it will be invisible) will overwrite the space. In a full page or field of text, the last character of the page or field is discarded during this process. BTE returns automatically to overtype mode.

To Remove Highlight Attributes

To remove highlight attributes, position the cursor on the highlight characters (they are invisible and appear as spaces) and delete them. The highlight attributes will disappear, but the text will remain.

Cumulative Highlighting

BTE highlight attributes are cumulative and text can be highlighted up to five different ways simultaneously. To combine highlight attributes, invoke the highlight commands one after the other, making sure you put BTE into insert mode before invoking each command.

Because each highlight command produces an invisible highlight character, text with five highlight attributes is preceded by five spaces.

Highlighting in a Form

To highlight text in a form, you must enter the highlight commands before entering forms mode. After you enter forms mode, you can highlight only the characters that lie in unprotected fields. See Section 8 for more information on forms mode.

Changing Screen Background

BTE can display normal video mode—light characters on a dark background; and negative video mode—dark characters on a light background. The effects of reverse and secure highlight attributes are reversed in reverse video mode.

Extended Characters

Two types of characters can be stored in the display buffer: standard characters (00-7F) and extended characters (80-FF). BTE can display these characters via data comm or the keyboard. (The US language version has characters from 00-7F only.)

The data comm protocol supports 7-bit characters. This restricts data transmission to characters with hex codes of 00 through 7F. A technique called code extension allows characters through hex code 7F to be transmitted using shift out (SO) and shift in (SI) sequences. Appendix C lists the character codes for each supported font.

BTE is capable of receiving extended characters from the host by receiving escape sequences <ESC> SO and <ESC> SI. When an <ESC> SO is received, BTE displays all subsequent characters as extended characters. Before standard characters can be displayed again, an <ESC> SI must be received. Any number of characters can be inserted between these.

BTE transmits an <ESC> SO sequence when it encounters extended characters in its display buffer and an <ESC> SI when standard characters are to be sent. There is an automatic shift in (<ESC> SI) at the end of a data transmission block.

SO/SI XTN and SO/SI XLT Options

The SO/SI XTN and SO/SI XLT options in the Environment Datacomm Options menu are configurable substitute sequences for <ESC> SO and <ESC> SI. The functions are closely related. When both options are set *ON*, they have the following functions. See Tables 10-1 and 10-2 for full descriptions of their functions.

□ *SO/SI XTN* option stands for "SO/SI Extension" and deals with receiving and transmitting data. When it is *ON* and BTE receives an SO character, BTE will switch to the extended character set. When it is *ON* and BTE receives an SI character, BTE will switch to the standard character set.

□ *SO/SI XLT* option stands for "SO/SI Translation".

Table 10-1 shows the effect of the SO and SI on the host when the SO/SI XTN option is toggled. Table 10–2 shows the effect of SO/SI XLT and SO/SI XTN options on reverse video, underline, and extended characters when they are loaded into the data comm buffer for transmission to the host.

Table 10-1   Receiving from Host

Received from Host	Option	Used For
SO/SI	SO/SI XTN – ON	Code Extension
SO/SI	SO/SI XTN – OFF	Reverse Highlight/ Underline

Table 10-2   Transmitting to Host

SO/SI XLT	SO/SI XTN	When SO (reverse highlight) appears on screen it is sent as	When SI (underline) appears on screen it is sent as	When extended characters appear on screen, the string is transmitted Beginning with	Ending with
OFF	OFF	SO	SI	ESC SO	ESC SI
OFF	ON	ESC'.	ESC'/	SO	SI
ON	OFF	ESC'.	ESC'/	ESC SO	ESC SI
ON	ON	ESC'.	ESC'/	SO	SI

<ESC> 4, the equivalent of <ESC> ' . also specifies a reverse video attribute. <ESC> 3, the equivalent of <ESC> ' / also specifies an underline attribute. <ESC> 4 and <ESC> 3 are valid only for receiving data. Neither is supported in transmitting data.

Diacritics

The standard BTE distribution disk supports seven language versions (see Appendix C for character code listings). You may be able to buy other versions from your local distributor.

□ US (Language Version 1)

□ UK (Language Version 2)

□ French (Language Version 3)

□ Netherlands (Language Version 4)

□ Germany (Language Version 5)

□ S. Africa (Language Version 6)

□ Canada (Language Version 7)

You select the font during BTE installation and the language version in the System Partitions and International menu during configuration.

Construction of Accented Characters at the Keyboard

Many languages such as French and German have letters that must be displayed with diacritical marks. For example, the letters a, e and c may have the diacritical marks ` , ^ and ‚ added. This creates the characters à , ê and ç . These characters are called accented characters. The mark added to the characters to indicate a special sound is called a diacritic.

There are two methods for entering accented characters from the keyboard. The simplest method requires the accented character to be assigned to a key. For example, the accented character à is entered by pressing the à key.

The second method requires the accented character to be constructed by pressing a sequence of keys consisting of the basic elements of the accented character. For example, à may be constructed by pressing the ` key (diacritic) followed by the a key (follow-on key). Pressing the diacritic key always precedes pressing the follow-on key. BTE's method of creating diacritics is called nonescaping. This means that the cursor does not advance after the diacritic is displayed.

Nonescaping Diacritics

1 When pressed, the circumflex key displays nothing at the cursor position; the cursor remains stationary.

2 The next key pressed must be a valid follow-on key. For example, if the circumflex is to be combined only with the small letters a, e, or o, any other key is considered an invalid follow-on key.

   If the next key pressed is a valid follow-on key, in this case a, the accented character â is displayed at the cursor position and the cursor advances.

   If the next key pressed is an invalid follow-on key, the follow-on character is displayed.

See Appendix C, "Character Codes."

Control and Escape Sequences

The first half of this section lists BTE commands issued
from the keyboard. The second half lists commands issued
from the host. The keyboard commands include only key
sequences. Descriptions of the keyboard itself, LEDs, and
single key functions are included in Section 3. Key
programming is discussed in Section 6.

Commands from the Keyboard: Control Sequences

The following subsection details control sequences and
their functions. Corresponding escape sequences and data
comm codes are listed, but the equivalencies are
approximate. They are meant to help you cross-reference
the complete escape sequence description in the second
half of this section. The control keys are listed by topic:

- Set-up mode
- Byte configuration
- Editing
- Forms mode
- Highlighting
- Pointer movement
- Printer
- Search mode
- Text entry
- Miscellaneous

The sequences are listed alphabetically within each topic.
Control sequences in which CTRL is followed by a single
letter in uppercase are equally valid if you use the
lowercase letter. For example, CTRL a performs the same
function as CTRL A.

)

Decision Tables

Many control and host sequences are explained in detail
with the use of decision tables. Each column in a table
describes a set of conditions and the outputs those
conditions produce when the control sequence is issued.
Function identifies the function being selected, for
example, *Position Pointer*. *Activated By* describes the way
the function is invoked, for example, *<ESC> — hh kk*.

Under *Conditions*, *Y* means the condition is true. *N* means
it is not true. A hyphen (-) means the condition is
irrelevant. Each column specifies one set of conditions.

Under *Outputs*, *X* means the corresponding output will
occur as a result of the command sequence and the
conditions listed above in that column. A hyphen means
the corresponding output is unaffected. For each set of
conditions (one column) there is a unique set of outputs
listed lower in that column in the table.

A note below the truth table indicates if the *Activated by*
command sequence can perform another function. For
example, <DC2> can "Toggle Forms" or "Move Pointer
Right". The note refers you to the other function.

KBC refers to the keyboard cursor.

Example

Activated by:	CTRL V	<ESC> >
Function:	Move Line Up	

Conditions:			
FORMS Page	Y	N	N
KBC on Page Row 1	-	Y	N

Outputs:			
Exchange KBC Line with Line Above It	-	-	X
Exchange KBC Line with Last Line	-	X	-
Move KBC to Previous Row	-	-	X
Move KBC to Last Row	-	X	-
Update Row Indicator	-	X	X
No Response	X	-	-

All conditions and outputs pertain to CTRL **V**. The related escape sequence is <ESC> > which should be referenced in the second half of the section for a full description of its effect (and differences from CTRL V).

Column One

Conditions: *Y* means the page is in forms mode. The dash means that KBC on page row 1 is irrelevant.

Outputs: No output is applicable except No Response. In other words, when the page is in forms mode, CTRL V has no effect.

Column Two

Conditions: *N* means the page is not in forms mode. *Y* means the KBC is on row 1 of the page.

Outputs: The KBC line is exchanged with the last line of the page; the KBC moves to the last row, and the row indicator is updated.

Column Three

Conditions: The page is not in forms mode and the KBC is not in row 1 of the page.

Outputs: The KBC line is exchanged with the line above, the KBC moves to the previous row, and the row indicator is updated.

Set-Up Mode

Activated by: CTRL RW

Function: Enters Set-Up mode. (Note: Password must be entered correctly at password prompt first to enter set-up mode on Levels I and II security.)

Byte Configuration

See Appendix D for byte configuration commands.

Editing

Activated by: CTRL DELETE   <ESC> P

Function: Delete Character by Page

Conditions:

Forms Page	N	Y	Y	Y	Y	Y
KBC In US Field	-	N	N	N	Y	N
KBC at Rightmost Position of GS Field	-	N	N	N	N	Y
KBC In Protected Field	-	N	Y	N	N	N
KBC on Delimiter	-	Y	N	N	N	N

Outputs:

Delete Character at KBC	X	-	-	-	X	X
Shift Chars from KBC to End of Page Left	X	-	-	-	-	-
Insert Blank at End of Page	X	-	-	-	-	-
Shift Chars from KBC to End of Field Left	-	-	-	-	X	-
Insert Blank at End of Field	-	-	-	-	X	-
Shift Chars in Field Right	-	-	-	-	-	X
Insert Blank at Beginning of Field	-	-	-	-	-	X
No Response	-	X	X	X	-	-

Activated by: CTRL OVERTYPE   <ESC> @

Function: Insert Character by Page

Conditions:

Page in INSERT Mode	N	N	N	N	Y
Forms Page	N	Y	Y	Y	-
KBC In Protected Field	-	Y	N	N	-
KBC at End of GS or US Field	-	-	Y	N	-

Outputs:

Insert Blank at KBC Location	X	-	-	X	-
Shift Chars from KBC To End of Page Right One Space	X	-	-	-	-
Last Character on Page Lost	X	-	-	-	-
Shift Chars from KBC to End of Field Right One Space	-	-	-	X	-
Last Char in Field Lost	-	-	-	X	-
Display INSERT Indicator in Status Line	X	-	-	X	-
Remove INSERT Indicator from Status Line	-	-	-	-	X
No Response	-	X	X	-	-

Activated by: CTRL O   <ESC #>   FF

Alternate Method: Clear Variable Tabs command in Environment Tab Options menu.

Function: Clears all variable tab settings (If Tabs option is set to
                         variable (see Environment Tab Options menu).

Activated by: CTRL P   <ESC> .

Alternate Method: Tab Ruler.

Function: Sets or clears (toggles) tab stop at cursor position if Tab
                         option is set to variable (see Environment Tab Options menu.)

Activated by: CTRL T   <ESC> Z

Alternate Method: Lowercase Lockout option in Environment Keyboard Options
                         menu; LOCK.

Function: Lowercase enable. Enables lowercase characters to be displayed
                         on screen (has equivalent key).

Activated by: CTRL Y   <ESC> Y

Alternate Method: Lowercase Lockout option in Environment Keyboard Options
                         menu; LOCK.

Function: Lowercase disable. Disables lowercase characters from
                         appearing on the screen when entered from the keyboard (has
                         equivalent key).

Forms Mode

Activated by: CTRL H <   <FS>

Function: Starts protected field. See CTRL H *x* under Character
                        Translation.

Activated by: CTRL H ?   <US>

Function: Starts left-justified field. See CTRL H *x* under Character Translation.

Activated by: CTRL H >   <RS>

Function: Ends form field and ends highlight.
                        Displays RS character on screen.
                        See CTRL H *x* under Character Translation.

Activated by: CTRL H —   <GS>

Function: Starts a GS forms field starting delimiter.

Activated by: CTRL Q   <ESC>*x* <SOH>   <DC2>

Alternate Method: SHIFT-F2

Function: Disable forms mode

Conditions:
FORMS Page   Y N

Outputs:
Exit FORMS Mode   X -
Remove FORMS Indicator from Status Line   X -
Move KBC to Home Position   X X
Update Row Indicator   X X
Update Column Indicator   X X

Activated by: CTRL **W**   <ESC>W   <DC2>

Alternate Method: F2

Function: Enable Forms Mode

Conditions:

Condition											
FORMS Page	Y	N	N	N	N	N	N	N	N	N	N
Alternate US Char on Page	-	N	Y	N	Y	Y	Y	Y	Y	Y	Y
Alternate RS Char on Page	-	N	N	Y	Y	Y	Y	Y	Y	Y	Y
GS Followed by Nondelimiter on Page	-	N	N	N	N	Y	Y	Y	Y	Y	Y
US or Alternate US Followed by Nondelimiter on Page	-	N	N	N	N	Y	Y	Y	Y	Y	Y
Search Mode Set	-	-	-	-	-	N	N	N	Y	Y	Y
First UPF on Page Is GS Field	-	-	-	-	-	Y	Y	N	Y	Y	N	-
'HT Displayed on TAB FUNCTION' From Keyboard	-	-	-	-	-	N	Y	-	N	Y	-	-
Search Char before First UPF on Page	-	-	-	-	-	-	-	-	N	N	N	Y

Outputs:

Output											
Replace Alternate US with US	-	-	X	-	X	X	X	X	X	X	X
Replace Alternate RS with RS	-	-	-	X	X	X	X	X	X	X	X
Move KBC to Home Position	-	X	-	X	-	-	-	-	-	-	-
Put Page in FORMS Mode	-	-	X	-	X	X	X	X	X	X	X
Put FORMS Indicator in Status Line	-	-	X	-	X	X	X	X	X	X	X
Store HT at Leftmost Position of First UPF on Page	-	-	-	-	-	-	X	-	-	X	-	-
Move KBC to Leftmost Position of First UPF on Page	-	-	X	-	X	-	-	X	-	-	X	-
Move KBC to Rightmost Position of First UPF on Page	-	-	-	-	-	X	X	-	X	X	-	-
Move KBC to Search Character	-	-	-	-	-	-	-	-	-	-	-	X
Initiate Search	-	-	-	-	-	-	-	-	-	-	-	X
Terminate Search	-	-	-	-	-	-	-	X	X	X	-
Update Row Indicator	-	X	X	X	X	X	X	X	X	X	X
Update Column Indicator	-	X	X	X	X	X	X	X	X	X	X
No Response	X	-	-	-	-	-	-	-	-	-	-

Highlighting

Activated by: CTRL H*x*   <ESC>'*x*

Function: Character Translation

Conditions:

FORMS Page	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-
KBC In Protected Field	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
x is "<"	-	Y	-	-	-	-	-	-	-	-	-	-	-	-
x is "-"	-	-	Y	-	-	-	-	-	-	-	-	-	-	-
x is "?"	-	-	-	Y	-	-	-	-	-	-	-	-	-	-
x is ">"	-	-	-	-	Y	-	-	-	-	-	-	-	-	-
Char *x* is in ASCII Col. 0, Row *h*	-	-	-	-	-	Y	-	-	-	-	-	-	-	-
Char *x* is in ASCII Col. 1, Row *h*	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
Char *x* is in ASCII Col. 2, Row *h*	-	-	-	-	-	-	-	Y	-	-	-	-	-	-
Char *x* is in ASCII Col. 3, Row *h*	-	Y	Y	Y	Y	-	-	-	Y	-	-	-	-	-
Char *x* is in ASCII Col. 4, Row *h*	-	-	-	-	-	-	-	-	-	Y	-	-	-	-
Char *x* is in ASCII Col. 5, Row *h*	-	-	-	-	-	-	-	-	-	-	Y	-	-	-
Char *x* is in ASCII Col. 6, Row *h*	-	-	-	-	-	-	-	-	-	-	-	Y	-	-
Char *x* is in ASCII Col. 7, Row *h*	-	-	-	-	-	-	-	-	-	-	-	-	Y	-
ASCII Code of *x* is > 128	-	-	-	-	-	-	-	-	-	-	-	-	-	Y
ASCII Code of x is < 32 (except for GS character 30)	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-

Outputs:

Display ASCII Col. 0, Row *h* Char	-	-	-	-	-	-	-	X	-	-	-	-	-	-
Display ASCII Col. 1, Row *h* Char	-	-	-	-	-	-	-	-	X	-	-	-	-	-
Display ASCII Col. 2, Row *h* Char	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Display ASCII Col. 3, Row *h* Char	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Display ASCII Col. 4, Row *h* Char	-	-	-	-	-	-	-	-	-	X	-	X	-	-
Display ASCII Col. 5, Row *h* Char	-	-	-	-	-	-	-	-	-	-	X	-	X	-
Display NULL (#00)	-	-	-	-	-	X	X	-	-	-	-	-	-	X
No Response	X	X	X	X	X	-	-	-	-	-	-	-	-	-

Note   *x* above is a literal character.

          h is a hex value from 0 to F.

In nonforms mode, this sequence allows you to display the control characters that appear in columns 0 and 1 of the character tables (see appropriate Language Version table in Appendix D). Type CTRL H*x* to display the character n, where x is any character in columns 2 and 3 and n is the respective translated character in columns 0 and 1.

| Activated by: | CTRL H : | <SUB> |
| Function: | Starts bright highlight. | |

| Activated by: | CTRL H / | <SI> |
| Function: | Starts underline highlight. | |

| Activated by: | CTRL H . | <SO> |
| Function: | Starts reverse highlight. | |

| Activated by: | CTRL H 7 | <ETB> |
| Function: | Ends highlight. | |

| Activated by: | CTRL H 8 | <CAN> |
| Function: | Starts Blinking highlight. | |

| Activated by: | CTRL H 9 | <EM> |
| Function: | Starts secure highlight (characters typed are hidden by a reverse video blank image). | |

| Activated by: | CTRL I | <ESC> 0 |
| Function: | Sets cursor page to normal video. | |

| Activated by: | CTRL U | <ESC> N |
| Function: | Sets cursor page to reverse video. | |

Pointer Movement

Activated by:	CTRL B	<ESC> L

Function: Move Line Down

Conditions:

Forms Page	Y N N
KBC on Last Page Line	- Y N

Outputs:

Exchange KBC Line with Line below	- - X
Exchange KBC Line with Line 1	- X -
Move KBC to Next Row	- - X
Move KBC to Row 1	- X -
Update Row Indicator	- X X
No Response	X - -

Activated by: CTRL PREV PAGE

Alternate Method: CTRL J *n* (*n* — desired environment)

Function: Previous enabled environment becomes the keyboard environment, provided more than one environment is enabled.

Activated by: CTRL HOME   <ESC> D

Function: Sets mobile home at the cursor location.

Activated by: **CTRL M**   **<ESC> T**

Function: Roll Page Down

Conditions:

Forms Page	Y	N

Outputs:

Shift Entire Page Down 1 Line	-	X
Move Bottom Line to Top Line	-	X
No Response	X	-

Activated by: **CTRL N**   **<ESC> S**

Function: Roll Page Up

Conditions:

Forms Page	Y	N

Outputs:

Shift Entire Page Up 1 Line	-	X
Move top Line to Bottom Line	-	X
No Response	X	-

Activated by: CTRL NEXT PAGE

Alternate Method: CTRL J *n* (*n*—desired environment)

Function: Next enabled environment becomes keyboard environment provided more than one environment is enabled.

Activated by: **CTRL V**   **<ESC> >**

Function: Move Line Up

Conditions:

Forms Page	Y	N	N
KBC on Page Row 1	-	Y	N

Outputs:

Exchange KBC Line with Line above It	-	-	X
Exchange KBC Line with Last Line	-	X	-
Move KBC to Previous Row	-	-	X
Move KBC to Last Row	-	X	-
Update Row Indicator	-	X	X
No Response	X	-	-

| **Activated by:** | CTRL RETURN | \<LF\> |
| **Function:** | Carriage Return | |

This sequence has the same effect as RETURN, except that no CR character is stored under any condition (see RETURN).

| **Activated by:** | CTRL > | \<ESC\> & |
| **Function:** | Align KBC to DCP | |

Conditions:

KBC Page Is Forms Page	N	Y	N	N	Y	Y
DCP and KBC on Same Page	Y	Y	N	N	N	N
DCP Page Is Forms Page	-	-	N	Y	N	Y

Outputs:

Move KBC to DCP Location	X	X	X	X	X	X
Update Page Indicator	-	-	X	X	X	X
Update Row Indicator	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X
Set Forms Indicator	-	-	-	X	-	-
Reset Forms Indicator	-	-	-	-	X	-

Note   This operation does not cross page boundaries.

Activated by: CTRL right arrow   <VT>

Function: Vertical Tab Down

Conditions:

KBC In Page Row 1-8	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
KBC In Page Row 9-16	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
KBC In Page Row 17-24	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
KBC In Page Row 25-32	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
KBC In Page Col. 1	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Page Line 1 on Screen	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	N	N	N
Page Line 25 on Screen	-	-	-	-	-	-	Y	Y	Y	N	N	N	-	-	-	-	-	-
Page Col. 1 on Screen	N	Y	-	N	Y	-	N	Y	-	N	Y	-	N	Y	-	N	Y	-
Forms Page	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Outputs:

Scroll Page Up	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
Scroll Page Right	X	-	-	X	-	-	X	-	-	X	-	-	X	-	-	X	-	-
Move KBC to Page Line 1	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
Move KBC to Page Line 9	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Page Line 17	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Page Line 25	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-
Move KBC to Page Column 1	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-
Update Row Indicator	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-

Note   VT Page Advance option must be set.

Display store must be configured for 32-line pages.

Activated by:	CTRL left arrow
Function:	Vertical Tab Up

Conditions:

Condition	Values
KBC in Page Row 1	Y Y Y Y Y Y N N N N N N N N N N N N N N N
KBC in Page Row 2-9	N N N N N N Y Y Y Y Y Y Y N N N N N N N N
KBC in Page Row 10-17	N N N N N N N N N N N N Y Y Y N N N N N N
KBC in Page Row 18-25	N N N N N N N N N N N N N N N Y Y Y N N N
KBC in Page Row 26-32	N N N N N N N N N N N N N N N N N N Y Y Y
KBC in Page Col. 1	N N Y N N Y N N Y N N Y N N Y N N Y N N Y
Page Row 1 on Screen	- - - - - - - Y Y Y N N N - - - - - - - - -
Page Row 25 on Screen	Y Y Y N N N - - - - - - - - - - - - - Y Y Y
Page Col. 1 on Screen	N Y - N Y - N Y - N Y - N Y - N Y - N Y -
Forms Page	- -

Outputs:

Output	Values
Scroll Page Up	- - - X X X - - - - - - - - - - - - - - -
Scroll Page Down	- - - - - - - - - - X X X - - - - - - - - -
Scroll Page Right	X - - X - - X - - X - - X - - X - - X - -
Move KBC to Page Row 1	- - - - - - X X X X X X X - - - - - - - -
Move KBC to Page Row 9	- - - - - - - - - - - - - X X X - - - - -
Move KBC to Page Row 17	- - - - - - - - - - - - - - - - X X X - - -
Move KBC to Page Row 25	X X X X X X - - - - - - - - - - - - - X X X
Update Row Indicator	X X X X X X X X X X X X X X X X X X X X X
Update Column Indicator	X X - X X - X X - X X - X X - X X - X X -

Note VT Page Advance option must be set.

Display store must be configured for 32-line pages.

Activated by:	CTRL right arrow
Function:	Next Page

Note The cursor moves to the last position it held in that page (stationary cursor).

Conditions:

```
Forms Page                         Y Y Y Y Y Y Y Y N N N N N N
KBC on Last Page                   - - Y Y Y N N N - Y Y Y N N N
Next Page Is Forms Page            - - - - - Y Y N - - - - Y Y N
First Page Is Forms Page           - - Y Y N - - - - Y Y N - - -
First UPF Current Page Is GS        Y N - - - - - - - - - - - -
First UPF Next Page Is GS          - - - - - Y N - - - - - Y N -
First UPF Page 1 Is GS             - - Y N - - - - - Y N - - - -
```

Outputs:

```
Move KBC to Home, Current Page     - - - - - - - - X - - - - - -
Move KBC to Leftmost Position
   of First UPF, Current Page      - X - - - - - - - - - - - - -
Move KBC to Rightmost Position
   of First UPF, Current Page      X - - - - - - - - - - - - - -
Move KBC to Home, Next Page        - - - - - - - X - - - - - - X
Move KBC to Leftmost Position
   of First UPF, Next Page         - - - - - - X - - - - - - X -
Move KBC to Rightmost Position
   of First UPF, Next Page         - - - - - X - - - - - - X - -
Update Page Indicator              - - X X X X X - X X X X X X
Update Row Indicator               X X X X X X X X X X X X X X
Update Column Indicator            X X X X X X X X X X X X X X
Display Forms Indicator in
   Status Line                     - - - - - - - - - X X - X X -
Remove Forms Indicator from
   Status Line                     - - - - X - - X - - - - - - -
```

Note VT Page Advance option must be set to *off*.

Activated by: CTRL left arrow

Function: Back Page

Note   The cursor moves to the last position it held in that page (stationary cursor).

Conditions:
Forms Page   Y Y Y Y Y Y Y Y N N N N N N
KBC on First Page   - - Y Y Y N N N - Y Y Y N N N
Previous Page Is Forms Page   - - - - - Y Y N - - - - Y Y N
Last Page Is Forms Page   - - Y Y N - - - - Y Y N - - -
First UPF Current Page Is GS   Y N - - - - - - - - - - - - -
First UPF Prev. Page Is GS   - - - - - Y N - - - - - Y N -
First UPF Last Page Is GS   - - Y N - - - - - Y N - - - -

Outputs:
Move KBC to Home, Current Page   - - - - - - - - X - - - - - -
Move KBC to Leftmost Position
  of First UPF, Current Page   - X - - - - - - - - - - - - -
Move KBC to Rightmost Position
  of First UPF, Current Page   X - - - - - - - - - - - - - -
Move KBC to Home, Prev. Page   - - - - - - - X - - - - - - X
Move KBC to Leftmost Position
  of First UPF, Prev. Page   - - - - - - X - - - - - - X -
Move KBC to Rightmost Position
  of First UPF, Prev. Page   - - - - - X - - - - - - X - -
Move KBC to Home, Last Page   - - - - X - - - - - - X - - -
Move KBC to Leftmost Position
  of First UPF, Last Page   - - - X - - - - - - X - - - -
Move KBC to Rightmost Position
  of First UPF, Last Page   - - X - - - - - - X - - - - -
Update Page Indicator   - - X X X X X - X X X X X X
Update Row Indicator   X X X X X X X X X X X X X X X
Update Column Indicator   X X X X X X X X X X X X X X X
Display Forms Indicator
  in Status Line   - - - - - - - - - X X - X X -
Remove Forms Indicator from
  Status Line   - - - - X - - X - - - - - - -

Note   VT Page Advance option must be set to *off*.

Activated by:	CTRL @ *hh kk*	<ESC>^*hh kk*
Function:	Position Pointer	

Conditions:

Both *hh* and *kk* are valid	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
hh Value Is out of Range	Y	Y	N	-	-	-	-	-	-	-	-	-
kk Value Is out of Range	Y	N	Y	-	-	-	-	-	-	-	-	-
New Location Is on Screen	-	-	-	Y	N	N	N	N	N	N	N	N
New Location Is above Screen	-	-	-	-	Y	N	N	N	Y	Y	N	N
New Location Is below Screen	-	-	-	-	N	Y	N	N	N	N	Y	Y
New Location Is Right of Screen	-	-	-	-	N	N	Y	N	Y	N	Y	N
New Location Is Left of Screen	-	-	-	-	N	N	N	Y	N	Y	N	Y

Outputs:

Scroll Page Up	-	-	-	-	-	X	-	-	-	-	X	X
Scroll Page Down	-	-	-	-	X	-	-	-	X	X	-	-
Scroll Page Left	-	-	-	-	-	-	X	-	X	-	X	-
Scroll Page Right	-	-	-	-	-	-	-	X	-	X	-	X
Move KBC to Indicated Location	-	-	-	X	X	X	X	X	X	X	X	X
Update Row Indicator	-	-	-	X	X	X	X	X	X	X	X	X
Update Column Indicator	-	-	-	X	X	X	X	X	X	X	X	X
No Response	X	X	X	-	-	-	-	-	-	-	-	-

Note *hh* represents the desired column in hex and starts from 01.

kk represents the desired row in hex and starts from 01.

Activated by:	CTRL < c r	<ESC> "c r

Function:	Position Pointer

Conditions:

Both c and r are valid	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
c Value Is out of Range	Y	Y	N	-	-	-	-	-	-	-	-	-
r Value Is out of Range	Y	N	Y	-	-	-	-	-	-	-	-	-
New Location Is on Screen	-	-	-	Y	N	N	N	N	N	N	N	N
New Location Is above Screen	-	-	-	-	Y	N	N	N	Y	Y	N	N
New Location Is below Screen	-	-	-	-	N	Y	N	N	N	N	Y	Y
New Location Is Right of Screen	-	-	-	-	N	N	Y	N	Y	N	Y	N
New Location Is Left of Screen	-	-	-	-	N	N	N	Y	N	Y	N	Y

Outputs:

Scroll Page Up	-	-	-	-	-	-	X	-	-	-	-	X	X
Scroll Page Down	-	-	-	-	X	-	-	-	X	X	-	-
Scroll Page Left	-	-	-	-	-	-	X	-	X	-	X	-
Scroll Page Right	-	-	-	-	-	-	-	X	-	X	-	X
Move KBC to Indicated Location	-	-	-	X	X	X	X	X	X	X	X	X
Update Row Indicator	-	-	-	X	X	X	X	X	X	X	X	X
Update Column Indicator	-	-	-	X	X	X	X	X	X	X	X	X
No Response	X	X	X	-	-	-	-	-	-	-	-	-

Note   c represents the cursor column plus 31.

r represents the cursor row plus 31.

cannot access rows/columns above 96.

Example: CTRL < ! + positions the KBC to column 2, row 12.

Character	ASCII Code	Value
!	33	33-31=2
+	43	43-31=12

Activated by: CTRL up arrow

Alternate Method: SCROLL UP; SHIFT-up arrow

Function: Scroll Up

Conditions:

KBC on Forms Page	-	N	N	Y	Y	-
KBC on Last Line of Page	N	Y	Y	Y	Y	-
Next Page Is Forms Page	-	N	Y	N	Y	-
Last Display Store Line displayed at Bottom of Page	N	N	N	N	N	Y

Outputs:

Remove top Line	X	X	X	X	X	-
Move All Lines Up 1 Row	X	X	X	X	X	-
Display Next Display Store Line at Bottom of Screen	X	X	X	X	X	-
Update Row Indicator	X	X	X	X	X	-
Update Page Indicator	-	X	X	X	X	-
Set Forms Indicator	-	-	X	-	-	-
Reset Forms Indicator	-	-	-	X	-	-
No Response	-	-	-	-	-	X

Activated by: CTRL down arrow

Alternate Method: SCROLL DOWN; SHIFT-down arrow

Function: Scroll Down

Conditions:

KBC on Forms Page	-	N	N	Y	Y	-
KBC on First Line of Page	N	Y	Y	Y	Y	-
Previous Page Is Forms Page	-	N	Y	N	Y	-
First Display Store Line Displayed at Top of Screen	N	N	N	N	N	Y

Outputs:

Remove Bottom Line	X	X	X	X	X	-
Move All Lines Down 1 Row	X	X	X	X	X	-
Move Previous Display Store Line to Screen Row 1	X	X	X	X	X	-
Update Row Indicator	X	X	X	X	X	-
Update Page Indicator	-	X	X	X	X	-
Set Forms Indicator	-	-	X	-	-	-
Reset Forms Indicator	-	-	-	X	-	-
No Response	-	-	-	-	-	X

)

Printer

Activated by: CTRL :   <ESC> :

Alternate Method: PRINT

Function: Prints data from home to cursor, with form feed. Forms mode:
                      prints data in unprotected fields from home to cursor, with
                      form feed.

Activated by: CTRL ;   <ESC> ;

Alternate Method: SHIFT-PRINT

Function: Prints data from home to cursor, with form feed. Forms mode:
                      prints data in protected and unproteccted fields from home to
                      cursor, with form feed.

Activated by: CTRL]   <ESC>]

Function: Prints data from home to cursor, no form feed. Forms mode:
                      prints data in protected and unprotected fields from home to
                      cursor, without form feed.

Activated by: CTRL SPACE F CTRL

Alternate Method: Environment Peripheral Options menu.

Function: Displays printer selections: *Printer Selection, Close Printer After
                      Print, Printer Name.*

Search Mode

Activated by:	CTRL **A**	<ESC> E

Function:	Enable Search Mode

Conditions:

Forms Page	N	Y

Outputs:

Search Scanning Enabled	X	-
Search Scanning Begins at Home	-	X

Activated by:	CTRL E *x*	<ESC> - *x*

Function: Specifies search character where *x* is the character searched for. Default search character is broken vertical bar.

Activated by:	CTRL S	<ESC> F

Function:	Disable Search Mode

Conditions:

Forms Page	-	-	-	-
Search Initiated	Y	Y	N	N
Search Character Is " I " (7C)	N	Y	Y	N

Outputs:

Reset Search Mode	X	X	X	X
Terminate Search	X	X	-	-
Reset Search Character to " I " (7C)	X	-	-	X

Text Entry

Keyboard Text Entry

The *conditions* and *outputs* that apply to text entry operation depend upon the source of the text characters. Decision tables are provided here for text character entry from the *keyboard*; the next part of this section contains decision tables for text character entry from the host, via *data communications*.

Function: Text Entry

Activated by: Keyboard

Conditions:

Forms Page	N	N	N	N	N	N	N	N	N	N	N
Search Initiated	N	N	N	N	N	N	N	N	N	N	N
KBC @ Last Screen Column	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC @ Last Screen Row	-	N	N	N	Y	Y	Y	Y	Y	Y	Y
KBC @ Last Page Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC @ Last Page Row	-	N	N	N	N	N	Y	Y	Y	Y	Y
Page > 80 Cols./Line	-	Y	Y	N	N	Y	-	Y	N	Y	N
Page > 24 Lines	-	-	-	-	Y	Y	-	N	Y	Y	N
'Cursor Wrap Around'	-	-	-	-	-	-	-	Y	N	N	N

Outputs:

Store Char @ KBC Location	X	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	-	-	X	X	-	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	-	X	X	-
Scroll Page Left	-	X	-	-	-	-	-	-	-	-	-
Scroll Page Right	-	-	X	-	-	X	-	X	-	X	-
Move KBC Right One Position	X	X	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	X	X	X	X	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	X	X	X	X
Update Row Indicator	-	-	X	X	X	X	-	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	-	X	X	X	X

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	N	N	N	N	N	N	N	N	N	N	N	N	N
Search Initiated	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Search Character on Page	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N
Search Character above Screen	N	Y	N	N	N	Y	Y	N	N	-	-	-	-
Search Character below Screen	N	N	Y	N	N	N	N	Y	Y	-	-	-	-
Search Character Right of Screen	N	N	N	Y	N	Y	N	Y	N	-	-	-	-
Search Character Left of Screen	N	N	N	N	Y	N	Y	N	Y	-	-	-	-
Page > 80 Cols./Line	-	-	-	Y	Y	Y	Y	Y	Y	-	-	Y	Y
Page > 24 Lines	-	Y	Y	-	-	Y	Y	Y	Y	-	Y	-	Y
'Cursor Wrap Around'	-	-	-	-	-	-	-	-	-	-	-	-	-
Page Row 1 on Screen	-	-	-	-	-	-	-	-	-	Y	N	Y	N
Page Column 1 on Screen	-	-	-	-	-	-	-	-	-	Y	Y	N	N

Outputs:

Store Char @ KBC Location	X	X	X	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	X	-	-	-	-	X	X	-	-	-	-
Scroll Page Down	-	X	-	-	-	X	X	-	-	-	-	X	X
Scroll Page Left	-	-	-	X	-	X	-	X	-	-	-	-	-
Scroll Page Right	-	-	-	-	X	-	X	-	X	-	X	-	X
Move KBC to Home Position	-	-	-	-	-	-	-	-	-	X	X	X	X
Move KBC to Search Character	X	X	X	X	X	X	X	X	X	-	-	-	-
Update Row Indicator	X	X	X	X	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X	X	X	X	X

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	Y	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	Y	-	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	-	-	-	-	-	-	-	-	-	-	-
KBC on Last Page Column	-	-	-	-	-	-	-	-	-	-	-
KBC on Last Screen Row	-	-	-	-	-	-	-	-	-	-	-
KBC on Last Page Row	-	-	-	-	-	-	-	-	-	-	-
Search Initiated	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y
'Auto Form Field Advance'	-	-	-	-	-	-	-	-	-	-	-
Character after KBC Is GS, US, or RS	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is GS Field	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is above Screen	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is below Screen	-	-	-	-	-	-	-	-	-	-	-
Search Character on Page	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y
Search Character Right of Screen	-	-	N	Y	N	N	N	Y	Y	N	N
Search Character Left of Screen	-	-	N	N	Y	N	N	N	N	Y	Y
Search Character above Screen	-	-	N	N	N	Y	N	Y	N	Y	N
Search Character below Screen	-	-	N	N	N	N	Y	N	Y	N	Y
Page > 80 Characters per Line	-	-	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Store Character at KBC Location	-	-	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	-	-	X	-	-	-	X	X	-	-
Scroll Page Up	-	-	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	-	-	X	-	X	-	X	-
Move KBC Right 1 Column	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-	-
Write HT at Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Rightmost Position Next UPF	-	-	-	-	-	-	-	-	-	-	-
Move KBC to Search Character	-	-	X	X	X	X	X	X	X	X	X
Terminate Search	-	-	-	-	-	-	-	-	-	-	-
Update Row INdicator	-	-	X	X	X	X	X	X	X	X	X
Update Column Indicator	-	-	X	X	X	X	X	X	X	X	X
No Response	X	X	-	-	-	-	-	-	-	-	-

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on Last Page Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y
KBC on Last Screen Row	-	-	N	N	Y	Y	Y	Y	Y	Y
KBC on Last Page Row	-	-	N	N	N	N	Y	Y	Y	Y
Search Initiated	N	N	N	N	N	N	N	N	N	N
'Auto Form Field Advance'	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Character after KBC Is GS, US, or RS	-	-	-	-	-	-	-	-	-	-
Next UPF Is GS Field	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is above Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is below Screen	-	-	-	-	-	-	-	-	-	-
Search Character on Page	-	-	-	-	-	-	-	-	-	-
Search Character Right of Screen	-	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-	-
Search Character below Screen	-	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	N	Y	N	N	Y	Y	N
Page > 24 Lines	-	-	-	-	Y	Y	N	Y	N	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	X	-	-	X	X	-
Scroll Page Left	-	X	-	-	-	-	-	-	-	-
Scroll Page Up	-	-	-	-	X	X	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	X	-	X
Move KBC Right 1 Column	X	X	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	X	X	X	X	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	X	X	X	X
Move KBC to Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Write HT at Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Move KBC to Rightmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Move KBC to Search Character	-	-	-	-	-	-	-	-	-	-
Terminate Search	-	-	-	-	-	-	-	-	-	-
Update Row Indicator	-	-	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-	-

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on Last Page Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y
KBC on Last Screen Row	-	-	N	N	Y	Y	Y	Y	Y	Y
KBC on Last Page Row	-	-	N	N	N	N	Y	Y	Y	Y
Search Initiated	N	N	N	N	N	N	N	N	N	N
'Auto Form Field Advance'	N	N	N	N	N	N	N	N	N	N
Character after KBC Is GS, US, or RS	N	N	N	N	N	N	-	-	-	-
Next UPF Is GS Field	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is above Screen	-	-	-	-	-	-	-	-	-	-
Next UPF Is below Screen	-	-	-	-	-	-	-	-	-	-
Search Character on Page	-	-	-	-	-	-	-	-	-	-
Search Character Right of Screen	-	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-	-
Search Character below Screen	-	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	N	Y	N	N	Y	Y	-
Page > 24 Lines	-	-	-	-	Y	Y	N	Y	N	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	X	-	-	X	X	-
Scroll Page Left	-	X	-	-	-	-	-	-	-	-
Scroll Page Up	-	-	-	-	X	X	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	X	-	X
Move KBC Right 1 Column	X	X	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	X	X	X	X	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	X	X	X	X
Move KBC to Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Write HT at Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Move KBC to Rightmost Position Next UPF	-	-	-	-	-	-	-	-	-	-
Move KBC to Search Character	-	-	-	-	-	-	-	-	-	-
Terminate Search	-	-	-	-	-	-	-	-	-	-
Update Row	-	-	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-	-

Function:	Text Entry
Activated by:	Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	-	-	-	-	-	-	-	-	-
KBC on Last Page Column	-	-	-	-	-	-	-	-	-
KBC on Last Screen Row	-	-	-	-	-	-	-	-	-
KBC on Last Page Row	-	-	-	-	-	-	-	-	-
Search Initiated	N	N	N	N	N	N	N	N	N
'Auto Form Field Advance'	N	N	N	N	N	N	N	N	N
Character after KBC Is GS, US, or RS	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	N	N	N	N	N	N	N	N	N
Next UPF Is Right of Screen	N	Y	N	N	N	Y	Y	N	N
Next UPF Is Left of Screen	N	N	Y	N	N	N	N	Y	Y
Next UPF Is above Screen	N	N	N	Y	N	Y	N	Y	N
Next UPF Is below Screen	N	N	N	N	Y	N	Y	N	Y
Search Character on Page	-	-	-	-	-	-	-	-	-
Search Character Right of Screen	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-
Search Character below Screen	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	X	-	-	-	X	X	-	-
Scroll Page Up	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	X	-	X	-	X	-
Move KBC Right 1 Column	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	-	-	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	-	-
Move KBC to Leftmost Position Next UPF	X	X	X	X	X	X	X	X	X
Write HT at Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-
Move KBC to Rightmost Position Next UPF	-	-	-	-	-	-	-	-	-
Move KBC to Search Character	-	-	-	-	-	-	-	-	-
Terminate Search	-	-	-	-	-	-	-	-	-
Update Row Indicator	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-

Function:	Text Entry
Activated by:	Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	-	-	-	-	-	-	-	-	-
KBC on Last Page Column	-	-	-	-	-	-	-	-	-
KBC on Last Screen Row	-	-	-	-	-	-	-	-	-
KBC on Last Page Row	-	-	-	-	-	-	-	-	-
Search Initiated	N	N	N	N	N	N	N	N	N
'Auto Form Field Advance'	N	N	N	N	N	N	N	N	N
Character after KBC Is GS, US, or RS	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is Right of Screen	N	Y	N	N	N	Y	Y	N	N
Next UPF Is Left of Screen	N	N	Y	N	N	N	N	Y	Y
Next UPF Is above Screen	N	N	N	Y	N	Y	N	Y	N
Next UPF Is below Screen	N	N	N	N	Y	N	Y	N	Y
Search Character on Page	-	-	-	-	-	-	-	-	-
Search Character Right of Screen	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-
Search Character below Screen	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	X	-	-	-	X	X	-	-
Scroll Page Up	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	X	-	X	-	X	-
Move KBC Right 1 Column	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	-	-	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	-	-
Move KBC to Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-
Write HT at Leftmost Position Next UPF	M	M	M	M	M	M	M	M	M
Move KBC to Rightmost Position Next UPF	X	X	X	X	X	X	X	X	X
Move KBC to Search Character	-	-	-	-	-	-	-	-	-
Terminate Search	-	-	-	-	-	-	-	-	-
Update Row Indicator	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-

Note *M* in the outputs field means:

X if HT Displayed on TAB FUNCTION From Keyboard is set *on*;

– if HT Displayed on TAB FUNCTION From Keyboard is set *off*.

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	-	-	-	-	-	-	-	-	-
KBC on Last Page Column	-	-	-	-	-	-	-	-	-
KBC on Last Screen Row	-	-	-	-	-	-	-	-	-
KBC on Last Page Row	-	-	-	-	-	-	-	-	-
Search Initiated	Y	Y	Y	Y	Y	Y	Y	Y	Y
'Auto Form Field Advance'	N	N	N	N	N	N	N	N	N
Character after KBC Is GS, US, or RS	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	N	N	N	N	N	N	N	N	N
Next UPF Is Right of Screen	N	Y	N	N	N	Y	Y	N	N
Next UPF Is Left of Screen	N	N	Y	N	N	N	N	Y	Y
Next UPF Is above Screen	N	N	N	Y	N	Y	N	Y	N
Next UPF Is below Screen	N	N	N	N	Y	N	Y	N	Y
Search Character on Page	N	N	N	N	N	N	N	N	N
Search Character Right of Screen	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-
Search Character below Screen	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	X	-	-	-	X	X	-	-
Scroll Page Up	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	X	-	X	-	X	-
Move KBC Right 1 Column	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	-	-	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	-	-
Move KBC to Leftmost Position Next UPF	X	X	X	X	X	X	X	X	X
Write HT at Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-
Move KBC to Rightmost Position Next UPF	-	-	-	-	-	-	-	-	-
Move KBC to Search Character	-	-	-	-	-	-	-	-	-
Terminate Search	X	X	X	X	X	X	X	X	X
Update Row Indicator	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-

Function: Text Entry

Activated by: Keyboard (Cont'd)

Conditions:

Forms Page	Y	Y	Y	Y	Y	Y	Y	Y	Y
KBC on GS, US, or RS	N	N	N	N	N	N	N	N	N
Character Is GS, US, or RS	N	N	N	N	N	N	N	N	N
KBC on Last Screen Column	-	-	-	-	-	-	-	-	-
KBC on Last Page Column	-	-	-	-	-	-	-	-	-
KBC on Last Screen Row	-	-	-	-	-	-	-	-	-
KBC on Last Page Row	-	-	-	-	-	-	-	-	-
Search Initiated	Y	Y	Y	Y	Y	Y	Y	Y	Y
'Auto Form Field Advance'	N	N	N	N	N	N	N	N	N
Character after KBC Is GS, US, or RS	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is Right of Screen	N	Y	N	N	N	Y	Y	N	N
Next UPF Is Left of Screen	N	N	Y	N	N	N	N	Y	Y
Next UPF Is above Screen	N	N	N	Y	N	Y	N	Y	N
Next UPF Is below Screen	N	N	N	N	Y	N	Y	N	Y
Search Character on Page	N	N	N	N	N	N	N	N	N
Search Character Right of Screen	-	-	-	-	-	-	-	-	-
Search Character Left of Screen	-	-	-	-	-	-	-	-	-
Search Character above Screen	-	-	-	-	-	-	-	-	-
Search Character Below Screen	-	-	-	-	-	-	-	-	-
Page > 80 Characters Per Line	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Store Character at KBC Location	X	X	X	X	X	X	X	X	X
Scroll Page Right	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	X	-	-	-	X	X	-	-
Scroll Page Up	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	X	-	X	-	X	-
Move KBC Right 1 Column	-	-	-	-	-	-	-	-	-
Move KBC to Column 1, Next Line	-	-	-	-	-	-	-	-	-
Move KBC to Home Position	-	-	-	-	-	-	-	-	-
Move KBC to Leftmost Position Next UPF	-	-	-	-	-	-	-	-	-
Write HT at Leftmost Position Next UPF	M	M	M	M	M	M	M	M	M
Move KBC to Rightmost Position Next UPF	X	X	X	X	X	X	X	X	X
Move KBC to Search Character	-	-	-	-	-	-	-	-	-
Terminate Search	X	X	X	X	X	X	X	X	X
Update Row Indicator	X	X	X	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X	X	X	X
No Response	-	-	-	-	-	-	-	-	-

Note   *M* in the "Outputs" field means:

X if HT Displayed on TAB FUNCTION From Keyboard is set *on;*

– if HT Displayed on TAB FUNCTION From Keyboard is set *off.*

Miscellaneous

Activated by: CTRL ?

Alternate Method: Alarm Level option in System Keyboard and Screen menu

Function: Toggles alarm.

Activated by: CTRL SPACEBAR C CTRL   <ESC> space C

Function: Display Character Set

Conditions:
Forms Page   N Y

Outputs:
Page Data Cleared   X X
Character Set Displayed   X X
Exit Forms Mode   - X
Exit Configuration Mode   - -
Update Row Indicator   X X
Update Column Indicator   X X

Activated by: CTRL SPACEBAR D CTRL   <ESC> space D

Alternate Method: Exit and Reconfigure One Environment command in Main menu.

Function: Environment Restart; in multiple environments, resets the keyboard
                       environment.

Activated by: CTRL SPACEBAR M CTRL

Function: Display video alignment (display fills with *Es*)

Activated by: CTRL SPACEBAR V CTRL

Function: Display release version

Conditions:
Forms Page   N   Y

Outputs:
Page Data Cleared   X   X
Software Version Displayed   X   X
Exit Forms Mode   -   X
Exit Configuration Mode   -   -
Update Column Indicator   X   X
Update Row Indicator   X   X

Activated by: CTRL *nn* SPCFY

Function: Sends ESC *n n* to host (where *n* is a number from 0 to 9)
along with cursor position. Can also send page number if the
SPCFY Key Sends Page Number option is set *on* (see the
Environment Keyboard Options menu in Section 4).

Activated by: CTRL *nn* XMIT

Function: Sends ESC *n n* to host (where *n* is a number from 0 to 9).

Activated by: CTRL XMIT

Function: Aligns DCP to the cursor and loads the data on the cursor line
into the data comm buffer. If the cursor is at the beginning of
the line, the entire line of data is loaded. If the cursor is not at
the beginning of the line, the data between the beginning of the
line and the last character before the cursor is loaded.
Equivalent to the XMIT key if the Line At A Time Xmit option
is set *on* (in the Environment Data Comm Options menu). See
Section 12 for more information.

Activated by: CTRL J *n*

Function: Specifies *n* to be the keyboard environment.

Activated by: CTRL X

Function: Invokes the window configuration menu.

Activated by: CTRL Z

Function: Toggles BTE zoom. feature. If BTE screen is in split-screen
                   view, CTRL Z zooms the keyboard environment into full-screen
                   view. Pressing CTRL Z a second time redisplays the split-screen
                   view. If keyboard environment is already in full-screen view,
                   and no other environments are configured to be displayed, CTRL
                   Z has no effect.

Activated by: CODE Z

Function: Toggles between real and virtual 132-column mode. Works for
                   both 80-column/row and 132-column/row configuration.
                   Effective only on a B 27 workstation.

Activated by: CODE right arrow

Function: Moves cursor to first blank space at the end of the line.

Activated by: CODE left arrow

Function: Moves cursor to leftmost column of row.

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Commands from Data Comm: Escape Sequences and Data Comm Codes

This subsection consists of decision tables that describe the boundary conditions of BTE. An example of how to read a decision table appears at the beginning of this section. Corresponding control sequences are listed with the escape sequences and data comm codes, but the equivalencies are only approximate. They are meant to help you cross-reference the complete control sequence description in the first half of this section.

Data Communications Text Entry

Decision tables are provided here for text entry from the host.

Function: Text Entry

Activated By: SOH (01), STX (02), ENQ (05), ACK (06), DLE (10), NAK (15), ETB (17),CAN (18), EM (19), SUB (1A), FS (1C), GS (1D), RS (1E), US (1F), and SYN (16), which applies only if BTE is in asynchronous mode

Conditions:

Forms Mode	N	N	N	N	N	N	N	N	N	N
DCP at Last Screen Column	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP at Last Page Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y
DCP at Last Screen Row	-	-	N	N	Y	Y	Y	Y	Y	Y
DCP at Last Page Row	-	-	N	N	N	N	Y	Y	Y	Y
Search Initiated	-	-	-	-	-	-	-	-	-	-
Page > 80 Characters per Line	-	Y	N	Y	N	Y	N	Y	N	Y
Page > 24 Lines	-	-	-	-	Y	Y	N	N	Y	Y

Outputs:

Store Character at DCP Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	-	-	X	X	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	-	X	X
Scroll Page Left	-	X	-	-	-	-	-	-	-	-
Scroll Page Right	-	-	-	X	-	X	-	X	-	X
Move DCP Right 1 Column	X	X	-	-	-	-	-	-	-	-
Move DCP to Column 1, Next Line	-	-	X	X	X	X	-	-	-	-
Move DCP to Page Home Position	-	-	-	-	-	-	X	X	X	X

Note May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

)

Function:	Text Entry
Activated By:	SOH (01), STX (02), ENQ (05), ACK (06), DLE (10), NAK (15), ETB (17),CAN (18), EM (19), SUB (1A), FS (1C), GS (1D), RS (1E), US (1F), and SYN (16), which applies only if BTE is in asynchronous mode

Conditions:

Condition											
Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Character Is GS, US, FS, or RS	Y	N	N	N	N	N	N	N	N	N	N
DCP on GS, US, FS, or RS	-	Y	N	N	N	N	N	N	N	N	N
Char after DCP Is GS, US, FS, or RS	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP at Last Screen Column	-	-	-	-	-	-	-	-	-	-	-
DCP at Last Page Column	-	-	-	-	-	-	-	-	-	-	-
DCP at Last Screen Row	-	-	-	-	-	-	-	-	-	-	-
DCP at Last Page Row	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	N	Y	N	N	N	Y	Y	N	N
Next UPF Is Left of Screen	-	-	N	N	Y	N	N	N	N	Y	Y
Next UPF Is above Screen	-	-	N	N	N	Y	N	Y	N	Y	N
Next UPF Is below Screen	-	-	N	N	N	N	Y	N	Y	N	Y
Page > 80 Characters per Line	-	-	-	Y	Y	-	-	Y	Y	Y	Y
Page > 24 Lines	-	-	-	-	-	Y	Y	Y	Y	Y	Y

Outputs:

Output											
Store Character at DCP Location	-	-	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	-	-	-	-	X	-	X	-	X
Scroll Page Down	-	-	-	-	-	X	-	X	-	X	-
Scroll Page Left	-	-	X	-	-	-	-	X	X	-	-
Scroll Page Right	-	-	-	-	X	-	-	-	-	X	X
Move DCP Right 1 Column	-	-	-	-	-	-	-	-	-	-	-
Move DCP to Column 1, Next Line	-	-	-	-	-	-	-	-	-	-	-
Move DCP to Leftmost Position Next UPF	-	-	X	X	X	X	X	X	X	X	X
No Response	X	X	-	-	-	-	-	-	-	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Text Entry

Activated By: SOH (01), STX (02), ENQ (05), ACK (06), DLE (10),
                       NAK (15), ETB (17),CAN (18), EM (19), SUB (1A), FS (1C),
                       GS (1D), RS (1E), US (1F), and SYN (16),
                       which applies only if BTE is in asynchronous mode

Conditions:

Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Character Is GS, US, FS, or RS	N	N	N	N	N	N	N	N	N	N
DCP on GS, US, FS, or RS	N	N	N	N	N	N	N	N	N	N
Char after DCP Is GS, US, FS, or RS	N	N	N	N	N	N	N	N	N	N
DCP at Last Screen Column	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
DCP at Last Page Column	Y	Y	Y	Y	N	N	Y	Y	Y	Y
DCP at Last Screen Row	Y	Y	Y	Y	-	-	N	N	Y	Y
DCP at Last Page Row	Y	Y	Y	Y	-	-	N	N	N	N
Next UPF Is Right of Screen	N	N	N	N	-	-	-	-	-	-
Next UPF Is Left of Screen	N	Y	N	Y	-	-	-	-	-	-
Next UPF Is above Screen	N	N	Y	Y	-	-	-	-	-	-
Next UPF Is below Screen	N	N	N	N	-	-	-	-	-	-
Page > 80 per Line	-	Y	-	Y	-	Y	N	Y	N	Y
Page > 24 Lines	-	-	Y	Y	-	-	-	-	Y	Y

Outputs:

Store Character at DCP Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	-	-	-	-	-	-	X	X
Scroll Page Down	-	-	X	X	-	-	-	-	-	-
Scroll Page Left	-	-	-	-	-	X	-	-	-	-
Scroll Page Right	-	X	-	X	-	-	-	X	-	X
Move DCP Right 1 Column	-	-	-	-	X	X	-	-	-	-
Move DCP to Column 1, Next Line	-	-	-	-	-	-	X	X	X	X
Move DCP to Leftmost Position Next UPF	X	X	X	X	-	-	-	-	-	-
No Response	-	-	-	-	-	-	-	-	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
           Occurrence and placement of <ESC> & or <ESC> 6 in message will
           determine if update is to be performed.

           ETX time — when ETX code is processed.

Forms Operations

Decision tables for enabling, disabling, and toggling forms mode are provided here.

Function:	Enable Forms Mode
Activated By:	<ESC> W CTRL *W*

Conditions:

Condition										
Forms Mode	Y	N	N	N	N	N	N	N	N	N
Alternate US Char on Page	-	N	Y	N	Y	Y	Y	Y	Y	Y
Alternate RS Char on Page	-	N	N	Y	Y	Y	Y	Y	Y	Y
GS Followed by Non-Delimiter on Page	-	N	N	N	N	Y	Y	Y	Y	Y
US or Alternate US Followed by Non-Delimiter on Page	-	N	N	N	N	Y	Y	Y	Y	Y
Search Mode Set	-	:	-	-	-	N	N	Y	Y	Y
First UPF on Page Is GS Field	-	-	-	-	-	Y	N	Y	N	-
Search Char before First UPF on Page	-	-	-	-	-	-	-	N	N	Y

Outputs:

Output										
Replace Alternate US with US	-	-	X	-	X	X	X	X	X	X
Replace Alternate RS with RS	-	-	-	X	X	X	X	X	X	X
Move DCP to Home Position	-	X	-	X	-	-	-	-	-	-
Put Page in Forms Mode	-	-	X	-	-	X	X	X	X	X
Put Forms Indicator in Status Line	-	-	X	-	X	M	M	M	M	M
Move DCP to Leftmost Position of First UPF on Page	-	-	X	-	X	-	X	-	X	-
Move DCP to Rightmost Position of First UPF on Page	-	-	-	-	-	X	-	X	-	-
Move DCP to Search Character	-	-	-	-	-	-	-	-	-	X
Initiate Search	-	-	-	-	-	-	-	-	-	X
Terminate Search	-	-	-	-	-	-	-	X	X	-
No Response	X	-	-	-	-	-	-	-	-	-

Note M in the "Outputs" field means:

X if the DCP is on the KBC page;

- if the DCP is not on the KBC page.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Disable Forms Mode

Activated By: <ESC> X   CTRL Q

Conditions:
Forms Mode   Y Y N
DCP on KBC Page   N Y -

Outputs:
Exit Forms Mode   X X -
Remove Forms Indicator from Status Line   - X -
Move DCP to Home   X X X

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
            Occurrence and placement of <ESC> & or <ESC> 6 in message will
            determine if update is to be performed.

            ETX time — when ETX code is processed.

Function: Toggle Forms Mode

Activated By: <DC2>

Conditions:
```
Forms Mode                                  Y  N  N  N  N  N  N  N  N  N
Alternate US Char on Page                   -  N  Y  N  N  Y  Y  Y  Y  Y
Alternate RS Char on Page                   -  N  N  Y  N  Y  Y  Y  Y  Y
GS Followed by Non-Delimiter on Page        -  N  N  N  Y  Y  Y  Y  Y  Y
US or Alternate US Followed by
   Non-Delimiter on Page                    -  N  N  N  N  Y  Y  Y  Y  Y
Search Mode Set                             -  -  -  -  -  N  N  Y  Y  Y
First UPF on Page Is GS Field               -  -  -  -  -  Y  N  Y  N  -
Search Char before First UPF on Page        -  -  -  -  -  -  -  N  N  Y
```

Outputs:
```
Exit Forms Mode                             X  -  -  -  -  -  -  -  -  -
Remove Forms Indicator From Status Line     M  -  -  -  -  -  -  -  -  -
Replace Alternate US with US                -  -  X  -  X  X  X  X  X  X
Replace Alternate RS with RS                -  -  -  X  X  X  X  X  X  X
Move DCP to Home Position                   -  X  X  X  X  -  -  -  -  -
Put Page in Forms Mode                      -  -  -  -  -  X  X  X  X  X
Put Forms Indicator in Status Line          -  -  -  -  -  M  M  M  M  M
Move DCP to Leftmost Position of
   First UPF on Page                        -  -  -  -  -  -  X  -  X  -
Move DCP to Rightmost Position of
   First UPF on Page                        -  -  -  -  -  X  -  X  -  -
Move DCP to Search Character                -  -  -  -  -  -  -  -  -  X
Initiate Search                             -  -  -  -  -  -  -  -  -  X
Terminate Search                            -  -  -  -  -  -  -  X  X  -
```

Note M in the "Outputs" field means:

X if the DCP is on the KBC page;

- if the DCP is not on the KBC page.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to "Move Pointer Right" function.

Function: Exit Forms Mode

Activated By: <SOH>

Note   Menu option "SOH Exits FORMS" must be set to ON.

This function does not apply to any <SOH> within a message, but only to <SOH> in protocol header.

If DCP page is in forms mode, then forms mode is exited, and DCP is moved to home position.

If DCP is on KBC page, then FORM indicator on status line is cleared.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

Refer also to "Clear Page" function.

Search Operations

Decision tables enabling and disabling search mode are provided here.

Function: Enable Search Mode

Activated By: <ESC> E   CTRL A

Conditions:
Forms Mode   N Y

Outputs:
Search Scanning Enabled   X -
Search Scanning Begins at HOME   - X

Note   Search message appears on status line.

Function: Specify Search Character

Activated By: <ESC> - x   CTRL E *x*
                       <ESC> - <ESC> <SO> *z* <ESC> <SI>

Note   If the search character is less than 80 hex, then use the first sequence; x is
          the search character.

          Example: <ESC> - q defines the search character to be "q" (71 hex).

          If the search character is an extended character (greater than 7F hex), then use
          the second sequence; z is the character, which, when OR'ed with 80 hex,
          yields the search character.

          Example: <ESC> - <ESC><SO> q <ESC><SI> defines the search
          character to be F1 hex. (The graphic representation of this character depends
          on the character set of the language version in use.)

Function: Disable Search Mode

Activated By: <ESC> F   CTRL S

Conditions:
Forms Mode   - - - - -
Search Initiated   Y Y N N -
Search Character is " " (7C)   N Y Y N -
DCP Is on KBC Page   Y Y Y Y N

Outputs:
Reset Search Mode and
Clear Search Indicator from Status Line X X X X -
Terminate Search   X X - - -
Reset Search Character to " " (7C)   X - - X -

Data Comm Pointer (DCP) Movement

Decision tables for the pointer movement operations are
provided here.

Function: Move DCP Up

Activated By: <DC3>

Conditions:

DCP on Screen Row 1	Y	Y	N	Y	Y	Y	N	Y
DCP on Page Row 1	Y	N	N	Y	Y	N	N	Y
Page > 24 Lines	N	Y	-	Y	N	Y	-	Y
Forms Mode	-	-	-	-	-	-	-	-
DCP on KBC Page	N	N	N	N	Y	Y	Y	Y

Outputs:

Scroll Page Down	-	X	-	-	-	X	-	-
Scroll Page Up	-	-	-	X	-	-	-	X
Move DCP Up 1 Row	-	X	X	-	-	X	X	-
Move DCP to Last Page Row	X	-	-	X	X	-	-	X

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Move DCP Down

Activated By: <LF>

Conditions:

DCP on Last Screen Row	Y	Y	N	Y	Y	Y	N	Y
DCP on Last Page Row	Y	N	N	Y	Y	N	N	Y
Page > 24 Lines	N	Y	-	Y	N	Y	-	Y
Forms Mode	-	-	-	-	-	-	-	-
DCP on KBC Page	N	N	N	N	Y	Y	Y	Y

Outputs:

Scroll Page Up	-	X	-	-	-	X	-	-
Scroll Page Down	-	-	-	X	-	-	-	X
Move DCP Down 1 Row	-	X	X	-	-	X	X	-
Move DCP to First Page Row	X	-	-	X	X	-	-	X

Note   Menu option "LF Interpretation" must be set to LF.

        May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

        ETX time — when ETX code is processed.

        Refer also to "Carriage Return" function.

Function: Move DCP Right

Activated By: <ESC> C

Conditions:

DCP at Last Screen Column	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
DCP at Last Screen Row	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	-
DCP at Last Page Column	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N
DCP at Last Page Row	Y	Y	Y	Y	Y	Y	Y	Y	N	N	-	N	N	-	-
DCP at End Page Alarm Position	Y	N	Y	N	Y	N	Y	N	N	N	N	N	N	N	N
Page > 80 Chars/Line	Y	Y	N	N	Y	Y	N	N	Y	Y	-	-	-	-	-
Page > 24 Lines	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y	-

Outputs:

Scroll Page Up	-	-	-	-	-	-	-	-	X	X	-	-	-	-	-
Scroll Page Down	X	X	-	-	X	X	-	-	-	-	-	-	-	-	-
Scroll Page Left	-	-	-	-	-	-	-	-	-	-	X	-	-	X	-
Scroll Page Right	X	X	X	X	-	-	-	-	-	X	-	X	-	-	-
Move DCP to Next Page Column	-	-	-	-	-	-	-	-	-	-	X	-	-	X	X
Move DCP to Next Page Row	-	-	-	-	-	-	-	-	X	X	-	X	X	-	-
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X	-	X	X	-	-
Move DCP to Page Row 1	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Move DCP Right

Activated By: <DC2>

Conditions:

Condition	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DCP at Last Screen Column	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
DCP at Last Screen Row	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	-
DCP at Last Page Column	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	N
DCP at Last Page Row	Y	Y	Y	Y	Y	Y	Y	Y	N	N	-	N	N	-	-
DCP at End Page Alarm Position	Y	N	Y	N	Y	N	Y	N	N	N	N	N	N	N	N
Page > 80 Chars/Line	Y	Y	N	N	Y	Y	N	N	Y	Y	-	-	-	-	-
Page > 24 Lines	Y	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N	Y	-

Outputs:

Output	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Scroll Page Up	-	-	-	-	-	-	-	-	-	X	X	-	-	-	-
Scroll Page Down	X	X	-	-	X	X	-	-	-	-	-	-	-	-	-
Scroll Page Left	-	-	-	-	-	-	-	-	-	-	-	X	-	-	X
Move DCP to Next Page Column	-	-	-	-	-	-	-	-	-	-	-	X	-	X	X
Move DCP to Next Page Row	-	-	-	-	-	-	-	-	-	X	X	-	X	X	-
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X	-	X	X	-	-
Move DCP to Page Row 1	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-
Scroll Page Right	X	X	X	X	-	-	-	-	-	X	-	X	-	-	-
Sound Alarm	X	-	X	-	X	-	X	-	-	-	-	-	-	-	-

Note   Menu option "DC2 Function" must be set to ADVANCES DCP.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to "Toggle Forms Mode" function.

Function: Move DCP Left (Backspace)

Activated By: <BS>

Note   Moves DCP left by one column. ·

If DCP is at column 1, <BS> moves it to last column on previous row.

If DCP is at home position, <BS> moves it to last column on last row of page.

Function: Align KBC To DCP

Activated By: <ESC> &

Conditions:

KBC Page Is Forms Page	N	Y	N	N	Y	Y
DCP & KBC on Same Page	Y	Y	N	N	N	N
DCP Page Is Forms Page	-	-	N	Y	N	Y

Outputs:

Move KBC to DCP Location	X	X	X	X	X	X
Update Page Indicator	-	-	X	X	X	X
Update Row Indicator	X	X	X	X	X	X
Update Column Indicator	X	X	X	X	X	X
Set Forms Indicator	-	-	-	X	-	-
Reset Forms Indicator	-	-	-	-	X	-

Note   Set "SOH Exits FORMS" Option to ON.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Tab DCP Right

Activated By: <HT>

Conditions:														
Forms Mode	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Menu Option "Tabs" set to VARIABLE	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
Tab Stops Are Set	-	-	-	-	-	-	-	-	-	-	N	N	N	N
DCP on Last Tab Stop Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
DCP on Last Page Line	-	-	N	N	N	N	Y	Y	Y	Y	-	-	-	-
Next Tab Stop Column on Screen	Y	N	-	-	-	-	-	-	-	-	-	-	-	-
Next Page Line on Screen	-	-	Y	N	Y	N	-	-	-	-	-	-	-	-
First Tab Stop Column on Screen	-	-	Y	Y	N	N	Y	Y	N	N	-	-	-	-
Page Line 1 on Screen	-	-	-	-	-	-	Y	N	Y	N	Y	N	Y	N
Page Column 1 on Screen	-	-	-	-	-	-	-	-	-	-	Y	Y	N	N

Outputs:														
Store HT at DCP Location	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Scroll Page Up	-	-	-	X	-	X	-	-	-	-	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	X	-	X	-	X	-	X
Scroll Page Left	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	-	-	X	X	-	-	X	X
Move DCP to Next Tab Stop	X	X	-	-	-	-	-	-	-	-	-	-	-	-
Move DCP to First Tab Stop, Next Line	-	-	X	X	X	X	-	-	-	-	-	-	-	-
Move DCP to First Tab Stop, Page Line 1	-	-	-	-	-	-	X	X	X	X	-	-	-	-
Move DCP to Home Position	-	-	-	-	-	-	-	-	-	-	X	X	X	X

Note   M in the "Outputs" field means:

X if menu option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time – when ETX code is processed.

Function: Tab DCP Right

Activated By: <HT> (Cont'd)

Conditions:

Forms Mode	N	N	N	N	N	N	N	N	N	N
Menu Option "Tabs" set to VARIABLE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tab Stops Are Set	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP on Last Tab Stop Column	N	N	Y	Y	Y	Y	Y	Y	Y	Y
DCP on Last Page Line	-	-	N	N	N	N	Y	Y	Y	Y
Next Tab Stop Column on Screen	Y	N	-	-	-	-	-	-	-	-
Next Page Line on Screen	-	-	Y	N	Y	N	-	-	-	-
First Tab Stop Column on Screen	-	-	Y	Y	N	N	Y	Y	N	N
Page Line 1 on Screen	-	-	-	-	-	-	Y	N	Y	N
Page Column 1 on Screen	-	-	-	-	-	-	-	-	-	-

Outputs:

Store HT at DCP Location	M	M	M	M	M	M	M	M	M	M
Scroll Page Up	-	-	-	X	-	X	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	X	-	X
Scroll Page Left	-	X	-	-	-	-	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	-	-	X	X
Move DCP to Next Tab Stop	X	X	-	-	-	-	-	-	-	-
Move DCP to First Tab Stop, Next Line	-	-	X	X	X	X	-	-	-	-
Move DCP to First Tab Stop, Page Line 1	-	-	-	-	-	-	X	X	X	X
Move DCP to Home Position	-	-	-	-	-	-	-	-	-	-

Note   M in the "Outputs" field means:

X if option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Tab DCP Right

Activated By: <HT> (Cont'd)

Conditions:

Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP in or Past Last UPF	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Next UPF Is on Screen	Y	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N
Next UPF Is Right of Screen	-	Y	-	Y	N	N	Y	N	-	Y	-	Y	N	N	Y	N
Next UPF Is Left of Screen	-	-	-	N	Y	N	N	Y	-	-	-	N	Y	N	N	Y
Next UPF Is below Screen	-	-	-	N	N	Y	Y	Y	-	-	-	N	N	Y	Y	Y
First UPF Is on Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is above Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Outputs:

Scroll Page Up	-	-	-	-	-	X	X	X	-	-	-	-	-	X	X	X
Scroll Page Down	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scroll Page Left	-	X	-	X	-	-	X	-	-	X	-	X	-	-	X	-
Scroll Page Right	-	-	-	-	X	-	-	X	-	-	-	-	X	-	-	X
Move DCP to Leftmost Position of Next UPF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Note   M in the "Outputs" field means:

X if option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time – when ETX code is processed.

Function: Tab DCP Right

Activated By: <HT> (Cont'd)

Conditions:

Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP in or Past Last UPF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is US Field	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is GS Field	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
First UPF Is US Field	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Next UPF Is on Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is below Screen	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is on Screen	Y	N	N	N	N	N	Y	N	N	N	N	N
First UPF Is Right of Screen	N	N	N	Y	N	Y	N	N	N	Y	N	Y
First UPF Is Left of Screen	N	N	Y	N	Y	N	N	N	Y	N	Y	N
First UPF Is above Screen	N	Y	N	N	Y	Y	N	Y	N	N	Y	Y

Outputs:

Scroll Page Up	-	-	-	-	-	-	-	-	-	-	-	-
Scroll Page Down	-	X	-	-	X	X	-	X	-	-	X	X
Scroll Page Left	-	-	-	X	-	X	-	-	-	X	-	X
Scroll Page Right	-	-	X	-	X	-	-	-	X	-	X	-
Move DCP to Leftmost Position of First UPF	X	X	X	X	X	X	X	X	X	X	X	X

Note M in the "Outputs" field means:

X if option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

)

Function: Tab DCP Right

Activated By: <HT> (Cont'd)

Conditions:

Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP in or Past Last UPF	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Next UPF Is GS Field	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Next UPF Is US Field	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
First UPF Is GS Field	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is US Field	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is on Screen	Y	N	Y	N	N	N	N	N	Y	N	Y	N	N	N	N	N
Next UPF Is Right of Screen	-	Y	-	Y	N	N	Y	N	-	Y	-	Y	N	N	Y	N
Next UPF Is Left of Screen	-	-	-	N	Y	N	N	Y	-	-	-	N	Y	N	N	Y
Next UPF Is below Screen	-	-	-	N	N	Y	Y	Y	-	-	-	N	N	Y	Y	Y
First UPF Is on Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is above Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Outputs:

Scroll Page Up	-	-	-	-	-	X	X	X	-	-	-	-	-	X	X	X
Scroll Page Down	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scroll Page Left	-	X	-	X	-	-	X	-	-	X	-	X	-	-	X	-
Scroll Page Right	-	-	-	-	X	-	-	X	-	-	-	-	X	-	-	X
Move DCP to Leftmost Position of Next UPF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Note M in the "Outputs" field means:

X if option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time – when ETX code is processed.

Function:　　　Tab DCP Right

Activated By:　　<HT> (Cont'd)

Conditions:

Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP in or Past Last UPF	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Next UPF Is GS Field	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is US Field	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is GS Field	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
First UPF Is US Field	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
Next UPF Is on Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Right of Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is Left of Screen	-	-	-	-	-	-	-	-	-	-	-	-
Next UPF Is below Screen	-	-	-	-	-	-	-	-	-	-	-	-
First UPF Is on Screen	Y	N	N	N	N	N	Y	N	N	N	N	N
First UPF Is Right of Screen	N	N	N	Y	N	Y	N	N	N	Y	N	Y
First UPF Is Left of Screen	N	N	Y	N	Y	N	N	N	Y	N	Y	N
First UPF Is above Screen	N	Y	N	N	Y	Y	N	Y	N	N	Y	Y

Outputs:

Scroll Page Up	-	-	-	-	-	-	-	-	-	-	-	-
Scroll Page Down	-	X	-	-	X	X	-	X	-	-	X	X
Scroll Page Left	-	-	-	X	-	X	-	-	-	X	-	X
Scroll Page Right	-	-	X	-	X	-	-	-	X	-	X	-
Move DCP to Leftmost Position of First UPF	X	X	X	X	X	X	X	X	X	X	X	X

Note　M in the "Outputs" field means:

X if option "HT Displayed on TAB FUNCTION: From DATACOMM" is ON;

– if option "HT Displayed on TAB FUNCTION: From DATACOMM" is OFF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time – when ETX code is processed.

Function: Clear Variable Tabs

Activated By: <ESC> #   **CTRL 0**

Clears all variable tab stops.

Note Menu option "Tabs" must be set to VARIABLE.

Function: Vertical Tab Down

Activated By: <VT>   **CTRL** right arrow

Conditions:

Condition																		
DCP in Page Row 1-8	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
DCP in Page Row 9-16	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N
DCP in Page Row 17-24	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
DCP in Page Row 25-32	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y
DCP in Page Col. 1	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y	N	N	Y
Page Line 1 on Screen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	N
Page Line 25 on Screen	-	-	-	-	-	-	-	Y	Y	Y	N	N	N	-	-	-	-	-
Page Col. 1 on Screen	N	Y	-	N	Y	-	N	Y	-	N	Y	-	N	Y	-	N	Y	-
Forms Mode	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Outputs:

Output																		
Scroll Page Up	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-
Scroll Page Down	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X
Scroll Page Right	X	-	-	X	-	-	X	-	-	X	-	-	X	-	-	X	-	-
Move DCP to Page Line 1	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X
Move DCP to Page Line 9	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Move DCP to Page Line 17	-	-	-	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
Move DCP to Page Line 25	-	-	-	-	-	-	X	X	X	X	X	X	-	-	-	-	-	-
Move DCP to Page Column 1	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-	X	X	-

Note Menu option "VT Page Advance" must be set to ON.

Menu option "Lines Per Page" must be set to 32.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrance and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to Environment Tab Options menu.

Function: DCP Home

Activated By: <DC4>

Conditions:

Forms Mode	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP on Page Row 1	Y	Y	Y	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-
DCP on Page Column 1	Y	N	N	Y	Y	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-
Page Row 1 on Screen	Y	Y	Y	Y	N	Y	Y	N	N	-	-	-	-	-	-	-	-	-	-	-
Page Column 1 on Screen	Y	Y	Y	Y	N	Y	Y	N	N	-	-	-	-	-	-	-	-	-	-	-
DCP on Column of 1st Pos. 1st UF	-	-	-	-	-	-	-	-	-	Y	Y	N	N	N	N	N	N	N	N	N
DCP on Row of 1st Pos. 1st UF	-	-	-	-	-	-	-	-	-	Y	N	Y	N	N	N	N	N	N	N	N
1st UF Right Of Screen	-	-	-	-	-	-	-	-	-	N	N	N	Y	N	N	N	Y	Y	N	N
1st UF Left Of Screen	-	-	-	-	-	-	-	-	-	N	N	N	N	Y	N	N	N	N	Y	Y
1st UF above Screen	-	-	-	-	-	-	-	-	-	N	N	N	N	N	Y	N	Y	N	Y	N
1st UF below Screen	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	Y	N	Y	N	Y

Outputs:

Scroll Page Up	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	X	- X
Scroll Page Down	-	-	-	-	X	-	-	X	X	-	-	-	-	-	X	-	X	-	X	-
Scroll Page Right	-	-	X	-	-	-	X	-	X	-	-	-	-	X	-	-	-	-	X	X
Scroll Page Left	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	X	X	- -
Move DCP to Row 1 Col. 1	-	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-
Move DCP to 1st Pos. 1st UF	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X
No Response	X	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Move DCP To Page n

Activated By: <ESC> $ n

Conditions:
Page n Exists   N Y Y
Page n Is Forms Page   - N Y

Outputs:
Move DCP to Home of Page n   - X -
Move DCP to Leftmost Position of
   First UPF on Page n   - - X
No Response   X - -

Note   n must be a character (*not* a number) whose value is v-31, where v is the
integer value of that character's ASCII code.

Example: <ESC> $ I causes a jump to page 2. Character "I", has ASCII code
33; thus 33 - 31 = 2.

May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Position Pointer

Activated By: <ESC> ^ hh kk   CTRL @ *hh kk*

Conditions:

Both hh and kk are valid	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
hh Value Is Out of Range	Y	Y	N	-	-	-	-	-	-	-	-	-	-
kk Value Is Out of Range	Y	N	Y	-	-	-	-	-	-	-	-	-	-
New Location Is on Screen	-	-	-	Y	N	N	N	N	N	N	N	N	N
New Location Is above Screen	-	-	-	-	Y	N	N	N	Y	Y	N	N	
New Location Is below Screen	-	-	-	-	N	Y	N	N	N	N	Y	Y	
New Location Is Right of Screen	-	-	-	-	N	N	Y	N	Y	N	Y	N	
New Location Is Left of Screen	-	-	-	-	N	N	N	Y	N	Y	N	Y	

Outputs:

Scroll Page Up	-	-	-	-	-	-	X	-	-	-	-	X	X
Scroll Page Down	-	-	-	-	X	-	-	-	-	X	X	-	-
Scroll Page Left	-	-	-	-	-	-	X	-	X	-	X	-	
Scroll Page Right	-	-	-	-	-	-	-	X	-	X	-	X	
Move DCP to Indicated Location	-	-	-	X	X	X	X	X	X	X	X	X	X
No Response	X	X	X	-	-	-	-	-	-	-	-	-	-

Note   hh is a hex value that represents the desired column. kk is a hex value that represents the desired row.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Position Pointer

Activated By: <ESC> " c r   CTRL < c r

Conditions:

```
Both c and r are valid          N N N Y Y Y Y Y Y Y Y Y Y
c Value Is Out of Range         Y Y N - - - - - - - - -
r Value Is Out of Range         Y N Y - - - - - - - - -
New Location Is on Screen       - - - Y N N N N N N N N
New Location Is above Screen    - - - - - Y N N N Y Y N N
New Location Is below Screen    - - - - - N Y N N N N Y Y
New Location Is Right of Screen - - - - - N N Y N Y N Y N
New Location Is Left of Screen  - - - - - N N N Y N Y N Y
```

Outputs:

```
Scroll Page Up                  - - - - - - X - - - - X X
Scroll Page Down                - - - - - X - - - X X - -
Scroll Page Left                - - - - - - - X - X - X -
Scroll Page Right               - - - - - - - - X - X - X
Move DCP to Indicated Location  - - - X X X X X X X X X X
No Response                     X X X - - - - - - - - - -
```

Note: c and r must be characters, whose value is v-31, where v is the integer value of the character's ASCII code. The c indicates the desired column plus 31; the r indicates the desired row plus 31.

Example: <ESC> " ! +   would position the DCP to Column 2, Row 12.

Cannot access rows/columns above 96.

Character	ASCII Code	Value
!	33	33-31=2
+	43	43-31=12

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Carriage Return

Activated By: <CR>

Conditions:
Option "CR Character Display: From DATACOMM" Is ON	N	N	N	N	N	N	N	N	N	N
Option "CR Interpretation" Is CR/LF	N	N	N	N	N	N	N	N	Y	Y
Forms Mode	-	-	-	-	-	-	-	-	-	-
DCP on Delimiter	-	-	-	-	-	-	-	-	-	-
Page Column 1 on Screen	Y	Y	Y	Y	N	N	N	N	Y	N
DCP on Last Screen Row	Y	Y	Y	N	Y	Y	Y	N	-	-
DCP on Last Page Row	Y	Y	N	N	Y	Y	N	N	-	-
Page > 24 Lines	N	Y	Y	-	N	Y	Y	-	-	-

Outputs:
Write CR Char at DCP Location	-	-	-	-	-	-	-	-	-	-
Scroll Page Up	-	-	X	-	-	-	X	-	-	-
Scroll Page Down	-	X	-	-	-	X	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	X	X	-	X
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X
Move DCP to Page Row 1	X	X	-	-	X	X	-	-	-	-
Move DCP Down 1 Row	-	-	X	X	-	-	X	X	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

) .

Function: Carriage Return

Activated By: <CR> (Cont'd)

Conditions:

Option "CR Character Display: From DATACOMM" Is ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Option "CR Interpretation" Is CR/LF	N	N	N	N	N	N	N	N	Y	Y
Forms Mode	N	N	N	N	N	N	N	N	N	N
DCP on Delimiter	-	-	-	-	-	-	-	-	-	-
Page Column 1 on Screen	Y	Y	Y	Y	N	N	N	N	Y	N
DCP on Last Screen Row	Y	Y	Y	N	Y	Y	Y	N	-	-
DCP on Last Page Row	Y	Y	N	N	Y	Y	N	N	-	-
Page > 24 Lines	N	Y	Y	-	N	Y	Y	-	-	-

Outputs:

Write CR Char at DCP Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	X	-	-	-	X	-	-	-
Scroll Page Down	-	X	-	-	-	X	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	X	X	-	X
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X
Move DCP to Page Row 1	X	X	-	-	X	X	-	-	-	-
Move DCP Down 1 Row	-	-	X	X	-	-	X	X	-	-

Function: Carriage Return

Activated By: <CR> (Cont'd)

Conditions:

Option "CR Character Display: From DATACOMM" Is ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Option "CR Interpretation" Is CR/LF	N	N	N	N	N	N	N	N	Y	Y
Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP on Delimiter	N	N	N	N	N	N	N	N	N	N
Page Column 1 on Screen	Y	Y	Y	Y	N	N	N	N	Y	N
DCP on Last Screen Row	Y	Y	Y	N	Y	Y	Y	N	-	-
DCP on Last Page Row	Y	Y	N	N	Y	Y	N	N	-	-
Page > 24 Lines	N	Y	Y	-	N	Y	Y	-	-	-

Outputs:

Write CR Char at DCP Location	X	X	X	X	X	X	X	X	X	X
Scroll Page Up	-	-	X	-	-	-	X	-	-	-
Scroll Page Down	-	X	-	-	-	X	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	X	X	-	X
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X
Move DCP to Page Row 1	X	X	-	-	X	X	-	-	-	-
Move DCP Down 1 Row	-	-	X	X	-	-	X	X	-	-

Function: Carriage Return

Activated By: <CR> (Cont'd)

Conditions:

Option "CR Character Display:										
From DATACOMM" Is ON	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Option "CR Interpretation" Is CR/LF	N	N	N	N	N	N	N	N	Y	Y
Forms Mode	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DCP on Delimiter	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Page Column 1 on Screen	Y	Y	Y	Y	N	N	N	N	Y	N
DCP on Last Screen Row	Y	Y	Y	N	Y	Y	Y	N	-	-
DCP on Last Page Row	Y	Y	N	N	Y	Y	N	N	-	-
Page > 24 Lines	N	Y	Y	-	N	Y	Y	-	-	-

Outputs:

Write CR Char at DCP Location	-	-	-	-	-	-	-	-	-	-
Scroll Page Up	-	-	X	-	-	-	X	-	-	-
Scroll Page Down	-	X	-	-	-	X	-	-	-	-
Scroll Page Right	-	-	-	-	X	X	X	X	-	X
Move DCP to Page Column 1	X	X	X	X	X	X	X	X	X	X
Move DCP to Page Row 1	X	X	-	-	X	X	-	-	-	-
Move DCP Down 1 Row	-	-	X	X	-	-	X	X	-	-

Function: Carriage Return

Activated By: <LF>

Conditions:

Forms Mode	-	-	-	-	-	-	-	-
Page Column 1 on Screen	Y	Y	Y	Y	N	N	N	N
DCP on Last Screen Row	Y	Y	Y	N	Y	Y	Y	N
DCP on Last Page Row	Y	Y	N	N	Y	Y	N	N
Page > 24 Lines	Y	N	Y	-	Y	N	Y	-

Outputs:

Scroll Page Up	-	-	X	-	-	-	X	-
Scroll Page Down	X	-	-	-	X	-	-	-
Scroll Page Right	-	-	-	-	X	X	X	X
Move DCP to Page Column 1	X	X	X	X	X	X	X	X
Move DCP to Page Row 1	X	X	-	-	X	X	-	-
Move DCP Down 1 Row	-	-	X	X	-	-	X	X

Note Menu option "LF Interpretation" must be set to CR/LF.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to "Move DCP Down" function.

Function: Prevent Align in Cursor Page

Activated By: <ESC> 6

Conditions:
<ESC> & in DCOM Message	N	Y	Y
<ESC> & after <ESC> 6 in Message	-	N	Y

Outputs:
Align KBC to DCP	-	-	X
Do Not Align KBC to DCP	X	X	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to "ETX".

Editing

Decision tables for the editing operations are provided here.

Function: Insert Character By Line

Activated By: <ESC> !

Conditions:
Forms Mode	N	Y	Y	Y
DCP in Protected Field	-	Y	N	N
DCP at End of GS or US Field	-	-	Y	N

Outputs:
Insert Blank at DCP Location	X	-	-	X
Shift Chars from DCP to End of Line				
Right One Space	X	-	-	-
Last Char on Line Lost	X	-	-	-
Shift Chars From DCP to End of Field				
Right One Space	-	-	-	X
Last Char in Field Lost	-	-	-	X
No Response	-	X	X	-

Function: Insert Character By Page

Activated By: <ESC> @   CTRL OVERTYPE

Conditions:

Forms Mode	N	Y	Y	Y
DCP in Protected Field	-	Y	N	N
DCP at End of GS or US Field	-	-	Y	N

Outputs:

Insert Blank at DCP Location	X	-	-	X
Shift Chars from DCP to End of Page				
Right One Space	X	-	-	-
Last Char on Page Lost	X	-	-	-
Shift Chars From DCP to End of Field				
Right One Space	-	-	-	X
Last Char in Field Lost	-	-	-	X
No Response	-	X	X	-

Function: Delete Character By Line

Activated By: <ESC> %   DELETE

Conditions:

Forms Mode	N	Y	Y	Y	Y	Y
DCP in US Field	-	N	N	N	Y	N
DCP at Rightmost Position of GS Field	-	N	N	N	N	Y
DCP in Protected Field	-	N	Y	N	N	N
DCP on Delimiter	-	Y	N	N	N	N

Outputs:

Delete Character at DCP	X	-	-	-	X	X
Shift Chars from DCP to End						
of Line Left	X	-	-	-	-	-
Insert Blank at End of Line	X	-	-	-	-	-
Shift Chars from DCP TO End						
of Field Left	-	-	-	-	X	-
Insert Blank at End of Field	-	-	-	-	X	-
Shift Chars in Field Right	-	-	-	-	-	X
Insert Blank at Beginning of Field	-	-	-	-	-	X
No Response	-	X	X	X	-	-

Function: Delete Character By Page

Activated By: <ESC> P   CTRL DELETE

Conditions:
Forms Mode   N Y Y Y Y Y
DCP in US Field   - N N N Y N
DCP at Rightmost Position of GS Field   - N N N N Y
DCP in Protected Field   - N Y N N N
DCP on Delimiter   - Y N N N N

Outputs:
Delete Character at DCP   X - - - X X
Shift Chars from DCP to End of Page Left   X - - - - -
Insert Blank at End of Page   X - - - - -
Shift Chars from DCP TO End of Field Left   - - - - X -
Insert Blank at End of Field   - - - - X -
Shift Chars in Field Right   - - - - - X
Insert Blank at Beginning of Field   - - - - - X
No Response   - X X X - -

Function: Line Insert

Activated By: <ESC> L   LINE INSERT

Conditions:
Forms Mode   Y N N N
DCP in Page Column 1   - Y N N
Page Column 1 on Screen   - Y Y N

Outputs:
Insert Blank Line at DCP Row   - X X X
Scroll Page Right   - - - X
Move DCP to Column 1   - - X X
Last line on Page Lost   - X X X
No Response   X - - -

Note May cause col/row to be updated at ETX time if DCP is on KBC page.
          Occurrence and placement of <ESC> & or <ESC> 6 in message will
          determine if update is to be performed.

          ETX time — when ETX code is processed.

Function: Line Delete

Activated By: <ESC> M   LINE DELETE

Conditions:

Forms Mode	Y	N	N	N	N	N	N
DCP in Column 1	-	Y	Y	Y	N	N	N
Page > 24 Lines	-	N	Y	Y	N	Y	Y
Last Page Line on Screen	-	Y	N	Y	Y	N	Y

Outputs:

Move DCP to Column 1	-	-	-	-	X	X	X
Delete DCP Line	-	X	X	X	X	X	X
Move Lines from DCP to End of Page up 1 Row	-	X	X	X	X	X	X
Insert Blank line at End of Page	-	X	X	X	X	X	X
Next Line from Display Store Displayed at end of screen	-	-	X	-	-	X	-
No Response	X	-	-	-	-	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Move Line Up

Activated By: <ESC> >   CTRL **V**

Conditions:
Forms Mode	Y	N	N
DCP on Page Row 1	-	Y	N

Outputs:
Exchange DCP Line with Line above It	-	-	X
Exchange DCP Line with Last Line	-	X	-
Move DCP to Previous Row	-	-	X
Move DCP to Last Row	-	X	-
No Response	X	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Move Line Down

Activated By: <ESC> <   CTRL **B**

Conditions:
Forms Mode	Y	N	N
DCP on Last Page Line	-	Y	N

Outputs:
Exchange DCP Line with Line below It	-	-	X
Exchange DCP Line with Line 1	-	X	-
Move DCP to Next Row	-	-	X
Move DCP to Row 1	-	X	-
No Response	X	-	-

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Clear to End Of Line

Activated By: <ESC> K   CL EOL

Conditions:
Forms Mode	N	Y	Y	Y
DCP in Protected Field	-	Y	N	N
DCP in GS Field	-	N	Y	N
DCP in US Field	-	N	N	Y

Outputs:
Write Blanks from DCP to End of Line	X	-	-	-
Write Blanks from DCP to End of Field	-	-	X	X
No Response	-	X	-	-

Function: Clear to End Of Line

Activated By: <DC1>   CL EOL

Conditions:
Forms Mode	N	Y	Y	Y
DCP in Protected Field	-	Y	N	N
DCP in GS Field	-	N	Y	N
DCP in US Field	-	N	N	Y

Outputs:
Write Blanks from DCP to End of Line	X	-	-	-
Write Blanks from DCP to End of Field	-	-	X	X
No Response	-	X	-	-

Note   Menu option "DC1 Function" must be set to LINE CLR.

Function: Clear To End Of Page

Activated By: <ESC> J   CL EOP

Conditions:
Forms Mode	N	Y	Y
DCP in Protected Field	-	N	Y

Outputs:
Write Blanks from DCP to End of Page	X	-	-
Write Blanks in all UPFs From DCP To End of Page	-	X	-

Function: Roll Page Up

Activated By: <ESC> S   CTRL N

Conditions:
Forms Mode   Y N

Outputs:
Shift Entire Page Up 1 Line   - X
Move Top Line to Bottom Line   - X
No Response   X -

Note May cause col/row to be updated at ETX time if DCP is on KBC page.
          Occurrence and placement of <ESC> & or <ESC> 6 in message will
          determine if update is to be performed.

          ETX time — when ETX code is processed.

Function: Roll Page Down

Activated By: <ESC> T   CTRL M

Conditions:
Forms Mode   Y N

Outputs:
Shift Entire Page Down 1 Line   - X
Move Bottom Line to Top Line   - X
No Response   X -

Note May cause col/row to be updated at ETX time if DCP is on KBC page.
          Occurrence and placement of <ESC> & or <ESC> 6 in message will
          determine if update is to be performed.

          ETX time — when ETX code is processed.

Function: Clear Page

Activated By: <SOH>   CLEAR PAGE

Conditions:
Forms Mode   N Y Y
DCP on KBC Page   - N Y

Outputs:
Fill Page with Blanks   X X X
Move DCP to Home Position   X X X
Reset Forms Indicator   - - X

Note   Menu option "SOH Clears Screen" must be set to ON.

This function does not apply to any <SOH> within a message, but only to <SOH> in protocol header.

May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Refer also to "Exit Forms Mode" function.

Function: Clear Page

Activated By: <FF>   CLEAR PAGE

Conditions:

Forms Mode	N	N	N	Y	Y	Y
Menu Option "FF Clears Tabs" Is ON	N	Y	Y	N	Y	Y
Variable Tabs in Effect	-	N	Y	-	N	Y
DCP on KBC Page	-	-	-	N	N	N

Outputs:

Fill Page with Blanks	X	X	X	-	-	-
Fill Unprotected Fields with Blanks	-	-	-	X	X	X
Move DCP to Home Position	X	X	X	X	X	X
Clear Variable Tabs	-	-	X	-	-	X

Note   May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Function: Clear Page

Activated By: <ESC> <FF>   CLEAR PAGE

Conditions:

Forms Mode	N	Y

Outputs:

Fill Page with Blanks	X	-
Fill Unprotected Fields with Blanks	-	X
Move DCP to Home Position	X	X

Note   May cause col/row to be updated at ETX time if DCP is on KBC page. Occurrence and placement of <ESC> & or <ESC> 6 in message will determine if update is to be performed.

ETX time — when ETX code is processed.

Printer Command Sequences

Function: Print All

Activated By: <ESC>]   CTRL]

Prints DCP page from home position to DCP position (in either forms or nonforms mode).

For additional information refer to "Printer Interface" in Section 13.

Function: Print All with Form Feed

Activated By: <ESC> ;   CTRL ;

Prints DCP page from home position to DCP position (in either forms or nonforms mode). A form feed is executed following the last line of print.

For additional information refer to "Printer Interface" in Section 13.

Function: Print Unprotected Data

Activated By: <ESC> :   CTRL :

Conditions:
Forms Mode   Y N

Outputs:
All Text in Unprotected Fields From
   Home to DCP Printed   X -
All Text From Home to DCP Printed   - X
Form Feed Generated After Last Line   X X

For additional information refer to "Printer Interface" in Section 13.

Function: Query Print Status

Activated By: <ESC>) 1

Note   This sequence returns status of printer to host in following format:
     <ESC>) 1 x
       where x — 1 if printer is not ready, and x — 0 if printer is ready.

Video Attribute Sequences

Function: Underline Video Highlight

Activated By: <ESC> 3   CTRL H /

Note   Starts underline video highlight. Stores <SI> at DCP location and advances
DCP by one column. For receiving only.

If <SI> is used, menu option "SO/SI XTN" must be set to OFF.

Function: Reverse Video Highlight

Activated By: <ESC> 4   CTRL H .

Note   Starts reverse video highlight. Stores <SO> at DCP location and advances DCP
by one column. For receiving only.

If <SO> is used, menu option "SO/SI XTN" must be set to OFF.

Function: End Highlight

Activated By: <ETB>   CTRL H 7

Note   Turns off highlight. Stores ETB code at DCP as space and advances DCP one column.

Function: Start Video Blink

Activated By: <CAN>   CTRL H 8

Note   Turns on video blinking. Stores CAN code at DCP as space and advances DCP
one column.

Function: Start Secure Video

Activated By: <EM>   CTRLH 9

Note Starts secure highlight (characters typed are hidden by reverse video blank
image). Stores EM code at DCP as space and advances DCP one column.

Function: Start Bright Video

Activated By: <SUB>   CTRL H :

Note Turns on bright video. Stores SUB code at DCP as space and advances DCP
one column.

Function: Set Reverse Video

Activated By: <ESC> N   CTRL U

Note Changes DCP page to reverse video. If DCP page is in forms mode, unprotected
fields remain in normal video.

Function: Set Normal Video

Activated By: <ESC> O

Note Restores DCP page to normal display.

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BTE Reconfiguration Sequences

Function: Store ASCII Codes as Data

Activated By: <ESC> R A aaaa cc dd...dd
                       CTRL R A hhhh dd...dd

Note   aaaa — Starting address (in hex) where data is to be stored

cc — Length of data (number of bytes to be stored, in hex)

dd...dd — Data (hex-coded ASCII characters to be stored)

If specified character data is outside permitted range of 0 through F hex, this escape sequence is cancelled; however, all codes preceding "bad" characters will be stored.

Any attempt to write to memory other than temporary storage area or key programs buffer will not be successful.

Follow this escape sequence by an <ESC> R C sequence.

Refer to "Byte Configuration" — Appendix D — for limitations that apply when multiple environments are in effect.

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Function: Configure Data Comm, Screen, and Key Programs Buffers

Activated By: <ESC> R B mmm nnnn ppp

Note   mmm — Data comm buffer size (in hex)

nnnn — Screen buffer size (in hex)

ppp — Key programs buffer size (in hex)

When configuration is successful, six asterisks are displayed on page 1, beginning at column 1 of line 1, and then transmitted to host.

When configuration is not successful, BTE displays an error code (refer to Appendix A).

Function: Reconfigure BTE

Activated By: <ESC> R C   CTRL R C XXXX

Note   Causes reconfiguration of BTE. Use this escape sequence following an <ESC> R A or <ESC> R H sequence.

When configuration is successful, six asterisks are displayed on page 1, beginning at column 1 of line 1, and then transmitted to host.

When configuration is not successful, BTE displays an error code (refer to Appendix A).

Refer to "Byte Configuration" — Appendix D — for limitations that apply when multiple environments are in effect.

Function: Selective Key Programming

Activated By: <ESC> R D hh pp...p 00 ii qq...q 00 nn zz...z 00 00

Keys on the BTE keyboard can be programmed from
the host. Such programs are stored in the BTE key
programs buffer (or they may be saved to the terminal's
permanent storage). Refer to Section 7, Key Programming,
for detailed information.

Note   hh ━ Hex value of first key to be programmed (refer to Appendix E)

pp...p ━ Program for first key

00 ━ End of first key program

ii ━ Hex value of second key to be programmed

qq...q ━ Program for second key

00 ━ End of second key program

nn ━ Hex value of nth key to be programmed

zz...z ━ Program for nth key

00 ━ End of nth key program

00 ━ End of escape sequence

Function: Store Data in Hexadecimal Codes

Activated By: <ESC> R H aaaa cc hhhh...hh   CTRL R H

Note   aaaa ━ Starting address(in hex) where data is to be stored

cc ━ Length of data (number of bytes to be stored, in hex)

hhhh...hh ━ Data (hexadecimal codes to be stored)

Used to write to temporary storage area or key programs buffer (refer to
Section 7 for detailed information).

Follow this escape sequence by <ESC> R C sequence.

Refer to "Byte Configuration" — Appendix D — for
limitations that apply when multiple environments are in
effect.

Function: Program Function Keys CODE F1 Through CODE SHIFT-F10

Activated By: <ESC> R K ppp hh kk...k A9 ii qq...q A9
                       nn zz...z A9 A9

Keys on the BTE keyboard can be programmed from the
host. Such programs are stored in the BTE KPT buffer (or
they may be saved to BTE permanent storage). Refer to
Section 7, Key Programming, for detailed information.

Note   ppp — Hex-coded ASCII value that defines length (in bytes) of key
               programming data that follows

       hh — Hex value of first key to be programmed (refer to Appendix F)

       kk...k — Program for first key (f1)

       A9 — End of first key program

       ii — Hex value of second key to be programmed

       qq...q — Program for second key (f2)

       A9 — End of second key program

       nn — Hex value of nth key to be programmed

       zz...z — Program for nth key (Fn)

       A9 — End of nth key program

       A9 — End of escape sequence

       If key program length exceeds buffer size, escape sequence will end
       when size is *just* exceeded, and "buffer overflow" message is displayed
       on screen and transmitted to host.

Function: Transmit Error Log

Activated By: <ESC> R L   CTRL R L XXXX

Note BTE transmits error log to host immediately upon receipt of this escape
sequence. Any message information that follows this sequence is lost.

Error log information is composed of 10 bytes of hex-coded ASCII data, as follows:

0 x 0 0 0 0 0 0 0 0

where x is any value between 30 hex and 3F hex.

Example 1: x − 0 (30 hex)

Example 2: x − ? (3F hex)

Function: Copy Temporary Storage into Configuration File

Activated By: <ESC> R P   CTRL R P XXXX

Note Copies contents of temporary storage into configuration file, then performs
following reconfiguration sequence:

Copies contents of permanent storage into configuration file

Reconfigures BTE as described in <ESC> R C sequence, then displays six
asterisks and transmits them to host.

If error occurs, error message is displayed and transmitted to host.

Refer to "Byte Configuration" — Appendix D — for
limitations that apply when multiple environments are in
effect.

Function: Display Message in Application Status Line

Activated By: <ESC> R S cc dd...d

Note   cc — Number of bytes (in hex) to be stored

dd...d — Data (message to be displayed)

Clears application status line (columns one through 80) and displays
message, beginning with column one. If cc exceeds 80 bytes, excess data is ignored.

If cc is not expressed as specified (0 through 9, or A through F), this escape
sequence is cancelled.

Function: Transmit Memory (Temporary Storage) Contents to Host

Activated By: <ESC> R T aaaa cc

Enables host to read BTE temporary storage. BTE
transfers data into data comm buffer (in hex-coded ASCII),
then goes into transmit mode.

Note   aaaa — Starting address (in hex) from which data is to be read

cc — Number of memory bytes (in hex) to be transmitted

Any attempt to read memory outside of byte configuration area or Key
Programs buffer area will cause space characters (20 hex) to be transmitted.

Miscellaneous Sequences

Function: Start Escape Sequence

Activated By: <ESC>

Note Incomplete by itself. Must be followed by any of the various escape-sequence codes in this section. DCP is not affected.

Function: Set Shift Out (To Extended Character Set)

Activated By: <ESC> <SO>
                   <SO>

Note If <SO> is used, menu option "SO/SI XTN" must be set to ON.

Shifts out so that subsequent display characters are mapped through extended (secondary) character set. That is, BTE is "shifted out" to extended character set.

Refer to "Highlighting, Extended Characters, and Diacritics" — Section 10 — for detailed information.

Function: Reset Shift Out (Shift In)

Activated By: <ESC> <SI>
                   <SI>

Note If <SI> is used, menu option "SO/SI XTN" must be set to ON.

Shifts in so that subsequent display characters are mapped through primary character set. That is, BTE is "shifted in" to primary character set.

Refer to Section 10 for detailed information.

Function: Character Translation

Activated By: <ESC> ' x CTRL **H** X

Note In nonforms mode, stores logical product of DF hex and character x at DCP location and advances DCP one column.

In forms mode, same function is performed, but values of x from 1C to 1F hex are ignored.

Example:

Highlights can be written to DCP page for following values of x:

  x — : (bright)

  x — / (underscore)

  x — . (reverse)

  x — 7 (end highlight)

  x — 8 (blink)

  x — 9 (secure)

Function: Reset Keystroke Lockout

Activated By: <ESC> —

Note Unlocks keyboard buffer. Sets terminal BTE to LOCAL mode and contents of keyboard buffer are interpreted.

Function: Fill with x

Activated By: <ESC> _ x

Note   Fills the DCP page with character x and returns DCP to home position.
However, if DCP is in a forms-mode page, only unprotected fields are filled
with x, and DCP returns to data entry position of first unprotected field.

       May cause col/row to be updated at ETX time if DCP is on KBC page.
Occurrence and placement of <ESC> & or <ESC> 6 in message will
determine if update is to be performed.

       ETX time — when ETX code is processed.

Function: Xmit BTE Screen to Host

Activated By: <ESC> (

Note   DCP page is put into transmit mode.

Refer to Section 12.

Function: Enable Audible Alarm

Activated By: <ESC> ?
                  <BEL>

Note   Activates audible alarm, if it has been enabled.

Function: Enter Local Mode

Activated By: <ESC> space W

Note   Communication between the workstation and OMS II is suspended and BTE
exists, allowing you to use interactive applications locally.

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Function: Display Character Set

Activated By: <ESC> space C

Conditions:
Forms Mode   N Y Y

Outputs:
DCP Page Cleared   X X X
Character Set Displayed   X X X
Exit Forms Mode   - X X

Note   May cause col/row to be updated at ETX time if DCP is on KBC page.
           Occurrence and placement of <ESC> & or <ESC> 6 in message will
           determine if update is to be performed.

           ETX time — when ETX code is processed.

Function: Load Contents of Configuration File and Reconfigure

Activated By: <ESC> space D

Note   Environment Restart, in multiple environments, resets the keyboard environment.
           When configuration is successful, six asterisks are displayed on page 1,
           beginning at column 1 of line 1, and then transmitted to the host.
           When configuration is not successful, BTE displays an error code (see Appendix A).

Function: Display Release Version

Activated By: <ESC> space V

When transmitted via data comm, the version number is
transmitted to the host.

Function: Toggle Variable Tabs

Activated By: <ESC> .

Conditions:
Forms Mode   - -
Tab Stop Set at DCP Position   Y N
Menu Option "Tabs" set to VARIABLE   Y Y

Outputs:
Tab Stop Set   - X
Tab Stop Reset   X -

Note   Menu Option "Tabs" must be set to VARIABLE.

Function: Toggle Variable Tabs

Activated By: <VT>

Conditions:
Forms Mode   - -
Tab Stop set at DCP Position   Y N

Outputs:
Tab Stop Set   - X
Tab Stop Reset   X -

Note   Menu option "Tabs" must be set to VARIABLE.
         Menu option "VT Page Advance" must be set to OFF.

Refer also to "Vertical Tab Down" function.

Function: Set Mobile Home

Activated By: <ESC> D   CTRL HOME

Note   Mobile home position is set to column and row of DCP. Mobile home position
          is significant as start-of-transmission point for outgoing messages.

Function: Lower Case Disable

Activated By: <ESC> Y   CTRL Y

Note   Enables keyboard "LOCK" function. Disables lowercase characters from
          appearing on the screen.

Function: Lower Case Enable

Activated By: <ESC> Z   CTRL T

Note   Disables keyboard "LOCK" function. Enables lowercase characters to be
          displayed on screen.

Function: End of Text Processing

Activated By: <ETX>

The <ETX> not only signifies the end of the message, but also stores an ETX code at the current location of the DCP, if the DCP page is not in forms mode, and menu option "DATACOMM ETX Display" is set to ON.

Moreover, if ETX has been stored, and menu option "ETX Advance" is set to ON, the DCP moves one space to the right.

If the DCP is located in the same page as the KBC, and the message does not contain a sequence that aligns the pointer and the cursor (either <ESC> & or <ESC> 6), the cursor is aligned with the DCP.

If a transmission number error has occurred, "message lost" is displayed on the status line. In addition, if the DCP page is not on the KBC page, stationary cursor infomation is maintained so that the keyboard cursor will be placed at a position that corresponds to the DCP when that page is entered at a later time.

If the DCP page is the KBC page, then the col/row indicator on the status line is updated to correspond to the keyboard cursor's column and row.

Function: End of Transmission

Activated By: <EOT>

Note   An EOT code in text causes a sequence error. BTE goes into "waiting to be polled or selected" state.

Data Transmission

Each BTE message is precisely delimited, with a provision
for parity checking of individual characters and the
message as a whole.

The BTE States

BTE has three states that coordinate the exchange of data
between the workstation and the host: local, receive and
transmit. The relationship between these states is shown
in Figure 12-1.

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Figure 12-1   **How the BTE States Are Coordinated**
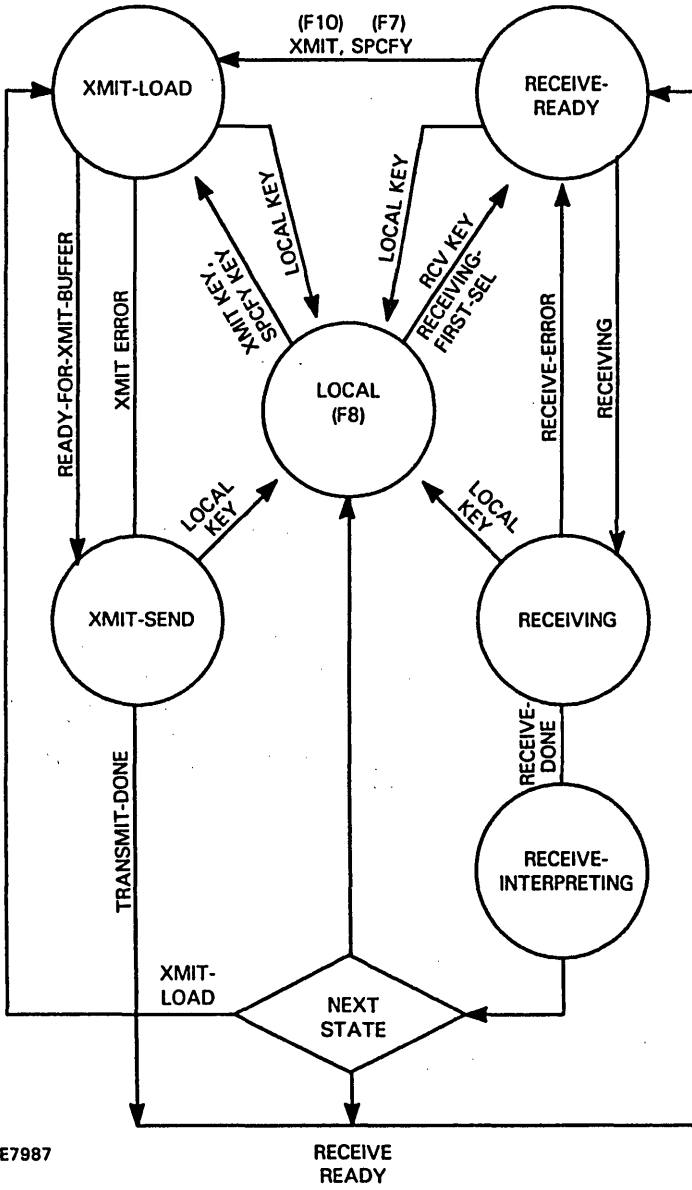
E7987

Local State

BTE neither transmits nor receives. Keyboard input is unrestricted. BTE can be configured to receive fast-select messages while in the local state. The Local LED is on.

Receive State

The receive state consists of three phases: receive-ready, receiving, and receive-interpreting. BTE must be in the receive state to receive a message from the host. If the host attempts to send a message and BTE is not the receive state, the ENQ LED (F3) lights. Pressing RCV (F9) puts BTE into the receive state and allows the message to come through. The RCV LED (F9) is lit when BTE is in the receive state.

Receive-Ready

BTE is ready to receive. If BTE is in local state, the RCV key puts it in receive-ready. The FINISH and RCV keys are ignored. If the KBC and DCP are in different pages, keyboard input is handled normally. If they're on the same page, the following keys are handled normally: LOCAL, XMIT, HELP, SPCFY, CTRL, NEXT PAGE, PREV PAGE, SCROLL UP, SCROLL DOWN. If BTE is in control mode (CTRL appears on the status line), SCROLL and NEXT PAGE are handled normally. All other keys cause an immediate transition to the local state.

Receiving

RECEIVING—P # is displayed on the status line. # is the number of the page containing the DCP. The LOCAL key ends the receiving and returns BMULTI to idle state. The SPCFY, RCV, XMIT, and FINISH keys are ignored. If the DCP and KBC are on different pages, all other keys are handled normally; if they're on the same page, all keys except LOCAL, HELP, and CTRL are ignored.

Receive-Interpreting

The data comm message that was received in the receiving state is being interpreted. *RECEIVING—P #* is displayed on the status line (# is the page containing the DCP).

The SPCFY, RCV, XMIT, and FINISH keys are ignored. The LOCAL key's effect is postponed until the current message is interpreted. The CTRL and HELP keys are handled normally. All other keys are handled normally if the KBC and DCP are in different pages. If they're in the same page, the keys are ignored.

If LOCAL is pressed while BTE is in receive-interpreting, BTE goes into the Local state after the current message is interpreted. Otherwise, the next state may be local, transmit-load, or receive-ready depending on the message interpreted and how BTE is configured.

Transmit State

The transmit state consists of two phases: transmit-load and transmit-send. BTE must be in the transmit state to send a message; press XMIT (F10). The XMIT LED is lit while BTE is in this state.

Transmit-Load

BTE creates an outgoing message in the data comm buffer. This state results from pressing XMIT or SPCFY on the keyboard or sending certain escape sequences in data comm messages. The LOCAL key stops the loading and returns BTE to the local state. All other keys are handled as they are in receive-interpreting.

Transmit-Send

BTE is actively engaged in transmitting the message assembled in the data comm buffer. The LOCAL key stops the transmission and returns BTE to the local state. All other keys are handled as they are in receive-interpreting.

General vs. Specific Transmission

Invoke general transmissions by pressing XMIT or the
CTRL XMIT sequence from the keyboard and by an <ESC>
(sequence from the host. What data is sent to the host as
a result will vary depending on BTE configuration.

Specific transmissions send information predetermined by
the function invoking the transmission. Specific
transmission commands include sending the cursor position
(SPCFY), scratchpad bytes, software version, and error
logs. They're listed here.

Transmitting from Keyboard

XMIT

XMIT loads data from display store buffer into the data
comm buffer (general transmission).

CTRL d/d XMIT

CTRL d/d XMIT (each d represents a digit) sends digits
directly to the data comm buffer without using the display
store buffer. It has the effect of loading the characters
<ESC> m n ETX into the data comm buffer for
transmission, where m and n are the two digits accessed in
the CTRL sequence (specific transmission).

CTRL d/d SPCFY

CTRL d/d SPCFY (each d represents a digit) sends digits
directly to data comm buffer followed by the cursor
location without using the display store buffer; it has the
effect of loading the characters <ESC> m n followed by
cursor location into the data comm buffer (specific
transmission).

SPCFY

SPCFY loads the cursor position into data comm buffer.
See the F7 key in Section 3 for a detailed description
(specific transmission).

Transmitting from Host

The following commands load the buffer from the various
sources or under the described conditions.

Command	Loads Buffer
ESC (	From display store (general transmission)
ESC RT	From scratchpad (specific transmission)
ESC space V	With BTE software level (specific transmission)
ESC R C, <ESC> R P, ESC space D	All three escape sequences load buffer with messages indicating a successful reconfiguration or restart operation (specific transmission)
ESC R L	With string indicating current state of ERROR log (specific transmission)

Host Messages

BTE communication with the host consists of three
subprocesses: BMULTI, the message synthesizer, and the
message interpreter.

BMULTI disciplines line control governing the network,
transfers messages into and out of data comm buffer,
checks parity of incoming characters, and generates parity
of outgoing characters and messages.

The host synthesizer assembles outgoing messages in the
data comm buffer and turns them over to the transceiver
for transmission.

The host interpreter handles BTE response to incoming messages after they have been deposited in the data comm buffer and validated by the transceiver. A message is interpreted as if it were made up of keystrokes. The following list summarizes the host interpretations of messages (menu options are in boldface.) All other characters (except for those used in line control) are treated as text: Each one is stored at the DCP position and the DCP advances. (For information on which menus contain what options, see Appendix D.)

Hex Code	Name	Interpretation
00	NUL	Ignored
03	ETX	End of message
		If *Datacomm ETX Display* option is off, stores ETX
		If *Datacomm ETX Display* option is off AND *ETX Advance* option is on, advances DCP
07	BEL	Sounds horn (unless disabled)
08	BS	Moves DCP left
09	HT	Forms mode: advances DCP to next field
		Nonforms: advances DCP to next tab stop (if none, home) If *HT Displayed on TAB Function From Datacomm* option is on, displays TAB character at DCP's initial position
0A	LF	Moves DCP down one line
		If *LF Interpretation* option is CR/LF, also moves DCP to col 1
0B	VT	If *VT Page Advance* option is on, DCP moves down to next vertical tab; if *VT Page Advance* is off, toggles tab stops at DCP column
0C	FF	DCP moves to home and clears page
		Forms: unprotected fields cleared on page; if *FF Clears Tabs* option is on, and *Tabs* is set to variable, also clears tab stops
0D	CR	DCP column number moves to 1
		If *CR Character Display From Datacomm* option is on, stores CR at initial DCP position;
		if *CR Interpretation* option is CR, moves DCP down one line
11	DC1	If *DC1 Function* option is Stay in Receive, sets stay-in-RCV flag; if *DC1 Function* option is Line Clr, clears line from DCP to end

Hex Code	Name	Interpretation
12	DC2	If *DC2 Function* is Advance DCP, moves DCP right; If *DC2 Function* option is Toggle Forms, toggles forms mode of DCP page
13	DC3	Moves DCP up
14	DC4	Moves DCP to home position of page
1B	ESC	First character of <ESC> sequence
1D	GS	Ignored if DCP is in forms mode page, otherwise stored as a character
1E	RS	Ignored if DCP is in forms mode page, otherwise stored as a character
1F	US	Ignored if DCP is in forms mode page, otherwise stored as a character

The Transmit Function

The transmit function consists of two procedures: scanning the data to be loaded into the data comm buffer and loading the buffer. Each can be affected by set-up options. The function can be initiated from the keyboard using XMIT or via the host using an <ESC> (sequence.

<ESC> (

The <ESC> (function is similar to the transmit function with the few exceptions that follow. Scanning and loading an outgoing message from the DCP page into the data comm buffer follows the same algorithms as for the XMIT key algorithms. The full procedure is detailed in the next subsection.

□ BTE enters transmit mode after it has interpreted an incoming message containing the <ESC> (sequence and has loaded the outgoing message into the data comm buffer.

□ An outgoing message is obtained by scanning the page where the DCP was left after the incoming message containing the <ESC> (sequence was received.

□ Any mobile home on the page is ignored; all scans begin at line 1, column 1. If the DCP is at line 1, column 1, the scan continues to the end of the page. Otherwise, it stops when it reaches the DCP position. In either case, the scan stops if it encounters an ETX.

XMIT

This subsection is organized this way:

☐ Nonforms: buffer loading and scanning

☐ Forms: buffer loading and scanning with search mode off

☐ Forms: buffer loading and scanning with search mode on

Nonforms

BTE is put into transmit mode.

If BTE is in local or receive mode, the DCP is moved to the cursor position and the data in the page is transferred into the data comm buffer. The LOCAL and RCV LEDs are then turned off and the XMIT LED is turned on.

If the data comm buffer overflows, the data that didn't fit into the buffer is not transmitted and BTE enters XMIT mode. The error message *Buffer Overflow* appears on the environment status line.

If BTE is receiving data, this key has no effect.

Buffer Loading and Scanning

Note: XMIT-HOME defines the position where buffer loading starts. If the Line at a Time Xmit option is set *off* (in the Environment Data Comm Options menu), XMIT-HOME corresponds to the mobile home position; if the Line at a Time Xmit option is set *on*, XMIT-HOME corresponds to the column of the mobile home position in the same line that contains the cursor.

ETX and Cursor

When an ETX character is not in the cursor page:

Cursor Position	Data Loaded
Before or after XMIT-HOME	From XMIT-HOME to the end of page
After XMIT-HOME	From XMIT-HOME up to the cursor

When an ETX character is in the cursor page and the Line at a Time XMIT is set to *off*:

Cursor Position	Data Loaded
Before the ETX	From the cursor to the ETX character
At the ETX	An empty message
After the ETX	From the cursor to the end of the page

When an ETX character is in the cursor page and the Line At A Time XMIT is set to *on*:

Cursor Position	Data Loaded
Before the ETX and not on the ETX line	From the cursor to the end of the line
Before the ETX and on the ETX line	From the cursor to the ETX
At the ETX	An empty message
After the ETX	From the cursor to the end of the line

CR Character

If the CR character is displayed, it is the last character in a line to be loaded into the buffer. Loading resumes at the beginning of the next line. If the cursor or an ETX character is encountered before the next line, the scanning ends.

HT Character

If an HT character is displayed, it is the last character to be loaded before the next tab stop. If the cursor or an ETX character is encountered before the next tab stop or no other tab stops exists, the scanning ends.

SO and SI Codes

If the SO/SI XLT and SO/SI XTN options are both set OFF (see the Environment Datacomm Options menu), SO and SI codes are loaded as they are. If either option is set ON or if both options are set ON, the following substitution takes place:

SO is loaded as <ESC> '. (escape/single quotation/period)

SI is loaded as <ESC> '/ (escape/single quotation/slash)

See Section 10 under Extended Characters for more information.

Extended Characters   .

If an extended character is encountered after a normal character, the <ESC> SO or SO sequence (*see note) is loaded and each extended character is AND'd with 7F hex (this sets the most significant bit to zero). If the last character is an extended character, <ESC> SI will be inserted before ETX.

If a normal character is encountered after an extended character, the <ESC> SI or SI (*see note) sequence is loaded.

Note: *Which sequence is loaded depends on how the XLT and XTN options are set. For more information, refer to Section 10, under Extended Characters.

Forms

Buffer Loading and Scanning with Search Mode Off

When the Form XMIT to Cursor is set to on and there is no ETX character on the cursor page:

Cursor Position	Transmittable Data Loaded
Before or at XMIT-HOME	From XMIT-Home to the end of the page
After XMIT-HOME	From XMIT-Home to the cursor
In the first unprotected GS field of a page	From XMIT-Home to the end of the page
Scan reaches the cursor without loading any characters	Scan proceeds to the end of the page

When the Form XMIT to Cursor is set to on and there is an ETX character on the cursor page:

Cursor Position	Transmittable Data Loaded
Before the ETX	From the cursor to the ETX
At the ETX	An empty message
After the ETX	From the cursor to the end of the page

)

When the Form XMIT to Cursor is set to off and there is no ETX character on the cursor page:

Transmittable Data Loaded

From XMIT-HOME to the end of the page

When the Form XMIT to Cursor is set to off and there is an ETX character on the cursor page:

XMIT-HOME Position	Data Loaded
Before the ETX	From XMIT-HOME to the ETX
At the ETX	An empty message
After the ETX	From XMIT-HOME to the end of the page

CR Character

If the CR character is displayed, it is the last character to be loaded into the buffer before the next GS, US, or FS character. If the cursor or an ETX character is encountered, the scanning ends.

HT Character

If an HT character is displayed, it is the last character to be loaded before the next GS, US, or FS character. If the cursor or an ETX character is encountered before the next field or no other field exists, the scanning ends.

Forms Delimiters

An RS character is the last character to be loaded before the next GS, US, or FS character.

FS, US, and GS characters are not loaded but scanning resumes at the next character.

SO and SI Codes

Same as in nonforms mode.

Extended Characters

Same as in nonforms mode.

Buffer Loading and Scanning with Search Mode On

When an ETX character is not in the cursor page:

Data Loaded
From XMIT-HOME to the end of the page

When an ETX character is in the cursor page:

XMIT-HOME Position	Data Loaded
Before the ETX	From XMIT-HOME to the ETX
At the ETX	An empty message
After the ETX	From XMIT-HOME to the end of the page

CR Character

If a CR character is displayed, it is the last character in a line to be loaded into the buffer. Loading resumes at the beginning of the next line. If the cursor or an ETX character is encountered before the next line, the scanning ends.

HT Character

If an HT character is displayed, it is the last character to be loaded before the next tab stop. If the cursor or an ETX character is encountered before the next tab stop or no other tab stops exists, the scanning ends.

Forms Delimiters

GS, US, and FS fields are transmitted as they are.

SO and -SI Codes

Same as in nonforms mode.

Extended Characters

Same as in nonforms mode.

)

Printer Interface

BTE Printing Capabilities

BTE printer devices are selected on an environment basis and are provided by the Sequential Access Method (SAM). They include:

□ [LPT]

□ [SPLB]

□ [PTR]A

□ [PTR]B

□ [PTR]1A, [PTR]1B, [PTR]1C, [PTR]1D (for a 4-port data communications module)

□ [COMM]A, [COMM]B (for an RS232 port)

□ File names (to print to a file)

You select the devices using any of the following:

□ Environment Peripheral Options menu

□ CTRL space F CTRL (to invoke printer menu)

□ Print prompt

□ Host or operator manipulation of scratchpad

Direct Printing: Printer Configuration Files

Use the BTOS command Create Configuration File to make sure the printer configuration file BTE accesses match the settings on your printer.

1 At the Command line type **Create Configuration File** and press RETURN.

2 Type **BTEPTRF** beside device name if you have a serial printer. Type **BTELPTF** beside device name if you have a parallel printer.

3 Press GO.

See the *BTOS System Software Operations Guide* for more information about how to use the command.

Spooled Printing

When you use spooled printing, directing printing is not
possible. Before using spooled printing, read the
"sys.printers" file from the BTOS Executive and match the
configured printer field name with the printer type from
which you will print through BTE. This file name will also
be needed when you configure the Environment Peripheral
Options menu.

Selecting BTE Printer Devices

Environment Peripheral Options Menu

For more information on the Environment Peripheral
Options menu, see Section 4.

CTRL SPACEBAR F CTRL

This keyboard command sequence calls up the following
menu which overlays the Application and Environment
status lines:

Printer Selection: SPECIFIED BELOW
Close Printer After Print: OFF
Name: YOU SPECIFY PRINTER OR FILE NAME HERE

Once you invoke the printer menu with CTRL SPACEBAR
F CTRL, you manipulate the menu as you do the regular
set-up menus: select an item using the arrow keys, toggle
the option using RETURN. For *Name*, type the printer
name or print file where you want the data to be sent.
Press GO to lock in the changes. Press CANCEL to abort
any changes. Use the normal printing commands to initiate
printing.

Print Prompt

If the *Prompt for Printer's Name* is *YES* in the Peripheral
Options menu, any print request made from the keyboard
invokeS the print menu invoked by CTRL SPACEBAR F
CTRL. The only difference is that pressing GO in this case
initiates printing. Pressing CANCEL aborts the print
request.

Auxiliary Printer

BTE Printers

BTE uses the BTOS print facility to print and supports all
printers supported by the BTOS print utility.

BTE Printer Buffers

BTE can have up to three printer buffers, one for each
enabled environment. A print request you initiate in one
environment is not be interrupted if you enter another
environment. However, direct printing ([LPT], [PTR]A,
[PTR]B, and [COMM]) can handle only one print request at
a time and works on a first-come, first-served basis. If you
send a second print request while the printer is busy with
the first, *PRINTER ERROR* appears on the status line.
Spooled printing and printing to a file can run concurrent
requests.

Printer Errors

PRINTER ERROR appears if:

□ You try to print when the printer is busy.

□ The incorrect printer was selected.

□ Printer status in not ready.

□ A printer system fault occurs.

□ The printer buffer was allotted 0 bytes in the
   Environment Buffers menu of that particular
   environment).

BUFFER OVERFLOW appears if you try to print a page
that is larger than the print buffer. The data that BTE
could not copy into the printer buffer is lost.

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Printer Commands

The printer performs the following print operations in response to the appropriate commands.

Note: If the corresponding menu options have been protected, these commands do not work as described.

Print Operation	Keyboard Commands	Host Commands
Print whole page	CTRL ; SHIFT-PRINT	ESC ;
Print unprotected page	CTRL : PRINT	ESC :
Print whole page, no form feed	CTRL]	ESC]

For more information on PRINT and SHIFT-PRINT, see Section 3.

Print Whole Page

Prints data from the mobile home position to the current cursor position (KBC for keyboard commands, DCP for host commands) in forms mode and nonforms mode. It generates a form-feed after the last line of print.

Print Unprotected Page

Prints the data in unprotected fields from mobile home to the cursor position (KBC for keyboard commands, DCP for host commands). BTE must be in forms mode when the command is issued. If BTE is not in forms mode, the Print Whole Page command is performed. Print Unprotected Page generates a form-feed after the last line of print.

Print Whole Page, No Form-feed

The Print Whole Page, No Form-feed command is identical to the Print Whole Page command, except that BTE issues no form-feed after the last line of print. The cursor position at the time BTE receives the command determines where printing stops. If the cursor is ahead of or at the mobile home position, the printing continues until the end of the page.

Printing Screen Data

You determine how screen data is sent to the printer through two options in the Environment Peripheral menu: *Translate Control Char* and *Extend Line*.

The *Translate Control Char* option determines how control characters (00-1F) get sent to the printer.

The *Extend Line* option determines whether or not a two-character sequence CR/LF gets sent if the display line is completely filled with data.

During a screen print the characters from the screen are sent directly to the printer with no deletions or substitutions, with the following exceptions:

1 Protected data in forms mode pages are replaced with blanks (for CTRL : or <ESC> : only).

2 If there are no CR or LF characters on the display line and the *Extend Line* option is OFF, then trailing spaces on the display line are replaced with the two-character sequence CR/LF; if the *Extend Line* option is ON, then trailing spaces are sent to the printer. If a CR character is followed by other data, then the data is not sent to the printer. If an LF character is followed by other data, then the data is sent to the printer.

3 If the *Extend Line* option is OFF and the display line terminates with a nonspace character (other than a CR), then the two-character sequence CR/LF is automatically sent to the printer; if the *Extend Line* option is ON, then no additional characters are sent.

4 If the *Translate Control Char* option is YES, then the following control characters (00-1F) are replaced with spaces: 00-06, 08-09, 0E-10, 14-1A, 1C-1F. All other control characters are sent to the printer without translation except for CR which is replaced with the two-character sequence CR/LF.

5 If the *Translate Control Char* option is NO and you have performed a mapping of the control characters in the configuration menu, then the mapped characters are sent to the printer.

Configuration Options for Printer Interface

For configuration options for BTE printing, see Section 4, "Configuring BTE."

Examples

Printing Directly to Parallel Printer

1 Press CTRL-spacebar-F-CTRL.

2 Select *Parallel* in Printer Selection using RETURN and press GO.

3 Use desired print command.

OR

1 Press CTRL-spacebar-F-CTRL.

2 Select *Specified Below* in Printer Selection.

3 Type [LPT] beside "Name:"

4 Use desired print command.

Printing to Parallel Printer via Spooler

1 Press CTRL-spacebar-F-CTRL.
2 Select *Specified Below* in Printer Selection.
3 Type in a queue name (you can find it using the BTOS Spooler Status command) beside "Name:", for example, [SPL].
4 Use desired print command.

Printing Directly to a Serial Printer

1 Press CTRL-spacebar-F-CTRL.
2 Select *Serial A* or *Serial B* in Printer Selection depending on which channel is selected for printing.
3 Use desired print command.

OR

1 Press CTRL-spacebar-F-CTRL.
2 Select *Specified Below* in Printer Selection.
3 Type in [PTR] A or [PTR] B beside "Name:"
4 Use desired print command.

"Close Printer After Print" Option

If the *Close Printer After Print* option in the Peripheral Options menu is set to ON and the spooler is installed, printing will take place right after the print command is specified. If the option is set to OFF, you must exit BTE before printing occurs.

Note: If the option is set to OFF and you attempt to print directly from more than one environment at the same time to the same device, a "PRINTER ERROR" message will appear.

BTE Related Errors

Installation Errors

The following error messages may appear while you are installing BTE:

6	Master went down. The master workstation is not in operation.
33	BMULTI hasn't been installed.
203	No such file. The file you specified does not exist. Check the BTE system files for the correct file name.
8401	BMULTI has already been installed or Spooler has been installed on the same channel on which you're trying to install BMULTI.

System Error Messages

These messages may appear when you transmit or receive data.

Buffer Overflow

Too much data was sent to a BTE buffer. A buffer overflow can occur under several conditions. Three examples: Transmission or receipt of a message that is larger than the allocated datacomm buffer; a print request made when the printer buffer size is set to zero, or when the key programs buffer has been exceeded.

Keystroke Lost

While BTE was in RCV or XMIT mode and the keyboard queue buffer was enabled, you entered too much data into the keyboard queue buffer, causing it to overflow. Keystrokes that you enter after this error message appears are lost.

Printer Error

The printer may be disconnected or off-line. Printer error is also reported when the printer is currently active and another print request is initiated.

Configuration Messages

These messages may appear while you are configuring
BTE in set-up mode.

Entry Must Be DECIMAL

You entered a nondecimal character into a field where
only decimal characters are valid. Reenter the value, using
decimals (0 through 9).

Entry Must Be HEXADECIMAL

You entered a non-hexadecimal character into a field
where only hexadecimal characters are valid. Reenter the
value using hexadecimals (0 through 9 and A through F.)

Entry Must be Between # #

You entered an invalid value into a set-up field. the "#"s
indicate the valid range for entries. For example, you
cannnot enter the value *256* in a field where valid values
range from 0 to 255.

Environment 1 May Not Be Disabled

You set the environment 1 size field in the Systems
Partitions and International menu to a value less than
8400. Reset the value in this field to 8400 or greater, but
within the total memory available to the system.

Error # Loading <file name>

The file you specified does not exist. BTE is loading the
file named in the message. # is replaced with a BTOS error
code. The error codes are found in the *BTOS Status Codes
Reference Manual.*

Error # Saving <file name>

The file you specified does not exist. BTE is saving the file
named in the message. # is replaced with a BTOS error
code. The error codes are found in the *BTOS Status Codes
Reference Manual.*

Warning: Changes to this menu will reset all environments upon exit

When you change environment partition sizes in the System Partitions and International menu, changes are automatically made in the Environment Buffers menus to correspond.

Item Is At Maximum Security Level

You pressed MARK to restrict a menu or option to a higher security level. However, the item is already at the highest level of security possible.

Item Is At Minimum Security Level

You pressed MARK to put a menu or option at a lower security level. However, the item is already at the lowest level of security possible.

Language Not Available

The external files that correspond to the language you have specified during installation and in the set-up menu, for example, a font file or UpLoTransfile, are missing.

Loading . . . Done

Informs you that BTE is loading data and informs you when the task is completed.

Memory Requested Is Greater than Memory Available or Allocated

The sum of the partition sizes in the System Partitions and International menu exceeds the total memory available, or the buffer sizes in an Environment Buffers menu are greater than the total allocated to that environment. In the appropriate menu, reallocate the buffer sizes so that the values no longer exceed available memory.

Saving . . . Done

Informs you that BTE is saving data and informs you when the task is completed.

Vertical Tabs Ignored When Page Length Not Equal to 32

The *VT Page Advance* option in the Environment Datacomm Options menu will not operate because the *Lines Per Page* option in the Environment Buffers menu is not set to 32.

Character Code Configuration Error Messages

Some configuration errors are followed by a character code for each error. They appear in the window of the environment whose status they reflect. If more than one error occurs, the error messages are separated by commas.

02 Language version not allowed. The hex version could be invalid, the font file may not exist, or the data comm translation tables of the language specified may not exist.

03 Data comm buffer size is out of range.

04 Display store size is out of range.

05 Vertical tabs cannot be used because the page is not configured to 32 lines per page.

06 Available space is insufficient. That is,
    Display store size
    + data comm buffer size
    + keyboard queue size
    + print buffer size
    + key programs buffer size
    add up to more space than is available.

07 Key programs buffer size is out of range.

08 Keyboard queue buffer size as specified in the Environment Buffers menu is either not equal to zero or exceeds the available space.

09 Printer buffer size as specified in the Environment Buffers menu is either not equal to zero or exceeds the available space.

10 Address error. The address specified in the Environment Datacomm Options menu was not accepted by BMULTI. Either the address is invalid or the same address has been used in another environment or application.

11 Invalid node name.

When Character Code Configuration Error Messages Occur

All the errors may occur if you use the Byte Configuration
Method (see Appendix D). The language error (02), address
error (10), or buffer size errors (03, 04, 07, 08, 09) may
occur in set-up mode. Buffer size errors which occur in
set-up mode occur only if the partition sizes are reduced
after environmental buffer sizes have been set (see
"Setting Up Multiple Environments," Section 5). Node
name error (11) will occur if either the left or right brace
of the node name is missing.

Character Code Configuration Error Message Formats

The configuration error messages are displayed in one of
the following formats:

1	05	Errors 05, 06, 10, 11 take this form.
2	02(10)	Error 02 takes this form.
3	09(1024)	Errors 08 and 09 take this form.
4	03(1680:0000)	Errors 03, 04, and 07 take this form. BTE automatically resets the specified buffer to its default size when this error message appears.

The fourth format shows error messages followed by
hexadecimal numbers in parentheses. If a single number
appears in the parentheses, it is the invalid parameter
that was entered for that option during configuration.
When two numbers appear separated by a colon (:), the
first number gives the value of the invalid buffer size; the
second the decrement. Subtracting the decrement from the
buffer size gives the true buffer size.

)

Example of a Character Code Configuration Error Message

03(1680:0000),06,02(10),10

03(1680:0000)	Tells you that the data comm buffer is too large and that you configured it to be 1680 (hex) bytes large with a decrement of 0000 (hex) bytes. Please note that BTE has automatically reset the buffer to its default size when this error message appears.
06	Tells you that the available space for that environment's buffers was exceeded.
02(10)	Tells you that the language version you requested, 10, is not allowed.
10	Tells you you have an address error.

ASCII/EBCDIC Charts

ASCII to EBCDIC Translate Table

COL / ROW	0	1	2	3	4	5	6	7	8	9	10 (A)	11 (B)	12 (C)	13 (D)	14 (E)	15 (F)
0	NU	DL	SP	0	@	P	`	p								
0	0/0	1/0	4/0	15/0	7/12	13/7	7/9	9/7	2/0	3/0	4/1	5/8	7/6	9/15	11/8	13/12
1	SH	D1	!	1	A	Q	a	q								
1	0/1	1/1	4/15	15/1	12/1	13/8	8/1	9/8	2/1	3/1	4/2	5/9	7/7	10/0	11/9	13/13
2	SX	D2	"	2	B	R	b	r								
2	0/2	1/2	7/15	15/2	12/2	13/9	8/2	9/9	2/2	1/10	4/3	6/2	7/8	10/10	11/10	13/14
3	EX	D3	#	3	C	S	c	s								
3	0/3	1/3	7/11	15/3	12/3	14/2	8/3	10/2	2/3	3/3	4/4	6/3	8/0	10/11	11/11	13/15
4	ET	D4	$	4	D	T	d	t								
4	3/7	3/12	5/11	15/4	12/4	14/3	8/4	10/3	2/4	3/4	4/5	6/4	8/10	10/12	11/12	14/10
5	EQ	NK	%	5	E	U	e	u								
5	2/13	3/13	6/12	15/5	12/5	14/4	8/5	10/4	1/5	3/5	4/6	6/5	8/11	10/13	11/13	14/11
6	AK	SY	&	6	F	V	f	v								
6	2/14	3/2	5/0	15/8	12/6	14/5	8/6	10/5	0/6	3/6	4/7	6/6	8/12	10/14	11/14	14/12
7	BL	EB	'	7	G	W	g	w								
7	2/15	2/6	7/13	15/7	12/7	14/6	8/7	10/6	1/7	0/8	4/8	6/7	8/13	10/15	11/15	14/13
8	BS	CN	(	8	H	X	h	x								
8	1/6	1/8	4/13	15/8	12/8	14/7	8/8	10/7	2/8	3/8	4/9	6/8	8/14	11/0	12/10	14/14
9	HT	EM	)	9	I	Y	i	y								
9	0/5	1/9	5/13	15/9	12/9	14/8	8/9	10/8	2/9	3/9	5/1	6/9	8/15	11/1	12/11	14/15
10 (A)	LF	SB	*	:	J	Z	j	z								
10 (A)	2/5	3/15	5/12	7/10	13/1	14/9	9/1	10/9	2/10	3/10	5/2	7/0	9/0	11/2	12/12	15/10
11 (B)	VT	EC	+	;	K	[	k	{								
11 (B)	0/11	2/7	4/14	5/14	13/2	4/10	9/2	12/0	2/11	3/11	5/3	7/1	9/10	11/3	12/13	15/11
12 (C)	FF	♦	,	<	L	\	l	|								
12 (C)	0/12	1/12	6/11	4/12	13/3	14/0	9/3	6/10	2/12	0/4	5/4	7/2	9/11	11/4	12/14	15/12
13 (D)	CR	▲	-	=	M	]	m	}								
13 (D)	0/13	1/13	6/0	7/14	13/4	5/10	9/4	13/0	0/9	1/4	5/5	7/3	9/12	11/5	12/15	15/13
14 (E)	SO	◄	.	>	N	(—)	n	~								
14 (E)	0/14	1/14	4/11	6/14	13/5	5/15	9/5	10/1	0/10	3/14	5/6	7/4	9/13	11/6	13/10	15/14
15 (F)	SI	►	/	?	O	_	o	■								
15 (F)	0/15	1/15	6/1	6/15	13/6	6/13	9/6	0/7	1/11	14/1	5/7	7/5	9/14	11/7	13/11	15/15

Note: Characters in parentheses within the chart are EBCDIC Graphics.

| SI | -EBCDIC Graphic Representation
| 0/15 | -COL/ROW of Character in EBCDIC Code Table

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EBCDIC to ASCII Translate Table

COL→ ROW↓	0	1	2	3	4	5	6	7	8	9	10 (A)	11 (B)	12 (C)	13 (D)	14 (E)	15 (F)
0	NU 0/0	DL 1/0	 8/0	 9/0	SP 2/0	& 2/6	- 2/13	 11/10	 12/3	 12/10	 13/1	 13/8	{ 7/11	} 7/13	\\ 5/12	0 3/0
1	SH 0/1	D1 1/1	 8/1	 9/1	 10/0	 10/9	/ 2/15	 11/11	a 6/1	j 6/10	~ 7/14	 13/9	A 4/1	J 4/10	 9/15	1 3/1
2	SX 0/2	D2 1/2	SY 8/2	 1/6	 10/1	 10/10	 11/2	 11/12	b 6/2	k 6/11	s 7/3	 13/10	B 4/2	K 4/11	S 5/3	2 3/2
3	EX 0/3	D3 1/3	 8/3	 9/3	 10/2	 10/11	 11/3	 11/13	c 6/3	l 6/12	t 7/4	 13/11	C 4/3	L 4/12	T 5/4	3 3/3
4	 9/12	 9/13	 8/4	 9/4	 10/3	 10/12	 11/4	 11/14	d 6/4	m 6/13	u 7/5	 13/12	D 4/4	M 4/13	U 5/5	4 3/4
5	HT 0/9	LF 8/5	 0/10	 9/5	 10/4	 10/13	 11/5	 11/15	e 6/5	n 6/14	v 7/6	 13/13	E 4/5	N 4/14	V 5/6	5 3/5
6	 8/6	BS 0/8	EB 1/7	 9/6	 10/5	 10/14	 11/6	 12/0	f 6/6	o 6/15	w 7/7	 13/14	F 4/6	O 4/15	W 5/7	6 3/6
7	■ 7/15	EC 8/7	ET 1/11	 0/4	 10/6	 10/15	 11/7	 12/1	g 6/7	p 7/0	x 7/8	 13/15	G 4/7	P 5/0	X 5/8	7 3/7
8	 9/7	CN 1/8	 8/8	 9/8	 10/7	 11/0	 11/8	 12/2	h 6/8	q 7/1	y 7/9	 14/0	H 4/8	Q 5/1	Y 5/9	8 3/8
9	 8/13	EM 1/9	 8/9	 9/9	 10/8	 11/1	 11/9	` 6/0	i 6/9	r 7/2	z 7/10	 14/1	I 4/9	R 5/2	Z 5/10	9 3/9
10 (A)	 8/14	 9/2	 8/10	 9/10	[5/11	] 5/13	| 7/12	: 3/10	 12/4	 12/11	 13/2	 14/2	 14/8	 14/14	 15/4	 15/10
11 (B)	VT 0/11	 8/15	 8/11	 9/11	. 2/14	$ 2/4	, 2/12	# 2/3	 12/5	 12/12	 13/3	 14/3	 14/9	 14/15	 15/5	 15/11
12 (C)	FF 0/12	◆ 1/12	 8/12	D4 1/4	< 3/12	* 2/10	% 2/5	@ 4/0	 12/6	 12/13	 13/4	 14/4	 14/10	 15/0	 15/6	 15/12
13 (D)	CR 0/13	▲ 1/13	EQ 0/5	NK 1/5	(2/8	) 2/9	_ 5/15	' 2/7	 12/7	 12/14	 13/5	 14/5	 14/11	 15/1	 15/7	 15/13
14 (E)	SO 0/14	◄ 1/14	AK 0/6	 9/14	+ 2/11	; 3/11	> 3/14	= 3/13	 12/8	 12/15	 13/6	 14/6	 14/12	 15/2	 15/8	 15/14
15 (F)	SI 0/15	► 1/15	BL 0/7	SB 1/10	! 2/1	(^.) 5/14	? 3/15	" 2/2	 12/9	 13/0	 13/7	 14/7	 14/13	 15/3	 15/9	 15/15

Note: Characters in parentheses within the chart are ASCII Graphics.

SI	-ASCII Graphic Representation
0/15	-COL/ROW of Character in ASCII Code Table

E7213

Character Codes

The first part of this appendix gives tables for the seven character sets BTE supports:

U.S.	(BTE Language Version 1)
UK	(BTE Language Version 2)
French	(BTE Language Version 3)
Netherlands	(BTE Language Version 4)
Germany	(BTE Language Version 5)
S. Africa	(BTE Language Version 6)
Canada	(BTE Language Version 7)

The second part lists two translation tables for each character set: one for transmission of data, the other for receiving.

Receiving and Transmitting Characters

Text characters are translated when data is sent to and from the host. (The configuation values are not mapped.) Where no suitable character is present, a 3F (question mark) is substituted. The following examples show the stages sample characters pass through as they are translated.

Example 1

Transmitting data (language version 05 characters) to the host:

Text transmitted by BTE	a sp β f ℓ ü Ä e 1 μ â ê
B 20 character set (hex)	61 20 A6 66 6C A5 A0 65 31 B4 AB AC
Translated characters (hex)	61 20 7E 66 6C 7D 5B 65 31 3F D3 DF
Sent to BMULTI (hex)	61 20 7E 66 6C 7D 5B 65 31 3F 1B 0E 43 4F 1B 0F
Sent to host	a sp β f ℓ ü Ä e 1 ? E_c S_0 C O E_c S_l

1192358

Example 2

Receiving data (language version 05 characters) from host:

Sent by host (ASCII)	A	ESC	SO	B	ESC	3	%	ESC	'	.	ESC	SI	C
Sent by host (hex) (after interpretation by BMULTI)	41	1B	0E	42	1B	33	25	1B	27	2E	1B	0F	43
Received by BTE (hex)	41			C2	9B	B3	A5	9B	A7	AE			43
Translated characters	41			53	3F	49	A0	3F	3F	45			43
Display on screen	A			S	?	I	Ä	?	?	E			C

The display on the screen would not show any spaces, but would appear as: A S ? I Ä ? ? E C

Figure C-1   Language Version 01: United States

COL\ROW	0	1	2	3	4	5	6	7
0	NU	DL	SP	0	@	P	`	p
1	SH	D1	!	1	A	Q	a	q
2	SX	D2	"	2	B	R	b	r
3	EX	D3	#	3	C	S	c	s
4	ET	D4	$	4	D	T	d	t
5	EQ	NK	%	5	E	U	e	u
6	AK	SY	&	6	F	V	f	v
7	BL	EB	'	7	G	W	g	w
8	BS	CN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
10 (A)	LF	SB	*	:	J	Z	j	z
11 (B)	VT	EC	+	;	K	[	k	{
12 (C)	FF	♦	,	<	L	\	l		
13 (D)	CR	▲	–	=	M	]	m	}
14 (E)	SO	◄	.	>	N	^	n	~
15 (F)	SI	►	/	?	O	_	o	■

E7216

Figure C-2   Language Version 02: United Kingdom

COL / ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			1/4	£
1	SH	D1	!	1	A	Q	a	q			1/2	¦
2	SX	D2	"	2	B	R	b	r			3/4	..
3	EX	D3	#	3	C	S	c	s				à	`
4	ET	D4	$	4	D	T	d	t				â	´
5	EQ	NK	%	5	E	U	e	u				ä	^
6	AK	SY	&	6	F	V	f	v				ç	
7	BL	EB	'	7	G	W	g	w				é	
8	BS	CN	(	8	H	X	h	x				è	
9	HT	EM	)	9	I	Y	i	y				ê	
10 (A)	LF	SB	*	:	J	Z	j	z				î	
11 (B)	VT	EC	+	;	K	[	k	{				ô	
12 (C)	FF	♦	,	<	L	\	l	¦				ö	
13 (D)	CR	▲	—	=	M	]	m	}				ù	
14 (E)	SO	◄	·	>	N	^	n	~				û	
15 (F)	SI	►	/	?	O	_	o	■				ü	

Figure C-3   Language Version 03: France

COL / ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			à	§
1	SH	D1	!	1	A	Q	a	q			â	o
2	SX	D2	ʺ	2	B	R	b	r			ä	£
3	EX	D3	#	3	C	S	c	s			ç	1/2
4	ET	D4	$	4	D	T	d	t			é	··
5	EQ	NK	%	5	E	U	e	u			è	⌃
6	AK	SY	&	6	F	V	f	v			ê	
7	BL	EB	'	7	G	W	g	w			ë	
8	BS	CN	(	8	H	X	h	x			î	
9	HT	EM	)	9	I	Y	i	y			ï	
10 (A)	LF	SB	*	:	J	Z	j	z			ô	
11 (B)	VT	EC	+	;	K	[	k	{			ö	
12 (C)	FF	◆	,	<	L	\	l	¦			ù	
13 (D)	CR	▲	–	=	M	]	m	}			û	
14 (E)	SO	◄	·	>	N	⌃	n	~			ü	
15 (F)	SI	►	/	?	O	_	o	■				

Figure C-4   Language Version 04: Netherlands

COL / ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			1/4	..
1	SH	D1	!	1	A	Q	a	q			1/2	^
2	SX	D2	''	2	B	R	b	r			3/4	o
3	EX	D3	#	3	C	S	c	s			ƒ	
4	ET	D4	$	4	D	T	d	t			£	`
5	EQ	NK	%	5	E	U	e	u			IJ	'
6	AK	SY	&	6	F	V	f	v			ij	
7	BL	EB	'	7	G	W	g	w			à	
8	BS	CN	(	8	H	X	h	x			é	
9	HT	EM	)	9	I	Y	i	y			è	
10 (A)	LF	SB	*	:	J	Z	j	z			ö	
11 (B)	VT	EC	+	;	K	[	k	{			ü	
12 (C)	FF	◆	,	‹	L	\	l	|			â	
13 (D)	CR	▲	—	=	M	]	m	}			ê	
14 (E)	SO	◀	.	›	N	^	n	~			ù	
15 (F)	SI	▶	/	?	O	_	o	■			ë	

Figure C-5   **Language Version 05: Germany**

COL / ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			Ä	`
1	SH	D1	!	1	A	Q	a	q			Ö	´
2	SX	D2	„	2	B	R	b	r			Ü	ˆ
3	EX	D3	£	3	C	S	c	s			ä	o
4	ET	D4	$	4	D	T	d	t			ö	μ
5	EQ	NK	%	5	E	U	e	u			ü	§
6	AK	SY	&	6	F	V	f	v			β	
7	BL	EB	'	7	G	W	g	w			à	
8	BS	CN	(	8	H	X	h	x			è	
9	HT	EM	)	9	I	Y	i	y			ù	
10 (A)	LF	SB	*	:	J	Z	j	z			é	
11 (B)	VT	EC	+	;	K	[	k	{			â	
12 (C)	FF	◆	,	<	L	\	l	|			ê	
13 (D)	CR	▲	—	=	M	]	m	}			î	
14 (E)	SO	◄	·	>	N	^	n	~			ô	
15 (F)	SI	►	/	?	O	_	o	■			û	

Figure C-6   Language Version 06: South Africa

COL / ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			ˆ	£
1	SH	D1	!	1	A	Q	a	q			··	1/4
2	SX	D2	''	2	B	R	b	r			·	1/2
3	EX	D3	#	3	C	S	c	s			ˎ	3/4
4	ET	D4	$	4	D	T	d	t			ê	o
5	EQ	NK	%	5	E	U	e	u			ë	'n
6	AK	SY	&	6	F	V	f	v			ô	
7	BL	EB	'	7	G	W	g	w			ö	
8	BS	CN	(	8	H	X	h	x			à	
9	HT	EM	)	9	I	Y	i	y			é	
10 (A)	LF	SB	*	:	J	Z	j	z			è	
11 (B)	VT	EC	+	;	K	[	k	{			ü	
12 (C)	FF	◆	,	‹	L	\	l	l			â	
13 (D)	CR	▲	—	=	M	]	m	}			ù	
14 (E)	SO	◄	·	›	N	ˆ	n	~				
15 (F)	SI	►	/	?	O	_	o	■				

Figure C-7   Language Version 07: Canada

COL ROW	0	1	2	3	4	5	6	7	8	9	10	11
0	NU	DL	SP	0	@	P	`	p			à	î
1	SH	D1	!	1	A	Q	a	q			â	ô
2	SX	D2	"	2	B	R	b	r			ç	ç
3	EX	D3	#	3	C	S	c	s			é	3/4
4	ET	D4	$	4	D	T	d	t			è	Â
5	EQ	NK	%	5	E	U	e	u			ê	Ê
6	AK	SY	&	6	F	V	f	v			î	
7	BL	EB	'	7	G	W	g	w			ô	
8	BS	CN	(	8	H	X	h	x			ù	Û
9	HT	EM	)	9	I	Y	i	y			û	É
10 (A)	LF	SB	*	:	J	Z	j	z			ë	Ë
11 (B)	VT	EC	+	;	K	[	k	{			ï	Ï
12 (C)	FF	♦	,	<	L	\	l	|			ü	Ü
13 (D)	CR	▲	—	=	M	]	m	}			À	
14 (E)	SO	◄	.	>	N	^	n	~			È	
15 (F)	SI	►	/	?	O	_	o	■			Ù	

Translation Tables

Certain characters displayed on the BTOS workstation do not have equivalents in the mainframe. In these cases, the characters are translated to another character or to a question mark.

Similarly, certain character codes sent by the host do not have equivalents in the workstation. These character codes are translated to suitable substitute characters, or to a question mark when no substitute exists.

Two translation tables are listed for each character set. One table translates characters received be BTE; the other translates characters transmitted be BTE.

Language Version 01: United States

Receive Translation Table C-1.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	3F	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	3F	3F	3F	3F	3F	3F
3:	03	13	23	33	43	53	63	73	3F	3F	3F	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	3F	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	3F	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	3F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	3F	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	3F	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	3F	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	3F	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	3F	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-2.

Extended character translations are made to closest related character (e.g., an "a umlaut" is translated to a plain "a"). A question mark (3Fh) is used when there is no suitable character.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	41	42	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	61	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	41	3F	3F	3F	3F	3F
3:	03	13	23	33	43	53	63	73	3F	3F	61	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	4F	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	6F	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	4F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	6F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	55	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	75	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	63	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	65	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	65	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	65	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

Language Version 02: United Kingdom

Receive Translation Table C-3.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	3F	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	3F	3F	3F	3F	3F	3F
3:	03	13	B0	33	43	53	63	73	3F	3F	3F	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	3F	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	3F	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	3F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	3F	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	3F	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	3F	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	3F	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	3F	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

The numbers and letters along the top row indicate column
numbers; those along the lefthand column indicate row
numbers. 3F is a question mark.

Transmit Translation Table C-4.

Extended character translations are made to closest
related character (e.g., an "a umlaut" is translated to a
plain "a"). A question mark (3Fh) is used when there is no
suitable character.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	23	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	7C	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	3F	60	3F	3F	3F	3F
3:	03	13	3F	33	43	53	63	73	3F	3F	61	27	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	61	5E	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	61	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	63	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	65	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	65	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	65	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	69	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	6F	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	6F	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	75	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	75	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	75	3F	3F	3F	3F	3F

)

Language Version 03: France

Receive Translation Table C-5.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	B1	41	44	A0	61
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	41	4E	61	6E
2:	02	12	22	32	42	52	62	72	3F	3F	3F	3F	41	4F	A1	6F
3:	03	13	23	33	43	53	63	73	3F	3F	B2	3F	41	4F	61	6F
4:	04	14	24	34	44	54	64	74	3F	3F	3F	3F	41	4F	A2	AA
5:	05	15	25	35	45	55	65	75	3F	3F	3F	3F	41	4F	61	6F
6:	06	16	26	36	46	56	66	76	3F	3F	7C	3F	41	4F	3F	AB
7:	07	17	27	37	47	57	67	77	3F	3F	B0	3F	3F	3F	A3	3F
8:	08	18	28	38	48	58	68	78	3F	3F	B4	3F	43	45	A5	6F
9:	09	19	29	39	49	59	69	79	3F	3F	3F	3F	45	55	A4	AC
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	3F	3F	45	55	A6	75
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	3F	3F	45	55	A7	AD
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	3F	45	55	69	AE
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	3F	3F	49	59	69	79
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	49	70	A8	70
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	2D	3F	49	42	A9	79

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-6.

Extended character translations are made to closest
related character (e.g., an "a umlaut" is translated to a
plain "a"). A question mark (3Fh) is used when there is no
suitable character.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	E0	A7	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	E2	B0	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	E4	A3	3F	3F	3F	3F
3:	03	13	23	33	43	53	63	73	3F	3F	E7	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	E9	A8	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	E8	5E	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	EA	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	EB	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	EE	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	EF	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	F4	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	F6	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	F9	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	FB	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	FC	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

Language Version 04: Netherlands

Receive Translation Table C-7.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	3F	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	3F	3F	3F	3F	3F	3F
3:	03	13	A4	33	43	53	63	73	3F	3F	3F	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	3F	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	3F	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	3F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	3F	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	3F	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	3F	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	3F	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	3F	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-8.

Extended character translations are made to closest
related character (e.g., an "a umlaut" is translated to a
plain "a"). A question mark (3Fh) is used when there is no
suitable character.

```
     0   1   2   3   4   5   6   7   8   9   A   B   C   D   E   F
0:  00  10  20  30  40  50  60  70  3F  3F  3F  3F  3F  3F  3F  3F
1:  01  11  21  31  41  51  61  71  3F  3F  3F  5E  3F  3F  3F  3F
2:  02  12  22  32  42  52  62  72  3F  3F  3F  3F  3F  3F  3F  3F
3:  03  13  3F  33  43  53  63  73  3F  3F  66  3F  3F  3F  3F  3F
4:  04  14  24  34  44  54  64  74  3F  3F  23  60  3F  3F  3F  3F
5:  05  15  25  35  45  55  65  75  3F  3F  3F  27  3F  3F  3F  3F
6:  06  16  26  36  46  56  66  76  3F  3F  3F  3F  3F  3F  3F  3F
7:  07  17  27  37  47  57  67  77  3F  3F  61  3F  3F  3F  3F  3F
8:  08  18  28  38  48  58  68  78  3F  3F  65  3F  3F  3F  3F  3F
9:  09  19  29  39  49  59  69  79  3F  3F  65  3F  3F  3F  3F  3F
A:  0A  1A  2A  3A  4A  5A  6A  7A  3F  3F  6F  3F  3F  3F  3F  3F
B:  0B  1B  2B  3B  4B  5B  6B  7B  3F  3F  75  3F  3F  3F  3F  3F
C:  0C  1C  2C  3C  4C  5C  6C  7C  3F  3F  61  3F  3F  3F  3F  3F
D:  0D  1D  2D  3D  4D  5D  6D  7D  3F  3F  65  3F  3F  3F  3F  3F
E:  0E  1E  2E  3E  4E  5E  6E  7E  3F  3F  75  3F  3F  3F  3F  3F
F:  0F  1F  2F  3F  4F  5F  6F  7F  3F  3F  65  3F  3F  3F  3F  3F
```

Language Version 05: Germany

Receive Translation Table C-9.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	B5	50	60	70	3F	3F	3F	45	A1	6E	65	A4
1:	01	11	21	31	41	51	61	71	3F	3F	41	47	4F	A7	67	6F
2:	02	12	22	32	42	52	62	72	3F	3F	41	49	53	61	69	73
3:	03	13	23	33	43	53	63	73	3F	3F	41	49	53	AB	69	73
4:	04	14	24	34	44	54	64	74	3F	3F	41	49	3F	61	AD	AB
5:	05	15	25	35	45	55	65	75	3F	3F	A0	49	50	A3	69	70
6:	06	16	26	36	46	56	66	76	3F	3F	41	49	55	61	69	A9
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	55	3F	3F	75
8:	08	18	28	38	48	58	68	78	3F	3F	43	4A	55	63	6A	AF
9:	09	19	29	39	49	59	69	79	3F	3F	43	4C	A2	63	6C	A5
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	43	4E	57	63	63	77
B:	0B	1B	2B	3B	4B	A0	6B	A3	3F	3F	44	3F	59	3F	3F	79
C:	0C	1C	2C	3C	4C	A1	6C	A4	3F	3F	3F	4F	59	64	6F	79
D:	0D	1D	2D	3D	4D	A2	6D	A5	3F	3F	45	4F	59	A8	6F	79
E:	0E	1E	2E	3E	4E	5E	6E	A6	3F	3F	45	4F	5A	AA	AE	7A
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	45	4F	3F	AC	6F	3F

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-10.

Extended character translations are made to closest related character (e.g., an "a umlaut" is translated to a plain "a"). A question mark (3Fh) is used when there is no suitable character.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	3F	50	60	70	3F	3F	5B	60	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	5C	27	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	5D	5E	3F	3F	3F	3F
3:	03	13	23	33	43	53	63	73	3F	3F	7B	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	7C	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	7D	40	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	7E	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	D1	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	DD	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	F6	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	DE	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	3F	6B	3F	3F	3F	D3	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	3F	6C	3F	3F	3F	DF	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	3F	6D	3F	3F	3F	E4	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	3F	3F	3F	EE	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	F8	3F	3F	3F	3F	3F

)

Language Version 06: South Africa

Receive Translation Table C-11.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	3F	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	3F	3F	3F	3F	3F	3F
3:	03	13	B0	33	43	53	63	73	3F	3F	3F	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	3F	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	3F	3F	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	3F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	3F	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	3F	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	3F	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	3F	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	3F	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-12.

Extended character translations are made to closest related character (e.g., an "a umlaut" is translated to a plain "a"). A question mark (3Fh) is used when there is no suitable character.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	5E	23	3F	3F	3F	3F
1:	01	11	21	31	41	51	61	71	3F	3F	3F	3F	3F	3F	3F	3F
2:	02	12	22	32	42	52	62	72	3F	3F	27	3F	3F	3F	3F	3F
3:	03	13	3F	33	43	53	63	73	3F	3F	60	3F	3F	3F	3F	3F
4:	04	14	24	34	44	54	64	74	3F	3F	65	3F	3F	3F	3F	3F
5:	05	15	25	35	45	55	65	75	3F	3F	65	6E	3F	3F	3F	3F
6:	06	16	26	36	46	56	66	76	3F	3F	6F	3F	3F	3F	3F	3F
7:	07	17	27	37	47	57	67	77	3F	3F	6F	3F	3F	3F	3F	3F
8:	08	18	28	38	48	58	68	78	3F	3F	61	3F	3F	3F	3F	3F
9:	09	19	29	39	49	59	69	79	3F	3F	65	3F	3F	3F	3F	3F
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	65	3F	3F	3F	3F	3F
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	75	3F	3F	3F	3F	3F
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	61	3F	3F	3F	3F	3F
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	75	3F	3F	3F	3F	3F
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	3F	3F	3F	3F	3F	3F
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	3F	3F	3F	3F	3F	3F

Language Version 07: Canada

Receive Translation Table C-13.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0:	00	10	20	30	40	50	60	70	3F	3F	3F	BB	4F	6E	AA	6F
1:	01	11	21	31	41	51	61	71	3F	3F	41	47	4F	A0	3F	6F
2:	02	12	22	32	42	52	62	72	3F	3F	41	49	53	61	3F	73
3:	03	13	23	33	43	53	63	73	3F	3F	B4	49	53	A1	3F	73
4:	04	14	24	34	44	54	64	74	3F	3F	41	B0	3F	61	A6	42
5:	05	15	25	35	45	55	65	75	3F	3F	41	49	50	61	3F	70
6:	06	16	26	36	46	56	66	76	3F	3F	41	BC	AF	61	AB	A8
7:	07	17	27	37	47	57	67	77	3F	3F	3F	3F	55	3F	3F	75
8:	08	18	28	38	48	58	68	78	3F	3F	43	4A	B9	63	3F	A9
9:	09	19	29	39	49	59	69	79	3F	3F	B2	4C	BE	A2	3F	AC
A:	0A	1A	2A	3A	4A	5A	6A	7A	3F	3F	43	4E	57	63	3F	77
B:	0B	1B	2B	3B	4B	5B	6B	7B	3F	3F	44	3F	59	3F	3F	79
C:	0C	1C	2C	3C	4C	5C	6C	7C	3F	3F	3F	4F	59	3F	3F	79
D:	0D	1D	2D	3D	4D	5D	6D	7D	3F	3F	AE	4F	59	A4	3F	79
E:	0E	1E	2E	3E	4E	5E	6E	7E	3F	3F	BA	B1	5A	A3	A7	7A
F:	0F	1F	2F	3F	4F	5F	6F	7F	3F	3F	B5	4F	3F	A5	3F	3F

The numbers and letters along the top row indicate column numbers; those along the lefthand column indicate row numbers. 3F is a question mark.

Transmit Translation Table C-14.

Extended character translations are made to closest
related character (e.g., an "a umlaut" is translated to a
plain "a"). A question mark (3Fh) is used when there is no
suitable character.

```
      0   1   2   3   4   5   6   7   8   9   A   B   C   D   E   F
0:   00  10  20  30  40  50  60  70  3F  3F  D1  B4  3F  3F  3F  3F
1:   01  11  21  31  41  51  61  71  3F  3F  D3  BE  3F  3F  3F  3F
2:   02  12  22  32  42  52  62  72  3F  3F  D9  A9  3F  3F  3F  3F
3:   03  13  23  33  43  53  63  73  3F  3F  DE  3F  3F  3F  3F  3F
4:   04  14  24  34  44  54  64  74  3F  3F  DD  A3  3F  3F  3F  3F
5:   05  15  25  35  45  55  65  75  3F  3F  DF  AF  3F  3F  3F  3F
6:   06  16  26  36  46  56  66  76  3F  3F  E4  3F  3F  3F  3F  3F
7:   07  17  27  37  47  57  67  77  3F  3F  EE  3F  3F  3F  3F  3F
8:   08  18  28  38  48  58  68  78  3F  3F  F6  3F  3F  3F  3F  3F
9:   09  19  29  39  49  59  69  79  3F  3F  F8  C8  3F  3F  3F  3F
A:   0A  1A  2A  3A  4A  5A  6A  7A  3F  3F  E0  AE  3F  3F  3F  3F
B:   0B  1B  2B  3B  4B  5B  6B  7B  3F  3F  E6  B0  3F  3F  3F  3F
C:   0C  1C  2C  3C  4C  5C  6C  7C  3F  3F  F9  B6  3F  3F  3F  3F
D:   0D  1D  2D  3D  4D  5D  6D  7D  3F  3F  A1  3F  3F  3F  3F  3F
E:   0E  1E  2E  3E  4E  5E  6E  7E  3F  3F  AD  C9  3F  3F  3F  3F
F:   0F  1F  2F  3F  4F  5F  6F  7F  3F  3F  C6  3F  3F  3F  3F  3F
```

Appendix D

Byte Configuration

You can configure BTE by setting the bytes and bits directly, but you must set the *Byte Configuration Available* option to *YES* first. It's in the System Keyboard and Screen menu. The byte configuration commands do not set system options if more than one environment is enabled.

With the *Byte Configuration Available* option set to *YES*, the byte configuration commands give access to all configuration options, regardless of security configuration in the set-up menus.

Certain options are not accessible to the host. Options in the system menus are excluded from host control when more than one environment is enabled; and some options available in the menu are not in the scratchpad. Write access doesn't work, and no error information is reported.

Configuring from the Host

When configuring BTE through the byte configuration method from the host, use the <ESC> RA sequence to configure text character options, for example, an option in the Messages menu. Use the <ESC> RH sequence to configure all other scratchpad options.

Byte Configuration Commands

Activated by:	CTRL RA*hhhh*	<ESC> R A
Function:	(*hhhh* is scratchpad address in hex.) Displays scratchpad for 16 bytes at *hhhh* address, in ASCII for editing.	

Activated by:	CTRL RC*xxxx*	<ESC> R C
Function:	Stores byte configuration data in scratchpad temporarily. It's equivalent to *Exit And Reconfigure One ENV* on the Main Set-Up menu.	

Activated by:	CTRL RH*hhhh*	<ESC> R H
Function:	(*hhhh* is scratchpad address in hex.) Displays scratchpad for 16 bytes at *hhhh* address, in hex for editing.	

Activated by:	CTRL RP*xxxx*	<ESC> R P
Function:	Transfers temporary scratchpad and key programs to disk file. It's equivalent to *Save One ENV to File* on the Main Set-Up menu.	

Activated by:	CTRL RL*xxxx*	<ESC> R L
Function:	Displays error log.	

Conditions:

Forms Page	N Y
Configuration Menu Displayed	N N

Outputs:

Page Data Cleared	X X
Error Log Displayed	X X
Exit Forms Mode	- X
Exit Configuration Mode	- -
Update Row Indicator	X X
Update Column Indicator	X X

Table D-1 gives options by scratchpad address and menu option. A zero default does not always correspond to *NO* or *OFF* in the menu; in those cases when it corresponds to *YES* or *ON*, the table will note it.

Table D-1   Scratchpad Addresses and Menu Options

Address	Option	Host Menu	Access	Default
3B,3C	Env. 1 (Address 1)	Sys. Part. and Int.	Yes	8400
3B,3C	Env. 2 (Address 2)	Sys. Part. and Int.	Yes	0
3B,3C	Env. 3 (Address 3)	Sys. Part. and Int.	Yes	0
3D-7D	Printer Name	Env. Per. Options	Yes	BTEPRINTERFILE
7E/0	Fast Select Enable	Sys. Datacomm Options	Yes	1
7E/1-3	Printer Selection	Env. Per. Options	Yes	0,0,0 (Specified Below)
7E/4,5	Video	Sys. Keyboard and Screen	Yes	0,0 (Normal)
7E/6	Close Printer After Print	Env. Per. Options	Yes	0
7E/7	SPCFY Key Sends Page Number	Env. Keyboard Options	Yes	0
80/3	DC1 Function	Env. Datacomm Options	Yes	1 (STAY-IN-RCV)
80/4	Form Xmit to Cursor	Env. Datacomm Options	Yes	0 (ON)
80/5	SOH Clears Screen	Env. Datacomm Options	Yes	0
84	Lines per Page	Env. Buffers	Yes	24 (decimal)
85 92/2	Chars per Line	Env. Buffers	Yes	4F, 1 (80 cols)

)
/

Table D-1   Scratchpad Addresses and Menu Options (Continued)

Address	Option	Host Menu	Access	Default
86	Alternate US Character	Env. Video Options	Yes	5B
87	Alternate RS Character	Env. Video Options	Yes	5D
89,8A	Address	Env. Datacomm Options	Yes	0,0
8D	Language Version	System Partitions and International	Yes	1 (U.S.)
92/0	LF Interpretation	Env. Datacomm Options	Yes	0 (LF)
92/3	Lines per Screen	Env. Video Options	Yes	1 (24 lines)
92/4	Auto Form Field Advance	Env. Video Options	Yes	0 (ON)
92/6	Lower Case Lockout	Env. Keyboard Options	Yes	0
94,95	Display Store Size	Not a menu option	Yes	3840 (decimal)
96/0	DC2 Function	Env. Datacomm Options	Yes	0 (TOGGLE FORMS)
96/1	FF Clears Tabs	Env. Datacomm Options	Yes	0
96/2	VT Page Advance	Env. Datacomm Options	Yes	0
96/3	CLR Function	Env. Keyboard Options	Yes	0 (CLEARS UNPROTECTED)
96/4	Datacomm ETX Display	Env. Video Options	Yes	0
96/5	Tabs	Env. Tab Options	Yes	0 (FIXED)
96/6	HT Displayed from Keyboard	Env. Video Options	Yes	0
96/7	Cursor Wrap Around	Env. Keyboard Options	Yes	0 (ON)
97	Column End Alarm	Env. Keyboard Options	Yes	4F (Col 80)

Table D-1   Scratchpad Addresses and Menu Options (Continued)

Address	Option	Host Menu	Access	Default
98	Row End Alarm	Env. Keyboard Options	Yes	17 (Row 24)
99/9A	Display Store Size (decrement)	Not a menu option	Yes	0
9B/0	Xmit Printer Status	Env. Datacomm Options	Yes	0
9B/3	RCV Mode Hold Options	Env. Datacomm	Yes	1
9B/5	Extend Line	Env. Peripheral Options	Yes	0
9B/6	Beep on NAK	Sys. Datacomm Options	Yes	1
9B/7	Translate Control Char	Env. Peripheral Options	Yes	0 (YES)
9C,9D	Datacomm Size (decrement)	Env. Buffers	Yes	0
9E,9F	Datacomm Size	Env. Buffers	Yes	2048 (decimal)
A0/0	HT Displayed from Datacomm	Env. Video Options	Yes	0
A0/1	SOH Exits Forms	Env. Datacomm Options	Yes	0 (ON)
A0/2	ETX Advance	Env. Datacomm Options	Yes	0
A0/3	CR Interpretation	Env. Datacomm Options	Yes	0 (CR/LF)
A0/4	CR Displayed from Datacomm	Env. Video Options	Yes	0
A0/5	RET Function	Env. Keyboard Options	Yes	0 (CR/LF)
A0/6	CR Displayed from Keyboard	Env. Video Options	Yes	0
A0/7	Line at a Time Xmit	Env. Datacomm Options	Yes	0

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Table D-1   Scratchpad Addresses and Menu Options (Continued)

Address	Option	Host Menu	Access	Default
A1/2	SO/SI XTN	Env. Datacomm Options	Yes	0
A1/3	SO/SI XLT	Env. Datacomm Options	Yes	0
A1/4	Keyboard Lockout	Env. Keyboard Options	Yes	0
A1/6	SPCFY Key Sends	Env. Keyboard Options	Yes	0 (ASCII)
A1/7	Retain Tabs on Configuration	Env. Tab Options	Yes	0
A2,A3	Keyboard Queue	Env. Buffers	Yes	256 (decimal)
A6,A7	Printer Buffer	Env. Buffers	Yes	2048 (decimal)
A9/2 A9/3	Alarm Level	Sys. Keyboard and Screen	Yes	1, 1 (ON)
F0-F3	Control Mode Indicator	Sys. Messages	Yes	CTRL
F8-FB	Forms Mode Indicator	Sys. Messages	Yes	FORM
	Uppercase Indicator	Sys. Messages	Hidden	UP
	Lowercase Indicator	Sys. Messages	Hidden	LO
102, 103	Key Programs Buffer I (decrement)	Env. Buffers	Yes	0180 (hex)
104, 105	Key Programs Buffer II	Env. Buffers	Hidden	027F (hex)
108- 10B	Password (Level II)	Sys. Messages	Yes	MODE
10C- 10F	Page Indicator	Sys. Messages	Yes	PAGE
110- 11F	Buffer Overflow Message	Sys. Messages	Yes	BUFFER OVERFLOW

Table D-1   Scratchpad Addresses and Menu Options (Continued)

Address	Option	Host Menu	Access	Default
130-13F	Printer Error Message	Sys. Messages	Yes	PRINTER ERROR
140-14F	Receive Error Message	Sys. Messages	Yes	RECEIVE ERROR
150-15F	Keystroke Lost Message	Sys. Messages	Yes	KEYSTROKE LOST
160-16F	Receiving Page Message	Sys. Messages	Yes	RECEIVING - P.
	Form Delimiters Visible	Env. Video Options	Hidden	
	Environment ID	Env. Video Options	Hidden	ENVMNT #
	Control Code Mapping	Env. Peripheral Options	Hidden	YES
	Prompt for Printer's Name	Env. Peripheral Options	Hidden	NO
	Byte Config Available	Sys. Keyboard and Screen	Hidden	YES
	Visible Cursor	Env. Video Options	Hidden	YES
	Node Name	Env. Datacomm Options	Hidden	

Byte Configuration by Menu

Environment Datacomm Options

Option	Address Access	Host	Default
Address	89,8A	Yes	0,0
VT Page Advance	96/2	Yes	0
DC1 Function	80/3	Yes	1 (Stay-in-RCV)
SO/SI XLT	A1/3	Yes	0
DC2 Function	96/0	Yes	0
SO/SI XTN	A1/2	Yes	0
CR Interpretation	A0/3	Yes	0 (CR/LF)
SOH Clears Screen	80/5	Yes	0 (OFF)
LF Interpretation	92/0	Yes	0 (LF)
SOH Exits Forms	A0/1	Yes	0 (ON)
RCV Mode Hold	9B/3	Yes	1 (ON)
ETX Advance	A0/2	Yes	0
Xmit Printer Status	9B/0	Yes	0
Line at a Time Xmit	A0/7	Yes	0
FF Clears Tabs	96/1	Yes	0
Form Xmit to Cursor	80/4	Yes	0 (ON)
Node Name		Hidden	

Byte Configuration by Menu

Environment Video Options

Option	Address Access	Host	Default
Alternate US Character	86	Yes	5B
Alternate RS Character	87	Yes	5D
Lines Per Screen	92/3	Yes	1 (24 lines)
Environment ID		Hidden	ENVMNT #
Form Delimiters Visible		Hidden	YES
Visible Cursor		Hidden	YES
Datacomm ETX Display	96/4	Yes	0
Auto Form Field Advance	92/4	Yes	0 (ON)
CR Displayed from Datacomm	A0/4	Yes	0
CR Displayed from Keyboard	A0/6	Yes	0
HT Displayed from Datacomm	A0/0	Yes	0
HT Displayed from Keyboard	96/6	Yes	0

Byte Configuration by Menu

Environment Buffers

Option	Address Access	Host	Default
Keyboard Queue	A2,A3	Yes	256 (decimal)
Datacomm	9E,9F	Yes	2048 (decimal)
Datacomm (decrement)	9C,9D	Yes	0
Key Programs Buffer I (decrement)	102,103	Yes	0180 (hex)
Key Programs Buffer II	104,105		027F (hex)
Printer Buffer	A6,A7	Yes	2048 (decimal)
Lines Per Page	84	Yes	24 (decimal)
Chars Per Line	85,92/2	Yes	4F, 1 (80 cols)
Number of Pages	Not Stored		2

Byte Configuration by Menu

Environment Keyboard Options

Option	Address Access	Host	Default
CLR Function	96/3	Yes	0 (CLEARS UNPROTECTED)
Cursor Wrap Around	96/7	Yes	0 (ON)
RET Function	A0/5	Yes	0 (CR/LF)
Column End Alarm	97	Yes	4F (Col 80)
Row End Alarm	98	Yes	17 (Row 24)
Lower Case Lockout	92/6	Yes	0
Keyboard Lockout	A1/4	Yes	0
SPCFY Key Sends Page Number	7E/7	Yes	0
SPCFY Key Sends	A1/6	Yes	0 (ASCII)

Byte Configuration by Menu

Environment Tab Options

Option	Address Access	Host	Default
Tabs	96/5	Yes	0 (FIXED)
Retain Tabs on Configuration	A1/7	Yes	0
Clear Variable Tabs	Not Stored		

Byte Configuration by Menu

Environment Peripheral Options

Option	Address Access	Host	Default
Extend Line	9B/5	Yes	0
Translate Control Chars	9B/7	Yes	0 (YES)
Control Code Mapping		Hidden	
Prompt for Printer's Name		Hidden	NO
Close Printer After Print	7E/6	Yes	0
Printer Selection	7E/1-3	Yes	0,0,0
Name	3D-7D	Yes	BTEPRINTERFILE

Byte Configuration by Menu

System Datacomm Options

Fast Select Enable	7E/0	Yes	1
Beep on NAK	9B/6	Yes	1

Byte Configuration by Menu

System Partitions and International

Option	Address Access	Host	Default
Language Version	8D	Yes	1 (U.S.)
Environment 1	3B,3C	Yes	8400
Environment 2	3B,3C	Yes	0
Environment 3	3B,3C	Yes	0

Byte Configuration by Menu

System Messages

Option	Address Access	Host	Default
Column Indicator		Hidden	COL
Row Indicator		Hidden	ROW
Uppercase Indicator		Hidden	UP
Lowercase Indicator		Hidden	LO
Insert Page Indicator		Hidden	INS/PG
Insert Line Indicator		Hidden	INS/LN
Page Indicator	10C-10F	Yes	PAGE
Receive Mode Indicator		Hidden	RCV
Control Mode Indicator	F0-F3	Yes	CTRL
Forms Mode Indicator	F8-FB	Yes	FORM
ENQ Mode Indicator		Hidden	ENQ
Password (Level II)	108-10B	Yes	MODE
Search Mode Indicator		Hidden	SEARCH
Password (Level I)		Hidden	LEV1
Buffer Overflow Message	110-11F	Yes	BUFFER OVERFLOW
Printer Error Message	130-13F	Yes	PRINTER ERROR
Receive Error Message	140-14F	Yes	RECEIVE ERROR
Keystroke Lost Message	150-15F	Yes	KEYSTROKE LOST
Receiving Page Message	160-16F	Yes	RECEIVING - P.

Byte Configuration by Menu

System Keyboard and Screen

Option	Address Access	Host	Default
Alarm Level	A9/2-3	Yes	1, 1 (ON)
Video	7E/4-5	Yes	0,0 (Normal)
Byte Config Available		Hidden	YES

Appendix E

Key Programming Tables

Use the information in this appendix with Section 7, "Key Programming."

Figure E-1 K1 Keyboard Matrix Codes
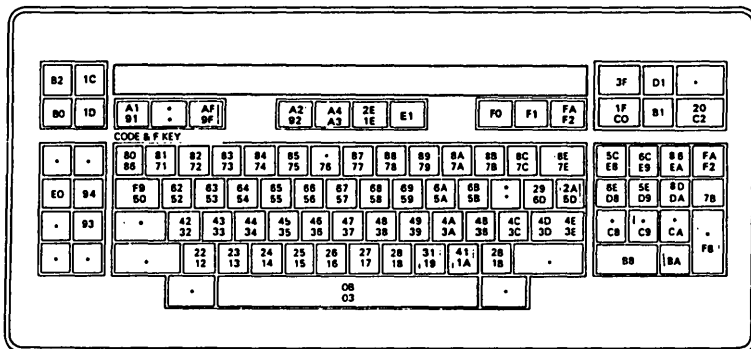
Note: Keys marked with an "*" are nonprogrammable. Whenever a single matrix code appears on a key, it specifies both the key and the SHIFT-key.

Matrix codes for the functions keys:

CODE-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	95	96	97	98	99	9A	9B	9C	9D	9E
CODE-SHIFT-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE

Figure E-2   **K2 Keyboard Matrix Codes**
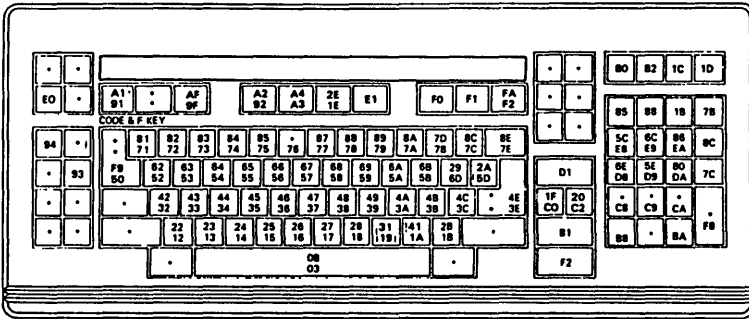
Note: Keys marked with an "*" are nonprogrammable. Whenever a single matrix code appears on a key, it specifies both the key and the SHIFT-key.

Matrix codes for the functions keys:

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
CODE-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	95	96	97	98	99	9A	9B	9C	9D	9E
CODE-SHIFT-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE

Figure E-3   K3 Keyboard Matrix Codes
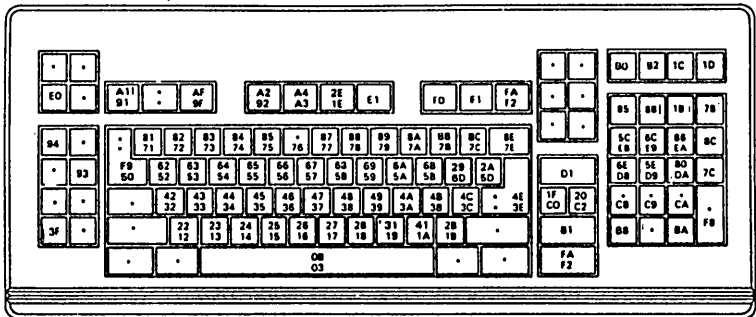
Note: Keys marked with an "**•**" are nonprogrammable. Whenever a single matrix code appears on a key, it specifies both the key and the SHIFT-key.

Matrix codes for the functions keys:

CODE-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	95	96	97	98	99	9A	9B	9C	9D	9E
CODE-SHIFT-key	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
Matrix Code	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE

Table E-1   Function Codes by Function

Function	Code (used in key program)
Cursor Positioning	
Cursor Up	F6
Cursor Left	F7
Cursor Right	F8
Cursor Down	F9
Return	D6, D7
Tab	C6, C7
Reverse Tab	C4, C5
Align KBC to DCP	A0, A1
Home	AE, AF
Skip	B2, B3
Editing	
Clear	80, 81
Insert Char	82, 83
Delete Char	84
Delete Line	85
Clear to End Of Line	86
Clear to End Of Page	87
Roll Down	88
Roll Up	89
Move Line Down	8A
Move Line Up	8B
Tab Set	E0
Tab Clear	E1
Forms	
FS	1C
GS	1D
RS	1E
US	1F
Highlights	
SO (reverse)	0E
SI (underline)	0F
ETB (highlight end)	17
CAN (blink)	18
EM (secure)	19
SUB (bright)	1A

Table E-1   Function Codes by Function (Continued)

Function	Code (used in key program)
Miscellaneous	
Print Unprotected	9C
Print All	9D
End Of Text	A2, A3
Escape	B4, B5
Ext. Char. Code	8C
Mode	
Control	A4
Control (Shifted)	A5
Local	A8, A9 (except for <ESC> RK where A8, A9 — program end)
Receive	AA, AB
Transmit	AC, AD
Forms Enable	9E
Forms Disable	9F
Numerics	
00	EA, EB
000	EC, ED
Page Positioning	
Scroll Right	E9
Scroll Left	E8
Scroll Down	FA
Scroll Up	FB
Prev Page	FC, FD
Next Page	FE, FF

Table E-2   Function Codes by Value

Function Code	Function (used in key program)
00	Program end
01-1C	Display control codes (except SYNC)
1D	GS
1E, 1F	Display control codes
20-7F	Alphanumeric characters
80, 81	Clear
82, 83	Insert character
84	Delete character
85	Delete line
86	Clear to end of line
87	Clear to end of page
88	Roll down
89	Roll up
8A	Move down
8B	Move up
8C	Extend character code
8D-9B	RESERVED
9C	Print unprotected
9D	Print all
9E	Forms enable
9F	Forms disable
A0, A1	Align
A2, A3	End of text
A4, A5	Control
A6, A7	Specify
A8, A9	Local (except for <ESC> RK where A8, A9 — program end)
AA, AB	Receive
AC, AD	Transmit
AE, AF	Home
B2, B3	Skip
B4, B5	Escape
B6-C3	RESERVED
C4, C5	Reverse tab
C6, C7	Tab
C8, DC	NO FUNCTION
CE, DF	Clear field

Table E-2   Function Codes by Value (Continued)

Function Code	Function (used in key program)
D0, D1	Home
D4, D5	RESERVED
D6, D7	Return
D8, D9	RESERVED
DA, DB	Skip
DC, DD	RESERVED
DE, DF	Reverse tab
E0	Tab set
E1	Tab clear
E2-E9	RESERVED
EA, EB	00
EC, ED	000
F0, F1	Tab
F6	Cursor up
F7	Cursor left
F8	Cursor right
F9	Cursor down
FA	Scroll down
FB	Scroll up
FC, FD	Prev page
FE, FF	Next page

Glossary

accented character. A character that is displayed or printed with a diacritic to provide a complete character as required by a specific language version.

address. The BTE environment location as the host recognizes it. The host sends and picks up data according to this address. Each BTE environment must have a separate address.

align. An operation that moves the cursor to a specified location, such as the data comm pointer or mobile home position.

ASCII. An acronym for *American Standard Code for Information Interchange.*

buffer. An area of memory devoted to storing information for certain BTE functions, such as the printer buffer or data comm buffer.

character set. All the font characters defined for a given language version.

configure. To alter the way BTE executes certain commands.

control sequence. A command consisting of a series of keystrokes, beginning with the CTRL key.

CR. An acronym for *carriage return;* a control character (0D hex).

cursor. See *keyboard cursor.*

data comm. An abbreviation of *data communication;* the exchange of information among a host and terminals.

data comm pointer (DCP). The starting position in the display store, where the next message received from the host is to be stored.

DCP. An acronym for *data comm pointer.*

delimiters. In forms mode, the special characters on the screen that indicate the start and end of forms fields.

diacritic. A mark that may be added to a displayed or printed character to provide a complete character as required by a specific language version.

disable. To temporarily render a feature inoperable.

EBCIDIC. An acronym for *Extended Binary Coded Decimal Interchange Code.*

environment. A capability of BTE to perform more than one function at a time. BTE can have up to three environments. Each is capable of communicating with a different host, running a different host application, and receiving from and transmitting to the host.

escape sequence.   Any character or sequence of characters prefaced by an the ESC character.

extended character.   A character with a hex code greater than 7F.

form fields.   A space in a forms page that is defined as protected or unprotected.

forms mode.   A special page format where data is contained in protected and unprotected fields. Keyboard input can be entered only into the unprotected fields.

full-screen view.   A screen display where the keyboard environment occupies the entire screen except for the status line area.

GS.   An acronym for *group separator;* a control character (1D hex). The delimiter that begins an unprotected, right-justified data field.

GS field.   A right-justified, unprotected field in a form.

highlight.   A video attribute assigned to a section of text so that the text is distinguished from normal text. Some common highlights are *reverse video* and *underlined video.*

host.   The mainframe computer BTE transmits to and receives information from.

host applications.   Programs the host has that BTE accesses.

KBC.   An acronym for *keyboard cursor.*

keyboard cursor.   An underline or rectangle on the screen that indicates where keyboard characters will be displayed on the screen when they are typed.

keyboard environment.   The BTE environment that you are currently working in.

left-justified field.   An unprotected forms mode field in which data is entered from left to right.

Light-Emitting Diodes.   (LEDs) Lights on certain keycaps and in the upper right corner of certain keyboards. They light up to indicate conditions or phases of BTE operation.

page.   Units of data within an environment. You can select how many pages you want each environment to have through BTE set-up mode.

protected field.   An are of the page where data cannot be entered.

RCV mode.   Operations involving reception of data from the host.

reverse video.   A video display of dark characters on a bright background.

right-justified field.   An unprotected forms mode field in which data is entered at the right side of the field and shifts left as more data is entered.

search mode. An operation in which BTE searches for a particular character in a page.

set-up options. The particular features of BTE that can be changed.

set-up values. The precise instructions BTE follows. Each option has two or more values you can choose from for each option.

SI. An acronym for *shift in,* a control character (0F hex).

SO. An acronym for *shift-out,* a control character (0E hex).

split-screen. A screen display where more than one environment is viewed on the screen at one time.

status lines. Lines at the bottom of the screen that give you certain information about BTE, environments, and the host application you're using.

system messages. Screen messages that give the status of selected keyword functions.

toggle. To change the state of anything that can be expressed in binary terms. For example, set-up options that can be expressed in binary terms—*on* or *off, yes* or *no*—are said to be toggled when their state is changed.

unprotected field. A portion of the page where data can be entered.

US. An acronym for *unit separator,* a control character (1F hex). It is the delimiter that begins an unprotected, left-justified field in forms mode.

US field. A left-justified, unprotected field in a form.

windows. The space on the screen a single environment occupies in a split-screen view.

zoom. To toggle between a split-screen and a full-screen view of the keyboard environment or between real and virtual 132-column mode (B 27 only).

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Title _____ Company _____

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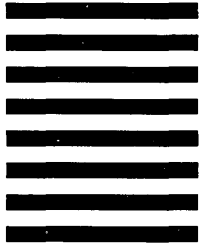
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SUBJECT: Announcement of BTOS
Burroughs Terminal
Emulator Software,
Release 2.1

STYLE: SB25 BT2/MB25 BT2/XB25 BT2

MEDIA ID: BT2 0201001

Enclosed is the BTOS Burroughs Terminal Emulator (BTE) software, release 2.1.

BTE allows a BTOS workstation to emulate a Burroughs T 27 or MT 983 terminal. It offers the ability to interact with the numerous applications available to users of these terminals.

This package contains:

- One disk containing BTOS Burroughs Terminal Emulator, release level 2.1
- *BTOS Burroughs Terminal Emulator (BTE) Programming Guide,* relative to release level 2.0, form 1192358
- *BTOS Burroughs Terminal Emulator (BTE) Operations Guide,* relative to release level 2.0, form 1198158
- One Function Control Strip, form 1212750

Instructions for software installation are in the *BTOS Burroughs Terminal Emulator (BTE) Programming Guide.* Read and follow the procedures indicated before attempting any operation of this product.

Features are described in the Specification Sheet, form 1219763. The recommended operating system level for running this release is one of the following:

- BTOS 8.0 or higher
- BTOS II, release 1.0 or higher
- XE 520 MS8 or higher

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