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A Subsidiary of ITT

QVT 201

Setup Guide

FCC WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed, maintained, and used in accordance with instructions contained in Qume manuals, may cause interference with radio communications. This equipment has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of the equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

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Reorder Number 35093-10
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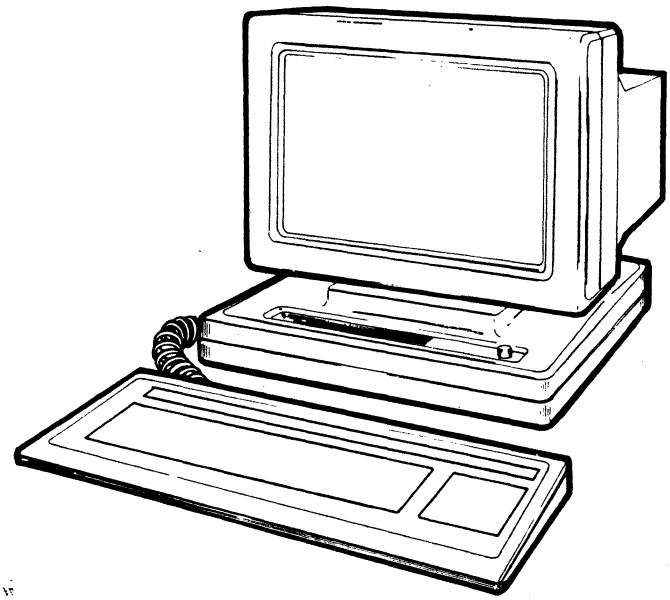

The QVT 201 Alphanumerics Display Terminal

PREFACE

The QVT 201™ Alphanumerics Display Terminal is compatible with the Digital VT220 terminal, and the subset VT100 terminal.

Ergonomically designed, standard features of the QVT 201 terminal include an adjustable height, low-profile, detached keyboard, and a 14 inch non-glare monitor, housed in a display unit that features full tilt and swivel.

In performance, standard features of the QVT 201 terminal include a bi-directional printer port, conversational and local operation, soft set non-volatile setup menu, green display with screen saver, and compliance to the RS 232 Standard. Available as optional features, the terminal may be ordered with an amber display screen, and current loop capability.

ORGANIZATION

The QVT 201 Setup Guide is organized as follows:

Section 1. **Installation, Connectors, and Controls** describes unpacking and installing the terminal, connecting it into your system, and user controls.

Section 2. **Getting Started** describes the ergonomic features of the terminal, powering On the terminal, the keyboard, and the status lines and setup.

Section 3. **Command Set** offers a brief description of the commands recognized by the terminal.

Appendix.

RELATED PUBLICATIONS

QVT 201 Programmers Reference Manual	Reorder Number 35093-20
QVT 201 Maintenance Guide	Reorder Number 35093-30
QVT 201 Quick Reference Card	Reorder Number 35093-40

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SECTION 1

INSTALLATION, CONNECTORS, and CONTROLS

This section describes installation, connectors, and controls.

INSTALLATION

Unpacking

Before unpacking the terminal, inspect the carton for any signs of damage. If damage to the carton is apparent, have the delivery agent note the damage on the shipping document. Note: Some shippers may wish to be present when the carton is opened, if external damage is apparent.

Unpack and inspect the terminal as follows: Refer to Figure 2-1.

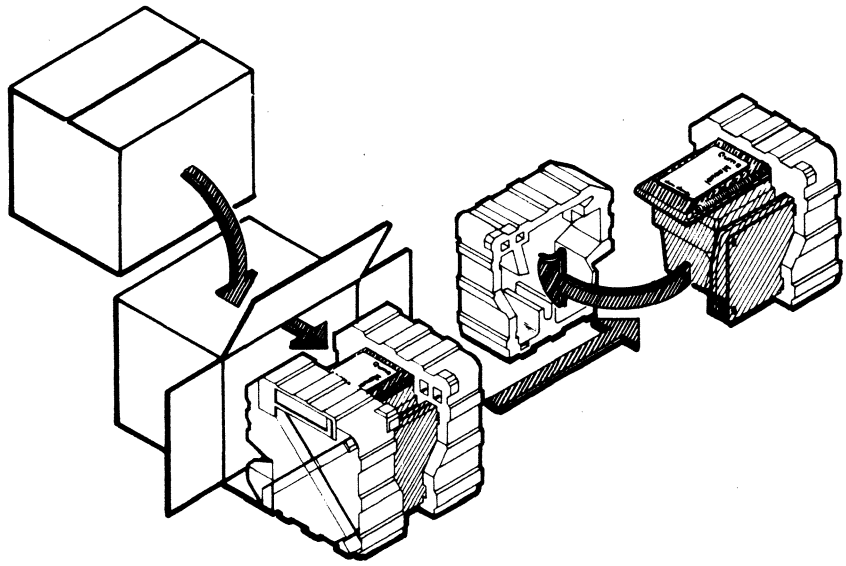


Figure 1-1. Unpacking the Terminal

1. Open the carton and place it on its side on a table top or flat working surface.
2. Slide the terminal with its Styrofoam packing buns from the carton.
3. Remove the packing buns, being careful not to jostle the keyboard or display unit. Do not allow either to fall.

4. Remove the plastic wrap from both the keyboard and the display unit.

5. Retain all packaging materials. When repacking the terminal for shipment, or to protect it during long storage periods, use only the original packaging materials.

6. Inspect both the keyboard and display unit for scratches, loose parts, and damage from rough handling. If there is evidence that any damage to the terminal might impair its proper operation, contact your service representative for advice and further instructions.

Selecting a Suitable Installation Site

To install your terminal, first select a suitable site.

A suitable site may be characterized as follows:

- A clean, well-lighted environment, with proper ventilation
- Convenient access to a power outlet with ground
- A stable platform to support the terminal at a comfortable height
- Adequate room for cable routing. Always use shielded cable

CONNECTORS

After a site has been selected and the terminal properly located, make the following connections.

At the rear of the display unit: Refer to Figure 1-2.

- Connect the host computer cable to the connector labeled **EIA**.
- If a printer is available, connect it to the connector labeled **AUX**.
- Verify that the **Power ON/OFF** switch is in the OFF position. Then connect the power cord to a grounded AC outlet. Power requirements of the terminal are: 120 VAC, 0.5 A, 45 W, and 60 Hz.

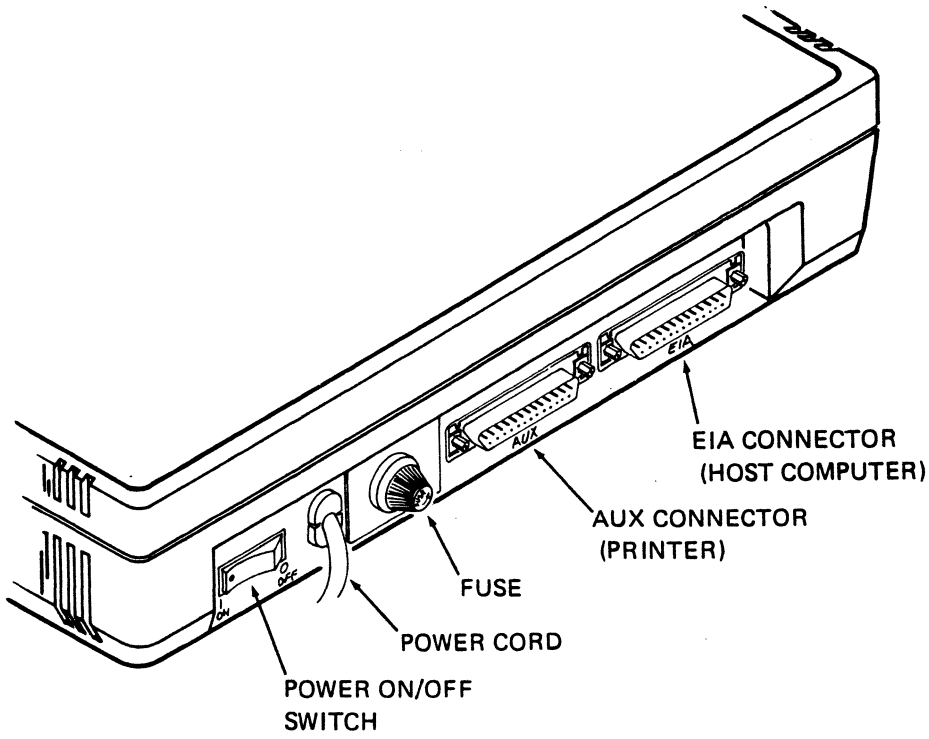


Figure 1-2. The Rear Panel of the Display Unit

At the left side of the display unit: Refer to Figure 1-3.

- Connect the keyboard to modular telephone style connector.

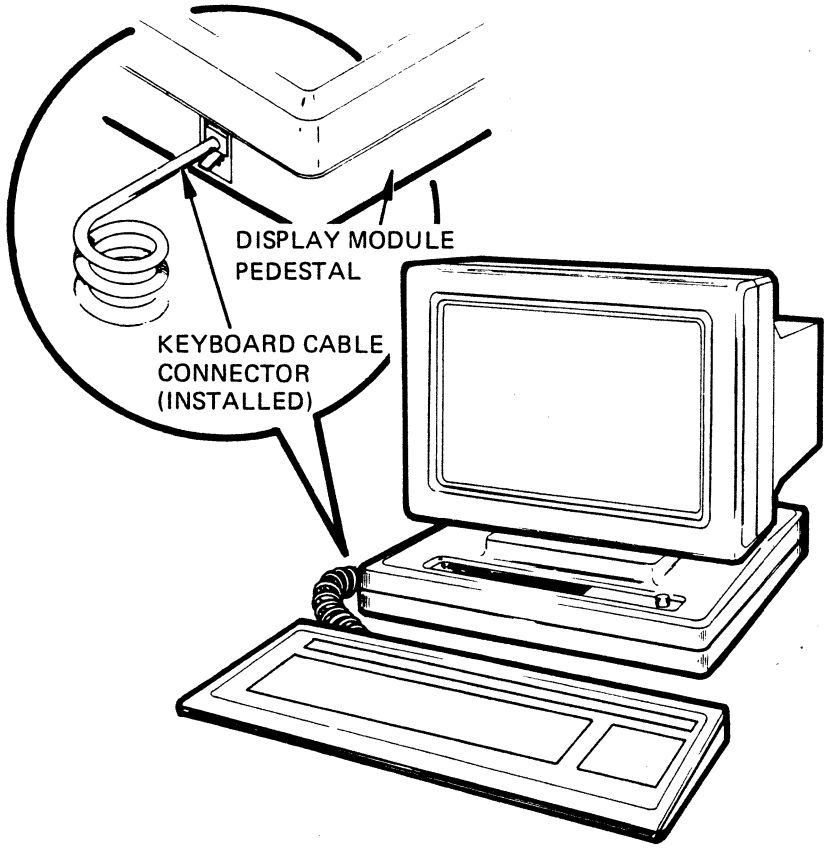


Figure 1-3. Keyboard Connection to the Display Unit

CONTROLS

Basic terminal controls are:

Power ON/OFF — The Power ON/OFF switch is a rocker type switch located on the rear panel (refer to Figure 1-2).

Brightness — The Brightness control is used to adjust display intensity. The rotating knob on the right front corner of the display unit is used for this purpose. Refer to Figure 1-4.

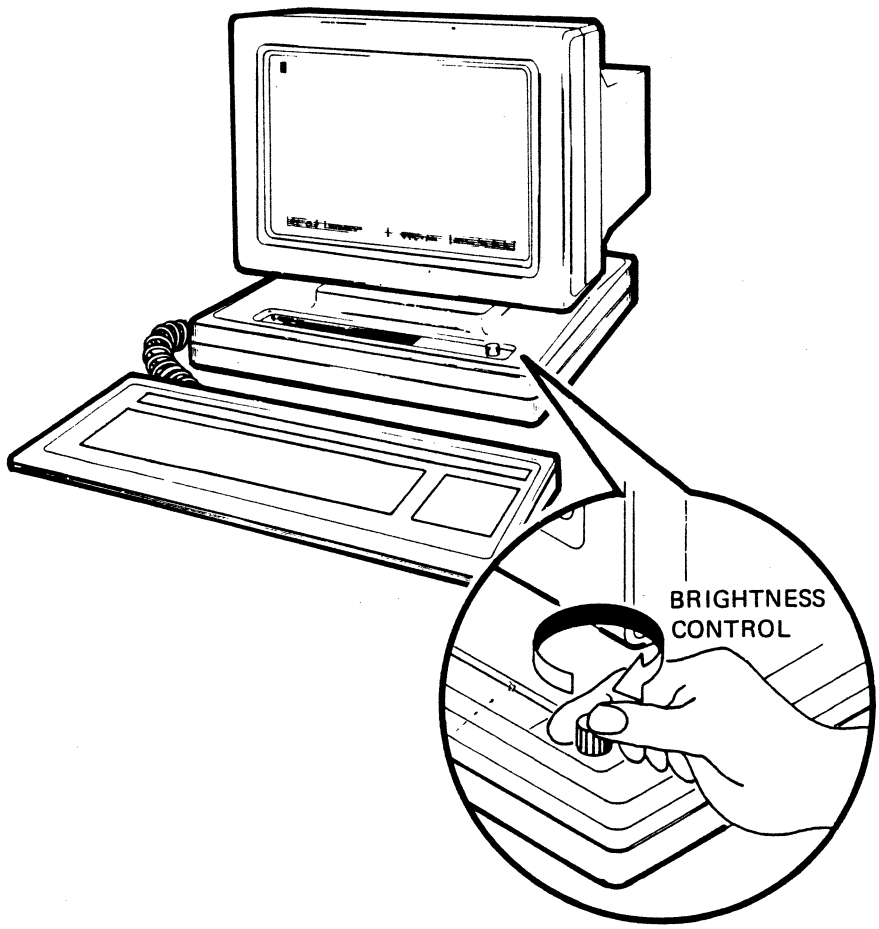


Figure 1-4. Brightness Control

SECTION 2

GETTING STARTED

This section describes the ergonomic features of the terminal, powering On the terminal, the keyboard, and the status lines and setup.

Ergonomic Features

The terminal features the following ergonomic design considerations for accommodating individual comfort.

Display Unit Tilt and Swivel. The display unit is ball mounted to its pedestal for easy rotation into an optimum viewing position. Refer to Figure 2-1.

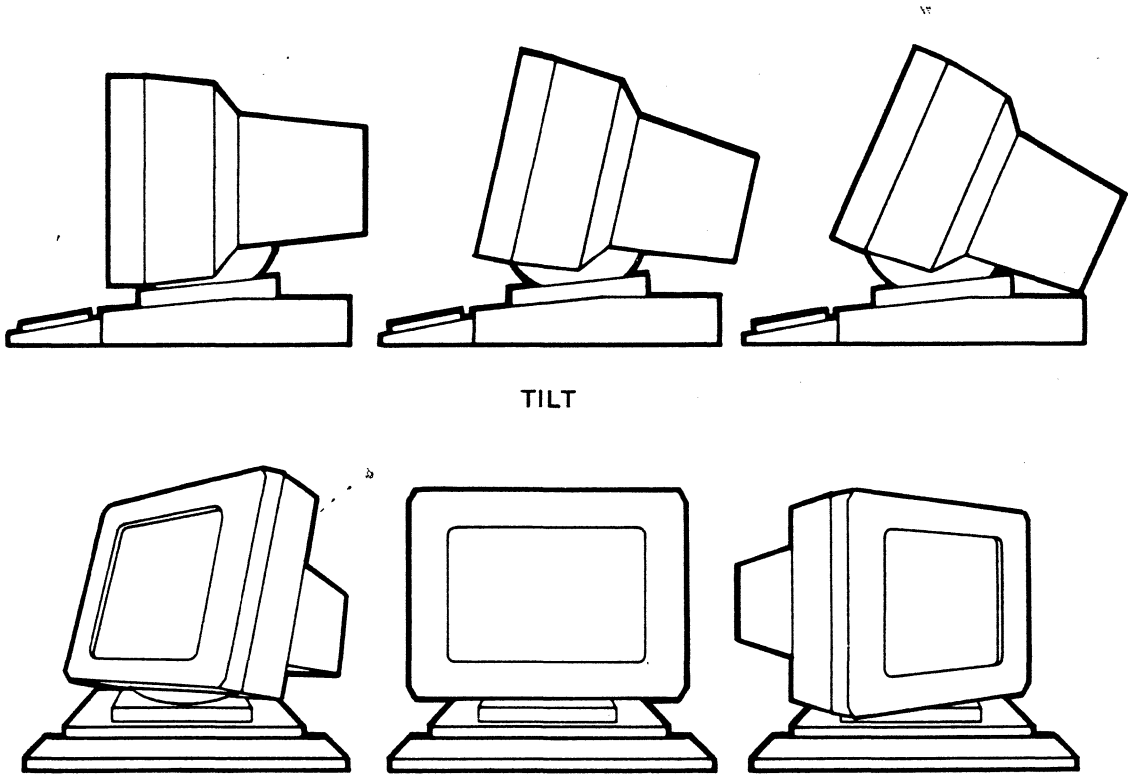
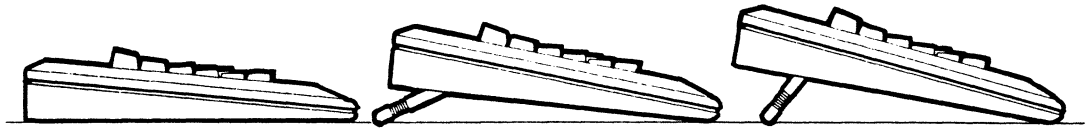


Figure 2-1. Display Unit Tilt and Swivel

Keyboard Elevation. The keyboard is adjustable to any one of three elevations by rotating two recessed feet outward from the base. Refer to Figure 2-2.



ELEVATION 1 ELEVATION 2 ELEVATION 3

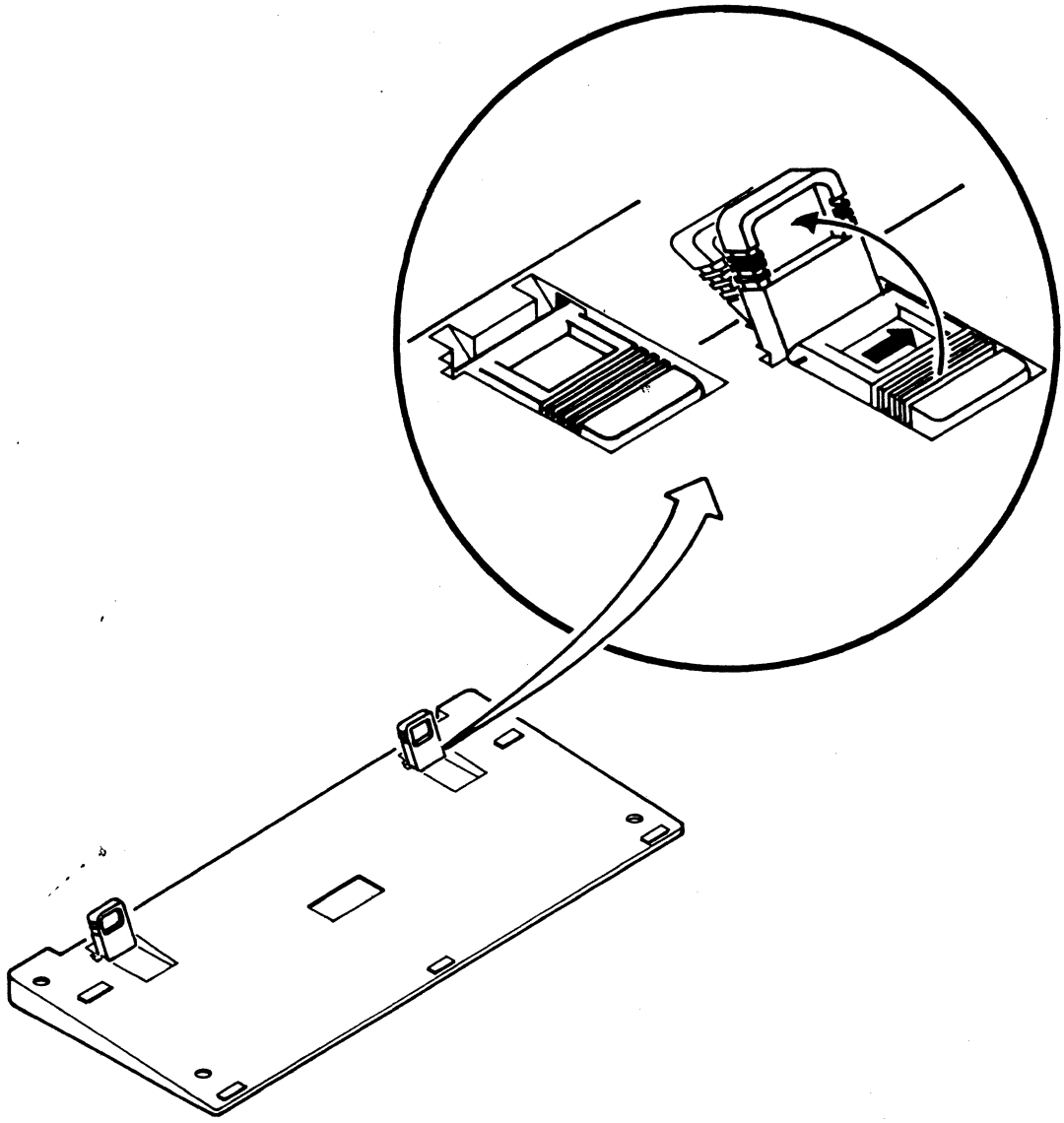


Figure 2-2. Adjusting Keyboard Elevation

Powering On the Terminal

To power On the terminal and begin using it, proceed as follows:

Power ON

- Move the Power ON/OFF switch to the ON position (refer to Figure 1-2).

Observe the following sequence of events

- The terminal beeps
- The Caps Lock indicator on the keyboard blinks twice.
- Centered in the screen display, note the prompt:

QVT 201 OK

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To begin using the terminal

- Depress any key. Observe that the QVT 201 OK prompt is replaced by a blinking block cursor in the upper left corner of the display.

  Note: The terminal is now in On Line Mode; to use the terminal in a local application, it must be configured for Local Mode. Refer to the paragraph **SETUP MODE and the SETUP MENUS** for a full explanation about how to configure your terminal.

THE KEYBOARD

The keyboard, illustrated in Figure 2-3, may be divided into the following functional groups:

- Main Keyboard Keys
- Function Keys
- Auxiliary Keys

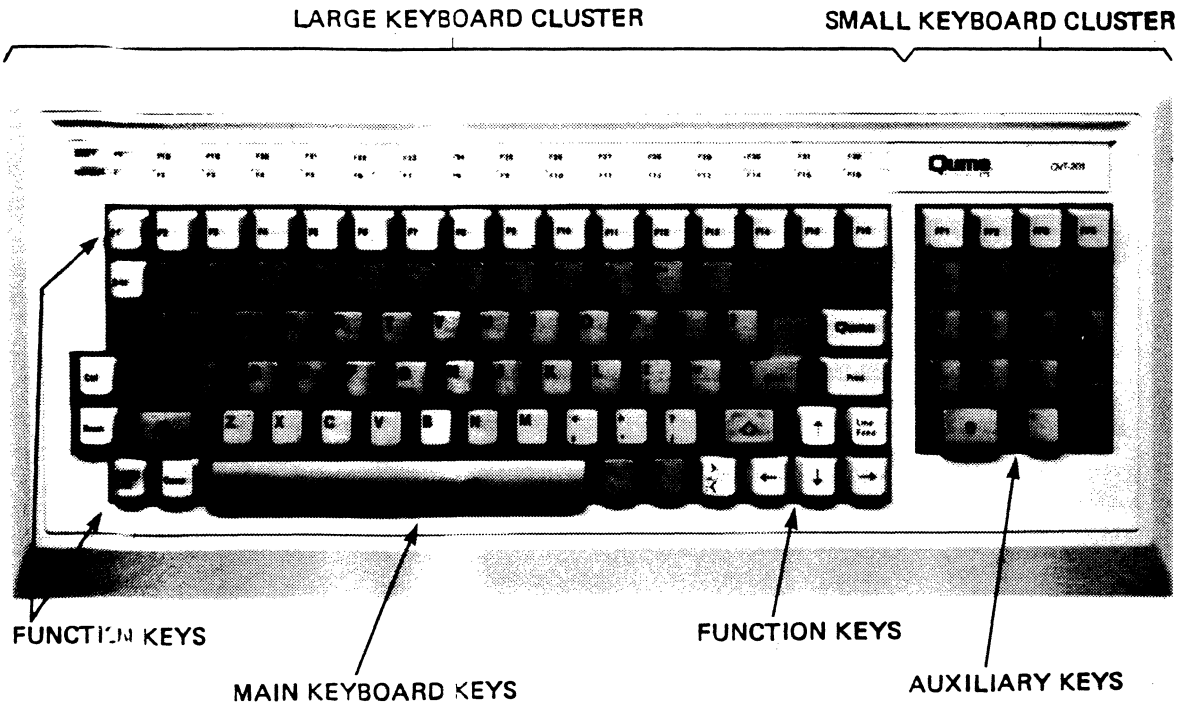

Figure 2-3. The Keyboard

Main Keyboard Keys

The Main Keyboard keys are the dark color keys in the large key cluster. Most of these keys function like those of any standard typewriter. However, some of the Main Keyboard keys are unique to the terminal, and these are described as follows:

Tab — Depressing the Tab key transmits the HT (Horizontal Tab) character to the host, and moves the cursor to the next tab stop.

Caps Lock — Capitals Lock. This keys performs like a typewriter Shift Lock key, and causes the alpha keys to generate uppercase characters. When this feature is active the Caps Lock indicator light displays on the key top, and the Lock indicator on the 25th line displays in Bold video.

<— X| — Delete. Depressing the Delete key causes the DEL character to be sent to the host. Depressing the Delete key with the Shift key causes the CAN (Cancel) character to be sent to the host.

Back Space — Depressing the Back Space key transmits the BS (Back Space) character to the host, and moves the cursor one character position to the left.

Return — According to General Setup Menu selection, depressing the Return key causes either a carriage return, or a carriage return with line feed to be performed (the corresponding CR or CR + LF characters are sent to the host).

Function Keys

The Function keys are the light color keys in the large key cluster.

Esc — Escape. A special function key that is used to introduce an escape sequence.

Ctrl — Control. A special function key that is always used with another key to invoke a special control code.

Break — The Break key may be used in three ways:

- To send a break signal (when the Break key is used alone, and the break feature has been enabled in Setup Mode).
- To cause a disconnect (by depressing Shift and Break).
- To send the answerback message (by depressing Control and Break).

Function Keys (Cont)

Set Up/Hold — Set Up / Hold Screen. This key may be used singly to enable and disable the hold screen feature, or in combination with the Shift key to enter and exit Setup Mode. When the hold screen feature is enabled, all screen updating ceases until the feature is disabled. During this time the Hold Indicator or the 25th line displays in Bold video. Setup Mode and the use of the Set Up key is described in the paragraph **SETUP MODE and the SETUP MENUS.**

Comp — Compose Character. This key is a special function key that allows the creation of characters with diacritical marks. When this feature is activated, the Compose Indicator (Comp) on the 25th line displays in Bold video.

Qume — This key is a special user-definable key. The use of this key is explained in the paragraph **SETUP MODE and the SETUP MENUS** under the title PF Keys.

Print — Depressing the Print key causes data on the screen to be output to the printer. Depressing the Control and Print Screen keys resets the Auto Print Mode.

Line Feed — Depressing the Line Feed key transmits the LF (Line Feed) character to the host, and moves the cursor downward within the same column.

Arrow Keys — The arrow keys control the movement of the cursor, by moving the cursor in the direction indicated by the arrow on the key top.

F1 - F16 — Top Row Function Keys. These keys are software dependent; their interpretation is dependent upon the application program in use. They may be used singly or in combination with the Shift key to generate a total of 32 possible code sequences. They are user-definable from the keyboard (refer to the paragraph **SETUP MODE and the SETUP MENUS** under the title PF Keys), or from the host by a QUMEUDK or DECUDK sequence. Key contents are savable.

Use the Function Key Identifier Strip on the top edge of the keyboard to note the shifted and unshifted contents of keys F1 through F16.

Auxiliary Keys

The Auxiliary keys are those keys in the small key cluster.

Number Keys	The number keys are used to enter numeric data in calculator fashion.
Enter	According to General Setup Menu selection, depressing the Enter key causes either a carriage return, or a carriage return with line feed to be performed (the corresponding CR or CR + LF characters are sent to the host). The Enter key is also used to activate selections in the Setup menus.
PF1-PF4	The PF keys are software dependent; their interpretation is dependent upon the application program in use.

25th LINE STATUS INDICATORS

Row: # Col: #	Indicates the active position of the cursor in Row and Column coordinates.
Replace / Insert Mode	Indicates whether Replace or Insert Mode is active.
Printer:	Indicates the status of the AUX or Printer Port.
Hold	This indicator displays in Bold video when the Hold Screen feature is activated by depressing the Hold key. When this feature is deactivated, by depressing the Hold key a second time, the indicator returns to normal display intensity.
Caps Lock	This indicator displays in Bold video when the Caps Lock feature is activated by depressing the Caps Lock key. When this feature is deactivated, by depressing the Caps Lock key a second time, the indicator returns to normal display intensity.
Comp	This indicator displays in Bold video when the Compose Character feature is activated by depressing the Comp key. Following a compose sequence, this indicator automatically returns to normal display intensity.
Wait	This indicator displays in Bold video when the keyboard is locked to prevent data entry from the keyboard. This condition can be reversed by selecting the Clear Communication feature from the System Setup Menu.

SETUP MODE and the SETUP MENUS

Setup mode is used to tailor the operating parameters of the terminal to match the requirements of the system into which it is integrated.

To enter and exit Setup Mode depress the Set-Up Key.

In Setup Mode there are seven setup menus:

- System
- General
- Display
- Communication
- Printer
- Keyboard
- Tab
- PF Keys

Also displayed with each setup menu is the following information:

- Terminal Identification: Upper left corner
- Firmware Version: Upper right corner
- Insert/Replace Mode status, Printer status, and Keyboard Visual Indicator status (Hold Screen, Lock, Compose, Wait): Bottom line

Each setup menu is separated into a series of parameter blocks. Each block contains all the possible values that may be assigned to that particular block.

To specify a parameter assignment, depress the cursor arrow keys to advance through the blocks of the setup menu. Observe that the block where a parameter assignment is to be made displays in Bold Reverse Video. To view the possible values within a parameter block, depress the Enter key until the desired value displays, then move from the block by again depressing a cursor arrow key. Note, there are some parameter blocks, called Action Parameter Blocks, that only display a choice of action that may be selected by depressing the Enter key, or declined by moving into another block. Other parameter blocks, called Text Parameter Blocks, are empty; into these you may enter text, as in the Answerback Block.

The Setup Menus

System Setup Menu

The System Setup Menu is the first menu displayed after depressing the Set-Up key to enter Setup Mode. This menu allows access to the other setup menus, and may be used to configure the operating characteristics of the terminal. Figure 2-4 illustrates the System Setup Menu and Table 2-1 offers a description of the parameter blocks within this menu.

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System	General	Display	Communication	Printer	Keyboard	Tab	PF Keys
To Next Set-Up	Default	Recall	Save	Exit			
On Line	North American Keyboard						
Clear Display	Clear Communication	Reset Terminal					
	Replace Mode	Printer: None	On/Off: Hold Lock Comp Wait				

Figure 2-4. The System Setup Menu

Table 2-1. System Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-Up	Causes the next setup menu to be displayed when the Enter key is depressed.
Default	Action Parameter Block. Depressing the Enter key causes all setup parameter selections to be reset to their factory default settings. This action also causes a communications disconnect to occur.
Recall	Action Parameter Block. Depressing the Enter key causes previously saved setup parameter selections to be recalled as the operating parameters of the terminal. This action also causes a communications disconnect to occur.
Save	Action Parameter Block. Depressing the Enter key causes all setup parameter selections to be saved.
Exit	Action Parameter Block. Depressing the Enter key causes the terminal to exit Setup Mode.
On Line	Possible Values: . On Line (Default) . Local On Line configures the terminal for communication with the host computer; Local isolates the terminal from the host computer so that data entered from the keyboard is processed to the display only.
Language Keyboard	Possible Values: . North American (Default) . British . German . French/Belgian . Spanish This block selects the character set of the terminal so that it matches the language of the keyboard in use.
Clear Display	Action Parameter Block. Depressing the Enter key causes all displayed data to be cleared when Setup Mode is exited.

Table 2-1. System Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Clear Communication	Action Parameter Block. Depressing the Enter key clears terminal-host communications and causes the following actions: . Aborts any print operation, and exits Printer Controller Mode . Aborts any escape/control sequence . Clears all buffers (keyboard, receive, transmit) . Transmits XON to the host . Resets received XOFF flags from the host and printer
Reset Terminal	Action Parameter Block. Depressing the Enter key resets the terminal to a default condition that is recognizible by most application programs. Screen features, communications, and the status of user-defined keys are not altered.

General Setup Menu

The General Setup Menu is used to define the general operating features of the terminal. Figure 2-5 illustrates the General Setup Menu and Table 2-2 offers a description of the parameter blocks within this menu.

QVT V3A - K1

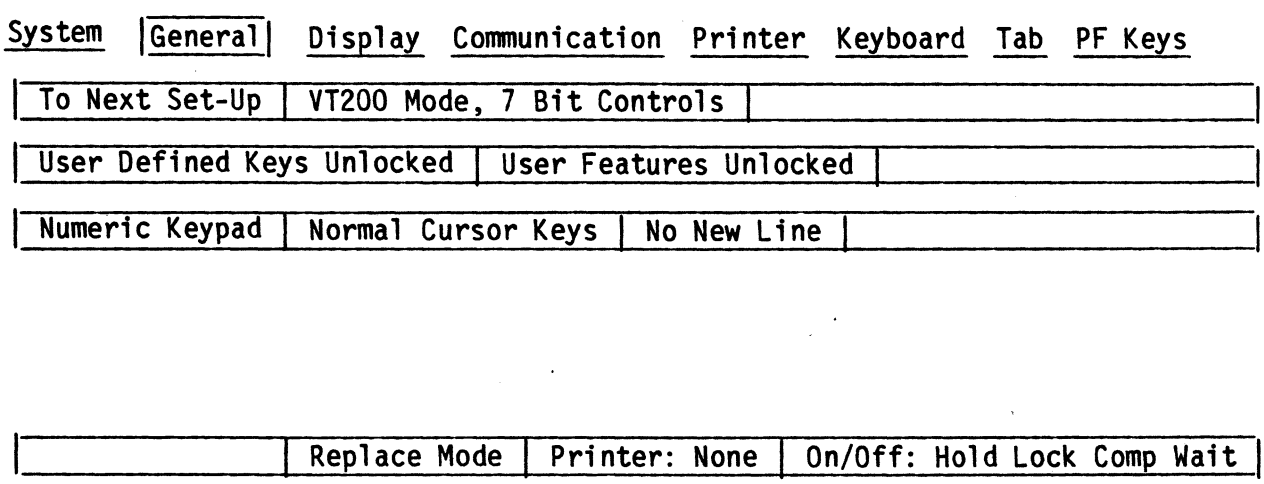

Figure 2-5. The General Setup Menu

Table 2-2. General Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-Up	Causes the next setup menu to be displayed when the Enter key is depressed.
Mode Controls	Possible Values: . VT200 Mode, 7 Bit Controls (Default) . VT200 Mode, 8 Bit Controls . VT100 Mode (ASCII/U.K.) VT200 Mode, 7 Bit Controls configures the terminal to operate in a 7-bit environment (accepts 8-bit graphics characters). VT200 Mode, 8 Bit Controls configures the terminal for full compatibility in 8-bit environments. VT100 (ASCII or U.K.) configures the terminal to emulate the VT100 terminal.
User Defined Keys	Possible Values: . User Defined Keys Unlocked (Default) . User Defined Keys Locked When Unlocked, the User Defined keys may be loaded; when Locked, the User Defined keys can not be loaded.
User Features	Possible Values: . User Features Unlocked (Default) . User Features Locked When Unlocked, the following user features may be controlled from the host: . Auto Repeat . Tab Stops . Smooth/Jump Scroll . Keyboard Lock . Light/Dark Screen When Locked, the host is prevented from controlling these features.
Keypad Keys	Possible Values: . Numeric Keypad (Default) . Application Keypad Specifies whether the keypad keys transmit ASCII character codes (Numeric Keypad), or sequences (Application Keypad) when depressed.

Table 2-2. General Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Cursor Keys	Possible Values: . Normal Cursor Keys (Default) . Application Cursor Keys Specifies whether the cursor keys transmit ANSI cursor control sequences (Normal Cursor Keys), or application control sequences (Application Cursor Keys) when depressed.
New Line	Possible Values: . No New Line (Default) . New Line Specifies whether the Return key transmits a carriage return (CR code) only, i.e., No New Line, or a carriage return and line feed (CR + LF codes), i.e., New Line.

Display Setup Menu

The Display Setup Menu is used to specify the viewable characteristics of the display. Figure 2-6 illustrates the Display Setup Menu and Table 2-3 offers a description of the parameter blocks within this menu.

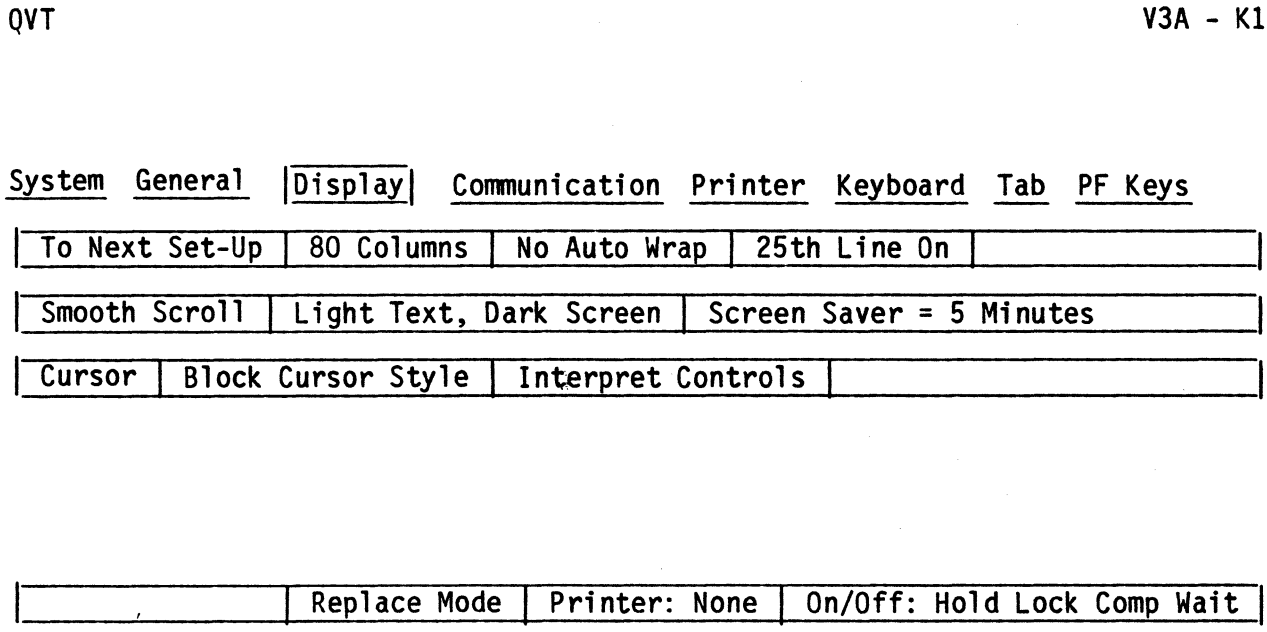

Figure 2-6. The Display Setup Menu

Table 2-3. Display Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Setup	Causes the next setup menu to be displayed when the Enter key is depressed.
Columns	Possible Values: . 80 Columns (Default) . 132 Columns Specifies an 80 or 132 column display width.
Auto Wrap	Possible Values: . No Auto Wrap (Default) . Auto Wrap Specifies whether characters received beyond the right margin wrap to the next line (Auto Wrap) or not (No Auto Wrap).
25th Line	Possible Values: . 25th Line On (Default) . 25th Line Off Specifies whether the 25th line (bottom line) is displayed (25th Line On) or not displayed (25th Line Off). Note: The 25th Line Status Indicators (Hold, Lock, Comp, Wait) always display to indicate when these features are activated.
Scroll	Possible Values: . Smooth Scroll (Default) . Jump Scroll Specifies whether characters smooth scroll or jump scroll when the screen is filled.
Text/Screen	Possible Values: . Light Text, Dark Screen (Default) . Dark Text, Light Screen Specifies a display condition of either Light Text on a Dark Screen (Normal), or Dark Text on a Light Screen (Reverse).
Screen Saver	Possible Values: . 5 Minutes (Default) . 10 Minutes . 15 Minutes Specifies the activation time of the automatic screen-saver feature. If no host or keyboard input is received for the specified time, the screen display is disabled to preserve the screen phosphor. During this time screen data is held intact by RAM until further input is received; at that time, screen data is again displayed.

Table 2-3. Display Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Cursor	Possible Values: . Cursor (Default) . No Cursor Specifies whether the cursor is displayed (Cursor) or not (No Cursor).
Cursor Style	Possible Values: . Block Cursor Style (Default) . Underline Cursor Style Specifies the visual attribute of the cursor; block or underline.
Controls	Possible Values: . Interpret Controls (Default) . Display Controls Specifies whether control codes are to be executed (Interpret Controls), or displayed and not executed (Display Controls).

Communications Setup Menu

The Communications Setup Menu is used to define the communications parameters between the terminal and the host. Figure 2-7 illustrates the Communications Setup Menu and Table 2-4 offers a description of the parameter blocks within this menu.

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System General Display Communication Printer Keyboard Tab PF Keys

To Next Set-Up	Receive=Transmit	Transmit=4800	
8 Bits, No Parity	1 Stop Bit		
No Local Echo	Limited Transmit	XON/XOFF	

	Replace Mode	Printer: None	On/Off: Hold Lock Comp Wait

Figure 2-7. The Communications Setup Menu

Table 2-4. Communications Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-up	Causes the next setup menu to be displayed when the Enter key is depressed.
Receive=Baud Rate	Possible Values: . Receive = Transmit (Default) . 75 . 2400 . 110 . 4800 . 150 . 9600 . 300 . 19200 . 600 . 38400 . 1200 Specifies the baud rate at which the terminal receives data from the host computer. The receive baud rate of the terminal must match the transmit baud rate of the host computer; however, the terminal may transmit and receive data at different baud rates.
Transmit=Baud Rate	Possible Values: . Transmit = 4800 (Default) . 75 . 1200 . 110 . 2400 . 150 . 9600 . 300 . 19200 . 600 . 38400 Specifies the baud rate at which the terminal transmits data to the host computer. The transmit baud rate of the terminal must match the receive baud rate of the host computer.
Bits/Parity	Possible Values: . 8 Bits, No Parity (Default) . 8 Bits, Even Parity . 8 Bits, Odd Parity . 8 Bits, Even Parity, No Check . 8 Bits, Odd Parity, No Check . 7 Bits, Even Parity, No Check . 7 Bits, Odd Parity, No Check . 7 Bits, No Parity . 7 Bits, Even Parity . 7 Bits, Odd Parity . 7 Bits, Mark Parity . 7 Bits, Space Parity Specifies the data format for communications with the host computer.

Table 2-4. Communications Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Stop Bit	Possible Values: . 1 Stop Bit (Default) . 2 Stop Bits Specifies the number of stop bits (1 or 2) included in the data format for characters transmitted to the host computer.
Echo	Possible Values: . No Local Echo (Default) . Local Echo Specifies whether data entered from the keyboard is to be transmitted to the host only (No Local Echo), or both transmitted to the host and displayed locally (Local Echo).
Transmit Limit	Possible Values: . Limited Transmit (Default) . Unlimited Transmit Offers the capability to limit the terminal transmit rate to 150-180 characters per second, to reduce interrupt time on the operating system. Limited Transmit has priority over the baud rate setting.
Handshake	Possible Values: . XON/XOFF (Default) . XON/XOFF + DTR . No Handshake Specifies the kind of communications handshake protocol.

Printer Setup Menu

The Printer Setup Menu is used to define the parameters that specify printer operation. Figure 2-8 illustrates the Printer Setup Menu and Table 2-5 offers a description of the parameter blocks within this menu.

QVT V3A - K1

System General Display Communication Printer Keyboard Tab PF Keys

To Next Set-Up	Normal Print Mode	Speed 4800	
8 Bit, No Parity	1 Stop Bit		
Print Full Page	No Terminator		
	Replace Mode	Printer: None	On/Off: Hold Lock Comp Wait

Figure 2-8. The Printer Setup Menu

Table 2-5. Printer Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-Up	Causes the next setup menu to be displayed when the Enter key is depressed.
Print Mode	Possible Values: . Normal Print Mode (Default) . Auto Print Mode . Controller Mode Specifies the operating mode of the printer. Normal Print Mode allows printer operations to be controlled from the keyboard. Auto Print Mode causes the terminal to transmit a given cursor line following the receipt of line feed, form feed, or vertical tab code from the host. Controller Mode cause the terminal to pass all data received from the host, directly to the printer without displaying it on the screen.
Speed=Baud Rate	Possible Values: . 4800 (Default) . 75 . 1200 . 110 . 2400 . 150 . 9600 . 300 . 19200 . 600 . 38400 Specifies the baud rate for data transmitted from the terminal to the printer.
Bits/Parity	Possible Values: . 8 Bits, No Parity (Default) . 8 Bits, Even Parity . 8 Bits, Odd Parity . 7 Bits, No Parity . 7 Bits, Even Parity . 7 Bits, Odd Parity . 7 Bits, Mark Parity . 7 Bits, Space Parity
Stop Bit	Possible Values: . 1 Stop Bit (Default) . 2 Stop Bits Sets the number of stop bits (1 or 2) included in the data format for characters transmitted to the printer.
Print	Possible Values: . Print Full Page (Default) . Print Scroll Region Specifies whether the full screen or the scrolling region is to be printed.

Table 2-5. Printer Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Terminator	Possible Values: . No Terminator (Default) . Terminator = FF Specifies the termination code for a print page operation as No Terminator or a FF (Form Feed) code.

Keyboard Setup Menu

The Keyboard Setup Menu is used to define the operational features of the keyboard. Figure 2-9 illustrates the Keyboard Setup Menu and Table 2-6 offers a description of the parameter blocks within this menu.

QVT V3A - K1

System General Display Communication Printer |Keyboard| Tab PF Keys

To Next Set-Up	Caps Lock	Break	
Auto Repeat	Keyclick	Margin Bell	Warning Bell	
No Auto Answerback	Answerback=	Not Concealed

	Replace Mode	Printer: None	On/Off: Hold Lock Comp Wait

Figure 2-9. The Keyboard Setup Menu

Table 2-6. Keyboard Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-Up	Causes the next setup menu to be displayed when the Enter key is depressed.
Caps Lock	Possible Values: . Caps Lock (Default) . Shift Lock Specifies the operation of the Lock key. When Caps Lock is selected, the main keyboard keys generate uppercase characters only; when Shift Lock is selected, the main keyboard keys generate uppercase characters, and the top row characters on the number keys.
Break	Parameter Value: . Break (Default) . No Break Specifies the action of the Break key.
Key Repeat	Possible Values: . Auto Repeat (Default) . No Auto Repeat Specifies whether or not a character is repeated when a key is held down.
Keyclick	Possible Values: . Keyclick (Default) . No Keyclick Specifies whether or not a key depression generates a "click" sound.
Margin Bell	Possible Values: . Margin Bell (Default) . No Margin Bell Specifies whether or not a "beep" sound is generated as the cursor passes through column 72 and approaches the right margin.
Warning Bell	Possible Values: . Warning Bell (Default) . No Warning Bell Specifies whether or not a "beep" sound is generated upon the receipt of a Ctrl-G command, or to signal an operating error.

Table 2-6. Keyboard Setup Menu Parameter Blocks Description (Cont)

PARAMETER BLOCK	DESCRIPTION
Auto Answerback	Possible Values: . Auto Answerback (Default) . No Auto Answerback Specifies whether or not the answerback message is automatically transmitted to the host computer after the communications link is established.
Answerback=	Text Parameter Block. A 30-character answerback message may be programmed into this block. The answerback message is transmitted upon the receipt of an ENQ code or by keying Ctrl-Break. To program an answerback message, first depress the Enter key. Observe the prompt **Enter Answerback=** on the 25th line; following this prompt, key the desired message. Depress the Enter key a second time to program the message into the Answerback= block.
Concealed	Possible Values: . Not Concealed (Default) . Concealed Specifies whether or not the answerback message is displayed. A programmed answerback message that has been concealed, can not be displayed by changing this block to Not Concealed; rather, a new answerback message must be entered. To program an answerback message, first depress the Enter key. Observe the prompt **Enter Answerback=** on the 25th line; following this prompt, key the desired message. Depress the Enter key a second time to program the message into the Answerback= block.

Tab Setup Menu

The Tab Setup Menu is used to set tabs at any desired column location. Figure 2-10 illustrates the Tab Setup Menu. Notice that each column is numbered on a ruler line, and that tab stop locations are represented by a caret. Table 2-7 describes the parameter blocks within this menu.

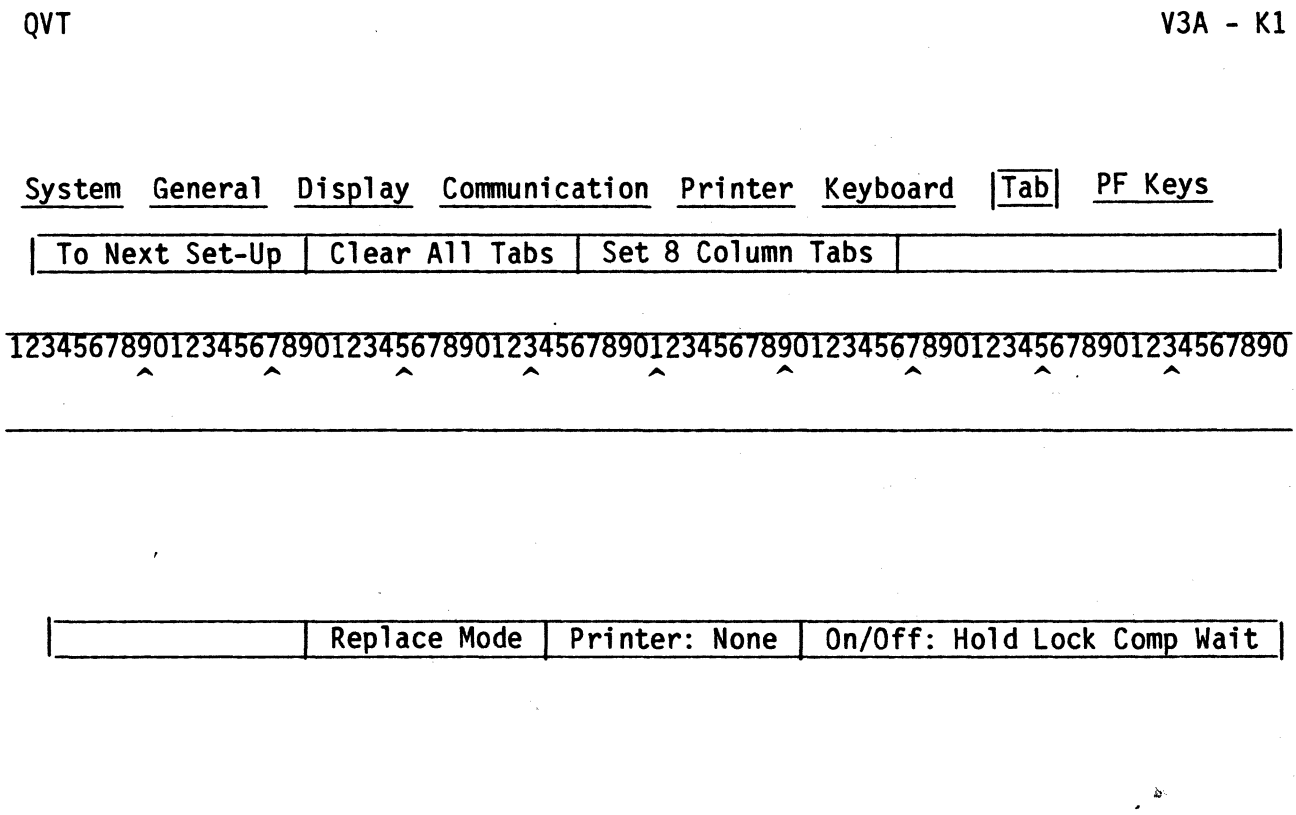

Figure 2-10. The Tab Setup Menu

Table 2-7. Tab Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Setup	Causes the next setup menu to be displayed when the Enter key is depressed.
Clear All Tabs	Action Parameter Block. Depressing the Enter key, clears all tab stops. To set other tab stops: Use the Down Cursor key to enter the ruler line; move the column highlighter with the Left or Right Cursor key; then, depress the Enter key.
Set 8 Column Tabs	Action Parameter Block. Depressing the Enter key sets a tab stop at every eighth column beginning with column 9. To set other tab stops: Use the Down Cursor key to enter the ruler line; move the column highlighter with the Left or Right Cursor key; then, depress the Enter key.

PF Keys Setup Menu

The PF (Program Function) Keys Menu is used to program the contents of the top row Function keys and the Qume key (also known as the PFKs). Figure 2-11 illustrates the PF Keys Setup Menu and Table 2-8 offers a description of the parameter blocks within this menu.

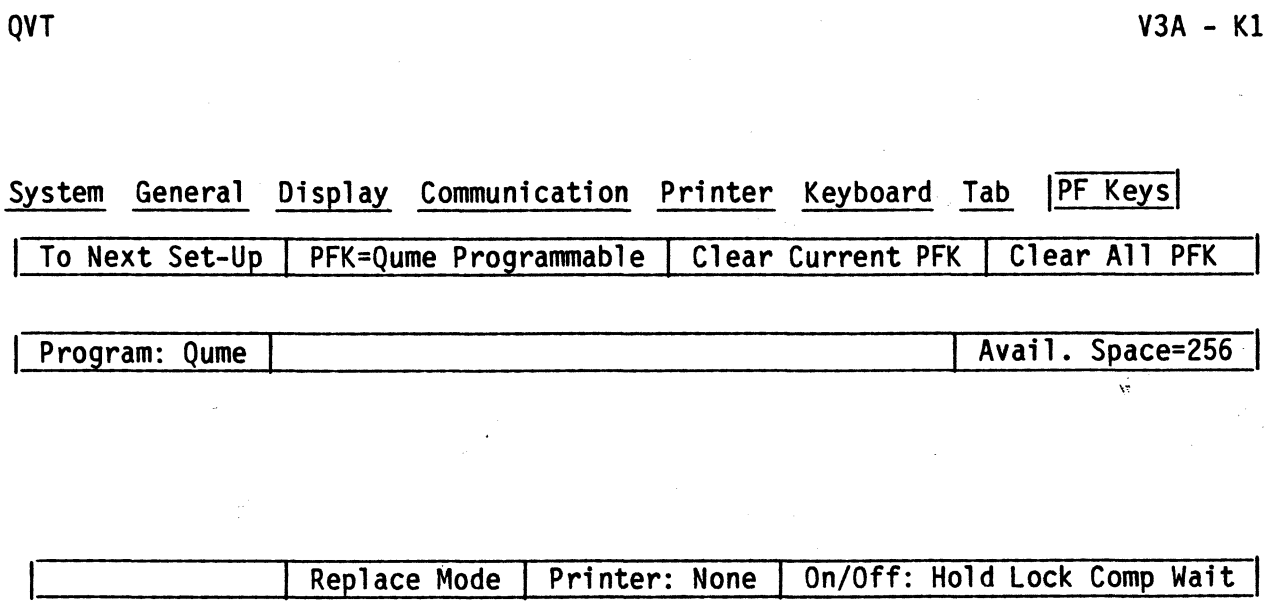

Figure 2-11. The PF Keys Setup Menu

Table 2-8. PF Keys Setup Menu Parameter Blocks Description

PARAMETER BLOCK	DESCRIPTION
To Next Set-Up	Causes the next setup menu to be displayed when the Enter key is depressed.
Programmable Keys	Possible Values: . Qume Programmable (Default) . VT200 Compatible Specifies whether the Programmable Function Keys are to be used as Qume programmable or VT200 compatible keys. As Qume Programmable keys they may be user-programmed from the keyboard while in Setup Mode; as VT200 Compatible keys, their programmed contents are displayable, but they can only be programmed from the host during a QUMEUDK or DECUDK sequence.
Clear Current PFK	Action Parameter Block. Depressing the Enter key clears the contents of the PFK designated in the Program Parameter Block.
Clear All PFK	Action Parameter Block. Depressing the Enter key clears the contents of the keyboard definable PFKs.
Program:	Possible Values: . Qume key, keys F1 through F16, and their shifted combinations (34 total). This block is used to designate the PFK whose contents are to be displayed and/or programmed.
|_____|	Text Parameter Block. This block displays the contents of the PFK designated in the previous **Program:** block. Editing within this block is accomplished by using the Cursor Arrow Keys; text scrolls left and right so that it remains viewable at the cursor position. Also, the <- X| key may be used to backspace delete; the Shift and Right Cursor Arrow keys, to insert new text at the cursor position; and the Shift and Left Cursor Arrow keys, to delete text at the cursor position.
Avail. Space=256	The total memory allocation for the PFKs is 256 bytes. This block displays the remaining memory available for PFK programming.

SECTION 3

COMMAND SET

This section offers a brief description of the commands recognized by the terminal, and the syntax conventions to be observed for operating in 7-bit ASCII environments (CØ controls), or 8-bit environments (C1 controls).

Syntax Conventions

Escape Sequences

An escape sequence is a series of ASCII encoded characters introduced by the CØ character ESC (or Escape). Escape sequences use only 7-bit characters, but can be used in either 7- or 8-bit environments.

Control Sequences

A control sequence is a series of ASCII encoded characters introduced by the CSI (or Control Sequence Introducer, which may be expressed as the 7-bit code extension ESC [ ).

Device Control Strings

A device control string is a delimited string of characters used for control purposes. The format for a device control string is as follows:

DCS string data ST

Where: DCS = Opening Device Control String Delimiter

string = Command Data

ST = Closing Delimiter or String Terminator

Notes: The 8-bit control character DCS may be expressed as ESC P for application in 7-bit environments.

The 8-bit control character ST may be expressed as ESC / for application in 7-bit environments.

Transmitted Codes

Main Keyboard Keys

KEYSTROKE	TRANSMITTED CODE
<X (Delete)	DEL character.
Tab	HT character.
Return	CR character only, or CR character with LF character (depending on Line Feed/New Line selection).
Back Space	BS character.
Line Feed	LF character.
Space Bar	SP character.
Shift, Lock, Ctrl, Compose Character	These keys do not transmit any code.

Main Keyboard Keys - Cursor Control Keys

KEYSTROKE	TRANSMITTED CODE	
	VT200 / VT100 MODE	
	NORMAL	APPLICATION
Up Arrow	CSI A	SS3 A
Down Arrow	CSI B	SS3 B
Right Arrow	CSI C	SS3 C
Left Arrow	CSI D	SS3 D

Transmitted Codes

Main Keyboard Keys

KEYSTROKE	TRANSMITTED CODE
< X| (Delete)	DEL character.
Tab	HT character.
Return	CR character only, or CR character with LF character (depending on Line Feed/New Line selection).
Back Space	BS character.
Line Feed	LF character.
Space Bar	SP character.
Shift Lock Ctrl Compose Character	]] These keys do not transmit any code.]]

Main Keyboard Keys - Cursor Control Keys

KEYSTROKE	TRANSMITTED CODE VT200 / VT100 MODE	
	NORMAL	APPLICATION
Up Arrow	CSI A	SS3 A
Down Arrow	CSI B	SS3 B
Right Arrow	CSI C	SS3 C
Left Arrow	CSI D	SS3 D

Auxiliary Keypad Keys

KEYSTROKE	TRANSMITTED CODE VT200 / VT100 MODE	
	NUMERIC	APPLICATION
Ø	Ø	SS3 p
1	1	SS3 q
2	2	SS3 r
3	3	SS3 s
4	4	SS3 t
5	5	SS3 u
6	6	SS3 v
7	7	SS3 w
8	8	SS3 x
9	9	SS3 y
- (minus)	-	SS3 m
, (comma)	,	SS3 l
. (period)	.	SS3 n
Enter	CR or CR LF	SS3 M
PF1	SS3 P	SS3 P
PF2	SS3 Q	SS3 Q
PF3	SS3 R	SS3 R
PF4	SS3 S	SS3 S

Function Keys

KEYSTROKE	GENERIC NAME	TRANSMITTED CODE VT200 MODE	KEY NUMBER *
F1	F17	CSI 3 1 ~	31
F2	F18	CSI 3 2 ~	32
F3	F19	CSI 3 3 ~	33
F4	F20	CSI 3 4 ~	34
F5	F22	CSI 3 6 ~	36
F6	F6	CSI 1 7 ~	17
F7	F7	CSI 1 8 ~	18
F8	F8	CSI 1 9 ~	19
F9	F9	CSI 2 Ø ~	20
F10	F10	CSI 2 1 ~	21
F11	F11	CSI 2 3 ~	23
F12	F12	CSI 2 4 ~	24
F13	F13	CSI 2 5 ~	25
F14	F14	CSI 2 6 ~	26
F15	F15	CSI 2 8 ~	28
F16	F16	CSI 2 9 ~	29
Qume	Qume	None	Ø

* Note: The Key Number is the value (Kyn) that is used to identify Function keys when they are being user-defined in a QUMEUDK or DECUDK device control string.

Control Code Keystrokes for 7-Bit Controls

CONTROL CODE MNEMONIC	CONTROL KEY DEPRESSED with ADDITIONAL KEY(S)	NOTES
NUL	Control-2,space	
SOH	Control-A	
STX	Control-B	
ETX	Control-C	
EOT	Control-D	
ENQ	Control-E	
ACK	Control-F	
BEL	Control-G	
BS	Control-H	or Back Space
HT	Control-I	or Tab
LF	Control-J	or Line Feed
VT	Control-K	
FF	Control-L	
CR	Control-M	or Return
SO	Control-N	
SI	Control-O	
DLE	Control-P	
DC1	Control-Q	
DC2	Control-R	
DC3	Control-S	
DC4	Control-T	
NAK	Control-U	
SYN	Control-V	
ETB	Control-W	
CAN	Control-X	
EM	Control-Y	
SUB	Control-Z	
ESC	Control-3,[	or Escape
FS	Control-4,/	
GS	Control-5,]	
RS	Control-6,~	
US	Control-7,?	
DEL	Control-8	< X (Delete)

Received Codes

C0 (ASCII) Control Code Interpretation

MNEMONIC	NAME	INTERPRETATION
NUL	Null	Ignored.
ENQ	Enquiry	Causes the Answerback Message to be transmitted.
BEL	Bell	Sounds the bell tone if Bell is enabled.
BS	Backspace	Causes the cursor to move one character position to the left; ignored when the cursor is at the left margin.
HT	Horizontal Tab	Causes the cursor to move to the next tab stop, or to the right margin if no tab stops are set.
LF	Line Feed	Generates a Line Feed (New Line), depending on how New Line is set.
VT	Vertical Tab	Same as LF.
FF	Form Feed	Same as LF.
CR	Carriage Return	Causes the cursor to move to the left margin on the same line.
SO	Shift Out	Invokes the G1 character set as specified by Select Character Set.
SI	Shift In	Invokes the G0 character set as specified by Select Character Set.
DC1	Device Control 1	Same as XON. Resets DC3 (XOFF) to enable the terminal to transmit. Unlocks the keyboard depending on the setting of Lock Keyboard.
DC3	Device Control 3	Same as XOFF. Resets DC1 (XON) to stop data transmission.
CAN	Cancel	Aborts the execution of control, escape, or device control sequences. No error character is displayed.
SUB	Substitute	Aborts the execution of control, escape, or device control sequences. Causes a reverse question mark to display.

C0 (ASCII) Control Code Interpretation (Cont)

MNEMONIC	NAME	INTERPRETATION
ESC	Escape	The escape sequence introducer. Cancels any control sequence currently in progress.
DEL	Delete	Ignored.

C1 (ASCII) Control Code Interpretation

MNEMONIC	NAME	INTERPRETATION
IND	Index	Causes the cursor to move downward one line in the same column; causes the screen to scroll when the cursor reaches the bottom margin. (Equivalent to the 7-bit code: ESC P).
NEL	Next Line	Causes the cursor to move to the left margin of the following line; causes the screen to scroll when the cursor reaches the bottom margin. (Equivalent to the 7-bit code: ESC E).
HTS	Horizontal Tab Set	Sets a tab stop at the current cursor column. (Equivalent to the 7-bit code: ESC H).
RI	Reverse Index	Causes the cursor to move upward one line in the same column; causes the screen to scroll when the cursor reaches the top margin. (Equivalent to the 7-bit code: ESC M).
SS2	Single Shift G2	Designates the G2 character set (as specified by Select Character Set) as GL. (Equivalent to the 7-bit code: ESC N).
SS3	Single Shift G3	Designates the G3 character set (as specified by Select Character Set) as GL. (Equivalent to the 7-bit code: ESC O).
DCS	Device Control String	Device Control String opening delimiter. (Equivalent to the 7-bit code: ESC P).

C1 (ASCII) Control Code Interpretation (Cont)

MNEMONIC	NAME	INTERPRETATION
CSI	Control Sequence Introducer	Control Sequence Introducer. (Equivalent to the 7-bit code: ESC [ ).
ST	String Terminator	The Device Control String closing delimiter. (Equivalent to the 7-bit code: ESC \ ).

Adjustments

COMMMAND	INTERPRETATION
ESC # 8	Causes a full screen of Es to display for alignment purposes.

Compatibility Level

COMMMAND	INTERPRETATION
CSI 6 1 " p	Sets the terminal for VT100 Mode (Level 1).
CSI 6 2 " p	Sets the terminal for VT200 Mode, 8-bit controls (Level 2).
CSI 6 2 ; 0 " p	Sets the terminal for VT200 Mode, 8-bit controls (Level 2).
CSI 6 2 ; 1 " p	Sets the terminal for VT200 Mode, 7-bit controls (Level 2).
CSI 6 2 ; 2 " p	Sets the terminal for VT200 Mode, 8-bit controls (Level 2).

Cursor Positioning

NAME	COMMAND	INTERPRETATION
Cursor Up (CUU)	CSI Pn A	Causes the cursor to move up Pn lines in the same column.
Cursor Down (CUD)	CSI Pn B	Causes the cursor to move down Pn lines in the same column.
Cursor Forward (CUF)	CSI Pn C	Causes the cursor to move right Pn columns.
Cursor Backward (CUB)	CSI Pn D	Causes the cursor to move left Pn columns.
Cursor Position (CUP)	CSI Pl ; Pc H	Causes the cursor to move to line Pl and column Pc.
Horizontal and Vertical Position (HVP)	CSI Pl ; Pc f	Causes the cursor to move to line Pl and column Pc.
Index (IND)	ESC D	Causes the cursor to move downward one line in the same column. When the cursor is at the bottom margin, the screen will scroll.
Reverse Index (RI)	ESC M	Causes the cursor to move upward one line in the same column. When the cursor is at the top margin, the screen will scroll.
Next Line (NEL)	ESC E	Causes the cursor to move to column 1 of the next line. When the cursor is at the bottom margin, this command causes the screen to scroll.
Save Cursor (DECSC) (DECSC)	ESC 7	Saves the following parameters in terminal memory: Cursor position, graphic rendition, character set shift state, line wrap setting, origin mode setting, and selective erase setting.
Restore Cursor (DECRC)	ESC 8	Resets the parameters stored by Save Cursor; otherwise, the cursor moves Home, origin mode is reset, no character attributes are assigned, and the default character set is implememted.

Character Set Selection (SCS and DSCS)

- Assigning "Hard" Character Sets

CHARACTER SET	COMMAND	ASSIGNMENT
ASCII	ESC (B	GØ (Default)
	ESC) B	G1
	ESC * B	G2 (VT200 Mode only)
	ESC + B	G3 (VT200 Mode only)
DEC Supplemental (VT200 Mode only)	ESC (<	GØ
	ESC) <	G1
	ESC * <	G2
	ESC + <	G3
UK (VT100 Mode only)	ESC (A	GØ
	ESC) A	G1
DEC Special Graphics	ESC (Ø	GØ
	ESC) Ø	G1
	ESC * Ø	G2 (VT200 Mode only)
	ESC + Ø	G3 (VT200 Mode only)

- Using Lock Shifts to Invoke Character Sets

FUNCTION	CODE	APPLICATION
Lock Shift GØ (LSO)	SI	Invokes GØ into GL (Default)
Lock Shift G1 (LS1)	SO	Invokes G1 into GL
Lock Shift G1 Right (LS1R)	ESC ~	Invokes G1 into GR (VT200 Mode only)
Lock Shift G2 (LS2)	ESC n	Invokes G2 into GL (VT200 Mode only)
Lock Shift G2 Right (LS2R)	ESC }	Invokes G2 into GR (Default - VT200 Mode only)
Lock Shift G3 (LS3)	ESC o	Invokes G3 into GL (VT200 Mode only)
Lock Shift G3 Right (LS3R)	ESC |	Invokes G3 into GR (VT200 Mode only)

- Using Single Shifts to Invoke Character Sets

FUNCTION	CODE	APPLICATION
Single Shift G2 (SS2)	SS2 or ESC N	Moves G2 into GL for application when the next graphic character is received.
Single Shift G3 (SS3)	SS3 or ESC O	Moves G3 into GL for application when the next graphic character is received.

Editing

NAME	COMMAND	INTERPRETATION
Insert Line (IL)	CSI Pn L	Causes Pn lines to be inserted from the cursor position.
Delete Line (DL)	CSI Pn M	Causes Pn lines to be deleted from the cursor position.
Insert Characters (ICH)	CSI Pn @	Causes Pn blank characters to be inserted from the cursor position (VT200 Mode only). Character attributes are set to normal.
Delete Characters (DCH)	CSI Pn P	Causes Pn characters to be deleted from the cursor position.

Erasing

NAME	COMMAND	INTERPRETATION
Erase Character (ECH)	CSI Pn X	Causes Pn characters from the cursor position to the Pn - 1 character to be erased (VT200 Mode only).
Erase In Line (EL)	CSI K or CSI Ø K	Causes all characters from the cursor position to the end of the line to be erased.
	CSI 1 K	Causes all characters from the beginning of the line, to and including the character at the cursor position, to be erased.
	CSI 2 K	Causes the complete line to be erased.
Erase In Display (ED)	CSI J or CSI Ø J	Causes the display to be erased from the cursor to the end of the screen.
	CSI 1 J	Causes the display to be erased from the beginning of the screen, to and including the cursor position.
	CSI 2 J	Causes the entire display to be erased.

Erasing (Cont)

NAME	COMMAND	INTERPRETATION
Selective Erase In Line (DECSEL)	CSI ? K or CSI ? Ø K	Causes all erasable characters from the cursor to the end of the line to be erased (VT200 Mode only).
	CSI ? 1 K	Causes all erasable characters (DECSCA) from the beginning of a line, to and including the cursor position, to be erased (VT200 Mode only).
	CSI ? 2 K	Causes all erasable characters (DECSCA) on a given cursor line to be erased (VT200 Mode only).
Selective Erase In Display (DECSED)	CSI ? J or CSI ? Ø J	Causes all erasable characters from the cursor to the end of the screen to be erased (VT200 Mode only).
	CSI ? 1 J	Causes all erasable characters (DECSCA) from the beginning of the screen, to and including the cursor position, to be erased (VT200 Mode only).
	CSI ? 2 J	Causes all erasable characters (DECSCA) in the display to be erased (VT200 Mode only).

Printing

NAME	COMMAND	INTERPRETATION
Auto Print Mode	CSI ? 5 i	Enables Auto Print Mode, and causes display lines to be printed whenever the cursor is moved to another line, as occurs with a LF, FF, VT, or auto linewrap. A print line is terminated with a CR and the cursor movement code that initially moved the cursor.
	CSI ? 4 i	Disbles Auto Print Mode.
Printer Controller Mode	CSI 5 i	Enables Printer Controller Mode, so that the terminal directs all received characters from the host, to the printer without displaying them (except NUL, XON, XOFF, CSI 5 i, and CSI 4 i). In this mode the terminal does not insert or delete spaces, add delimiters, or select printer character set. All keyboarded characters are directed to the host. Printer Controller Mode has a higher priority than Auto Print Mode.
	CSI 4 i	Disables Printer Controller Mode.
Print Cursor Line	CSI ? 1 i	Causes the current cursor line to be printed. Cursor position remains unchanged.
Print Screen	CSI i or CSI Ø i	Causes the screen display to be printed; i.e., full screen or scrolling region depending on the setting of Print Extent (DECEXT). The print operation terminator may be either a FF or no terminator specified, according to Print Form Feed Mode (DECPFF) selection.

Reports

- Device Attributes (DA)

COMMUNICATION DIRECTION	COMMAND	INTERPRETATION
Host to Terminal (Primary Request)	CSI c or CSI Ø c	Request to report terminal type and attributes.
Terminal to Host (Primary Request)	CSI ? 62; 1; 2; 6; 7; 8 c	Report terminal type and attributes. Where: 62 Identifies a VT200 type terminal 1 132 column capability 2 Printer port equipped 6 Selective Erase feature 7 DRCS feature 8 UDK feature
Host to Terminal (Secondary Response)	CSI > c or CSI > Ø c	Request to report terminal type, firmware version, and hardware options.
Terminal to Host (Secondary Response)	CSI > 1; Pv; Po c	Report terminal type, firmware, and options: 1 Terminal identification code Pv Firmware version Po Options installed

- Device Status Report (DSR)

COMMUNICATION DIRECTION	COMMAND	INTERPRETATION
Host to Terminal	CSI 5 n	Request to report operating status in a DSR report sequence.
Terminal to Host	CSI Ø n or CSI 3 n	DA response: No malfunction detected.
Host to Terminal	CSI 6 n	Request to report cursor position in a CPR report sequence.
Terminal to Host	CSI Pv; Ph R	CPR response: Pv identifies cursor vertical position (row); Ph identifies cursor horizontal position (column).

- DSR (PRINTER PORT)

COMMUNICATION DIRECTION	COMMAND	INTERPRETATION
Host to Terminal	CSI ? 15 n	Request to report printer status.
Terminal to Host	CSI ? 13 n	Report: No Printer Installed.
	CSI ? 10 n	Report: Printer Is Ready.
	CSI ? 11 n	Report: Printer Is Not Ready.

- DSR (USER-DEFINED KEYS - VT200 MODE ONLY)

COMMUNICATION DIRECTION	COMMAND	INTERPRETATION
Host to Terminal	CSI ? 25 n	Request for status of User-Defined Keys (UDK): Locked or Unlocked.
Terminal to Host	CSI ? 20 n	Report: User-Defined Keys Unlocked.
	CSI ? 21 n	Report: User-Defined Keys Locked.

- IDENTIFICATION (DECID)

COMMUNICATION DIRECTION	COMMAND	INTERPRETATION
Terminal to Host	ESC Z	Causes the terminal to issue the DA primary response sequence.

Select C1 Controls

CONTROL	COMMAND	INTERPRETATION
7-Bit C1 Control (S7C1T)	ESC Sp F	Converts all C1 codes in application to equivalent 7-bit code extensions. Note: Ignored when the terminal is operating in VT100 Mode.
8-Bit C1 Control (S8C1T)	ESC Sp G	Utililizes all C1 codes in application without converting them to equivalent 7-bit code extensions.

Select Character Attributes (DECSCA)

Characters may be specified with selective erase or without selective erase. This feature is functional only in VT200 Mode.

COMMAND	INTERPRETATION	
CSI Ps " q	Where Ps = Ø	No attributes, except graphics rendition attributes (SGR).
	1	Specifies a character without selective erase (DECSEL/DECSED selected).
	2	Specifies a character with selective erase (DECSEL/DECSED deselected).

Select Graphic Rendition (SGR)

COMMAND	INTERPRETATION	
CSI Ps;... Ps m	Where Ps = Ø	All attributes deselected
	1	Display at high intensity
	4	Display with underscore attribute
	5	Display with blink attribute
	7	Display with reverse presentation
	2 2	Display with normal intensity
	2 4	Display without underscore attribute
	2 5	Display without blink attribute
	2 7	Display with normal presentation

Note: Multiple parameters may be selected and are executed as received.

Select Line Attributes

ATTRIBUTE	COMMAND	INTERPRETATION
Double Height Line (DECDHL)	Top Half: ESC # 3 Bottom Half: ESC # 4	When specifying this attribute, to form a full character, the same character must be issued on both top and bottom lines. If single width/single height lines are specified with this attribute, all characters to the right of center are lost.
Single Width Line (DECSWL)	ESC # 5	Specifies a single width/single height line.
Double Width Line (DECDWL)	ESC # 6	Specifies a double width/single height line.

Set Top and Bottom Margins (DECSTBM)

COMMAND	INTERPRETATION
CSI Pt; Pb r	Specifies the top and bottom margins of the scrolling region. Where: Pt Specifies the first line of the scrolling region. Pb Specifies the bottom line of the scrolling region. Note: If Pt and Pb are not specified, their values default to the top and bottom of the display. The scrolling region originates from Line 1.

Tab Stops

NAME	COMMAND	INTERPRETATION
Horizontal Tab Set (HTS)	ESC H	Causes a tab stop to be set at the current cursor column.
Clear Tab Stop (TBC)	CSI g or CSI Ø g	Causes the tab stop at the current cursor position to be cleared.
	CSI 3 g	Causes all tab stops to be cleared.

Terminal Modes

MNEMONIC	NAME	SET MODE	RESET MODE
DECARN	Auto Repeat	ON CSI ? 8 h	OFF CSI ? 8 l
DECAWN	Auto Wrap	ON CSI ? 7 h	OFF CSI ? 7 l
DECCKM	Cursor Key	APPLICATION CSI ? 1 h	CURSOR CSI ? 1 l
DECCOLM	Column	132 COLUMN CSI ? 3 h	80 COLUMN CSI ? 3 l
DECKPAM/DECKPNM	Keypad	APPLICATION ESC =	NUMERIC ESC >
DECPEX	Print Extent	FULL SCREEN CSI ? 19 h	SCROLLING REGION CSI ? 19 l
DECPFF	Print Form Feed	ON CSI ? 18 h	OFF CSI ? 18 l
DECSCLM	Scrolling	SMOOTH CSI ? 4 h	JUMP CSI ? 4 l
DECSCNM	Screen	REVERSE CSI ? 5 h	NORMAL CSI ? 5 l
DECTCEM	Text Cursor Enable	ON CSI ? 25 h	OFF CSI ? 25 l

Terminal Modes (Cont)

MNEMONIC	NAME	SET MODE	RESET MODE
IRM	Insert/Replace	INSERT CSI 4 h	REPLACE CSI 4 l
KAM	Keyboard Action	LOCKED CSI 2 h	UNLOCKED CSI 2 l
LNM	Line Feed/ New Line	NEW LINE CSI 20 h	LINE FEED CSI 20 l
SRM	Send/Receive	OFF CSI 12 h	ON CSI 12 l

Terminal Reset

NAME	COMMAND	INTERPRETATION
Soft Reset (DECSTR)	CSI ! p	Causes the terminal to assume its power-up default parameters.
Hard Reset (RIS)	ESC c	Causes all set-up parameters to to assume their NVR parameters, or their default parameters if no NVR values have been specified.

Tests (DECTST)

Note: Performing these tests causes a communications line disconnect.

COMMAND	INTERPRETATION
CSI 4 ;...; Ps y	Causes the following test to be performed: Where Ps = Ø Tests 1, 2, 3, and 6 1 Power-up self-test 2 EIA Port loopback test 3 Printer Port loopback test 4 Not Used 5 Not Used 6 EIA Port modem control loopback test 7 20 mA Port loopback test 8 Not Used 9 Repeat other parameter string tests 10 Values 10 and above are not used

User-Defined Keys (QUMEUDK or DECUDK)

To down load a Function key issue either of the following commands:

QUMEUDK: DCS Pc; Pl; Pks; Pr ~ Kyl/Stl; Ky2/St2; ... Kyn/Stn ST

or

DECUDK: DCS Pc; Pl | Kyl/Stl; Ky2/St2; ... Kyn/Stn ST

Where: DCS = Device Control String Introducer

Pc = None Causes all keys to be cleared before loading with new values
Ø Same as None
1 Causes new key values to be loaded over old values for those keys specified

Pl = None Causes all key values to be safeguarded against redefinition
Ø Same as None
1 Causes all key values to be accessable for redefinition

Pks= None Shifted Function key
Ø Unshifted Function key
1 Same as None

Pr = None No routing
Ø Same as None

~ = QUMEUDK sequence designator

| = DECUDK sequence designator

Kyn = QUME, Key Number = Ø		Kyn = F14, Key Number =	26
F6	17	F15	28
F7	18	F16	29
F8	19	F1 (F17)	31
F9	20	F2 (F18)	32
F10	21	F3 (F19)	33
F11	23	F4 (F20)	34
F12	24	F5 (F22)	36
F13	25		

Stn = Hex encoded key contents

ST = String Terminator

Appendix B. Digital 8-Bit Code Chart

C O L U M N

ROW	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
00	NUL	DEL	SP							DCS	*					
01	SOH	DC1								PU1						
02	STX	DC2								PU2						
03	ETX	DC3								STS						
04	EOT	DCR							IND	CCH						
05	ENQ	NAK							NEL	MW						
R 06	ACK	SYN							SSA	SPA						
O 07	BEL	ETB							ESA	EPA						
W 08	BS	CAN							HTS							
09	HT	EM							HTJ							
10	LF	SUB							VTS							
11	VT	ESC							PLD	CSI						
12	FF	FS							PLU	ST						
13	CR	GS							RI	OSC						
14	SO	RS							SS2	PM						
15	SI	US						DEL	SS3	APC						*

CØ CODES — GL CODES — C1 CODES — GR CODES

7-BIT ASCII CODES

* = Reserved.

Appendix A. 7-Bit ASCII Code Chart

Bits b7 b6 b5				0 0 0	0 0 1	0 1 0	0 1 1	1 0 0	1 0 1	1 1 0	1 1 1
b4	b3	b2	b1	Row ↓ / Column →	0	1	2	3	4	5	6	7
0	0	0	0	0	NUL	DLE	SP	0	@	P	`	p
0	0	0	1	1	SOH	DC1	!	1	A	Q	a	q
0	0	1	0	2	STX	DC2	"	2	B	R	b	r
0	0	1	1	3	ETX	DC3	#	3	C	S	c	s
0	1	0	0	4	EOT	DC4	$	4	D	T	d	t
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w
1	0	0	0	8	BS	CAN	(	8	H	X	h	x
1	0	0	1	9	HT	EM	)	9	I	Y	i	y
1	0	1	0	A	LF	SUB	*	:	J	Z	j	z
1	0	1	1	B	VT	ESC	+	;	K	[	k	{
1	1	0	0	C	FF	FS	,	<	L	\	l	|
1	1	0	1	D	CR	GS	-	=	M	]	m	}
1	1	1	0	E	SO	RS	.	>	N	^	n	~
1	1	1	1	F	SI	US	/	?	O	_	o	DEL

733-A

Note: The Hexadecimal Value = The ASCII Column Number + The ASCII Row Number.

____ Fold Here _____

____ Fold Here _____

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