Qume

A Subsidiary of ITT

Manual

QVT-108
Operator Manual
August 1983

Qume.
A Subsidiary of ITT

Reorder Number 35013

ADDENDUM

This addendum to the QVT-108 Operator Manual, October 1983 edition, is provided to correct errors that were discovered after the manual had gone to press. Corrections will be incorporated at the time of next printing.

Page 3-15. RS-232-C/Current Loop Interface. The current loop interface is default passive.

Page 3-16. Autopage ON/OFF. Default is OFF.

Page 4-3. Table 4-2 has been revised as follows:

KEY	UNSHIFTED CODE			SHIFTED COND		
F1	Ctrl-A	@ CR	@	Ctrl-A	' CR	K
F2	Ctrl-A	A CR	A	Ctrl-A	a CR	L
F3	Ctrl-A	B CR	B	Ctrl-A	b CR	M
F4	Ctrl-A	C CR	C	Ctrl-A	c CR	N
F5	Ctrl-A	D CR	D	Ctrl-A	d CR	O
F6	Ctrl-A	E CR	E	Ctrl-A	e CR	P
F7	Ctrl-A	F CR	F	Ctrl-A	f CR	Q
F8	Ctrl-A	G CR	G	Ctrl-A	g CR	R
F9	Ctrl-A	H CR	H	Ctrl-A	h CR	S
F10	Ctrl-A	I CR	I	Ctrl-A	i CR	T
F11	Ctrl-A	J CR	J ↑	Ctrl-A	j CR	U ↑
	Function Key Identifier*			Function Key Identifier*		

* Function Key Identifiers are use when user programming a Function key.

Page 4-4   The paragraph entitled "To program a Function key by command code" has been revised as follows:

To Program a Function key	QVT-108 Only
	ESC F @,..., U Delimiter (Data) Delimiter

The user may program a Function key by command code from either the keyboard or the host by issuing a Program Function key command. Possible values within the escape sepuence are: qu

@,...,U	- Function key Identifier. Refer to Table 4-2 (revised) and select the Function key Identifier (@ through U) for the Function key to be programmed.
Delimiter	- Start Delimiter (any character that is not used in the following data string that is to be the contents of that Function Key).
Data	- Desired Data String. A maximum of 8 ASCII characters may be selected as the contents for each Function key.
Delimiter	- Trailing Delimiter. The trailing delimiter must be the same character as that used for the start delimiter.

Page A-9. To generate the following control codes from the keyboard: use only the keystokes noted below.

FS (File Separator). Use keystrokes Control- \
GS (Group Separator). Use keystrokes Control-]
RS (Record Separator). Use keystrokes Control- ∧
US (Unit Separator). Use keystokes Contror- __

Page A-14. Program Function key Command.
Revised to read: ESC F @,...,U Delimiter (Data) Delimiter

DISPLAY
MODULE

KEYBOARD

192-B-04
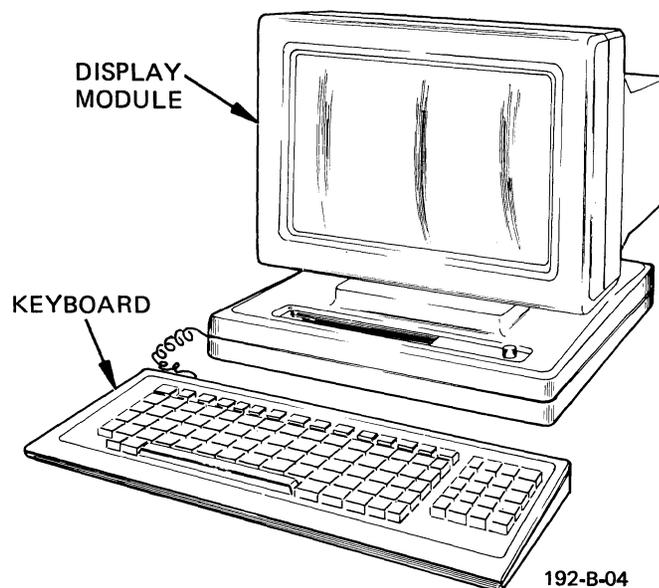
The QVT-108 Video Display Terminal

PREFACE

The purpose of this manual is to describe the QVT-108™ (or Qume Video Terminal - Model 108), its proper use, capabilities, and features. Even though its application may vary, users of the QVT-108 are encouraged to read this manual to acquire a general understanding and thereby facilitate using the terminal to its fullest potential. The keyboard and display module, the two major components that comprise the terminal, are illustrated above.

Following the **Preface** is a section entitled **Product Description,** which outlines the specifications of the terminal. Next, in the section entitled **Installation,** detailed instructions for unpacking and installing the terminal are presented. The next section, **Operation,** is perhaps the most important section, because it describes the power On procedure, set-up, and general operator functions. The **Programmer Information Section** is more technically oriented and explains the terminal's command set. Following, the **Operator Care Section** offers helpful tips for maintaining the terminal in good working order. A **Glossary** and **Appendix** provide an array of reference information, and an **Index** concludes the manual with a topical listing of keywords with page reference.

i

RECORD THE SERIAL NUMBER AND MODEL NUMBER OF YOUR KEYBOARD AND DISPLAY MODULE

The serial number and model number for both the keyboard and display module is located on the bottom outside cover of each component.

KEYBOARD		DISPLAY MODULE	
Model Number		Model Number	
Serial Number		Serial Number	

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont)

TABLE OF CONTENTS (Cont)

LIST OF ILLUSTRATIONS

LIST OF TABLES

PRODUCT DESCRIPTION

INTRODUCTION

This section tabulates the specifications of the QVT-108 video terminal.

Screen / Video Display

Display Module	- 12-inch diagonal screen that features tilt and swivel for individual operator comfort. - Standard non-glare green screen.
Display Format	- 24 lines by 80-character columns. - 25th Status/Set-up Line/User Line.
Character Formation	- 7 x 9 matrix in a 9 x 12 cell.
Video Attributes	- Blink, Blank, Underline, Normal/Reverse Video, and Half Intensity.
Cursor Type	- Blink/Steady, Block/Underline, or Invisible.
Fields	- Protected and Unprotected Fields.

Keyboard

Keyboard	- Detached, low-profile keyboard with 3-position adjustable feet for enhanced individual operator comfort. - Alphanumeric typewriter character set. - Programmable/Special function keys. - Numeric key pad. - 5 cursor positioning keys. - Defeatable audible key click and character auto repeat. - 3-key rollover. - Keyboard lock enable/disable.
Character Set	- 96 US ASCII character set, with on-board French, German, and Spanish character sets included. - 32 control characters. - 15 graphics (line drawing) symbols.

Features

Emulations	- In addition to its own QVT-108 command set, two emulations are available: Televideo 925 and Televideo 912/920.

Features (Cont)

Editing	- Cursor position/movement keys: Home, Down, Up, Left, Right. - Character/Line Insert and Delete. - Delete to End of Line/Screen. - Tabbing: Tab, Back Tab, Field Tab. - Clear Space, Alternate Page, and Line Feed.
Rear Panel (Display Module Pedestal) Features	- Power On/Off switch. - Line Fuse: Standard 2 amp - 250 Vac. - AUX - Auxiliary (printer) interface connector. - EIA - Host computer (RS-232-C) interface connector.
Screen Intensity	- Adjustable screen intensity from potentiometer on right front corner of the display module pedestal.
Keyboard Connection	- Keyboard quick connect/disconnect from telephone style connector on left-side corner of the display module pedestal.
Screen-Saver	- Automatic video disable after approximately 15 minutes of inactivity with no loss of data. Depressing any key will return the video display. This feature can be disabled.
Set-up Mode	- Menu style (25th status line) set-up feature with memory storage capability.
Character Sets	- English (US), French, German and Spanish standard.
Screen Memory	- Two pages (3,840 characters).

Communications

Interface	- Compatible with the EIA RS-232-C interface standard. - Bidirectional printer (AUX) port.
Protocol	- X-ON/X-OFF with DTR, X-ON/X-OFF only, or DTR only.
Modes	- Full or half duplex. - Conversational/Block data transmission.
Baud Rate	- 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, and 19200.
Parity	- Odd, Even, Mark, Space, or No Parity.
Data Word Size	- 7- or 8-data bits.

Power Requirements

Power Requirements
- 95 to 125 Vac, 0.30 A
- 200 to 264 Vac, 0.15 A
- 50/60 Hz, 35 W

Physical

Dimensions
- Display Module: 14 inches high, 13 inches wide, 12 inches deep.
- Keyboard: 1.5 inches high, 18 inches wide, 8 inches deep.

Weight
- Display Module: 19 pounds.
- Keyboard: 3 pounds.

Operating Temperature
- 0 to 40 degrees Centigrade (32 to 104 degrees Fahrenheit).

Relative Humidity
- 10 to 90% (non-condensing).

Options

Options
- Foreign keyboard character sets.
- Non-glare amber screen.
- 14-inch diagonal screen (green or amber).
- 20-mA current loop communications interface (active or passive).

INSTALLATION

INTRODUCTION

This section describes receiving/inspection and installation of the QVT-108 video terminal.

RECEIVING / INSPECTION

Each terminal is packaged in an individual carton for protection during shipment.

Before opening the carton, inspect it for any signs of damage. If damage is observed, 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.

STEP 3

086-C-01

STEP 1

STEP 2
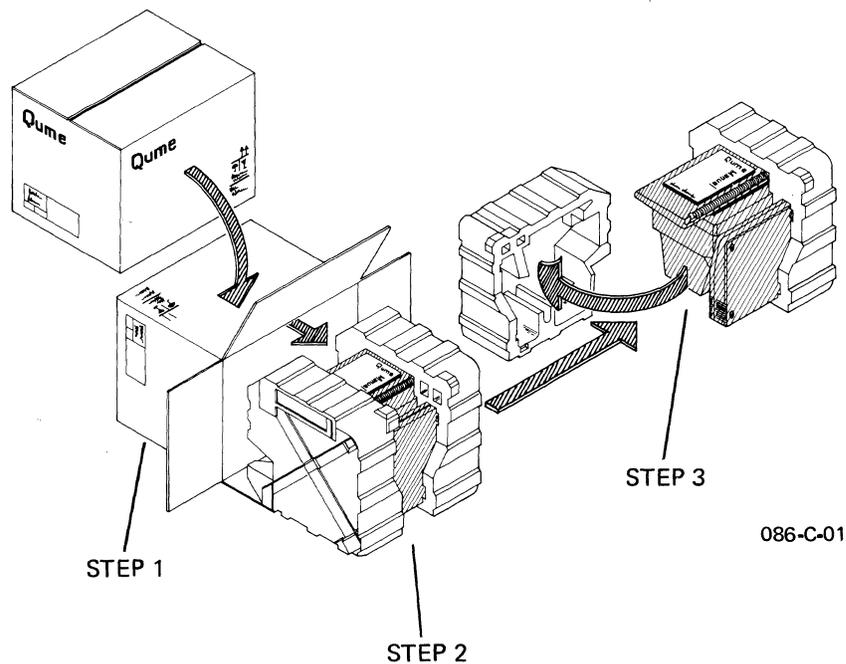
Figure 2-1. Unpacking the Terminal

1. Open the carton and place it on its side on a table top or flat surface.

2. Slide the terminal from the carton.

3. Remove the Styrofoam packing buns, being careful that neither the keyboard or display module are jostled and fall.

4. Remove the plastic bags that wrap each component. Retain all packaging materials for possible reshipment.

5. Inspect both the display module and the keyboard for scratches, loose parts, and damage from rough handling. Note any evidence of such damage on the invoice, and file a claim with the carrier immediately if the condition of either component so warrants.

6. If damage that might impair the proper operation of the terminal is detected, contact your service representative for advice and instructions.

7. If the terminal will not be used for some time, it is advisable to replace the plastic shipping bags for dust protection.

8. When repacking the terminal for shipment or for long storage periods, use only the original packaging materials.

INSTALLATION

Select a suitable site in which to install your terminal. A good site offers a clean, well-lighted environment, with a stable platform to support the terminal at a comfortable height. Install the terminal as follows:

1. Verify that the Power Switch on the rear panel of the display module pedestal is in the OFF position. The rear panel of the display module pedestal is illustrated in Figure 2-2.

191-B-03

POWER ON/OFF
SWITCH

POWER
CORD

LINE
FUSE
(2A-250V)

AUXILIARY
INTERFACE
CONNECTOR
(PRINTER)

EIA RS-232-C
INTERFACE
CONNECTOR
(HOST COMPUTER)
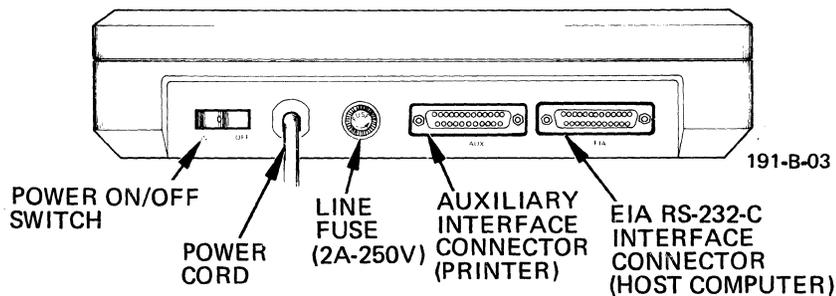
Figure 2-2. The Rear Panel of the Display Module Pedestal

2. Connect the communications cable between the host computer and the connector labeled "EIA" on the rear panel of the display module pedestal. If necessary, refer to the Appendix A for a pinout description of this connector, and to Appendix B for information concerning optional interface jumper placement.

3. If a printer is to be used, connect the printer to the connector labeled "AUX" on the rear panel of the display module pedestal. If necessary, refer to the Appendix A for a pinout description of this connector.

4. Connect the power cord from the display module to a grounded AC outlet.

5. Connect the coiled keyboard cable to the connector on the left front corner of the display module pedestal (refer to Figure 2-3).

6. Adjust the height of the keyboard to a comfortable elevation.

DISPLAY MODULE PEDESTAL

KEYBOARD CABLE CONNECTOR (INSTALLED)

632-A-01
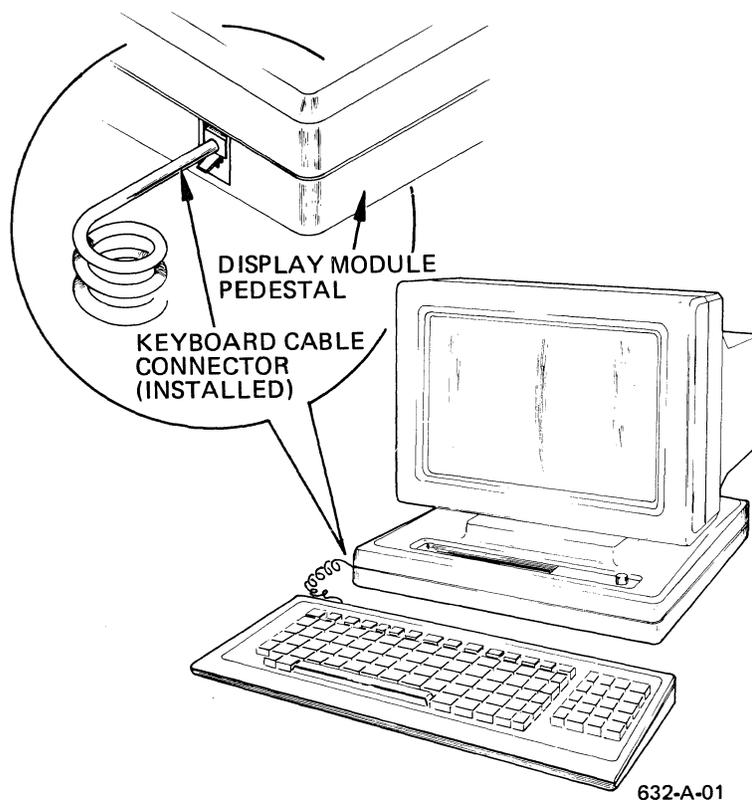
Figure 2-3. Keyboard Cable Connection to the Display Module

OPERATION

INTRODUCTION

This section describes how to operate the QVT-108 video terminal and discusses the following topics: Powering On the terminal; what you should see; adjusting screen intensity; using the keyboard; and general operator functions, such as editing, printing, and sending the screen display.

POWERING ON THE TERMINAL

To power on the terminal perform the following steps:

● Verify that the terminal is properly installed. Check to see that:

- The Power Switch on the rear panel of the display module is in the OFF position;

- The power cord is plugged into a grounded AC outlet;

- The host computer cable is connected to the EIA Connector;

- If a printer is to be used, it is connected to the AUX Connector;

- The keyboard cable is connected to its connector on the left front corner of the display module.

Move the Power Switch to the ON position and observe that the following things occur:

- The margin bell or beeper should sound after about two seconds;

- In about ten seconds the cursor should appear at the Home position. Note: It may be necessary to adjust the screen intensity by rotating the knob on the right corner of the display module to make the display visible. Refer to Figure 3-1;

- If an error code is displayed on the screen, refer to Appendix C for further details and contact your service representative;

- If the terminal appears not to be operating, verify that the power source is satisfactory, and that the fuse installed on the rear panel is a good fuse. Contact your service representative.

CURSOR
HOME POSITION
LINE 1, COLUMN 1

SCREEN
INTENSITY
ADJUST

192-B-04
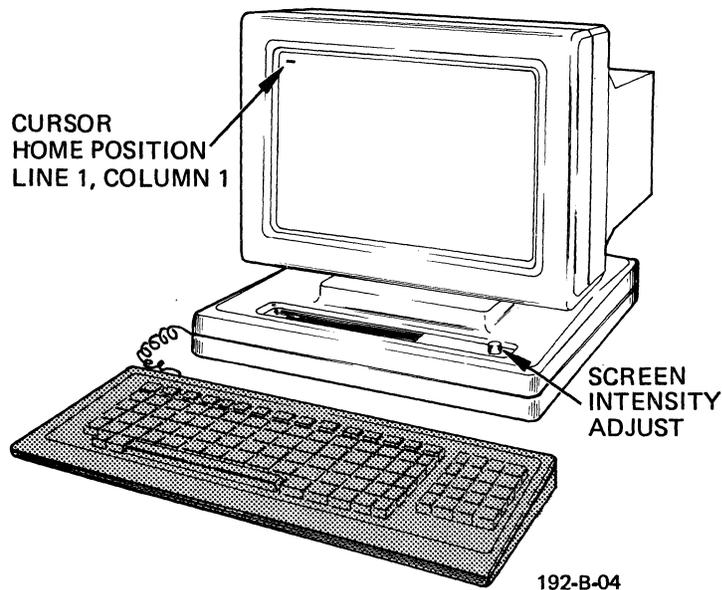
Figure 3-1. The Screen Display After Powering On the Terminal

USING THE TERMINAL

Using a video display terminal is in many ways similar to using a typewriter,
except that a video terminal has much greater capability. The ease by which
data can be edited on the display screen, before it is printed or sent to the
host computer, is no doubt the most beneficial feature. After using the
terminal for a short time you will readily agree.

From the operator's viewpoint, the keyboard is the most integral component
because from it data is generated for entry into the host computer system. A
good understanding of the keyboard is necessary to fully utilize and
appreciate all of the terminal's capabilities.

Please continue to read the following sections to familiarize yourself with
the features of your terminal.

THE KEYBOARD

The keys of the keyboard can be divided into three functional groups known as the Typewriter Character Keys, Special Function Keys, and the Numeric Key Pad. Each of these functional groups is described below.

TYPEWRITER CHARACTER KEYS

The Typewriter Character Keys (refer to Figure 3-2 on Foldout 3-1) function like those of an ordinary office typewriter. When these keys are depressed, they generate the codes necessary to make the characters display on the screen. Upper-case characters may be produced using the Shift key, or by enabling the Caps Lock key.

An Auto Repeat feature allows a key to be automatically repeated at a rate of approximately 30 characters per second whenever a key is held down for longer than a couple of seconds. The Auto Repeat feature affects all keys except the following:

        Setup
        F1 through F11
        Line Erase
        Page Erase
        Break
        Send
        Esc (Escape)
        Clear Space
        Caps (Capitals) Lock
        Return and Enter
        Alt Page (Alternate Page)
        Shift
        Print
        Funct (Function)
        Home
        Scroll Lock

SPECIAL FUNCTION KEYS

The Special Function Keys (refer to Figure 3-3 on Foldout 3-1) are used to modify the operation of the terminal. They allow the operator to selectively configure the terminal according to application, alter the programming, move the cursor around the screen, edit the display, and enable the print and send functions. Each of the special function keys is described below. For more detailed information, refer to the Programmer Information Section.

Setup

As a safeguard, the Setup key must always be used in combination the Ctrl (Control) and Shift keys. This key allows the operator to enter and exit the status line at the bottom of the screen. Refer to The Status Line and Set-up paragraph for a complete description of the status line and the use of the Setup key.

Function Keys: F1 - F11

Each of these keys causes the terminal to transmit a 3-character code sequence to the host computer. A Function key may be used by itself, or in combination with the Shift key to generate a total of 22 default codes. For user programming instructions, refer to the Programmer Information Section.

Break

Depressing the Break key transmits a 200- to 250-millisecond space pulse to the host computer. As a safeguard, the Break key must be used in combination with the Shift key.

Send
Shift/Send

Depressing the Send key causes all data on a page from Home through the cursor position to be transmitted to the host computer. Depressing the Shift key with the Send key causes all data on a line from column 1 through the cursor position to be transmitted to the host.

Esc (Escape)
Shift/Esc (Escape)

The Escape key is used to momentarily leave (escape) an application program in order to use a special feature or function. The Escape key is used with one of the typewriter character keys to specify a command sequence, and should be pressed and released before the second key is issued. Depressing the Shift key in combination with the Escape key causes the terminal to honor the subsequent command sequence only locally. Refer to the Programmer Information Section for further information.

Ctrl (Control)

The Control key is similar in function to the Escape key because it is also used to enable a special feature or function. However, the Control key must be used simultaneously with a typewriter character key to issue a command (similar in action to the Shift key). Commands requiring that the keys be depressed simultaneously are indicated by a hyphen separating the key names. Refer to the Programmer Information Section for further information.

**Print
Shift/Print**

Depressing the Print key causes all data on a page from Home through the cursor position to be outputted through the Auxiliary port. A carriage return, linefeed, and null are inserted at the end of each 80-character line. Depressing the Shift key with the Print key causes the data printout to be preceded by the time of day information displayed on the Main Status Line, followed by a carriage return, linefeed, and null.

Funct (Function)

Depressing the Function key enables the transmission of a user-selected character bracketed by Start of Header (SOH) and Carriage Return (CR) codes. Refer to the Programmer Information Section for further information.

Del (Delete)

Depressing the Delete key sends an ASCII delete (DEL) character to the host computer.

Scroll Lock

The Scroll Lock key is an On/Off function key which when depressed once, signals the host computer to momentarily halt transmission to the terminal. Depressing the Scroll Lock key a second time signals the host to resume transmission.

SPECIAL FUNCTION KEYS: EDITING KEYS

Char (Character) Insert

Depressing the Character Insert key enters a space character at the cursor position. All succeeding characters on the line are moved one position to the right, and any characters moved beyond the 80th column are lost.

Char (Character) Delete

Depressing the Character Delete key deletes the character at the cursor position and causes all succeeding characters on the line to be moved one position to the left. The last position on the line will be filled with a space character.

Line Insert

Depressing the Line Insert key enters a line of spaces on the present cursor line. The cursor is moved to column 1 of the new line, and all the following lines are moved down one line. Data on the last line will be lost.

Line Delete

Depressing the Line Delete key deletes the present cursor line. All following lines are moved up one line and the cursor is moved to column 1 of the present cursor line. The last line of the screen is filled with space characters.

Line Erase
Shift/Line Erase

Depressing the Line Erase key replaces unprotected data from the cursor position to the end of the line with space characters. Depressing the Shift key with the Line Erase key replaces with nulls, all unprotected data from the cursor position to the end of the line.

Page Erase
Shift/Page Erase

Depressing the Page Erase key replaces unprotected data from the cursor to the end of the page with space characters. Depressing the Shift key with the Page Erase key replaces with nulls, all unprotected data from the cursor position to the end of the page.

Line Feed

Depressing the Line Feed key issues a line feed command to the host computer and causes the cursor to be moved down one line in the same column on the screen.

Clear Space

As a safeguard, the Clear Space key must always be used in combination with another key. Depressing the Clear Space key in combination with the Ctrl key, causes all unprotected characters on a page to be replaced with spaces. Depressing the Clear Space key with the Shift and Ctrl keys, causes the entire page to be replaced with nulls and disables Protect Mode and half intensity.

Alt (Alternate) Page

Depressing the Alternate Page key advances the screen display to the next page. If the last page is being displayed, depressing the Alternate Page key will return the display to the previous page.

Cursor Position Keys: Home, Arrow Down, Up, Left, and Right

The cursor position keys are used to move the cursor about the screen. The arrow keys are repeat keys and move the cursor in the direction of the arrow. Depressing the Home key returns the cursor to the Home position (i.e., line 1, column 1).

NUMERIC KEY PAD

The Numeric Key Pad (refer to Figure 3-4 on Foldout 3-1) allows numbers to be entered in calculator fashion. Each number key in the Numeric Key Pad generates the same characters as the number keys in the Typewriter Character Set. Depressing the Enter key causes a carriage return to be performed.
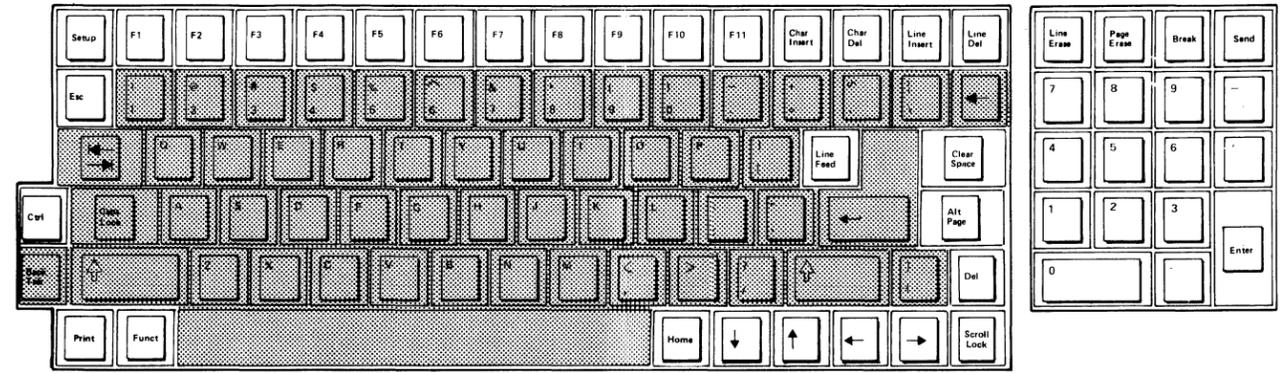
Figure 3-2. The Typewriter Character Keys

220-B-02
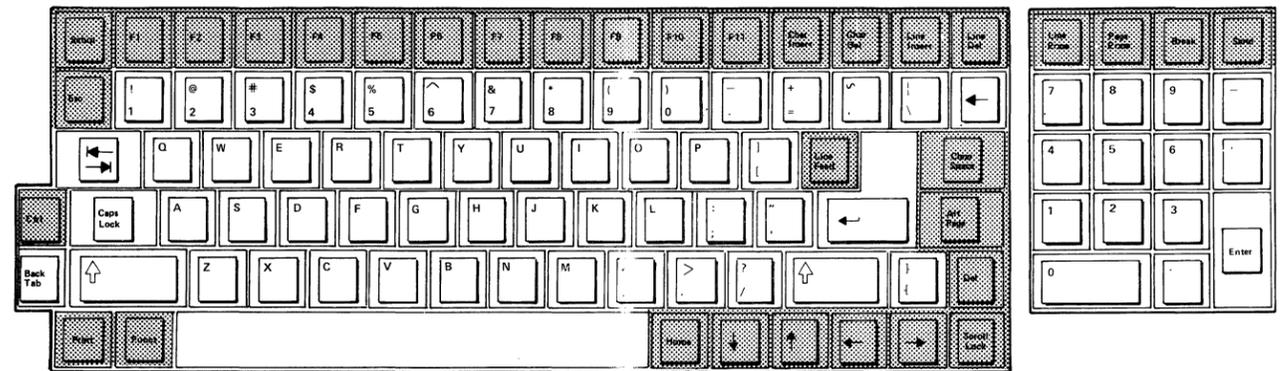
Figure 3-3. The Special Function Keys

220-B-03
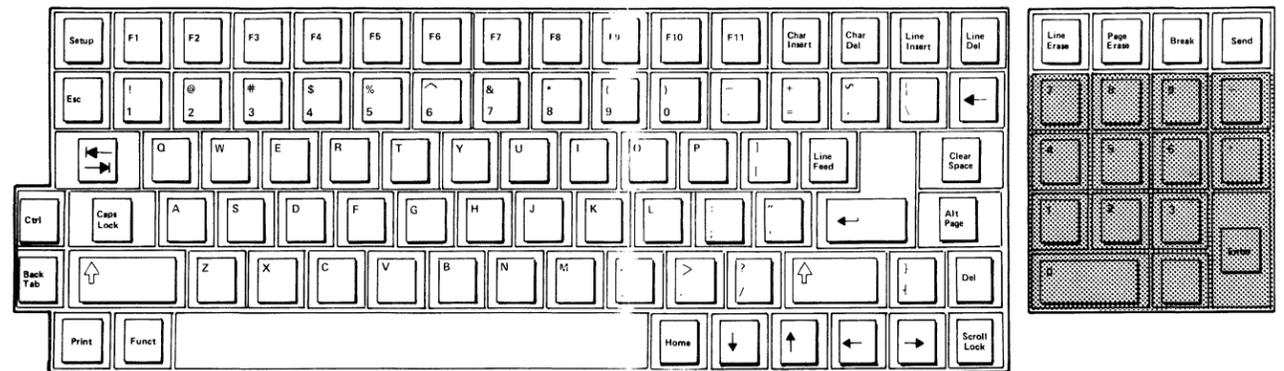
Figure 3-4. The Numeric Key Pad

220-B-01

Foldout 3-1

THE STATUS LINE AND SET-UP

The Status Line is the last line (or 25th line) on the display screen. In the QVT-108 there are five status lines that can be consecutively displayed to view the set-up configuration of the terminal. Each line contains a series of fields, whose contents may be selectively ordered from the keyboard (some may be selected by command code). Figure 3-5 on Foldout 3-2 illustrates the status lines and the selections available between the Default and Possible values for each field.

Normally, when the Status Line is displayed, it appears in reverse video. However, the Status Line may be blanked, or suppressed, from display on the screen.

CHANGING THE STATUS LINE

Changing a status line is accomplished as a 3-key function by simultaneously depressing the Ctrl/Shift/Setup keys to enter the cursor into the Main Status Line. Once the cursor is in the Main Status Line, it can be moved into any field, or advanced into any of the remaining four status lines by depressing the cursor arrow keys. For example, depressing the Down Cursor Arrow key advances the cursor into the next status line, the Up Cursor Arrow key returns the cursor to the previous status line, and the Left and Right Cursor Arrow keys move the cursor left or right from field-to-field within a status line. To change a field from a Default value to a Possible value, move the cursor into that field; then simply depress the Space Bar or the letter "T" key (upper- or lower-case) to toggle (or select) the contents of the field.

If a status line is reconfigured and it is desired that the new selection(s) be "saved," a Shift-S function will write the new values into memory (except for the TIME 08:00 AM, MONITOR MODE OFF/ON, KEYBOARD ON/LOCK, and the PAGE 0/1 fields, which always assume their default values when the power is cycled). Performing a Shift-D function will return all the status lines to their default values; a Shift-R function will recall the previous "saved" status of the five status lines. Whenever a Shift-S, Shift-R, or Shift-D function is performed, the cursor will exit the set-up sequence and return to its last position on the display; otherwise, depress the Setup key a second time.

During a set-up sequence, only the following keys and key combinations are functional: Setup, Cursor Arrow keys, Esc, Ctrl, Space Bar, the "T" key, Shift-S, Shift-R, and Shift-D. The Typewriter Character keys are functional only to enter the ANSWERBACK message and to program the Function keys; the zero key is functional to display an "H" pattern used during video alignment procedures.

It is recommended that after the terminal is configured for operation with the host system, the Status Line set-up selections be recorded as a reference that identifies the terminal's operating parameters.

STATUS LINE DESCRIPTION

Table 3-1 describes the default and possible values of each field within the five status lines. Note: Some status line selections are available by command code, and in the following table these are identified by an asterisk (*). Refer to the Programmer Information Section for the proper command code to use with the emulation selected.

Table 3-1. Status Line Default and Possible Values Description

DEFAULT	POSSIBLE	DESCRIPTION

Main Status Line

	CAPS	Capitals. This field is selected by depressing the Caps Lock key, and enables all the alpha characters to display and be transmitted in upper-case. This feature is disabled by depressing the Caps Lock key a second time.
TIME 08:00 AM	PM	Time*. This field displays the time of day and is set as follows: When the cursor is moved into this field, it will appear first under the "hours" value. The hour value can be incremented to the desired value by depressing the space bar (or the upper- or lower-case letter "T" key) the required number of times. By depressing the right cursor key, the cursor will advance to the "minutes" value which can be similarly incremented to the desired value. Move the cursor under the AM/PM value and select the appropriate value in the same way.
LOCE	DUPE	Local/Duplex Edit Mode*. This field allows the selection of either Local or Duplex Edit Mode. Refer to the Programmer Information Section for further information.
	MNTR	Monitor Mode*. Monitor Mode enables the display of all control codes and escape sequences in addition to the alphanumeric character set. Commands are not executed in this mode. A blank in this field indicates the normal mode of operation in which commands are executed when received.

Table 3-1. Status Line Default and Possible Values Description (Cont)

DEFAULT	POSSIBLE	DESCRIPTION
FDX	HDX BLK	Transmission Mode: Full Duplex, Half Duplex, or Block*. In FDX (Full Duplex) Mode, data entered on the keyboard is transmitted to the host computer only; data must be echoed back to the terminal for screen display. In HDX (Half Duplex) Mode, data entered on the keyboard is transmitted to the host computer and is also internally echoed for screen display. Selecting BLK (Block) Mode enables the terminal to transmit the entire screen display (from Home through the cursor position) when the send key is depressed or a send command received.
KB ON	KB LOCK	Keyboard On/Lock*. This feature can be used to disable the keyboard as a data entry device until a Keyboard Unlock command is received from the host computer, until a set-up sequence is entered, or until the Shift-Break keys are depressed. Only the Setup, Ctrl, Function, Print, Break, and Shift keys are functional when the keyboard is locked.
HOST 9600	15 Possible	This field is used to select the data transmission rate between the terminal and host computer. 9600 baud is the default rate; other available baud rates are: 50, 75, 100, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 19200.
AUX 9600	15 Possible	This field is used to select the data transmission rate between the terminal and the peripheral connected to the auxiliary port. 9600 baud is the default rate; other available baud rates are: 50, 75, 100, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 19200.
EM: 108	925 920	Emulation. This field is used to select the emulation command set. 108 identifies the terminal's own command set; 925, the Televideo 925 emulation; and 920, the Televideo 912C/920C emulation.
PAGE 0	1	Display Page Identifier. This field indicates the screen memory page number currently displayed. On power-up, page (screen) 0 is displayed.

Set 1 Status Line

KEY RPT OFF	ON	Key Repeat On/Off. This field is used to enable or disable the auto repeat key feature. When enabled, if a key is depressed and held down approximately 2 seconds, that character will repeat at a rate of approximately 30 characters per second.

Table 3-1. Status Line Default and Possible Values Description (Cont)

DEFAULT	POSSIBLE	DESCRIPTION
KEY CLICK	ON OFF	Key Click On/Off*. This feature enables or disables the key click sound source. When enabled, a "click" sound will be emitted when any key is depressed (except the Ctrl, Caps Lock, Shift, and Function keys). Auto repeatable keys will sound each time they repeat.
BELL OFF	ON	Margin Bell On/Off. This feature enables or disables the margin bell sound source. When enabled, a beep sound will be emitted as the cursor passes through column 73.
CURSOR UB	4 Possible	Cursor Attribute*. This feature selects the representation of the active position indicator (cursor). Selections are UB (Underline/Blinking), US (Underline/Steady), BB (Block/Blinking), BS (Block/Steady), or NO (Invisible Cursor).
DISP PE OFF	ON	Display Parity Error On/Off. This feature causes a half intensity space character to be displayed to indicate that a parity error has occurred. Parity is checked only in data from the host computer and only when odd or even parity is used. This feature can be selectively enabled or disabled.
F1:S$_H$@C$_R$	F2 thru F11	Programmable Function Key Codes*. This field indicates the code sequence that has been programed for each of the 22 Function keys. With the cursor in this field, depressing any Function key will cause the code sequence for that key to be displayed. Refer to the Programmer Information Section for further information.

Set 2 Status Line

DEFAULT	POSSIBLE	DESCRIPTION
DW/PAR 7E	70,8E,80,8N	Data Word/Parity. This field is used to select the data word length (DW) and the type of parity (PAR). The first character is the digit 7 or 8 that designates the data word length: 7 or 8 bits. The second character selects the type of parity: E (even), O (odd), or N (none).
BIT 8 S	M	Bit 8 Select. This field is used to set the eighth bit in the data word to space or mark. The value selected for this field will be ignored if the DW/PAR field is set to 7E or 70.

Table 3-1. Status Line Default and Possible Values Description (Cont)

DEFAULT	POSSIBLE	DESCRIPTION
STOP 1	2	Stop Bit Select. This field is used to select the number of stop bits following a data word: 1 (one) or 2 (two). The default value (1) will be assumed if the DW/PAR selection is set to 8E or 8O.
DTR & X	DTR ONLY X ONLY	Protocol*. This field is used to select the type of protocol used with the host computer. The default selection DTR & X allows both DTR (Data Terminal Ready, pin 20 on the RS-232-C connector) and XON/XOFF (Transmit On/Transmit Off) protocol. Two other selections are available: DTR ONLY (only Data Terminal Ready), or X ONLY (only XON/XOFF).
HEOM C_R		Host End-of-Message Terminator*. This field is used to specify the end-of-message terminator (one or two characters) sent to the host computer. Any two ASCII characters may be entered. If a one-character termination is desired, the first character should be a Null (Ctrl-@). The default selection is an ASCII carriage return code (i.e., Null / CR).
HEOL U_S		Host End-of-Line Terminator*. This field is used to specify the end-of-line terminator (one or two characters) sent to the host computer. Any two ASCII characters may be entered. If a one-character terminator is desired, the first character should be a Null (Ctrl-@). The default selection is an ASCII unit separator code (i.e., Null / Ctrl-_).
AEOM A_K		Auxiliary End-of-Message Terminator*. This field is used to select the end-of-message terminator sent through the auxiliary port. Any single ASCII character may be selected. The default selection is an ASCII acknowledge code (AK, Ctrl-F).
RS232	C.L.	RS-232-C/Current Loop Interface. This field is used to select the type of communication interface used on the EIA Port. RS232 is the default selection and identifies an EIA RS-232-C interface. If the current loop option is installed, C.L. may be selected to enable the 20-ma current loop interface (Default Active).

Table 3-1. Status Line Default and Possible Values Description (Cont)

DEFAULT	POSSIBLE	DESCRIPTION

Set 3 Status Line

AUTOPG ON   OFF

Autopage On/Off*. This field is used to select the automatic paging feature. When enabled, as the cursor is advanced past the 24th line of a page, the terminal will advance the display to the next page and move the cursor to the Home position. When disabled, as the cursor is advanced beyond the 24th line, the display will scroll up one line and data on line 1 will be lost.

LINE WRP ON OFF

Line Wrap On/Off. This field is used to select the line wrap feature, which moves the cursor from the 80th column of a given line to the first unprotected position of the next line when the active position is shifted one column to the right. If ON is selected, this feature is enabled; if OFF is selected, this feature is disabled. When disabled, the cursor will not move beyond the 80th column position, and all data at this position will be subsequently overwritten.

CR ONLY   CR & LF

Carriage Return Only/Carriage Return and Line Feed. This field is used to enable a carriage return or a carriage return with a line feed when the return key is depressed.

LINE ATTRIB PAGE

Line Attribute/Page Attribute. This field is used to select the visualization of any ESC G video attribute command as either a line or page (screen) attribute.

60 HZ   50 HZ

Refresh Rate. This field is used to select the screen refresh rate, which should match the local AC line frequency to eliminate screen flicker.

STATUS OFF ON

Status Line Blank/Status Line Display*. This field may be used to enable or disable the continuous display of the Status Line.

Table 3-1. Status Line Default and Possible Values Description (Cont)

DEFAULT	POSSIBLE	DESCRIPTION

Set 4 Status Line

DEFAULT	POSSIBLE	DESCRIPTION
CHAR: ENGLISH	FRENCH GERMAN SPANISH	Character Set Select. This field is used to select the character set and keyboard configuration.
ANSWBK		Answerback. This field is used to enter up to a 21-character string, which is sent to the host computer when an ASCII enquiry code (ENQ, Ctrl-E) is received. The string must begin and end with the same ASCII character (delimiter), and one that is not used in the body of the string.
SSAVER ON	OFF	Screen-Saver Feature. This field is used to enable or disable the automatic screen-saver feature. After 15 minutes of inactivity (no host or operator input) the display is automatically disabled to preserve the screen phosphor, although the screen RAM contents are held intact. When data from the host is received or any key depressed, all screen contents are again displayed without loss of data.
NORM VID	REVR	Normal Video/Reverse Video. This field is used to select a screen display of light characters on a dark background (Normal), or dark characters on a light background (Reverse).

Table 3-2. Data Format Selection

Data can be encoded in any one of the following format combinations. Make the appropriate selection from the Set 2 Status Line to yield the Desired Data Format.

SET 2 STATUS LINE SELECTION			DESIRED DATA FORMAT			
Data Word/Parity Length	Bit 8 Space/Mark	Stop Bit 1/2	ASCII 7/8 bit	Bit 8	Parity	Stop Bit 1/2
7 bit/Odd parity	*	1	7	None	Odd	1
7 bit/Odd parity	*	2	7	None	Odd	2
7 bit/Even parity	*	1	7	None	Even	1
7 bit/Even parity	*	2	7	None	Even	2
8 bit/No parity	1	1	7	Mark	None	1
8 bit/No parity	1	2	7	Mark	None	2
8 bit/No parity	0	1	7	Space	None	1
8 bit/No parity	0	2	7	Space	None	2
8 bit/Odd parity	1	*	7	Mark	Odd	1
8 bit/Even parity	1	*	7	Mark	Even	1
8 bit/Odd parity	0	*	7**	Space	Odd	1
8 bit/Even parity	0	*	7**	Space	Even	1

* = Don't Care.

** = This corresponds to the ANSI X3.64-1977 Specification for 7-bit data
words in 8-bit environments.

Default Possible									
	TIME 08:00 AM	LOCE		FDX	KYBD ON	HOST 9600	AUX 9600	EM: 108	PAGE 0
CAPS	PM	DUPE	MNTR	HDX	LOCK	19200	19200	925	1
				BLK		50	50	920	
						↓	↓		
						7200	7200		

Default Possible						
SET 1	KEY RPT OFF	KEY CLICK OFF	BELL OFF	CURSOR UB	DISP PE OFF	F1 :
	ON	ON	ON	US	ON	F11:
				BB		↓
				BS		S-F1 :
				NO		S-F11:

Default Possible									
SET 2	DW/PAR 7E	BIT8 S	STOP 1	DTR & X	HEOM C_R	HEOL U_S	AEOM A_K	RS232	
	70	M	2	DTR ONLY				C.L.	
	8E			X ONLY					
	80								
	8N								
	<-Refer to Table 3-2 ->								

Default Possible						
SET 3	AUTOPG OFF	LINE WRP ON	CR ONLY	LINE ATTRIB	60 HZ	STATUS OFF
	ON	OFF	CR + LF	PAGE	50	ON

Default Possible					
SET 4	CHAR: ENGLISH	ANSWBK:		SSAVER ON	NORM VID
	FRENCH			OFF	REVR
	GERMAN				
	SPANISH				

Figure 3-5. The Five Status Lines

Foldout 3-2

GENERAL OPERATOR FUNCTIONS

This paragraph presents an overview of general operator functions; more specifically, only those that require the use of a keyboard key as it is identified on the key top. For more detailed information, refer to the Programmer Information Section.

ENTERING DATA FROM THE KEYBOARD

After the terminal is configured for use with the host computer system, operator activity begins by "keyboarding" data. As an exercise to gain familiarity with the terminal, proceed through the following steps. Note: It may be necessary to place the terminal in Half Duplex Transmission Mode.

- Type several lines of data while observing how the characters are displayed on the screen. Note how the cursor "wraps around" to the left margin of the next line after each preceding line is completed; it is not necessary to use the Return key as with many typewriters. Line Wrap is a selectable feature available from the Set 3 Status Line.

- Depress and hold down a character key and observe that the character automatically repeats on the screen. Key Repeat is a selectable feature available from the Set 1 Status Line.

- Next, move the cursor about the screen with the cursor arrow keys and see that the cursor always moves in the direction that the arrow on the key is pointing.

- Depress the Home key and observe that the cursor immediately returns to its Home position on the display screen, i.e., line 1 column 1.

- To erase the screen or clear it of all data, simply depress the Clear Space key in combination with the Ctrl key. This action will cause all data to be replaced by space characters; to replace all data with nulls, depress the Clear Space key in combination with the Ctrl and Shift keys. After the screen is cleared, the cursor is returned to the Home position.

EDITING THE SCREEN DISPLAY

Many times it is necessary to edit data on the display screen for the purpose of correcting mistakes, entering a revision, etc. The editing features that are most often performed are described below. Other editing features are available by using a command sequence; these features are described in the Programmer Information Section.

Character Overstrike

Character overstrike is a feature that allows the operator to position the cursor under a character, key a new character, and have the new character display in place of the original character.

Character Insert

To insert a character, move the cursor to the position where the new character is desired and simply depress the Character Insert key. A blank space will appear above the cursor into which the character to be inserted can be entered. When a character is inserted, all data from the cursor to the end of the line is moved one character position to the right (any data displayed in column 80 will be lost).

Character Delete

To delete a character, move the cursor under the character to be deleted and simply depress the Character Delete key. The character above the cursor will be deleted from the display, and all data that was formerly to its right will move one space to the left to fill the vacated space. A blank space will be inserted at column 80.

Line Insert

To insert a line, move the cursor to the position where the new line is desired and simply depress the Line Insert key. Observe that all data from the present cursor line and below is moved downward one line (any data that is moved beyond the 24th line is lost). A blank line of space characters will appear above the former cursor line with the cursor located in column 1. Within the blank line, new data can now be entered.

Line Delete

To delete a line, move the cursor to the line to be deleted and simply depress the Line Delete key. That line will be deleted from the display, and any data below will move upward to fill the line that was deleted.

Line Erase
Shift/Line Erase

Line Erase is different from Line Delete. This feature causes all unprotected data on a given cursor line to be replaced by space characters. To execute this feature simply depress the Line Erase key. If it is desired that all unprotected data on a given cursor line be replaced by nulls, simply depress the Shift and Line Erase keys.

Page Erase
Shift/Page Erase

Page Erase is similar to the Line Erase. This feature causes all unprotected data from the present cursor position to the end of the page to be replaced by space characters. To execute this feature simply depress the Page Erase key. If it is desired that all unprotected data from the present cursor position to the end of the page be replaced by nulls, simply depress the Shift and Page Erase keys.

Clear Space

The Clear Space key may be used to clear an entire page. Depressing the Clear Space key in combination with the Ctrl key causes all unprotected characters on a page to be replaced with spaces; depressing the Clear Space key in combination with the Ctrl and Shift keys, disables Protect Mode and half intensity, and causes the entire page to be replaced with nulls.

TAB CONTROL

Typewriter tabs are preset at every eighth character position. The cursor can be moved from tab position to tab position by using the Tab keys (Tab and Back Tab), just as with any office typewriter. If it is desired that a custom tab arrangement be ordered, refer to the Programmer Information Section for additional tab control features.

PRINTING THE SCREEN DISPLAY

Two print command options are available to print the data displayed on the screen. These print options are described below. (A screen print can also be caused by command sequence; these commands are described in the Programmer Information Section.)

Print

Depressing the Print key causes all data on a page, from Home through the cursor position to be output through the Auxiliary Port. The cursor is advanced to the next page so that data entry may continue while the previous page is being outputted.

Shift/Print

Depressing the Shift and Print keys causes the Time of Day field on the Main Status Line to be printed as a header on the screen printout. All data from Home to the cursor position is output through the Auxiliary Port.

TRANSMISSION MODES

Three transmission modes are available for communicating screen data to the host computer. Any of these transmission modes (Block, Half Duplex, and Full Duplex) may be specified by status line selection or command code.

Block Transmission Mode

If the terminal is configured for Block Transmission Mode, screen data will only be transmitted to the host computer after the Send key is depressed or a send command issued. This allows the operator to edit the screen data and perform any changes desired before transmitting it to the host computer.

Conversational Transmission Mode: Half Duplex

With the terminal in Conversational Half Duplex Transmission Mode, data is transmitted to the host computer as it is entered on the keyboard in a character-by-character manner. Data is also internally routed to the video screen for display.

Conversational Transmission Mode: Full Duplex

Conversational Full Duplex Transmission Mode is similar to Half Duplex Mode except that data transmitted from the terminal to the host computer, must be returned by the host for local screen display.

TRANSMITTING (SENDING) THE SCREEN DISPLAY TO THE HOST COMPUTER

Data may be transmitted to the host computer by depressing the Send key or by issuing a specific send command to transmit a select string of data. Refer to the Programmer Information Section for a description of the various send command sequences.

Send

Depressing the Send key causes all data from Home through the cursor position to be transmitted to the host computer. If Protect Mode is enabled, all unprotected data from Home through the cursor position, including the protected field delimiters, is transmitted to the host computer.

Shift/Send

Depressing the Shift and Send keys causes all data from column 1 on a given line through the cursor position to be transmitted to the host computer. If Protect Mode is enabled, all unprotected data from column 1 through the cursor position, including the protected field delimiters, is transmitted to the host computer.

PROGRAMMER INFORMATION

INTRODUCTION

This section describes the command set of the QVT-108 video terminal and explains in more detail those topics introduced in the preceding section. This section assumes that the reader is already familiar with the proper operation of the terminal.

Refer to the Appendix Section for the following information as necessary:

- US ASCII Code Set (Appendix D),
- French/US Code Set (Appendix E),
- German/US Code Set (Appendix F),
- Spanish/US Code Set (Appendix G),
- Control Codes (Appendix H),
- QVT-108 Command Set Summary (Appendix I).

MONITOR MODE

Monitor Mode provides the programmer with a means of verifying the use of command codes by enabling the terminal to display all code sequences (refer to Table 4-1) as they are entered along with alphanumeric characters. However, it should be noted that command codes are not executed when Monitor Mode is active.

Monitor Mode is controlled by the following code sequences:

Monitor Mode On	QVT-108	TVI-925	TVI-912C/920C
	ESC U	ESC U	

Issuing this command configures the terminal to display all host computer and keyboard entries (alphanumeric and control characters). Keyboard entries are sent to the host computer only if the terminal is on-line.

Monitor Mode Off	QVT-108	TVI-925	TVI-912C/920C
	ESC u / ESC X	ESC u / ESC X	

Issuing this command disables the Monitor Mode; control characters are not displayed.

Table 4-1. Monitor Mode Code Sequence Visualization

CODE	ASCII COMMAND	HEX	SCREEN VISUALIZATION
Ctrl-@	Null	00	None
Ctrl-A	SOH	01	S_H
Ctrl-B	STX	02	S_X
Ctrl-C	ETX	03	E_X
Ctrl-D	EOT	04	E_T
Ctrl-E	ENQ	05	E_Q
Ctrl-F	AK	06	A_K
Ctrl-G	BEL	07	B_L
Ctrl-H	BS	08	B_S
Ctrl-I	HT	09	H_T
Ctrl-J	LF	0A	L_F
Ctrl-K	VT	0B	V_T
Ctrl-L	FF	0C	F_F
Ctrl-M	CR	0D	C_R
Ctrl-N	SO	0E	S_O
Ctrl-O	SI	0F	S_I
Ctrl-P	DLE	10	D_L
Ctrl-Q	DC1	11	D_1
Ctrl-R	DC2	12	D_2
Ctrl-S	DC3	13	D_3
Ctrl-T	DC4	14	D_4
Ctrl-U	NAK	15	N_K
Ctrl-V	SYN	16	S_Y
Ctrl-W	ETB	17	E_B
Ctrl-X	CAN	18	C_N
Ctrl-Y	EM	19	E_M
Ctrl-Z	SUB	1A	S_B
Escape/Ctrl-[	ESC	1B	E_C
Ctrl-\	FS	1C	F_S
Ctrl-]	GS	1D	G_S
Ctrl-^	RS	1E	R_S
Ctrl-_	US	1F	U_S
Delete	DEL	7F	None

FUNCTION KEYS

Function Keys: F1-F11 (Default Selection)

Each of the Function keys transmits to the host computer an ASCII character (otherwise known as the Function Key Identifier) bracketed by a Ctrl-A (SOH) code and a Carriage Return (CR) code. A Function key may be used by itself, or in combination with the Shift key, to generate a total of 22 codes. Function key codes are listed in Table 4-2.

Table 4-2. Function Key Codes

KEY	UNSHIFTED CODE	SHIFTED CODE
F1	Ctrl-A @ CR	Ctrl-A ' CR
F2	Ctrl-A A CR	Ctrl-A a CR
F3	Ctrl-A B CR	Ctrl-A b CR
F4	Ctrl-A C CR	Ctrl-A c CR
F5	Ctrl-A D CR	Ctrl-A d CR
F6	Ctrl-A E CR	Ctrl-A e CR
F7	Ctrl-A F CR	Ctrl-A f CR
F8	Ctrl-A G CR	Ctrl-A g CR
F9	Ctrl-A H CR	Ctrl-A h CR
F10	Ctrl-A I CR	Ctrl-A i CR
F11	Ctrl-A J CR	Ctrl-A j CR
	↑	↑
	Function Key Identifier	Function Key Identifier

Function Keys: F1-F11 (Programmable Selection)

Any or all of the Function Key code values listed in the Table 4-2 above may be user programmed to include any 8 ASCII characters from either the keyboard or the host.

To program a Function Key from the keyboard proceed as follows:

- Enter Set-up Mode (Ctrl/Shift/Setup) and move the cursor into the last field of the Set 1 Status Line.
- Depress the Function key to be programmed.
- Enter a start delimiter (any character that is not used in the following data string that is to be the contents of that Function key). Note that delimiters do not display.
- Enter the desired data string. A maximum of 8 ASCII characters may be selected; contents less than 8 characters will be filled to capacity with nulls.
- Enter the trailing delimiter (the trailing delimiter must be the same character as that used for the start delimiter).
- Repeat the above steps to program the contents of any of the remaining Function keys.
- To "save" the programmed contents of the Function key(s), first exit the cursor from the field, then issue a Shift-S.

4-3

To program a Function Key by command code:

To Program a Function Key	QVT-108 Only
	ESC F @,....,j Delimiter (Data) Delimiter

The user may program a Function Key by command code from either the keyboard or the host by issuing a Program Function Key command. Possible values within the escape sequence are:

@,...,j	– Function Key Identifier. Refer to Table 4-2 and select the Function Key Identifier (@ through j) for the Function key to be programmed.
Delimiter	– Start Delimiter (any character that is not used in the following data string that is to be the contents of that Function Key).
Data	– Desired Data String. A maximum of 8 ASCII characters may be selected as the contents for each Function key.
Delimiter	– Trailing Delimiter. The trailing delimiter must be the same character as that used for the start delimiter.

Funct (Function) Key

The Function key is a special purpose key that allows the terminal to transmit to the host computer a user-selected character that is bracketed by Ctrl-A (SOH, 01H) and carriage return (CR, ODH) codes. The Function key is similar in action to the Shift and Control keys, because it must be held depressed while the second key is entered. For example, depressing the Function key together with the "H" key causes the following code sequence to be transmitted: Control A H CR.

CURSOR CONTROL

Cursor control may be simply moving the cursor about the screen (Home, Right, Left, Up, Down), assigning the cursor to a discrete location (cursor addressing), or enquiring of the terminal the active position of the cursor (read cursor). Each of these cursor control functions is described as follows.

Cursor Movement

Cursor Home	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-^	Ctrl-^	Ctrl-^

Depressing the Home key or issuing a Cursor Home command causes the cursor to exit its current position and be relocated at the Home position on the display screen. If Protect Mode is enabled, the cursor will move to the first unprotected character position on the current page.

Cursor Right	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-L	Ctrl-L	Ctrl-L

Depressing the Cursor Right Arrow key or issuing a Cursor Right command relocates the cursor one character position to the right. If the Key Repeat feature is enabled, the cursor will advance until the key is released or transmission of the command stopped. The cursor will line wrap and scroll, regardless of the Line Wrap selection on the Status Line; however, if Autopage is selected, the cursor will wrap to the next page. If Protect Mode is enabled, the cursor will not enter a protected field.

Cursor Left	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-H	Ctrl-H	Ctrl-H

Depressing the Cursor Left Arrow Key or issuing a Cursor Left command relocates the cursor one character position to the left. If the Key Repeat feature is enabled, the cursor will advance until the key is released or transmission of the command stopped. The cursor will line wrap and scroll, regardless of the Line Wrap selection on the Status Line; however, if Autopage is selected, the cursor will wrap to the next page. If Protect Mode is enabled, the cursor will not enter a protected field.

Cursor Up	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-K	Ctrl-K	Ctrl-K

Depressing the Cursor Up Arrow Key or issuing a Cursor Up command relocates the cursor upward in the same column. If the Key Repeat feature is enabled, the cursor will advance until the key is released, the transmission of the command stopped, or the cursor has reached line 1. Protect Mode has no effect.

Cursor Down	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-V	Ctrl-V	

Depressing the Cursor Down Arrow Key or issuing a Cursor Down command relocates the cursor one line downward in the same column. If the Key Repeat feature is enabled, the cursor will advance downward until the key is released, the transmission of the command stopped, or the cursor has reached line 24. Protect Mode has no effect.

Carriage Return	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-M	Ctrl-M	Ctrl-M

Depressing the Carriage Return key or issuing a Carriage Return command causes the cursor to be relocated to column 1 of the current cursor line. If the Carriage Return and Line Feed feature on the Set 3 Status Line is selected, the cursor will be relocated to column 1 of the next line, or to line 1 of the next page if Autopage is also selected and the current page is full. If Protect Mode is enabled, the cursor will not move into a protected field.

Line Feed	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-J	Ctrl-J	Ctrl-J

Depressing the Line Feed key or issuing a Line Feed command causes the cursor to be advanced to the next line, but in the same cursor column. As a page is filled, a linefeed executed on the 24th line will cause the display to scroll, the first line of data will be lost, and a new 24th line of space characters will be displayed. If the Autopage feature is selected as a page is filled, a linefeed executed on the 24th line will cause the the cursor to advance to the next page in the same column. Protect Mode has no effect.

Reverse Line Feed	QVT-108	TVI-925	TVI-912C/920C
	ESC j	ESC j	

Depressing the Shift and Line Feed keys or issuing a Reverse Line Feed command causes the cursor to move upward to the previous line in the same column; the opposite of the Line Feed description above. However, the cursor will not reverse line feed beyond page 0, line 1.

New Line	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-_	Ctrl-_	Ctrl-_

Issuing a New Line command causes a carriage return and a line feed. With the Autopage feature selected, the cursor will advance to the next page from the 24th line of the current page; if Autopage is disabled, the display will scroll and line 1 will be lost.

Cursor Addressing/Cursor Reading

Cursor addressing/reading offers the capability of assigning the cursor to specific page, row (line), and column coordinates on the display screen, or enquiring of the terminal the coordinates of the cursor's location. Refer to Table 4-3 for the ASCII addressing codes.

Address Cursor: Row, Column	QVT-108	TVI-925	TVI-912C/920C
	ESC = RC	ESC = RC	ESC = RC

This command allows the cursor to be located at a specific row (line) and column position on the current page. In the escape sequence, ESC = RC, R equals the ASCII row or line equivalent, and C equals the ASCII column equivalent.

Address Cursor:	QVT-108	TVI-925	TVI-912C/920C
Page, Row, Column	ESC - PRC	ESC - PRC	ESC - PRC

This command allows the cursor to be located on a specific page and at a specific row (line) and column location. In the escape sequence, ESC - PRC, P designates page 0 or 1, R equals the ASCII row or line equivalent, and C equals the ASCII column equivalent.

Read Cursor Address:	QVT-108	TVI-925	TVI-912C/920C
Row, Column	ESC ?	ESC ?	ESC ?

This command causes the terminal to transmit the ASCII code that identifies the cursor row (line) and column coordinates for the current page, to the host computer followed by a carriage return.

Read Cursor Address:	QVT-108	TVI-925	TVI-912C/920C
Page, Row, Column	ESC /	ESC /	ESC /

This command causes the terminal to transmit the page number (0 or 1) and the ASCII code that identifies the cursor row (line) and column coordinates for that page, to the host computer followed by a carriage return.

Table 4-3. Cursor Coordinate Codes

Perform the appropriate escape sequence to address or read the cursor's location on the display screen.

LINE		COLUMN					
Line #	Character	Col #	Character	Col #	Character	Col #	Character
1	Space	1	Space	28	;	55	V
2	!	2	!	29	<	56	W
3	"	3	"	30	=	57	X
4	#	4	#	31	>	58	Y
5	$	5	$	32	?	59	Z
6	%	6	%	33	@	60	[
7	&	7	&	34	A	61	\
8	'	8	'	35	B	62	]
9	(	9	(	36	C	63	^
10	)	10	)	37	D	64	_
11	*	11	*	38	E	65	.
12	+	12	+	39	F	66	a
13	,	13	,	40	G	67	b
14	-	14	-	41	H	68	c
15	.	15	.	42	I	69	d
16	/	16	/	43	J	70	e
17	0	17	0	44	K	71	f
18	1	18	1	45	L	72	g
19	2	19	2	46	M	73	h
20	3	20	3	47	N	74	i
21	4	21	4	48	O	75	j
22	5	22	5	49	P	76	k
23	6	23	6	50	Q	77	l
24	7	24	7	51	R	78	m
		25	8	52	S	79	n
		26	9	53	T	80	o
		27	:	54	U		

TAB CONTROL

As a default condition, typewriter tabs are preset at every 8th character position. Default tab stops may be deleted and any custom tab arrangement specified as described below.

Tab	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-I	Ctrl-I	Ctrl-I

Depressing the Tab key, the Shift and Back Tab keys (QVT-108 only), or issuing a Tab command, causes the terminal to advance the cursor to the next tab stop. If no tabs stops are present, the tabbing feature has no effect. With Protect Mode enabled, the cursor is moved to the first unprotected character following a protected field. If the Autopage feature is selected when the cursor is in the last unprotected field on a page, tabbing will cause the cursor to move to the Home position on the following page.

Back Tab	QVT-108	TVI-925	TVI-912C/920C
	ESC I	ESC I	ESC I

Depressing the Back Tab keys, the Shift and Tab keys (QVT-108 and TVI-925 only), or issuing a Back Tab command causes the terminal to move the cursor back to the previous tab stop on the current line, or to column 1 if the cursor is at the first tab stop on a line. If Protect Mode is enabled, the cursor will move back to the start of the preceding unprotected field (the cursor will not move if there is no preceding field). If the Autopage feature is selected, a cursor on the second page will move back to the last unprotected field on the first page.

Clear All Tabs	QVT-108	TVI-925	TVI-912C/920C
	ESC 3	ESC 3	ESC 3

Issuing a Clear All Tabs command causes the terminal to delete all tab stops from screen memory.

Clear Column Tab	QVT-108	TVI-925	TVI-912C/920C
	ESC 2	ESC 2	ESC 2

Issuing a Clear Column Tab command causes the terminal to delete any tab stop from the column in which the cursor is located. With Protect Mode enabled, this command has no effect.

Set Column Tab	QVT-108	TVI-925	TVI-912C/920C
	ESC 1	ESC 1	ESC 1

Issuing a Set Column Tab command causes the terminal to set a column tab at the cursor position. With Protect Mode enabled, this command generates a vertical column of half intensity spaces (screen display in reverse video) from the cursor position to the first protected character or to the end of the current page.

Field Tab	QVT-108	TVI-925	TVI-912C/920C
	ESC i	ESC i	ESC i

With the Protect Mode enabled, the cursor moves as defined for Tab. If Protect Mode is not active, a Field Tab command has no effect.

EDITING FUNCTIONS

The following editing functions are available by status line selection, dedicated keys, or code sequence.

Local Edit On	QVT-108	TVI-925	TVI-912C/920C
	ESC k	ESC k	

The terminal can be configured for local editing by status line selection or by issuing a Local Edit command. In Local Edit Mode the terminal configures the following edit keys for local operation: Char Insert, Char Delete, Line Insert, Line Delete, Line Erase, Page Erase, Clear Space, Alt Page, Home, Send, Tab, Back Tab, Print, and the Cursor Arrow keys. The use of these keys only effects screen data; editing accomplished with these keys is not transmitted to the host computer. The function of all other keys remains the same.

Duplex Edit On	QVT-108	TVI-925	TVI-912C/920C
	ESC 1	ESC 1	

The terminal can be configured for duplex editing by status line selection or by issuing a Duplex Edit command. In Duplex Edit Mode, the function of all edit keys is transmitted to the host computer, along with all alphanumeric keys, in a conversational manner.

Character Insert	QVT-108	TVI-925	TVI-912C/920C
	ESC Q	ESC Q	ESC Q

Depressing the Character Insert key or issuing a Character Insert command causes the terminal to move all data from the cursor on a given line, one column to the right (any data moved beyond the 80th column is lost). A space character is inserted at the cursor position. Characters can only be inserted into unprotected areas.

Character Delete	QVT-108	TVI-925	TVI-912C/920C
	ESC W	ESC W	ESC W

Depressing the Character Delete key or issuing a Character Delete command causes the terminal to delete the character at the cursor position. All data that was formerly to the right of the cursor is moved one character position to the left and a space character is entered at column 80. Characters can only be deleted from unprotected areas.

Line Insert	QVT-108	TVI-925	TVI-912C/920C
	ESC E	ESC E	ESC E

Depressing the Line Insert key or issuing a Line Insert command causes the terminal to insert a line of space characters on the present cursor line and relocates the cursor to column 1. The former cursor line and any data below it is moved downward one line; any data moved beyond the 24th line of the current page is lost. If Protect Mode is enabled, this command has no effect.

Line Delete	QVT-108	TVI-925	TVI-912C/920C
	ESC R	ESC R	ESC R

Depressing the Line Delete key or issuing a Line Delete command causes the terminal to delete the present cursor line. All data below the former cursor line is moved upward one line, and the cursor is relocated to column 1. The 24th line is filled with space characters. If Protect Mode is enabled, this command has no effect.

Line Erase to Spaces	QVT-108	TVI-925	TVI-912C/920C
	ESC T	ESC T	ESC T

Depressing the Line Erase key or issuing a Line Erase to Spaces command causes the terminal to replace all unprotected characters with space characters, from the cursor position to the end of the line or to the start of the next protected field.

Line Erase to Nulls	QVT-108	TVI-925	TVI-912C/920C
	ESC t	ESC t	ESC t

Depressing the Shift and Line Erase Keys or issuing a Line Erase to Nulls command causes the terminal to replace all unprotected characters with nulls, from the cursor position to the end of the line or to the start of the next protected field.

Page Erase to Spaces	QVT-108	TVI-925	TVI-912C/920C
	ESC Y	ESC Y	ESC Y

Depressing the Page Erase key or issuing a Page Erase to Spaces command causes the terminal to replace all unprotected characters with space characters, from the cursor position to the end of the page or to the start of the next protected field.

Page Erase to Nulls	QVT-108	TVI-925	TVI-912C/920C
	ESC y	ESC y	ESC y

Depressing the Shift and Page Erase keys or issuing a Page Erase to Nulls command causes the terminal to replace all unprotected characters with nulls, from the cursor position to the end of the page or to the start of the next protected field.

Clear All to Spaces	QVT-108	TVI-925	TVI-912C/920C
			ESC +

This command is applicable to the TVI-912C/920C emulation only and causes all data on the display screen to be replaced by space characters.

Clear All to Nulls	QVT-108	TVI-925	TVI-912C/920C
	ESC *	ESC *	ESC *

Depressing the Ctrl, Shift and Clear Space keys, or issuing a Clear All to Nulls command clears all data (protected and unprotected) on the current page to nulls, disables Protect Mode, and sets the video display to full intensity.

Clear All Unprotected to Spaces	QVT-108	TVI-925	TVI-912C/920C
	ESC ; or ESC + or Ctrl-Z		ESC ; or Ctrl-Z

Depressing the Ctrl and Clear Space keys, or issuing a Clear All Unprotected to Spaces command clears all unprotected data on a page to space characters. If half intensity video is active, half intensity space characters will replace all unprotected data.

Clear All to Half Intensity Spaces	QVT-108	TVI-925	TVI-912C/920C
	ESC ,	ESC ,	

Issuing a Clear All to Half Intensity Spaces command clears all unprotected data on a page to half intensity space characters.

Clear All Unprotected to Nulls	QVT-108	TVI-925	TVI-912C/920C
	ESC :	ESC :	ESC :

Issuing a Clear All Unprotected to Nulls command clears all unprotected data on a page to nulls. If half intensity video is active, half intensity null characters will replace all unprotected data.

Next Page	QVT-108	TVI-925	TVI-912C/920C
	ESC K	ESC K	ESC K

Depressing the Alternate Page key or issuing a Next Page command advances the video display to the next page. This command is functional to move the cursor from Page 0 to Page 1 or from Page 1 to Page 0. The cursor assumes the last position occupied on the selected page.

Previous Page	QVT-108	TVI-925	TVI-912C/920C
	ESC J	ESC J	

Depressing the Alternate Page key or issuing a Previous Page command returns the video display to the previous page. The cursor assumes the last position occupied on that page. This command is functional only to return the cursor to Page 0 from Page 1.

SEND FUNCTION

Data may be transmitted to the host computer by either depressing the Send key or by issuing a specific send command to transmit a select string of data. Each of these send options is described below.

Send Page All	QVT-108	TVI-925	TVI-912C/920C
	ESC 7	ESC 7	ESC 7

Depressing the Send key or issuing a Send Page All command causes the terminal to send all data on a page from Home through the cursor position to the host computer. If Protect Mode is enabled, the protected field delimiters for each protected field will also be transmitted. The transmission is terminated with the Host End of Message character(s) indicated on the Set 2 Status Line; each line is terminated by the selected Host End of Line character(s).

Send Line All	QVT-108	TVI-925	TVI-912C/920C
	ESC 6	ESC 6	ESC 6

Depressing the Shift and Send keys or issuing a Send Line All command causes the terminal to send all data on a given line from column 1 through the cursor position to the host computer. If Protect Mode is enabled, the protected field delimiters will also be transmitted. The transmission is terminated with the Host End of Line and the Host End of Message characters indicated on the Set 2 Status Line.

Send Page Unprotected Only	QVT-108	TVI-925	TVI-912C/920C
	ESC 5	ESC 5	ESC 5

Depressing the Shift and Send keys, or issuing a Send Page Unprotected command causes the terminal to send all unprotected data on a page, including any protected field delimiters, from Home through the cursor position to the host computer. The transmission is terminated by the Host End of Message character(s) indicated on the Set 2 Status Line; each line is terminated by the selected Host End of Line character(s).

Send Line Unprotected Only	QVT-108	TVI-925	TVI-912C/920C
	ESC 4	ESC 4	ESC 4

Issuing a Send Line Unprotected Only command causes the terminal to send all unprotected data, including any protected field delimiters, from column 1 on a given line through the cursor position. The transmission is terminated by the Host End of Line and the Host End of Message characters indicated on the Set 2 Status Line.

Send Message Unprotected Only	QVT-108	TVI-925	TVI-912C/920C
	ESC S	ESC S	ESC S

Issuing a Send Message Unprotected Only command causes the terminal to send all unprotected data on a page, that is defined by a Start of Text code (STX) and an End of Text code (ETX). If the page contains no STX code, the transmission begins from the Home psition; if the page contains no ETX code, the transmission continues for the entire page and returns the cursor to the Home position after all data is sent. If neither an STX nor an ETX code is present, the entire page is sent. When Protect Mode is active, all protected field delimiters are sent. The transmission is terminated by the Host End of Message character(s) indicated on the Set 2 Status Line; each line is terminated by the selected Host End of Line character(s).

Send Message All	QVT-108	TVI-925	TVI-912C/920C
	ESC s	ESC s	ESC s

Issuing a Send Message All command causes the terminal to function the same as the Send Message Unprotected Only command described above, except that any protected fields are also transmitted.

Select Host:	QVT-108	TVI-925	TVI-912C/920C
Block Termination Character	ESC x 4nn	ESC x 4nn	
Line Termination Character	ESC x 1nn	ESC x 1nn	

At the end of each send sequence, an ASCII Carriage Return code (CR) is sent to the host computer as an end-of-message terminator, and an ASCII Unit Separator code (US) as an end-of-line terminator (both status line default settings). By issuing a Select Host Termination Character command, any combination of two ASCII characters may be selected as a replacement value for the default terminator(s). If a single character is desired, the first character should be an ASCII Null (Ctrl-@). In the command sequences, "nn" equals the value of the two-character terminator selected.

PRINT FUNCTION

The Auxiliary Port is an RS-232-C bidirectional port that honors X-ON/X-OFF and/or DTR protocol. The various print functions and their control sequences are described below.

Print Page	QVT-108	TVI-925	TVI-912C/920C
	ESC P	ESC P	ESC P

Depressing the Print key or issuing a Print Page command causes the terminal to output from the Auxiliary Port all screen data (including control characters) from Home through the cursor position, and to advance the cursor to the next page. Data entry on the next page may continue while the previous page is being outputted. A carriage return and line feed are added at the end of each line. Concluding each transmission is a carriage return, line feed, and the Auxiliary End of Message character indicated on the Set 2 Status Line.

Print Page (Time of Day)	QVT-108	TVI-925	TVI-912C/920C
	ESC L	ESC L	ESC L

This is similar to the Print Page function described above, except that depressing the Shift and Print keys or issuing an ESC L command causes the terminal to precede the data printout with the Time of Day information displayed on the Main Status Line, followed by a carriage return, line feed, and null.

Transparent Print Mode On	QVT-108	TVI-925	TVI-912C/920C
	ESC '	ESC '	

Issuing a Transparent Print Mode On command causes the terminal to output all data received (including control characters) via the Auxiliary Port. No screen updating can occur while Transparent Print Mode is enabled.

Transparent Print Mode Off	QVT-108	TVI-925	TVI-912C/920C
	ESC a	ESC a	

Issuing a Transparent Print Mode Off command disables the Transparent Print Mode after all data remaining in the auxiliary port buffer has been outputted.

Copy Print Mode On	QVT-108	TVI-925	TVI-912C/920C
(Extension Mode On)	ESC @	ESC @	ESC @

Issuing a Copy Print Mode On command causes the terminal to output all data received, to the peripheral (printer) connected to the Auxiliary Port in addition to displaying it on the video screen.

Copy Print Mode Off	QVT-108	TVI-925	TVI-912C/920C
(Extension Mode Off)	ESC A	ESC A	ESC A

Issuing a Copy Print Mode Off command disables the Copy Print Mode after all data remaining in the Auxiliary Port buffer has been outputted.

Parallel Print Mode On	QVT-108	TVI-925	TVI-912C/920C
(Bidirectional Mode On)	Ctrl-R	Ctrl-R	

Issuing a Parallel Print Mode On command causes the terminal to functionally connect the EIA and Auxiliary ports in parallel. This allows the peripheral (i.e., a keyboard send/receive printer) connected to the Auxiliary Port to communicate directly with the host computer while allowing simultaneous screen updating.

Parallel Print Mode Off	QVT-108	TVI-925	TVI-912C/920C
(Bidirectional Mode Off)	Ctrl-T	Ctrl-T	

Issuing a Parallel Print Mode Off command functionally disconnects the parallel connection of the EIA and Auxiliary ports.

Select Printer Termination	QVT-108	TVI-925	TVI-912C/920C
Character	ESC pn	ESC pn	

At the end of each print sequence, an ASCII Acknowledge code (AK) is sent to the printer as an end-of-message terminator (status line default setting). By issuing a Select Printer Termination Character command, any ASCII character may be selected as a replacement value for the default terminator. In the command sequence, "n" equals the value of the terminator selected.

VIDEO ATTRIBUTES

A video attribute can be classified as either a screen, field/line, or character attribute depending on the way it affects the display. Each of these classifications is described below.

Screen Attributes

Screen attributes affect all areas on the display screen. This kind of attribute is not embedded and therefore does not occupy a character position on the screen.

Set Cursor Attribute	QVT-108	TVI-925	TVI-912C/920C
	ESC . (n)	ESC . (n)	

The video attribute of the cursor may be selected from the Status Line or specified in a Set Cursor Attribute command. In the escape sequence, "n" may have any one of the following values:

```
0 = Invisible Cursor,
1 = Blinking Block Cursor,
2 = Steady Block Cursor,
3 = Blinking Underline Cursor,
4 = Steady Underline Cursor.
```

Reverse Video	QVT-108	TVI-925	TVI-912C/920C
	ESC b	ESC b	

Reverse video is a screen attribute that can be specified by a Status Line selection or by a Reverse Video command. Reverse video is a screen condition in which dark characters are caused to display on a light background.

4-17

Normal Video	QVT-108	TVI-925	TVI-912C/920C
	ESC d	ESC d	

Normal video is a screen attribute that can be specified by a Status Line selection or by a Normal Video command. Normal video is a screen condition in which light characters are caused to display on a dark background.

Field/Line Attributes

Field/line attributes affect all or part of a given display line. Such attributes are embedded (i.e., they occupy a character position on the screen) and appear as a space that displays with the same attribute they specify. All characters on a line following a field/line attribute will exhibit the characteristics of that attribute until a new attribute is specified or until the 80th column position is reached. Field/line attributes do not carry over to the next line. Field/line attributes may be visualized as screen attributes if the Page attribute Status Line selection is enabled.

Line Normal Video	QVT-108	TVI-925	TVI-912C/920C
	ESC G 0	ESC G 0	ESC k

This is similar to the normal video screen attribute of the same name, except that in this category, normal video exhibits all the characteristics of a field/line attribute.

Line Reverse Video	QVT-108	TVI-925	TVI-912C/920C
	ESC G 4	ESC G 4	ESC j

This is similar to the reverse video screen attribute of the same name, except that in this category, reverse video exhibits all the characteristics of a field/line attribute.

Blank	QVT-108	TVI-925	TVI-912C/920C
	ESC G 1	ESC G 1	ESC __

Blank is a video attribute that is visualized as a space character(s). Issuing this command causes all character positions from the cursor to the end of a field or line to be suppressed or blanked from screen display.

Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G 2	ESC G 2	ESC ^

Blink is a video attribute that causes all character positions displaying data from the cursor position to the end of a field or line to blink synchronously.

Invisible/Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G 3	ESC G 3	

Invisible/Blink combines the characteristics of the Blank and Blink video attributes. All data entered from the cursor position to the end of a field or line is suppressed or blanked from the screen display.

Invisible/Reverse	QVT-108	TVI-925	TVI-912C/920C
	ESC G 5	ESC G 5	

Invisible/Reverse combines the characteristics of the Blank and Reverse Video attributes. When this combination attribute is selected, it is visualized as a blank reverse video field or line originating from the cursor position.

Reverse/Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G 6	ESC G 6	

Reverse/Blink combines the characteristics of the Blink and Reverse Video attributes. When this combination attribute is selected, it is visualized as a reverse video field or line originating from the cursor position. Data entered after this attribute blinks synchronously.

Invisible/Reverse/Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G 7	ESC G 7	

Invisible/Reverse/Blink combines the characteristics of the Blank, Reverse Video, and Blink attributes. When this combination attribute is selected, it is visualized as a reverse video field or line originating from the cursor position. Data entered after this attribute is blanked from screen display.

Underline	QVT-108	TVI-925	TVI-912C/920C
	ESC G 8	ESC G 8	ESC 1

Underline is a video attribute that causes all character positions from the cursor to the end of a field or line to display as underlined.

Invisible/Underline	QVT-108	TVI-925	TVI-912C/920C
	ESC G 9	ESC G 9	

Invisible/Underline combines the Blank and Underline video attributes. When this combination attribute is selected, it is visualized as an underlined field or line originating from the cursor position. Data entered after this attribute is blanked from screen display.

Blink/Underline	QVT-108	TVI-925	TVI-912C/920C
	ESC G :	ESC G :	

Blink/Underline combines the Blink and Underline video attributes. When this combination attribute is selected, it is visualized as an underlined field or line originating from the cursor position. Data entered after this attribute blinks synchronously.

Invisible/Underline/Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G ;	ESC G ;	

Invisible/Underline/Blink combines the Blink, Underline, and Blink video attributes. When this combination attribute is selected, it is visualized as an underlined field or line originating from the cursor position. Data entered after this attribute is blanked from screen display.

Invisible/Reverse/Underline	QVT-108	TVI-925	TVI-912C/920C
	ESC G =	ESC G =	

Invisible/Reverse/Underline combines the Blank, Reverse Video, and Underline video attributes. When this combination attribute is selected, it is visualized as a reverse video field or line originating from the cursor position. Data entered after this attribute is blanked from screen display; the underline attribute is not apparent since it defines the bottom edge of the reverse video area.

Reverse/Underline	QVT-108	TVI-925	TVI-912C/920C
	ESC G <	ESC G <	

Reverse/Underline combines the Reverse and Underline video attributes. When this combination attribute is selected, it is visualized as a reverse video field or line originating from the cursor position. Data entered after this attribute displays in reverse video; the underline attribute is not apparent since it defines the bottom edge of the reverse video area.

Underline/Reverse/Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G >	ESC G >	

Underline/Reverse/Blink combines the Underline, Reverse Video, and Blink video attributes. When this combination attribute is selected, it is visualized as reverse video field or line originating from the cursor position. Data entered after this attribute blinks synchronously; the underline attribute is not apparent since it defines the bottom edge of the reverse video area.

Underline/Reverse/Invisible/ Blink	QVT-108	TVI-925	TVI-912C/920C
	ESC G ?	ESC G ?	

Underline/Reverse/Invisible/Blink combines the Underline, Reverse Video, Blank, and Blink video attributes. When this combination attribute is selected, it is visualized as a reverse video line originating from the cursor position. Data entered after this attribute is blanked from screen display; the underline and blink attributes are not apparent.

End Blink/Blank	QVT-108	TVI-925	TVI-912C/920C
			ESC q

Issuing an End Blink/Blank command terminates a blink and/or blank field/line video attribute(s).

End Underline	QVT-108	TVI-925	TVI-912C/920C
			ESC m

Issuing an End Underline command terminates an underline field/line video attribute.

Character Attributes

Character attributes affect characters as they are entered on the screen, and like screen attributes, they are not embedded (i.e., they do not occupy a character position on the screen). Character attributes may exist along with any other screen or field/line attributes already specified. Any new character entered while a given character attribute is in effect will display with that attribute regardless of its position on the screen.

Half Intensity On	QVT-108	TVI-925	TVI-912C/920C
	ESC)	ESC)	ESC)

Data entered after a Half Intensity On command displays in half the normal brightness intensity. When used in combination with the Protect Mode, this command represents the start delimiter of a protected field.

Half Intensity Off	QVT-108	TVI-925	TVI-912C/920C
	ESC (	ESC (	ESC (

This command terminates the half intensity brightness level and returns the display to full or normal intensity. When used in combination with the Protect Mode, this command represents the trailing delimiter of a protected field.

4-21

PROTECT MODE

Protect Mode is a feature that allows selected areas of the display to be protected from accidental overwriting or deletion. The commands that control Protect Mode are described below.

Protect Mode On	QVT-108	TVI-925	TVI-912C/920C
	ESC &	ESC &	ESC &

Issuing this command causes the terminal to interpret all half intensity fields, including any attributes within these fields, as protected areas within which data can not be overwitten or deleted. Data entered outside of a protected field displays in full intensity. All protected data on a page will print as spaces.

Protect Mode Off	QVT-108	TVI-925	TVI-912C/920C
	ESC ꞌ	ESC ꞌ	ESC ꞌ

Issuing this command disables the Protect Mode feature.

TRANSMISSON MODES

Transmission Mode can be selected from either the status line or by command code sequence.

Block Mode On	QVT-108	TVI-925	TVI-912C/920C
	ESC B	ESC B	ESC B

Issuing this command configures the terminal for block transmission mode. Data transmission to the host computer is initiated by depressing the Send key or by issuing a send command sequence.

Conversational Mode On	QVT-108	TVI-925	TVI-912C/920C
	ESC C	ESC C	ESC C

Issuing this command causes the terminal to exit the Block Mode and to assume either Half or Full Duplex Mode according to previous status line selection.

Set Half Duplex Mode	QVT-108	TVI-925	TVI-912C/920C
	ESC DH	ESC DH	

Issuing this command sets the communication mode between the terminal and the host computer to Half Duplex Mode. This feature is also available as a status line selection.

Set Full Duplex Mode	QVT-108	TVI-925	TVI-912C/920C
	ESC DF	ESC DF	

Issuing this command sets the communication mode between the terminal and the host computer to Full Duplex Mode. This feature is also available as a status line selection.

GRAPHICS MODE

Graphics Mode is a special applications feature that reconfigures the terminal for 15 line drawing symbols (refer to Table 4-4). Graphics Mode is controlled by the following command sequences.

Special Graphics On	QVT-108	TVI-925	TVI-912C/920C
	ESC $		

Issuing this command configures the terminal for Graphics Mode by redefining the A through O alphabetic keys for a special set of line drawing characters. For proper operation, the Caps Lock key should be disengaged.

Special Graphics Off	QVT-108	TVI-925	TVI-912C/920C
	ESC %		

Issuing this command exits the Graphics Mode; keys A through O function as alphabetic character keys.

Table 4-4. Special Graphics Mode Characters

KEY	GRAPHICS CHARACTER
a	⌊
b	⌈
c	⌉
d	⌋
e	└
f	┌
g	┐
h	┘
i	┼
j	│
k	─
l	┤
m	├
n	┬
o	┴

MISCELLANEOUS PROGRAM FUNCTIONS

Audible Key Click On/Off

Key Click On	QVT-108	TVI-925	TVI-912C/920C
	ESC >	ESC >	

Issuing this command enables the audible "click" that sounds every time a key is depressed or repeats. This feature is also available as a status line selection.

Key Click Off	QVT-108	TVI-925	TVI-912C/920C
	ESC <	ESC <	

Issuing this command disables the audible "click" that sounds every time a key is depressed or repeats. This feature is also available as a status line selection.

Auto Page Advance On/Off

Auto Page On	QVT-108	TVI-925	TVI-912C/920C
	ESC v	ESC v	ESC v

Issuing this command causes the cursor to move to the Home position on the next page as it is advanced beyond the 24th line of the current page. This feature is also available as a status line selection.

Auto Page Off	QVT-108	TVI-925	TVI-912C/920C
	ESC w	ESC w	ESC w

Issuing this command disables the Auto Page On feature. When the cursor reaches the 24th line of a page, the display will not advance to the next page. This feature is also available as a status line selection.

Keyboard Lock/Unlock

Keyboard Lock	QVT-108	TVI-925	TVI-912C/920C
	ESC #	ESC #	ESC #

Issuing this command disables the keyboard except for the Setup, Print, Break, and Shift keys. This feature is also available as a status line selection. Manual override can be accomplished by performing a reset; i.e., depressing the Ctrl/Shift/Setup-Setup keys or the Shift·and Break keys.

Keyboard Unlock	QVT-108	TVI-925	TVI-912C/920C
	ESC "	ESC "	ESC "

This command restores the action of the keyboard and can only be issued from the host computer. Locally, the keyboard can be restored by depressing the Ctrl/Shift/Setup-Setup keys or the Shift and Break keys.

Screen Blank/Normal

Blank Screen	QVT-108	TVI-925	TVI-912C/920C
	ESC o	ESC o	ESC o

Issuing this command blanks the display screen and prevents further screen updating.

Normal Screen	QVT-108	TVI-925	TVI-912C/920C
	ESC n	ESC n	ESC n

Issuing this command restores the screen following a blank screen command to allow normal screen updating.

Transmission Protocol Select

X-ON/X-OFF Enable	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-O	Ctrl-O	

Issuing this command configures the terminal for X-ON/X-OFF transmission protocol and disables DTR control. This feature is also available by status line selection.

X-ON/X-OFF Disable	QVT-108	TVI-925	TVI-912C/920C
	Ctrl-N	Ctrl-N	

Issuing this command configures the terminal for DTR transmission protocol and disables X-ON/X-OFF control. This feature is also available by status line selection.

Load Time/Read Time

Load Time	QVT-108	TVI-925	TVI-912C/920C
	ESC (space) 1 n1n2n3n4n5		

Issuing the Load Time command allows the host computer to select the value displayed in the time-of-day field on the status line. Possible values within the command sequence are:

$n1$ = A (AM) or P (PM),

$n2n3$ = Two-digit number specifying the "hours" value (01 through 12),

$n4n5$ = Two-digit number specifying the "minutes" value (00 through 59).

(Note: All out-of-range values are ingnored.)

Read Time	QVT-108	TVI-925	TVI-912C/920C
	ESC (space) 2		

Issuing this command causes the terminal to transmit the time-of-day value displayed on the status line, to the host computer in the format: $n1n2n3n4n5$. Values for these variables are the same as those for the Load Time command.

User Line

Load User Line	QVT-108	TVI-925	TVI-912C/920C
	ESC f (Data) CR		

Issuing this command from either the keyboard or the host permits a 79-character string of data to be entered on the 25th line. This command loads the desired contents into memory. User line data is not "saveable."

Display User Line	QVT-108	TVI-925	TVI-912C/920C
	ESC g	ESC g	

Issuing this command from either the keyboard or the host causes the terminal to display the contents of the user line on the 25th line.

Blank User Line	QVT-108	TVI-925	TVI-912C/920C
	ESC h	ESC h	

Issuing this command from either the keyboard or the host blanks the user line from display on the 25th line. If the status line has not been previously blanked, blanking the user line will cause the status line to redisplay.

Status Line Display/Blank

Display Status Line	QVT-108	TVI-925	TVI-912C/920C
	ESC }	ESC }	ESC }

Issuing this command causes the terminal to display the status line on the 25th line.

Blank Status Line	QVT-108	TVI-925	TVI-912C/920C
	ESC {	ESC {	ESC {

Issuing this command blanks the display of the status line on the 25th line.

Self-Test Display/Blank

Self-Test Display	QVT-108	TVI-925	TVI-912C/920C
	Ctrl/Shift/Setup-1		

Depressing the Ctrl/Shift/Setup keys followed by the number 1 key causes the terminal to display its entire complement of control codes, graphics characters, and video attributes as a visual self-test.

Self-Test Blank	QVT-108	TVI-925	TVI-912C/920C
	Shift/Break-Ctrl/Clear Space		

Depressing the Shift and Break keys followed by the Ctrl and Clear Space keys causes the terminal to clear the current display page to space characters and home the cursor.

"H" Video Alignment Pattern Display/Blank

"H" Pattern Display	QVT-108	TVI-925	TVI-912C/920C
	Ctrl/Shift/Setup-0		

Depressing the Ctrl/Shift/Setup keys followed by the zero key causes the terminal to display a 24 line by 80 column "H" video alignment pattern. Centered within this display is a series of numbers that identifies the terminal's firmware revision level.

"H" Pattern Blank	QVT-108	TVI-925	TVI-912C/920C
	Ctrl/Clear Space		

Depressing the Ctrl and Clear Space keys causes the terminal to clear the current display page to space characters and home the cursor.

OPERATOR CARE

Operator care of the QVT-108 is limited to keeping both the display module and keyboard clean and free of dust. Occasionally use a soft brush or vacuum cleaner to remove any accumulated dust.

Use a commercially available cleaning kit for care of the display screen and more stubborn cleaning requirements. Before cleaning the display screen always power OFF the terminal.

In some environments, it may be beneficial to protect the terminal with a dust cover when it is not in use.

GLOSSARY

INTRODUCTION

This glossary of terms is provided as an aid to acquiring a better understanding of the terminal and its environment.

ASCII

Acronym for the American Standard Code for Information Interchange. A standardized code for the transmission of data, composed of 128 characters (upper- and lower-case letters, numbers, punctuation marks, symbols, and control characters) represented in 7-bit binary format. In this manual, the Appendix contains the equivalent French, German, and Spanish codes.

Baud Rate

The rate of data transmission. One baud represents a transmission rate of one binary bit of data per second.

Break

A communications interrupt signal used to immediately halt communications.

Command

A special code, or sequence of codes, that causes the terminal or host computer to perform a specific electronic or mechanical action. Commands can be generated from the keyboard by using the Control or Escape keys.

Cursor

A highlighted area (underline or block) that is used on the display screen to indicate the next character position.

Data

A general term used to describe that which is transmitted. Data is both encoded alphanumeric characters and command instructions.

Del (Delete)

An ASCII code used to delete or cancel transmitted data.

EIA RS-232-C

The Electronic Industries Association that sets forth standards for electronic and electrical devices. Your terminal complies with the EIA RS-232-C Standard for communicating devices.

Emulation

The act of imitating a device as if it were that device. The QVT-108 emulates the Televideo 912C/920C and 925 video terminals in addition to having its own command set.

Handshaking

A communications method that controls the flow of data transmission. This is necessary when the speed of data handling varies between the devices within the system. A choice of three handshaking methods is possible with the QVT-108: X-ON/X-OFF (Transmit On/Transmit Off) with DTR (Data Terminal Ready), X-ON/X-OFF only, or DTR only.

Home

Home is that position on the display screen identified as line 1, column 1.

Host or Host Computer

The computer that controls the system of which the terminal is a part.

Interface (AUX and EIA)

The communications channel through which data flows; both the physical connectors and the signal lines.

Nul (Null)

An ASCII code that is used as a fill character in some communications formats (a nothing character).

Parity

A method of checking for errors in data communications.

Reverse Video

That condition of the video screen in which data is displayed as dark characters on a light background. Reverse video is the opposite of normal or standard video.

Scroll

As all 24 lines of the display screen are filled with data, the screen is said to "scroll" when the entire display moves up one line to vacate the bottom line for new data.

Terminal

An electronic communicating device that is generally considered to have the capability to transmit and receive data. Some terminals are used as receive-only devices.

Toggle

To select a function, or enable or disable a function, by depressing a key. In this terminal, the fields in the status lines are toggled by the space bar, or the upper- or lower-case letter "T" key.

Wraparound

An automatic carriage return/line feed operation. The action of the cursor as it reaches the end of a line and then automatically goes to the beginning of the next line.

APPENDIX

The following appendices are provided for reference.

Appendix A. EIA/AUX Connector Pinout Descriptions

EIA – Main Port Interface Connector Pinout Description

PIN NO.	SIGNAL DESCRIPTION	SIGNAL DIRECTION	DESIGNATION
1	Protective Ground	----	AA
2	Transmitted Data	From Terminal	BA
3	Received Data	To Terminal	BB
4	Request to Send	From Terminal	CA
5	Clear to Send	To Terminal	CB
6	Data Set Ready	To Terminal	CC
7	Signal Ground	----	AB
8	Data Carrier Detect	To Terminal	CF
12	Current Loop + RXD	----	
13	Current Loop - TXD	----	
20	Data Terminal Ready	From Terminal	CD
24	Current Loop - RXD	----	
25	Current Loop + TXD	----	

AUX – Auxiliary Port Interface Connector Pinout Description

PIN NO.	SIGNAL DESCRIPTION	SIGNAL DIRECTION	DESIGNATION
1	Protective Ground	----	AA
2	Transmitted Data	To Terminal	BA
3	Received Data	From Terminal	BB
4	Request To Send	From Terminal	CA
5	Clear To Send	To Terminal	CB
6	Data Set Ready	To Terminal	CC
7	Signal Ground	----	AB
8	Data Carrier Detect	To Terminal	CF
20	Data Terminal Ready	From Terminal	CD

Appendix B. Interface Jumpers Description

EIA RS-232-C Interface Jumper Placement

JUMPER	DESCRIPTION
STANDARD: W5 Installed	Data Carrier Detect (DCD) - Input signal to the terminal used to monitor the readiness status of an external modem.
W4 Installed	Data Terminal Ready (DTR) - Output signal from the terminal to the host used to enable communications.
OPTION: W2 Installed	Data Set Ready (DSR) - Input signal to the terminal that may be used instead of Data Carrier Detect (W5) to monitor the readiness status of an external modem.
W3 Installed	Request To Send (RTS) - Output signal from the terminal to the host that may be used instead of Data Terminal Ready (W4) to enable communications.
W1 Installed	An optional jumper that may be installed to connect the AUX port's RTS line to the EIA port's RTS line.

Note: Jumpers W11, W12, and W18 are installed only in QVT-108 terminals not equipped with the additional factory installed current loop components.

Current Loop Interface Jumper Placement *

JUMPER	ACTIVE MODE	PASSIVE MODE
W6	In	Out
W7	In	Out
W8	Out	In
W9	In	Out
W10	Out	In
W13	In	Out
W14	Out	In
W15	In	Out
W16	Out	In
W17	In	Out

* Additional Factory Installed Current Loop Components Required.

Appendix C. Error Codes Summary

When the terminal is powered On, a self-test is automatically performed. If a non-fatal error is detected, an error code will be displayed on the screen. For example, if the letter "D" is displayed, this signifies that an error exists in the video RAM circuit.

ERROR CODE CHARACTER DISPLAYED	FAULT DETECTED ITEM			
	SROM	SRAM	VRAM	KBD
A	*			
B		*		
C	*	*		
D			*	
E	*		*	
F		*	*	
G	*	*	*	
H				*
I	*			*
J		*		*
K	*	*		*
L			*	*
M	*		*	*
N		*	*	*
O	*	*	*	*

Legend: SROM = System ROM (Read Only Memory) - One 2764 and one 2732 IC.
           SRAM = System RAM (Random Access Memory) - Two TC-5514 ICs
           VRAM = Video RAM - Two 6116 ICs.
           KBD = Keyboard.

Appendix D. US ASCII Code Chart

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

32 ASCII Control Codes   96 ASCII Character Set

733-A

Notes: • Hexadecimal = ASCII Column + Row. A = 41 Hex

• Example: ASCII Encoded Letter A = Bits:

```
P 7 6 5 4 3 2 1
* 1 0 0 0 0 0 1
(* = Parity Bit)
```

Appendix E. French/US Code Set

FRENCH/US

b7 b6 b5 →	b4	b3	b2	b1	Column / Row	0 0 0 → 0	0 0 1 → 1	0 1 0 → 2	0 1 1 → 3	1 0 0 → 4	1 0 1 → 5	1 1 0 → 6	1 1 1 → 7
0	0	0	0	0	NUL	DLE	SP	0	à/@	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	é/{
1	1	0	0	C	FF	FS	,	<	L	ç/\	l	ù/	
1	1	0	1	D	CR	GS	-	=	M	§/]	m	è/}
1	1	1	0	E	SO	RS	.	>	N	^	n	··/~
1	1	1	1	F	SI	US	/	?	O	_	o	DEL

HEXADECIMAL = COLUMN + ROW

731-A

Appendix F. German/US Code Set

GERMAN/US

b7 b6 b5 →				Column → Row ↓	0 0 0 → 0	0 0 1 → 1	0 1 0 → 2	0 1 1 → 3	1 0 0 → 4	1 0 1 → 5	1 1 0 → 6	1 1 1 → 7
b4	**b3**	**b2**	**b1**									
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	Ä/[	k	ä/{
1	1	0	0	C	FF	FS	,	<	L	Ö/\	l	ö/|
1	1	0	1	D	CR	GS	–	=	M	Ü/]	m	ü/}
1	1	1	0	E	SO	RS	.	>	N	^	n	ß/~
1	1	1	1	F	SI	US	/	?	O	_	o	DEL

HEXADECIMAL = COLUMN + ROW

732-A

Appendix G. Spanish/US Code Set

SPANISH/US

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

HEXADECIMAL = COLUMN + ROW

730-A

Appendix H. Control Code Keystrokes

The following table lists the keystrokes necessary for generating control codes. Control codes can be issued from the keyboard by depressing the Control Key simultaneously with another key.

CONTROL CODES			KEYSTROKES	
Control Code	Hex	Description	Control Key Depressed with Additional Key(s)	Dis-play*
NUL	00	Null	Control-@	None
SOH	01	Start of Header	Control-A	S_H
STX	02	Start of Text	Control-B	S_X
ETX	03	End of Text	Control-C	E_X
EOT	04	End of Transmission	Control-D	E_T
ENQ	05	Enquiry	Control-E	E_Q
AK	06	Acknowledge	Control-F	A_K
BEL	07	Bell	Control-G	B_L
BS	08	Backspace	Control-H	B_S
HT	09	Horizontal Tab	Control-I	H_T
LF	0A	Line Feed	Control-J	L_F
VT	0B	Vertical Tab	Control-K	V_T
FF	0C	Form Feed	Control-L	F_F
CR	0D	Carriage Return	Control-M	C_R
SO	0E	Shift Out	Control-N	S_O
SI	0F	Shift In	Control-O	S_I
DLE	10	Data Line Escape	Control-P	D_L
DC1	11	Device Control 1	Control-Q	D_1
DC2	12	Device Control 2	Control-R	D_2
DC3	13	Device Control 3	Control-S	D_3
DC4	14	Device Control 4	Control-T	D_4
NAK	15	Negative Acknowledge	Control-U	N_K
SYN	16	Synchronous Idle	Control-V	S_Y
ETB	17	End of Transmission Block	Control-W	E_B
CAN	18	Cancel	Control-X	C_N
EM	19	End of Medium	Control-Y	E_M
SUB	1A	Substitute	Control-Z	S_B
ESC	1B	Escape	ESC or Control-[	E_C
FS	1C	File Separator	Control-\ or Control-Shift-L	F_S
GS	1D	Group Separator	Control-] or Control-Shift-M	G_S
RS	1E	Record Separator	Control-^ or Control-Shift-N	R_S
US	1F	Unit Separator	Control-_ or Control-Shift-O	U_S
DEL	7F	Delete	DEL	None

* Control code display visualization with Monitor Mode enabled.

Appendix I. Command Set Summary

FUNCTION	COMMAND / KEY		
	QVT-108	TVI-925	TVI-912C/920C

CURSOR MOVEMENT

Home	Ctrl-^	Ctrl-^	Ctrl-^
	Home	Home	Home
Right	Ctrl-L	Ctrl-L	Ctrl-L
	Right Arrow	Right Arrow	Right Arrow
Left	Ctrl-H	Ctrl-H	Ctrl-H
	Left Arrow	Left Arrow	Left Arrow
Up	Ctrl-K	Ctrl-K	Ctrl-K
	Up Arrow	Up Arrow	Up Arrow
Down	Ctrl-V	Ctrl-V	Down Arrow
	Down Arrow	Down Arrow	
Carriage Return	Ctrl-M	Ctrl-M	Ctrl-M
	Return	Return	Return
Linefeed	Ctrl-J	Ctrl-J	Ctrl-J
	Linefeed	Linefeed	Linefeed
Reverse Linefeed	ESC j	ESC j	
	Shift/Linefeed	Shift/Linefeed	
New Line	Ctrl-_	Ctrl-_	Ctrl-_

TAB CONTROL

Tab	Ctrl-I	Ctrl-I	Ctrl-I
	Tab	Tab	Tab
	Shift/Back Tab		
Back Tab	ESC I	ESC I	ESC I
	Back Tab	Back Tab	
	Shift/Tab		
Set Column Tab	ESC 1	ESC 1	ESC 1
Clear Column Tab	ESC 2	ESC 2	ESC 2
Clear All Tabs	ESC 3	ESC 3	ESC 3
Field Tab	ESC i	ESC i	ESC i

Appendix I. Command Set Summary (Cont)

FUNCTION	COMMAND / KEY		
	QVT-108	TVI-925	TVI-912C/920C

EDITING FUNCTIONS

Character Insert	ESC Q Char Insert	ESC Q Char Insert	ESC Q Char Insert
Character Delete	ESC W Char Delete	ESC W Char Delete	ESC W Char Delete
Line Insert	ESC E Line Insert	ESC E Line Insert	ESC E Line Insert
Line Delete	ESC R Line Delete	ESC R Line Delete	ESC R Line Delete
Line Erase to Spaces	ESC T Line Erase	ESC T Line Erase	ESC T Line Erase
Line Erase to Nulls	ESC t Sft/Line Erase	ESC t Sft/Line Erase	ESC t Sft/Line Erase
Page Erase to Spaces	ESC Y Page Erase	ESC Y Page Erase	ESC Y Page Erase
Page Erase to Nulls	ESC y Sft/Page Erase	ESC y Sft/Page Erase	ESC y Sft/Page Erase

Clear All to Nulls	ESC *
	Ctrl/Shift/
	  Clear Space
		ESC *
		Ctrl/Shift/
		  Clear Space
			ESC *
			Ctrl/Shift/
			  Clear Space

Clear All to Spaces			ESC +

Clear All Unprotected
  to Spaces
	ESC ;
	Ctrl-Z
	ESC +
	Ctrl/Clear
	  Space
		ESC ;
		Ctrl-Z
		ESC +
		Ctrl/Clear
		  Space
			ESC ;
			Ctrl-Z
			
			Ctrl/Clear
			  Space

Clear All Unprotected to Nulls	ESC :	ESC :	ESC :
Clear All to Half Intensity Spaces	ESC ,	ESC ,	
Next Page	ESC K Alt Page	ESC K Alt Page	ESC K Alt Page
Previous Page	ESC J Alt Page	ESC J Alt Page	

Appendix I. Command Set Summary (Cont)

FUNCTION	COMMAND / KEY		
	QVT-108	TVI-925	TVI-912C/920C

VIDEO ATTRIBUTES

Screen Attributes

Reverse Video	ESC b	ESC b	
Normal Video	ESC d	ESC d	

Field/Line Attributes

Normal Video	ESC G 0	ESC G 0	ESC k
Blank	ESC G 1	ESC G 1	ESC _
Blink	ESC G 2	ESC G 2	ESC ⌃
Invisible/Blink	ESC G 3	ESC G 3	
Reverse Video	ESC G 4	ESC G 4	ESC j
Invisible/Reverse	ESC G 5	ESC G 5	
Reverse/Blink	ESC G 6	ESC G 6	
Invisible/Reverse/Blink	ESC G 7	ESC G 7	
Underline	ESC G 8	ESC G 8	ESC l
Invisible/Underline	ESC G 9	ESC G 9	
Blink/Underline	ESC G :	ESC G :	
Invisible/Underline/Blink	ESC G ;	ESC G ;	
Underline/Reverse/ Invisible/Blink	ESC G ?	ESC G ?	
Invisible/Reverse/ Underline	ESC G =	ESC G =	
Reverse/Underline	ESC G <	ESC G <	
Underline/Reverse/Blink	ESC G >	ESC G >	
End Blink/Blank			ESC q
End Underline			ESC m

Character Attributes

Half Intensity On	ESC)	ESC)	ESC)
Half Intensity OFF	ESC (	ESC (	ESC (

Appendix I. Command Set Summary (Cont)

FUNCTION	COMMAND / KEY		
	QVT-108	TVI-925	TVI-912C/920C

PROGRAM FUNCTIONS

Key Click On	ESC >	ESC >	
Key Click Off	ESC <	ESC <	
Address Cursor	ESC = RC	ESC = RC	ESC = RC
Address Cursor (Page)	ESC - PRC	ESC - PRC	ESC - PRC
Read Cursor Address	ESC ?	ESC ?	ESC ?
Read Cursor Address (Page)	ESC /	ESC /	ESC /
Auto Page On	ESC v	ESC v	ESC v
Auto Page Off	ESC w	ESC w	ESC w
Keyboard Lock	ESC #	ESC #	ESC #
Keyboard Unlock	ESC "	ESC "	ESC "
Protect Mode On	ESC &	ESC &	ESC &
Protect Mode Off	ESC '	ESC '	ESC '
Monitor Mode On	ESC U	ESC U	
Monitor Mode Off	ESC u or ESC X	ESC u or ESC X	
Parallel Mode On	Ctrl-R	Ctrl-R	
Parallel Mode Off	Ctrl-T	Ctrl-T	
Extension Mode On	ESC @	ESC @	ESC @
Extension Mode Off	ESC A	ESC A	ESC A
Transparent Print Mode On	ESC '	ESC '	
Transparent Print Mode Off	ESC a	ESC a	
Graphics Mode On	ESC $		
Graphics Mode Off	ESC %		
Set Local Edit Mode	ESC k	ESC k	
Set Duplex Edit Mode	ESC l	ESC l	
Block Mode On	ESC B	ESC B	ESC B
Conversational Mode On	ESC C	ESC C	ESC C
Set Full Duplex Mode	ESC DF	ESC DF	
Set Half Duplex Mode	ESC DH	ESC DH	
Blank Screen	ESC o	ESC o	
Normal Screen	ESC n	ESC n	
X-ON/X-OFF Enable	Ctrl-O	Ctrl-O	
X-ON/X-OFF Disable	Ctrl-N	Ctrl-N	
Set Host Termination Character (Block)	ESC x 4nn	ESC x 4nn	
Set Host Termination Character (Line)	ESC x 1nn	ESC x 1nn	
Set Printer Termination Character	ESC pn	ESC pn	
Load Time	ESC (space) 1 n1n2n3n4n5	ESC (space) 1 n1n2n3n4n5	
Read Time	ESC (space) 2	ESC (space) 2	
Set Cursor Attributes	ESC . (n)	ESC . (n)	

Appendix I. Command Set Summary (Cont)

FUNCTION	COMMAND / KEY		
	QVT-108	TVI-925	TVI-912C/920C

PROGRAM FUNCTIONS (Cont)

Program Function Key	ESC F @,...,j Dlmtr (Data) Dlmtr		

SEND FUNCTIONS

Page Print	ESC P Print	ESC P Print	ESC P Print
Page Print (With Time)	ESC L Shift/Print	ESC L Shift/Print	ESC L Shift/Print
Send Line Unprotected Only	ESC 4	ESC 4	ESC 4
Send Page Unprotected Only	ESC 5	ESC 5	ESC 5
Send Line All	ESC 6 Shift/Send	ESC 6 Shift/Send	ESC 6 Shift/Send
Send Page All	ESC 7 Send	ESC 7 Send	ESC 7 Send
Send Message Unprotected Only	ESC S	ESC S	ESC S
Send Message All	ESC s	ESC s	ESC s

MISCELLANEOUS

User Line: Load	ESC f (Data) CR	ESC f (Data) CR	
User Line: Display	ESC g	ESC g	
User Line: Blank	ESC h	ESC h	
Self-Test: Display	Ctrl/Shift/ Setup-1	Ctrl/Shift/ Setup-1	Ctrl/Shift/ Setup-1
Self-Test: Blank	Shift/Break- Ctrl/Clear Space	Shift/Break- Ctrl/Clear Space	Shift/Break- Ctrl/Clear Space
"H" Pattern: Display	Ctrl/Shift/ Setup-0	Ctrl/Shift Setup-0	Ctrl/Shift Setup-0
"H" Pattern: Blank	Ctrl/Clear Space	Ctrl/Clear Space	Ctrl/Clear Space
Status Line: Display	ESC }	ESC }	ESC }
Status Line: Blank	ESC {	ESC {	ESC {

INDEX

REQUEST FOR READER'S COMMENTS

Qume Corporation attempts to provide documents that meet the needs of all Qume product users. This form lets you participate directly in the documentation process.

Please restrict your comments to the usability, accuracy, readability, organization, and completeness of this document.

1. Please specify by page any errors you found in this manual.

_____
_____
_____

2. Does the document cover the information you expected or required? Please make suggestions for improvement.

_____
_____
_____

3. Is this the right type of document for your needs? Is it at the right level? What other types of documents are needed?

_____
_____
_____

4. Did you have any difficulty understanding descriptions or wording? Where?

_____
_____
_____

5. Please rate this document on a scale of 1 to 10 with 10 being the best rating _____

6. Dealer/Distributor where product purchased:_____

_____
_____

NAME _____ DATE _____
TITLE _____
COMPANY NAME/DEPARTMENT _____
ADDRESS _____
CITY _____ STATE _____ ZIP CODE _____

Please check here if you require a written reply. ☐

WE'D LIKE YOUR COMMENTS . . .

This document is one of a series describing Qume products. Your comments on the back of this form will help us produce better manuals. Each reply will be carefully reviewed by the responsible person. All comments and suggestions become the property of Qume Corporation.

Qume Corporation
Attn: Technical Publications
2350 Qume Drive
San Jose, CA 95131