



**CDC®790 ICEM ERGONOMIC
WORKSTATION**

TEKTRONIX EMULATION

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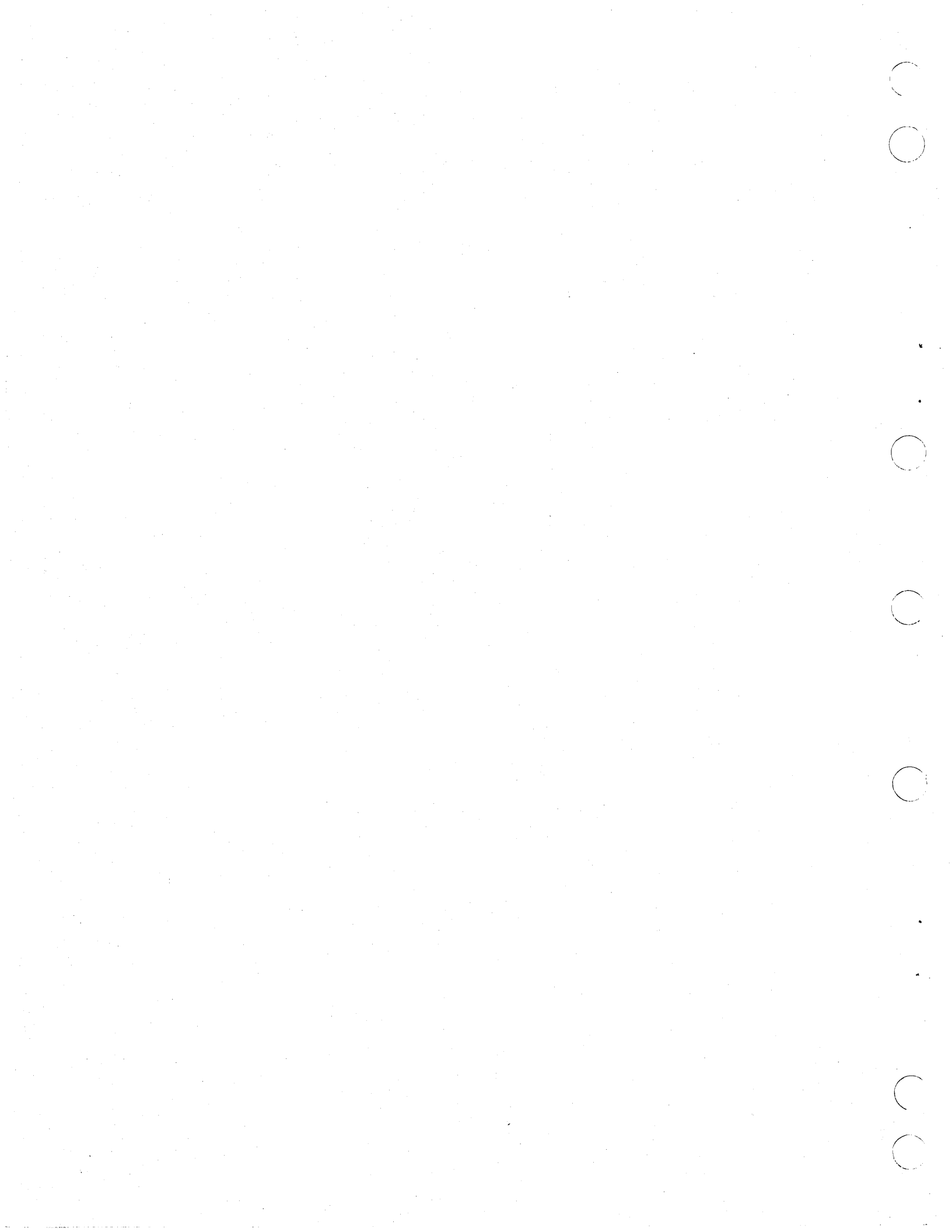
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Chapter 1

GENERAL INFORMATION

INTRODUCTION

This manual provides the information necessary to operate your Control Data 790 ICEM Ergonomic Workstation as if it were a Tektronix 4115. Recognizing the importance of protecting your investment in applications software, CDC provides Tektronix Emulation (TEKEM) with the 790 to make the transition to this advanced CAD/CAM system easier for former Tektronix users. TEKEM is compatible with most applications software written for Tektronix devices, including many of CDC's ICEM applications and such industry standards as ANSYS and PATRAN-G.

In addition to providing TEKEM, the 790 offers the following advantages when operated in its native mode:

- ✧ 32-bit floating point display list for compatibility with most CAD and scientific data.
- ✧ Hierarchical data base to accommodate the most demanding file structures.
- ✧ Hardware-assisted Gouraud shading (performance option) for fast display of realistic shaded pictures.
- ✧ Direct memory access over a parallel interface (CYBER 120 option) to overcome the performance limitations of serial communications.
- ✧ Available pixel access times averaging 10 times faster than Tektronix.
- ✧ 6.7 megaflops geometry processor (performance option) for interactive response to 3-D operations.

HOW TO USE THIS MANUAL

This document is intended for people who either are familiar with the Tektronix 4115 or have the documentation for it. It describes differences between Tektronix on the 4115 and TEKEM on the 790. Comprehensive indices allow quick reference for users familiar with 4115 commands. The manual is a single volume with the following chapters and appendices:

- ✧ Chapter 1, GENERAL INFORMATION - provides introductory information, including an overview of TEKEM and the 790 Workstation and a list of related documentation.
- ✧ Chapter 2, GETTING STARTED - tells you how to load TEKEM; describes how each system handles graphics surfaces, the dialog buffer, and setup mode; and summarizes the differences to be described in later chapters.

- ✕ Chapter 3, KEYBOARD DIFFERENCES - describes the differences between the 4115 and 790 keyboards and explains how these differences are handled by TEKEM.
- ✕ Chapter 4, COMMAND REFERENCE - lists all commands used by TEKEM, including setup commands, three-character commands, two-character commands, control codes, and key commands, and explains how they differ from commands on the 4115.
- ✕ Appendix A, CDC OPERATING NOTES
- ✕ Appendix B, THREE-CHARACTER COMMAND INDEX BY ESCAPE SEQUENCE OPCODE
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MANUAL REVISION INFORMATION

Periodically, CDC will publish a change package or reissue a manual to stay current with the development and release of software revisions. This manual contains the following:

- ✕ Revision record
- ✕ List of effective pages
- ✕ Reader comment form

Revision Record

This record follows the title page and gives the date and description of each revision.

List of Effective Pages

This list gives the revision level of each page in the manual. A new list of effective pages is included in each reissue or change package.

Reader Comment Form

An addressed comment form is provided at the end of the manual. Please enter any comments, suggestions, or complaints on the form. Include page, paragraph, figure, or table number as applicable. If you are submitting a technical comment, also submit a Technical Action Request (TAR).

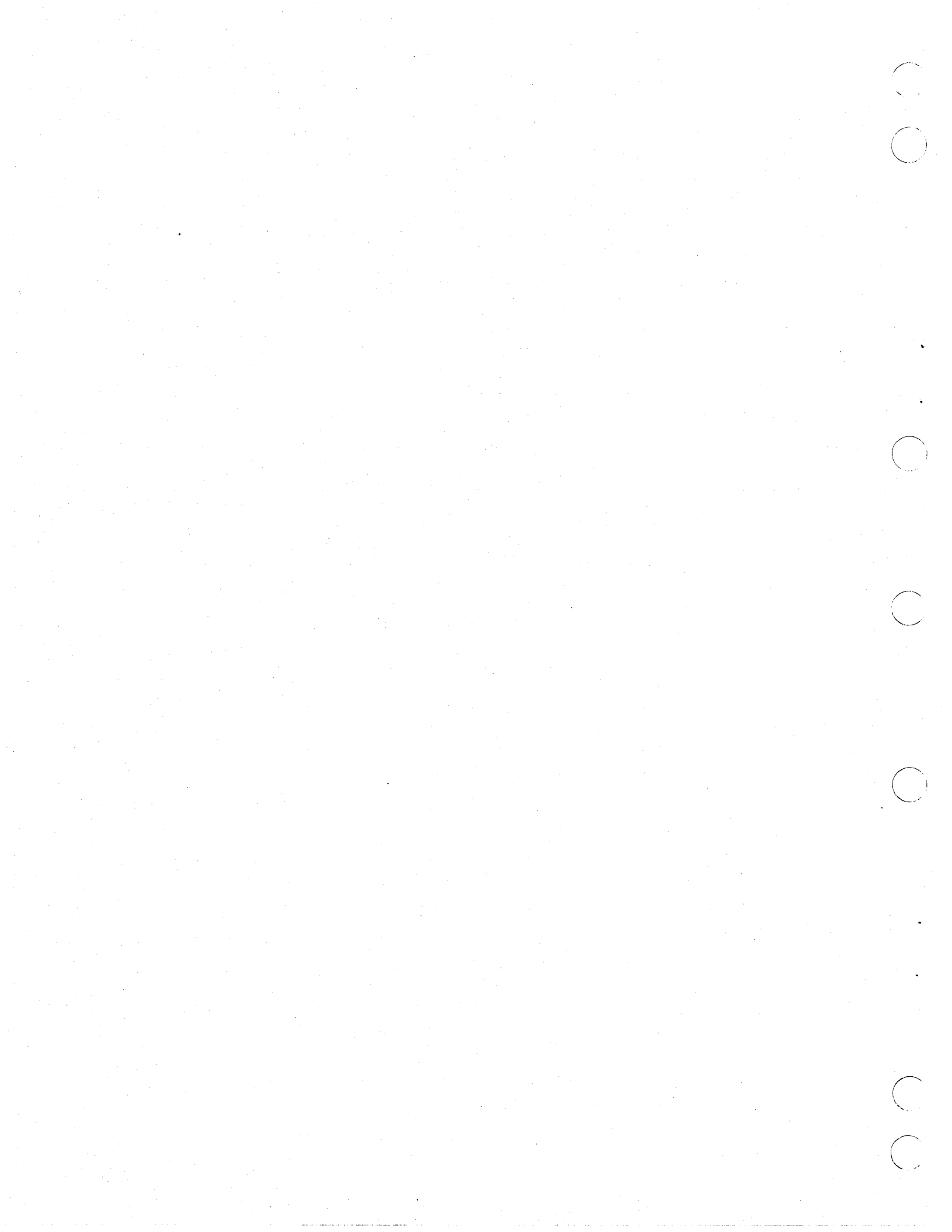
RELATED DOCUMENTS

Table 1-1 lists supporting reference documents that contain supplementary information to the material in this manual.

Table 1-1. Related Documents

Title	Part Number
CDC 790-20 Ergonomic Workstation Owner's Manual	62950150
Tektronix 4110 Series Command Reference Manual	070-3892-00
Tektronix 4110 Series Host Programmers Manual	070-4664-00
Tektronix 4115B Computer Display Terminal Operators Manual	070-4665-00

Tektronix manuals may be ordered by writing to Tektronix, P.O. Box 500, Beaverton, Or. 97077, or by calling 1-800-323-1654.



Chapter 2

GETTING STARTED

LOADING TEKEM

To load TEKEM, do the following:

1. Check to be sure the dip switches are set as shown in figure 2-1.

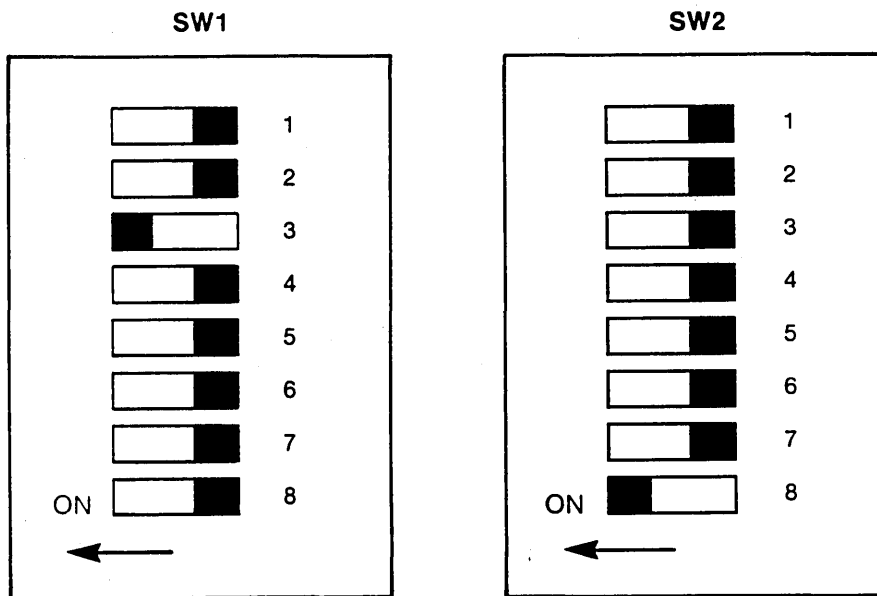


Figure 2-1. Configuration Select Switch Settings

2. Open the panel located just below the alpha display on the right side of the monitor enclosure.
3. If you intend to change the setup parameters, disable the write protect switch on the disk by covering the hole on the left side of the disk. Be sure to uncover the hole after resetting the parameters to protect the disk from being overwritten.
4. Insert the TEKEM disk in the drive slot, with the label side up and the sliding metal edge forward. Make sure it's inserted all the way.

5. Press the reset button, which is toward the upper right corner of the panel.

The 790 workstation will undergo a series of self-tests first. When TEKEM starts to load, a small red light on the disk drive will blink on and off intermittently. The loading process requires about 75 seconds, after which the message

READY FOR INPUT

will appear on the alpha screen. If this message does not appear, try the following:

- ✕ Adjust the alpha monitor brightness.
- ✕ Reload the disk.
- ✕ Load another TEKEM disk.

SETUP MODE

In Setup mode, you can enter setup commands directly from the keyboard. TEKEM supports a subset of the 4115 setup commands. These are described in chapter 4.

Entering Setup Mode

TEKEM Setup mode may be entered at any time by pressing the TEKEM SETUP key (not to be confused with the 790 SETUP key). The TEKEM SETUP key is the one with the word SETUP on its front face and L/DELETE/C on top. You will know that you are in Setup mode when you see the asterisk (*) prompt appear on the alpha terminal or, if DAENABLE is set to NO (see next section) on the graphics terminal. If the asterisk does not appear, you need to reload TEKEM. Host communications are temporarily suspended when the terminal is in Setup mode.

Determining Setup Parameters

When the terminal is in Setup mode, terminal and communications status can be determined by typing STA followed by a carriage return. This will display the TEKEM parameters on the alpha terminal as follows:

TERMINAL STATUS

ECHO	YES
LOCKKYBD	NO
DAENABLE	YES
IGNOREDEL	NO
LFCR	NO
CRLF	NO
SAVECONFIG	NO
SCROLLING	YES
SNOOPY	NO
ERRORLEVEL	2

COMMUNICATIONS

BAUDRATE	9600
STOPBITS	2
PARITY	NONE
PROMPTSTRING	! ? !
PROMPTMODE	NO
QUEUESIZE	8100
FLAGGING	NONE
BYPASSCANCEL	(NL)
LOCAL/REMOTE	REMOTE

These parameters are designed for use with ICEM DDN (CD/2000) software.

Changing Setup Parameters

The configuration shown in the setup display can be altered by the user. For example, the communications baud rate can be set by typing BAUD followed by the new baud rate and a carriage return. To set the bypass cancel character to null, type BYP and press the carriage return. The other parameters are set in the same way, except for LOCAL/REMOTE, which is toggled by the LOCAL/REMOTE key. Once you have set the parameters, you can check to see that they are correct by typing STA and a carriage return. This should cause the configuration as you set it to be displayed on the alpha terminal.

The 790 doesn't support the XMTDELAY setup command. If your host requires a transmit delay, use the FLAGGING command.

Saving Setup Parameters

The 4115 remembers most setup command settings after it is turned off. The 790 uses the SAVECONFIG setup command to save setup command settings on the TEKEM disk in a file named TEKC. If you want these parameters saved on the TEKEM disk, the write protect switch must be disabled. (This should have been done before the disk was loaded.) To save the configuration, set SAVECONFIG to YES (type SAVEC Y and press the carriage return); then exit Setup mode by pressing the TEKEM SETUP key. After the disk has been updated, you need to

inform TEKEM that the configuration on the disk should not be changed. To do this, perform the following steps:

1. Re-enter Setup mode by pressing the TEKEM SETUP key.
2. Set the SAVECONFIG parameter to NO (type SAVEC N and press the carriage return).
3. Exit Setup mode by pressing the TEKEM SETUP key.

At this point, you may want to go ahead and re-enable the write protect switch. To do this, remove the disk from the drive and uncover the hole on the left side of the disk.

Using Escape Sequence Commands In Setup Mode

The 4115 allows all escape sequence commands in Setup mode. There are only two escape sequence commands valid in Setup mode on the 790 at this time. These are MOVE (ESC LF) and DRAW (ESC LG). Their setup syntax is the same as it is on a Tektronix.

GRAPHICS SURFACES

On the 4115, different modes allow for different handling of the graphics surfaces, making them transparent or solid. On the 790, these surfaces can be only solid, with the most recent surface obscuring any previous surfaces.

DIALOG AREA

Text in the dialog buffer of a 4115 is displayed in a user-defined dialog area, which is a portion of the same screen used to display graphics surfaces. Sometimes it is necessary to turn this area on and off so that the user can switch back and forth between graphics and text.

The 790 has a separate alphanumeric display, providing the dialog buffer with its own separate display surface, thus eliminating the need for most commands related to the dialog area. Text can be written to the graphics terminal, but no dialog area can be specified and the text will obscure any previously drawn graphics.

If the dialog area of the 4115 is disabled, alphatext is directed to the graphics area. In TEKEM mode, if the dialog area of the 790 is disabled, alphatext will be written to the graphics area starting at the upper left of the screen and continuing left to right, top to bottom, obscuring any existing graphics along the way.

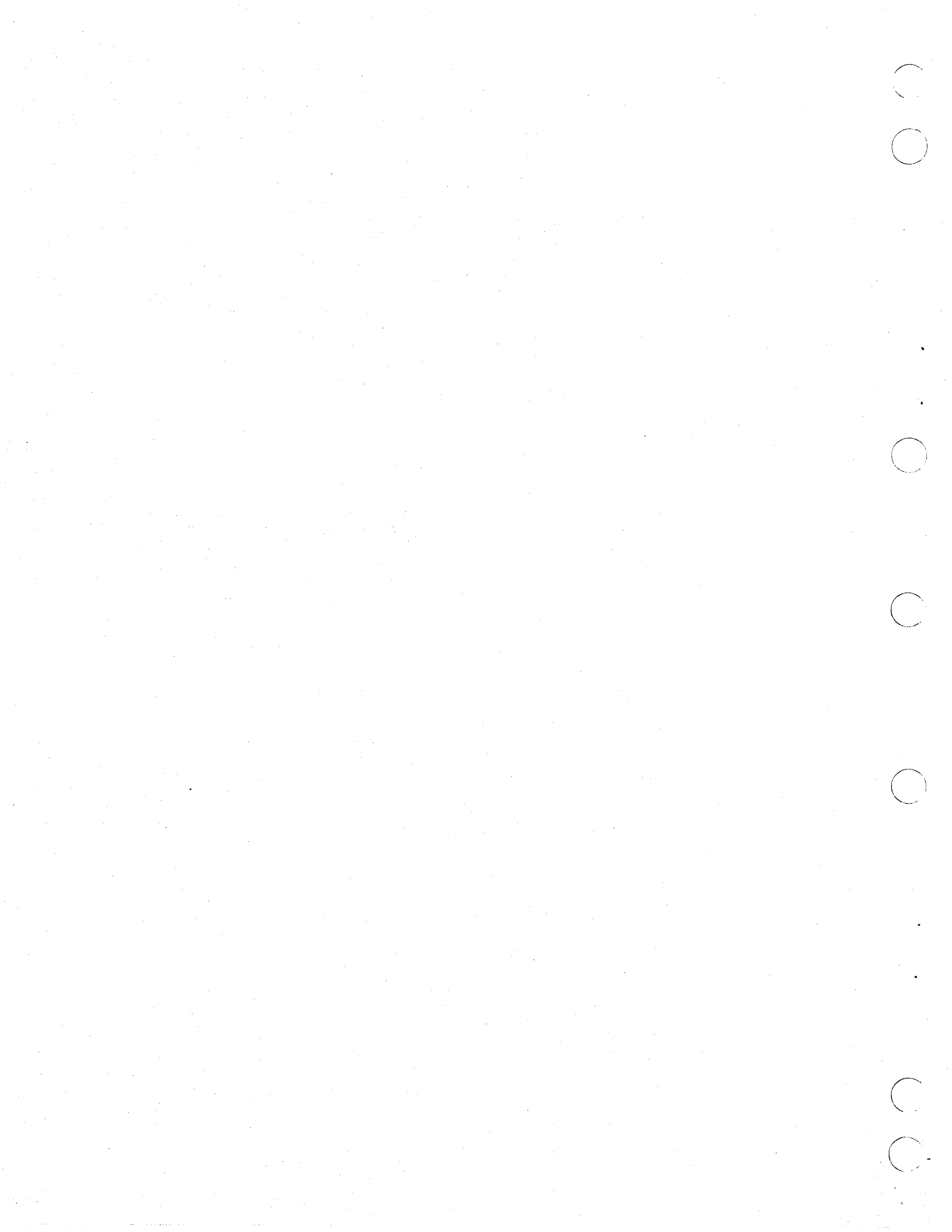
The 4115 scrolls the dialog area using the thumbwheels. On the 790, scrolling is controlled from the keyboard by keys F11 (backward) and F12 (forward). In order for scrolling to work on the 790, the SCROLLING parameter in the setup configuration must be set to YES. Scrolling is done either a page at a time or, if the CONTROL key is also depressed, a line at a time. The dialog buffer on the 790 can store between six and ten pages of data, depending on data format.

SUMMARY OF DIFFERENCES

As you have seen, the way the 4115 and TEKEM handle graphics surfaces and the dialog buffer and the way they function in Setup mode are slightly different. The other differences are in the keyboards and the commands.

To deal with some of the keyboard differences, TEKEM reprograms some of the 790 keys. The 790 can use the numeric keypad or a valuator to emulate the thumbwheels on the 4115. Chapter 3 details the keyboard differences and explains how TEKEM handles these discrepancies.

Chapter 4 lists the commands that are supported by TEKEM and explains how these sets of commands differ from the 4115 command sets. In order for the 790 to handle certain hardware differences, one command has been added. This command is described in detail.



Chapter 3

KEYBOARD DIFFERENCES

INTRODUCTION

If you are a former Tektronix user, the first thing you will probably notice when you sit down at your 790 workstation is the keyboard, shown in Figure 3-1. It is quite different from the 4115 keyboard. There are no thumbwheels or indicator lights. Notice the keys with functions printed on the front. These are keys that TEKEM reprograms to perform Tektronix functions.

Notice the keys with brackets ([and]) on the front. Because brackets are used frequently in ICEM DDN applications, these keys are provided to allow the user to generate the left and right bracket characters without requiring the SHIFT key.

This chapter explains how to handle these keyboard differences when you use TEKEM on your 790 and how to program certain 790 keys with Tektronix macros.

CONTROL KEYS

This section describes TEKEM control keys. If not otherwise stated, you can assume that functions described are TEKEM functions on the 790 workstation.

Rubout

The L/DELETE/C key on the 790 is reprogrammed as a TEKEM SETUP key. However, the CR/DEL key and the key with RUBOUT printed on the front both function as delete (or rubout) keys.

Escape

To send an escape character on the 790 in TEKEM mode, use the key with ESC printed on the front. When in Remote mode, this sends the ASCII ESCAPE character to the host. In Local mode, the ESC key is the first character in a sequence used to issue commands to the terminal.

Back Space

The BACK SPACE key is the one with arrow directed to the left on it and is located next to the HELP key. Pressing this key moves the cursor one space to the left.

Tab

The L-shaped key left of the alphanumeric Q key is the 790 TAB key. When the terminal is in Local mode, the cursor moves one space to the right each time you press the TAB key.

Break

The 790 M REL/BREAK, like the BREAK key on the 4115, is used to interrupt communications between the host and the terminal. The 790 does not support the BREAKTIME setup command, which is used to specify the length of the interrupt or to disable the BREAK key. Pressing the BREAK key on the 790 sends 200 NUL characters to the host.

Shift

The SHIFT keys are the large keys with upward arrows on them. They function the same as 4115 SHIFT keys, except that on a 790 terminal, the function keys and viewing keys cannot be shifted.

COMMAND KEYS

This section describes TEKEM command keys. If not otherwise stated, you can assume that functions described are TEKEM functions on the 790 workstation.

Page

TEKEM reprograms the PRINT key to function like the Tektronix PAGE key. This key erases the graphics display. It has no effect on the alpha display.

Caps Lock

The 790 CAPS LOCK key is the one with the little lock on it. When you press this key, the red light in the key comes on and alphabetic characters are transmitted in upper case. If you press it again, the caps lock condition is terminated and characters are transmitted in lower case.

Setup

TEKEM reprograms the L/DELETE/C key to function as a Tektronix SETUP key. You might notice that the 790 keyboard has its own SETUP key (with SETUP printed on the top). This is the 790 terminal SETUP key and will not work in TEKEM mode. In order to enter Setup mode in TEKEM, use the TEKEM SETUP key (with SETUP printed on the front). The SETUP key toggles in and out of Setup mode.

There is a red light on the 4115 SETUP key to indicate when the terminal is in Setup mode. The 790 indicates Setup mode by an asterisk (*) prompt.

Dialog

On the 4115, the DIALOG key is used to make the dialog area visible or not visible. On the 790, it has a different function. TEKEM uses this key to toggle the display of the dialog area from the alpha screen to the graphics screen and back again. Since hardcopy is only available currently from the graphics screen, it is occasionally useful to send the dialog messages to this screen.

Clear

The CLEAR key erases the alpha display. It does not affect the graphics display.

Local

The LOCAL key toggles the 790 between Local mode and Remote mode. On the 4115, this key contains an indicator light. To determine whether the 790 is in Local or Remote mode, enter Setup mode and check the LOCAL/REMOTE parameter using the STATUS command.

Cancel

The CANCL key is used to disable all graphics input and to unlock the keyboard if it is locked.

Hardcopy

An optional color copy interface allows the 4115 to make color copies of screen displays on Tektronix copiers and plotters. At this time, the 790 does not use this key when making hard copies in TEKEM mode. However, a HARDCOPY key has been defined for possible later implementation of other hardcopy capabilities.

VIEWING KEYS

This section describes TEKEM viewing keys. If not otherwise stated, you can assume that functions described are TEKEM functions on the 790 workstation.

The viewing keys are used in Framing mode, which is entered when you press the PAN or ZOOM keys. In Framing mode, a framing box outlines the currently active viewport. If you want to see a portion of the view in more detail, you change the framing box to outline the portion that you want to see. On the 4115, the location and shape of the framing box can be changed using the thumbwheels. On the 790, thumbwheel emulation is used to change the location and size of the framing box. Thumbwheel emulation is explained in a later section of this chapter.

Pan and Zoom

The PAN and ZOOM keys toggle the workstation in and out of Pan and Zoom modes, respectively. When the pan function is active, the framing box is replaced by a plus sign (+) in the center of the current view; using thumbwheel emulation, you can move the box right, left, up, or down, in the current view. When the zoom function is active, the lower-left and upper-right corners of a rectangle appear in the framing box; using thumbwheel emulation, you can zoom in on a view.

On the 4115, you can change the aspect ratio of the framing box. On the 790, you can change the location and size of the framing box, but you cannot change the aspect ratio.

On the 4115, you exit from Framing mode by pressing the ZOOM key when the ZOOM light is on or pressing the PAN key when the PAN light is on. There are no indicator lights on the 790 for Zoom and Pan modes. However, if you see a plus sign in the center of the framing box area, you will know that you are in Pan mode. And if you see rectangle corners in the framing box area, you will know that you are in Zoom mode. To exit from Framing mode on the 790, press the ZOOM key when the zoom function is indicated or the PAN key when the pan function is indicated.

View

The VIEW key is used to update the screen after a new view has been set by the PAN and ZOOM keys. When you have positioned the zoom or pan box to the desired location, press the VIEW key to draw the contents of the framing box into the current viewport.

Restore

The RSTOR key restores the view that existed prior to the last time you pressed the VIEW key. The workstation remembers the last three views.

Normal

The NORML key is used to return the aspect ratio of the framing box to its normal (5:4) aspect ratio. As mentioned earlier, TEKEM cannot change the aspect ratio of the framing box. Therefore, pressing this key simply changes the aspect ratio from 5:4 to 5:4 (i.e. doesn't change it at all).

Overview

If you have zoomed or panned across a picture, you may forget where you are in relation to the entire picture. Pressing the OVRVW key provides an overview of the current viewport. The framing box remains visible and active.

Next View

The 790 can be divided into as many as 64 individual viewports. Only one of these viewports is active at a time. Pressing the NXTVW key allows you to page through all of the current viewports. The border around each viewport is blinked as it is made active.

Border

Pressing the BORDR key creates a border around the current viewport. When you press NXTVW and move to the next view, the previous border remains. To get a border on the new view, press BORDR again. To delete an existing border, make that view current and press the BORDR key.

INDICATOR LIGHTS

The 4115 has lights to indicate when the terminal is transmitting or receiving data. There is no status indicator for transmit/receive on the 790. Thus there is no way to tell if the 790 is actively receiving data, except to monitor the screen.

The 4115 has an indicator light to inform the user when the keyboard is locked. The 790 has no indicator light for this condition; however, if you try to use a locked keyboard, it will beep at you.

The 4115 has a light to indicate a "full-page" condition. This condition does not exist on the 790.

PROGRAMMING MACROS

The unused 790 function keys (F1 - F10) can be programmed with Tektronix macros in the unshifted position. The 790 alphanumeric keys can be programmed with Tektronix macros in both shifted and unshifted positions. Like the 4115, when the terminal is reset or turned off, macros are deleted from the terminal's memory.

THUMBWHEEL EMULATION

The 4115 keyboard has thumbwheels to move the GIN cursor and manipulate the framing box. The 790 keyboard has no thumbwheels; therefore, TEKEM must perform these tasks differently.

TEKEM uses the numeric keypad for thumbwheel functions. In Pan mode, the arrow keys on the numeric keypad are used to move the box up, down, left, or right. In Zoom mode, the arrow keys are used to alter the size of the framing box. For either of these functions, the HOME key controls the rate of motion. There are three levels of motion provided: fine, medium, and coarse. Pressing the HOME key causes the motion level to cycle between these three values.

Chapter 4

COMMAND REFERENCE

INTRODUCTION

This chapter lists all the commands supported by TEKEM and explains how they differ from commands on the 4115. They include setup commands, three-character commands, two-character commands, control codes, and key commands.

SETUP COMMANDS

Setup commands are English-style commands that can be entered in Setup mode to set the status parameters. The 790 supports a subset of the Tektronix setup commands, plus one extra setup command not used by Tektronix. Table 4-1 lists the commands that TEKEM supports in Setup mode. Included in the list are two escape sequence commands. These two commands, MOVE and DRAW, are the only escape sequence commands allowed by TEKEM in Setup mode.

Table 4-1. Setup Mode Commands

Command	Description
BAUDRATE	Set host baud rate
(ESC)LG	Draw
(ESC)LF	Move
BYPASSCANCEL	Set bypass cancel character
CRLF	Set CRLF (YES, NO)
DAENABLE	Dialog area enable (YES, NO)
ECHO	Set echo mode (YES, NO)
ERRORLEVEL	Set error level (0, 1, 2, 3, 4)
FLAGGING	Set host flagging mode (NONE, INPUT, OUTPUT, IN/OUT, DTR/CTS)
IGNOREDEL	Ignore deletes (YES, NO)
LFCR	Set LFCR (YES, NO)
LOCKKEYBOARD	Lock keyboard (YES, NO)
PROMPTMODE	Set prompt mode (YES, NO)
PROMPTSTRING	Set prompt string
PARITY	Set host parity (NONE, ODD, EVEN)
QUEUESIZE	Set host queue size
SAVECONFIG	Save configuration (YES, NO)
SCROLLING	Set scrolling (YES, NO)
SNOOPY	Set snoopy (YES, NO)
STATUS	Display status
STOPBITS	Set host stop bits (1, 2)

The SAVECONFIG command is used by TEKEM to save setup parameters on the TEKEM disk in a file called TEKC. The SCROLLING command allows the user to enable the dialog buffer to store more data than can be displayed on the dialog area at one time. Tektronix does not use these commands. The STATUS command will display all the current status parameters. At this time, the status of a group of related parameters (i.e. STATUS BAUDRATE) cannot be requested.

THREE-CHARACTER COMMANDS

The three-character commands not implemented in TEKEM fall into six general categories:

1. Commands related to the Tektronix floppy disk used to store user files: JB, JC, JD, JE, JF, JJ, JK, JL, JP, JQ, JR, JS, JU, JV
2. Commands related to host control of local hardcopy devices: KH, PA, PB, PC, PE, PF, PI, PL, PM, PP, PQ, PR, QB, QD, QN, QO, QQ
3. Commands for DMA/block mode transmission: JH, OB, OC, OE, OH, OL, OM, ON, OP, OS, OT
4. Commands relating to the dialog area: LB, LC, LI, LJ, LL, LM, LS, LV, LX
5. Commands specific to the Tektronix 4114 or 4116: KM, MW, MZ
6. Miscellaneous other commands: IF, KP, KZ, ND, NK, NL, OD

The three-character commands that are implemented in TEKEM fall into three general categories:

1. Tektronix commands that are the same: II, IA, IC, ID, IE, IG, IH, II, IL, IM, IN, IP, IR, IS, IT, IV, IW, IX, KA, KC, KD, KE, KF, KI, KL, KN, KQ, KR, KS, KT, KV, KX, KY, LE, LF, LG, LH, LK, LP, LT, LZ, MA, MB, MC, MD, ME, MF, MG, MI, ML, MM, MQ, MR, MT, MV, MY, NB, NC, NE, NF, NM, NP, NQ, NS, NT, NU, RA, RB, RC, RD, RE, RF, RG, RH, RJ, RK, RL, RN, RP, RQ, RR, RS, RT, RV, RW, RX, SA, SB, SC, SD, SE, SG, SH, SI, SK, SL, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SX, SZ, TB, UB, UR, UW, UX
2. Tektronix commands that are different: %I, IQ, MP, MS, NR, RI, RU, SM, TG, TM
3. Non-Tektronix command: UC

The remainder of this section explains those commands that are different from their Tektronix counterparts and the command that is not a Tektronix command.

SELECT-CODE (%I)

TEKEM adds Transparent mode to the list of command-set parameters. When Transparent mode is selected, character codes are passed to the dialog area to be displayed without any processing. Transparent mode is selected by sending ESC % I 2 from the host; to reset to normal TEKEM mode, send ESC % I 0.

REPORT TERMINAL SETTINGS (IQ)

TEKEM supports a subset of the special inquiry codes and op codes that can be specified in the inquiry-code parameter. The TEKEM-supported special inquiry codes include ?M, ?T, 13, 22, and 23. The op codes allowed in TEKEM for this parameter are IN, KA, LV, NQ, NR, and SN.

SELECT-FILL-PATTERN (MP)

The fill-pattern-number parameter in this command can be only zero and negative numbers. These represent fill patterns that consist entirely of the corresponding color index. The pattern number must range from -32768 to 0.

SET-PANEL-FILLING-MODE (MS)

The only parameter in this command that is supported by TEKEM is the cover-boundary parameter, which specifies whether the boundary of a panel is covered when its interior is filled.

SET-BAUD-RATES (NR)

In the transmit-data-rate parameter, the "external clock" value of 1 is not allowed. In this command, TEKEM always sets the transmit rate equal to the receive rate.

SET-SURFACE-VISIBILITY (RI)

TEKEM does not support visibility mode 2, which causes a surface to blink.

BEGIN-PIXEL-OPERATIONS (RU)

TEKEM does not support the ALU-mode parameter, which specifies the function that relates various pixel operations.

SET-SEGMENT-WRITING-MODE (SM)

For the writing-mode parameter, only modes 1 and 2 are valid in TEKEM. When a segment is displayed in mode 1 (Set mode), pixels in raster memory space are set to exactly those color indices that are in the definition of the segment. When a segment is displayed in mode 2 (XOR mode), a bit-by-bit XOR operation is performed on pixels at which the segment is displayed.

SET-SURFACE-COLOR-MAP (TG)

In the color-mixtures array parameter, the valid ranges for the first, second, and third coordinates in each system are, respectively:

- ✧ HLS: -32767 to 32767; 0 to 100; 0 to 100
- ✧ RGB and CMY: 0 to 100; 0 to 100; 0 to 100
- ✧ Machine RGB: 0 to 255; 0 to 255; 0 to 255

On the 4115, adding 1000 to the third color coordinate of the index causes the color to blink. This option is not supported by TEKEM.

SET-COLOR-MODE (TM)

The color-overlay-mode parameter specifies which mode is used when colors are placed on top of each other. TEKEM supports only modes 0 (no change) and 1 (OPAQUE). The SUBTRACTIVE and ADDITIVE modes are not supported.

SAVE-CONFIGURATION (UC)

This command has been added to the Tektronix commands supported by TEKEM. It is not a Tektronix command.

SAVE-CONFIGURATION

OPCODE: UCC

Description:

This command saves setup parameters in on the TEKEM disk in a file called TEKC.

Host syntax: (ESC)UC int:save-config-specifying-mode

Setup syntax: SAVECONFIG(SP) yes/no

Parameter:

save-config-specifying-mode Specifies how changes in setup parameters are to be handled.

0 Save current configuration.

1 Save configuration only when changed.

2 Do not save configuration when changed.

Default:

save-config-specifying-mode 2

Error:

UC11 Invalid parameter. Must be 0, 1, or 2.

TWO-CHARACTER COMMANDS

TEKEM supports all of the Tektronix two-character commands. The following table lists these commands, giving the sequence and description for each.

Table 4-2. Two-Character Commands

Sequence	Description
(ESC)(chr)	SET-4014-LINE-STYLE
(ESC)(FF)	PAGE
(ESC)(SI)	SET-TEXT-FONT-1
(ESC)(SO)	SET-TEXT-FONT-2
(ESC)(chr)	SET-4014-ALPHATEXT-SIZE
(ESC)(CAN)	ENTER-BYPASS-MODE
(ESC)(SUB)	ENABLE-4010-GIN
(ESC)(I)	ENABLE-4953-TABLET-GIN
(ESC)ENQ	REPORT-4010-STATUS

The (chr) in SET-4014-LINE-STYLE can be (') or (a) through (o). The (chr) in SET-4014-ALPHATEXT SIZE can be (8), (9), (:), or (;).

SET-TEXT-FONT-1 and SET-TEXT-FONT-2 are the same as the Tektronix SET-ALPHATEXT-FONT command.

CONTROL CODES

TEKEM supports all of the Tektronix control codes. These are given in the following table.

Table 4-3. Control Codes

Code	Description
FS	Enter Marker Mode
US	Enter Alpha Mode
GS	Enter Vector Mode

KEY COMMANDS

TEKEM supports all of the 14 special keys used by the 4115. The following table lists each key and its description.

Table 4-4. Special Keys

Key	Description
BORDR	Border key
CANCL	Cancel key
CLEAR	Clear dialog area
DILOG	Text to dialog/graphics area
LOCAL	Remote/local operation
NORML	Normal key
NXTVW	Display next view
OVRVW	Display overview
PAGE	Erase and display visible segments
PAN	Pan graphics
RSTOR	Restore key
SETUP	Enter Setup mode
VIEW	View key
ZOOM	Zoom graphics

For a more detailed description of these keys and their functions, refer to chapter 3.

Appendix A

CDC OPERATING NOTES

CDC APPLICATION HOTLINE

TEKEM has been extensively tested by CDC and verified with CDC's ICEM applications. However, users may encounter situations where TEKEM fails to operate as expected. Should this occur, users are asked to forward their problem reports to the CDC Application Hotline at 1-800-227-9999. (In the Minneapolis-St. Paul area, call 639-4040.)

ADJUSTMENT

When operating the 790, users should be aware of the fact that it can be adjusted in several ways for their individual comfort. When you first sit down, or whenever you get uncomfortable with the present adjustment, you can change:

- ▣ table height
- ▣ display height
- ▣ display swivel angle
- ▣ display tilt angle
- ▣ color display brightness
- ▣ alpha display contrast and brightness
- ▣ chair height
- ▣ chair back stiffness
- ▣ keyboard position and tilt
- ▣ tablet position
- ▣ anti-glare hood position

SETTING UP THE ALPHA TERMINAL

Usually you do not have to do this, but it may be necessary the first time you load TEKEM.

Press the SETUP key, which has the label SETUP on its top face (second from the left on the top row of keys). A mode selection display will be shown across the bottom of the alpha display. Ignore it, and press F10 to get to a second mode selection display. Here you will see DUPLEX listed as an F6 function. If this is not set to FULL, press function key F6. Then turn off the display by pressing F1.

In other words, the setup sequence is (usually):

SETUP - F10 - F6 - F1

You may notice that there is also a BAUD parameter shown. This should be set to 9600, regardless of the workstation host connection. This refers only to

the connection between the alpha display and the workstation processor and should not be changed.

On rare occasions, it might be necessary to set low-level communications parameters for the alpha terminal. These parameters are described in detail in the 721-30 Owners Manual, publication number 62940097, section 2-4. For our purposes, the brief description in the next few paragraphs should suffice.

NOTE

If you do set these low-level parameters, it will be necessary to reload TEKEM when you are done with the setup sequence.

The sequence is as follows:

1. Reset the alpha terminal using the rectangular RESET button, located on the panel below the alpha display.
2. Depress SETUP (the key with SETUP on its top face, second from the left in the top row); then depress F10 twice. Then depress SETUP with CONTROL depressed.
3. Set configuraton as follows using the function key and space bar to position the cursor:

F 1	RETURN	F 2	CONFIG 100000	F 3	CONFIG 000000	F 4	CONFIG 100000	F 5	CONFIG 000000
F 6	AS X Y 1 0 0	F 7	L ID 0 0000	F 8	PORT A C A	F 9	PORT B C A	F 10	INSTL MODE N

4. Depress the copy key (to save the configuration) and then depress F10.
5. When the mode prompt "ENTER MODE n (1-6)" appears, depress "1".

6. Set the configuration as follows using the function key and space bar to position:

F 1	RETURN	F 2	CONFIG 100000	F 3	CONFIG 001001	F 4	CONFIG 000000	F 5	CONFIG 010000
F 6	OPR DF 4C25	F 7	A-DIAL 000000	F 8	A-DIAL 000000	F 9	DFTR 00AA	F 10	ACCESS 0000

7. Depress the COPY key (to save the configuration) and then depress F1 twice. Next, reset the 721 using the rectangular RESET button. You are now ready to load TEKEM, and should not have to go through this procedure again.

LOADING TEKEM

- Insert the TEKEM disk and press the small, round reset button under the door. If this is the first time or if setup parameters are being changed, make sure the disk is write-enabled (the little hole on the left side is covered up). Loading takes about 75 seconds. When the message READY FOR INPUT appears, you are ready to run (go to the section called "Logging In") or, if it is the first time, to setup parameters as described below.
- Enter TEKEM SETUP mode as described in chapter 2.
- Set the TEKEM configuration as follows:
 - o Type ECHO N if host is doing the echo (CYBER 120)
else ECHO Y
 - o Type PARITY N if no host parity
PARITY E if even host parity
else PARITY O
 - o Type BAUD 9600 to set baud rate to 9600
 - o Type FLAG INPUT if host supports flagging
else FLAG NONE
 - o Type BYP to set the bypass cancel character to null
 - o Type STA to verify the setup

- Record the configuration on disk by typing SAVEC Y and then pressing the TEKEM SETUP key.
- Prevent further updates by pressing TEKEM SETUP, typing SAVEC N, and pressing TEKEM SETUP again.
- When the disk drive has stopped writing, remove the disk and write-protect it by opening the little hole.

LOGGING IN

If you are logging in to a large CYBER mainframe using a NOS 2.0 or later system, enter the following commands as required when NOS is ready:

```
TRMDEF, OC=Y      (turn flagging on)

TRMDEF, PA=N
    E      (set parity as required)
    O

TRMDEF, EP=Y      (set host echo as required)
    N
```

You are now ready to use the 790 ICEM workstation.

TIPS

The following tips are provided to help you out in case you encounter minor problems:

1. If the graphics image is elongated in the y-axis, it may be due to the graphics monitor coming up in 30 Hz mode. This can be corrected by resetting the monitor circuit breaker, located on the modesty panel below the table.
2. If the tablet is not acting properly, try resetting it. The tablet reset button is located on the top back edge of the tablet.

Also, to avoid spurious tablet picks, do not lay the stylus on the tablet - use the stylus holder provided.

Note that this tablet uses electrostatics to determine positions - there is no need to degauss the tablet at any time.

3. The ICEM overlay automatically aligns with the lower left corner groove on the tablet.
4. Use the TEKEM SETUP key to determine if TEKEM is active (prints asterisk).
5. To temporarily stop data to the workstation, depress CONTROL and S simultaneously; to resume, press CONTROL and Q.

Appendix B

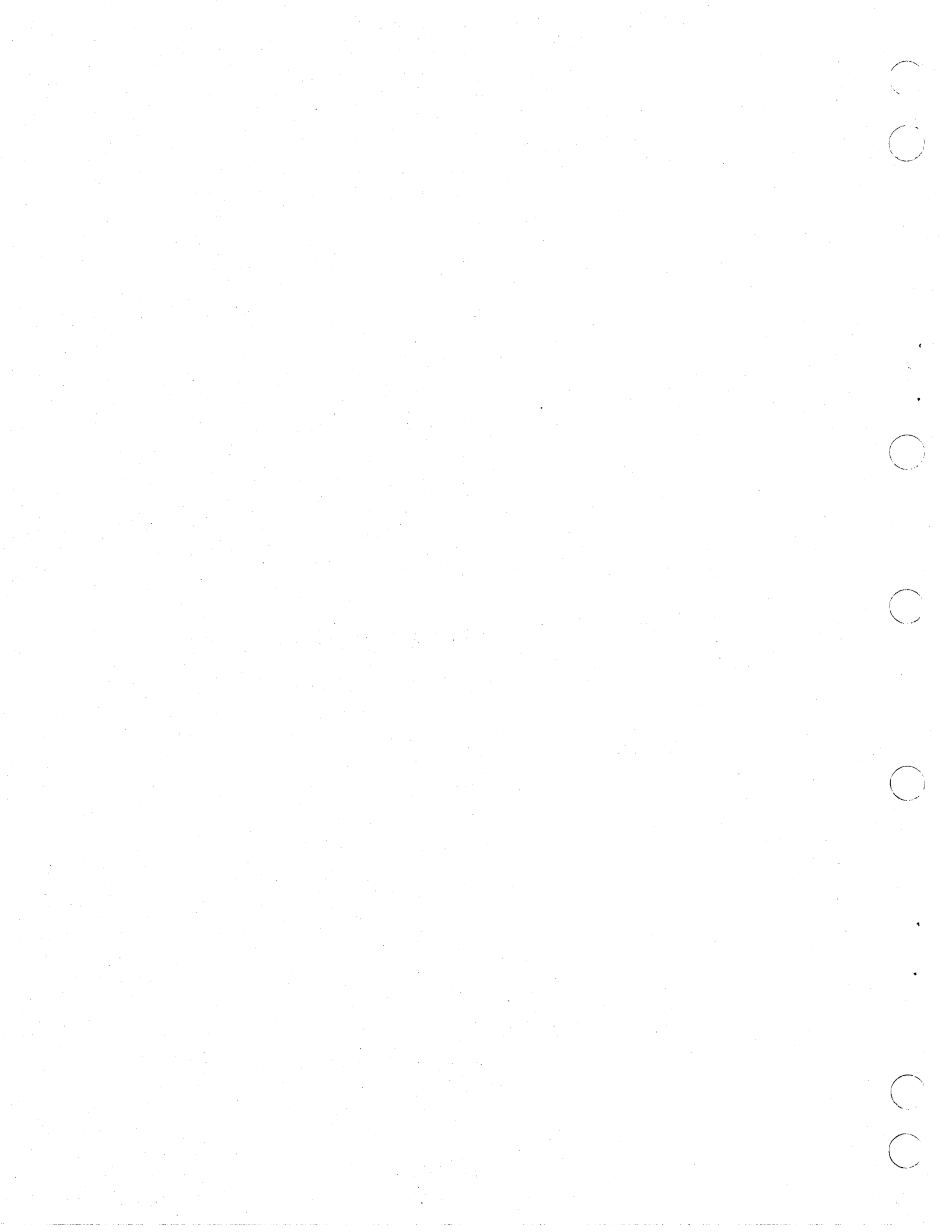
THREE-CHARACTER COMMAND INDEX BY ESCAPE SEQUENCE OPCODE

This appendix contains the three-character commands listed by escape sequence opcode. Those marked with an asterisk are the same on the 790 as they are on the 4115 and therefore are not included in this manual. For descriptions of these commands refer to the Tektronix 4110 Series Command Reference manual.

OPCODE	COMMAND	PAGE
%I	Select Code	4-2
II	Enable/Disable 4953 Tablet GIN*	
IA	Set Pick Aperture*	
IC	Set GIN Cursor*	
ID	Disable GIN*	
IE	Enable GIN*	
IG	Set GIN Gridding*	
IH	Set Tablet Header Characters*	
II	Set GIN Inking*	
IL	Set Report Max Line Length*	
IM	Set Report EOM Frequency*	
IN	Set Tablet Size*	
IP	Report GIN Point*	
IQ	Report Terminal Settings	4-3
IR	Set GIN Rubberbanding*	
IS	Set Report Sig Chars*	
IT	Set Tablet Status Strap*	
IV	Set GIN Area*	
IW	Set GIN Window*	
IX	Set GIN Display Start Point*	
KA	Enable Dialog Area*	
KC	Cancel*	
KD	Define Macro*	
KE	Set Echo*	
KF	LFCR*	
KI	Ignore Deletes*	
KL	Lock Keyboard*	
KN	Renew View*	
KQ	Report Errors*	
KR	CRLF*	
KS	Set Snoopy Mode*	
KT	Set Error Threshold*	
KV	Reset*	
KX	Expand Macro*	
KY	Set Key Execute Character*	
LE	End Panel*	
LF	Move*	
LG	Draw*	
LH	Draw Marker*	

OPCODE	COMMAND	PAGE
LK	Include Copy of Segment*	
LP	Begin Panel Boundary*	
LT	Graphic Text*	
LZ	Clear Dialog Scroll*	
MA	Set Graphtext Slant*	
MB	Set Background Indices*	
MC	Set Graphtext Size*	
MD	Begin Fill Pattern*	
ME	End Fill Pattern*	
MF	Set Graphtext Font*	
MG	Set Graphics Area Writing Mode*	
MI	Set Pick ID*	
ML	Set Line Index*	
MM	Set Marker Type*	
MP	Select Fill Pattern	4-3
MQ	Set Graphtext Precision*	
MR	Set Graphtext Rotation*	
MS	Set Panel Filling Mode	4-3
MT	Set Text Index*	
MV	Set Line Style*	
MY	Select Alphatext Size Group*	
NB	Set Stop Bits*	
NC	Set EOM Chars*	
NE	Set EOF String*	
NF	Set Flagging Mode*	
NM	Prompt Mode*	
NP	Set Parity*	
NQ	Set Queue Size*	
NR	Set Baud Rates	4-3
NS	Set Prompt String*	
NT	Set EOL String*	
NU	Set Bypass Cancel Char*	
RA	Set View Attributes*	
RB	Set Background Gray Level*	
RC	Select View*	
RD	Set Surface Definitions*	
RE	Set Border Visibility*	
RF	Set Fixup Level*	
RG	Set Surface Gray Levels*	
RH	Set Pixel Beam Position*	
RI	Set Surface Visibility	4-3
RJ	Lock Viewing Keys*	
RK	Delete View*	
RL	Runlength Write*	
RN	Set Surface Priorities*	
RP	Raster Write*	
RQ	Set View Display Cluster*	
RR	Rectangle Fill*	
RS	Set Pixel Viewport*	

OPCODE	COMMAND	PAGE
RT	Set Pixel Writing Factors*	
RU	Begin Pixel Operations	4-3
RV	Set Viewport*	
RW	Set Window*	
RX	Pixel Copy*	
SA	Set Segment Class*	
SB	Begin Lower Segment*	
SC	End Segment*	
SD	Set Segment Detectability*	
SE	Begin New Segment*	
SG	Set Graphtext Font Grid*	
SH	Set Segment Highlighting*	
SI	Set Segment Image Transform*	
SK	Delete Segment*	
SL	Set Current Matching Class*	
SM	Set Segment Writing Mode	4-3
SN	Begin Higher Segment*	
SO	Begin Segment*	
SP	Set Pivot Point*	
SQ	Report Segment Status*	
SR	Rename Segment*	
SS	Set Segment Display Priority*	
ST	Begin Graphtext Character*	
SU	End Graphtext Character*	
SV	Set Segment Visibility*	
SX	Set Segment Position*	
SZ	Delete Graphtext Character*	
TB	Set Background Color*	
TG	Set Surface Color Map	4-3
TM	Set Color Mode	4-4
UB	Set Draw Boundary Mode*	
UC	Save Configuration	4-4
UR	Draw Rectangle*	
UW	Set Overview Window*	
UX	Set Coordinate Mode *	



Appendix C

COMMAND INDEX BY KEYWORD-IN-CONTEXT

This index includes setup commands, escape sequence commands, control codes, and key commands. There is an entry for each significant word in the command name. For example, the SET-DIALOG-AREA-POSITION command can be found under D, A, and P for Dialog, Area, and Position. Because so many command names begin with "Set," this word is excluded as a keyword in this index.

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Set **Alphatext Font**, 4-5
Set 4014 **Alphatext Size**, 4-5
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Set GIN **Area**, B-1
Set Graphics **Area Writing Mode**, B-2
Set View **Attributes**, B-2

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Set **Background Gray Level**, B-2
Set **Background Indices**, B-2
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BAUDRATE, 2-3, 4-1
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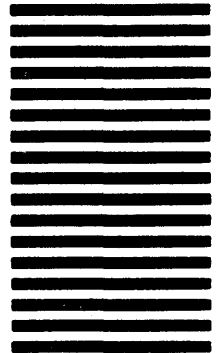
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