

WY-50 Display Terminal

Reference Manual

WYSE
G E E E

UPDATE

Page 3-2 (Setup Parameters)

The HANDSHAKE parameter selects the modem port handshake protocol. It should be enabled when using transparent print, auxiliary print, or smooth scroll.

Page 3-3 (Setup Parameters)

The BLK END parameter selects the end-of-line/end-of-block characters.

The CR parameter selects the carriage return code action.

Page 3-5 (Program the Function Keys)

To select the default function key sequence, press CTRL @.

Page 3-6 (Save Setup Changes)

The current on/off status for the caps lock submode is also saved with the setup.

Page 4-4 (Move the Cursor)

ESC = rc applies to the WY-50 and TVI-910/920/925 compatible modes.

ESC a rr R ccc C applies to the WY-50 and, when enhanced, the HZ-1500 and ADDS-VP compatible modes.

Page 5-3 (Block Mode)

To enter or exit the block mode from the keyboard, press SHIFT with BREAK.

Page 5-5 (Keyboard Lock Submode)

To unlock the keyboard, press only SET UP.

Page B-1 (Connector Pin Assignments)

Delete modem pins 10, 11, 12, and 19 from the "Leave Unconnected" list.

Delete auxiliary pins 2, 4, and 8 from the list. Auxiliary pin 20 is Data Terminal Ready. It must be active high when the printer is ready to receive data. (High = +3 to +12V. Low = -3 to -12V.)

Page C-3 (Character Set)

For hex value 61 (a), there should be three rows of five horizontal blank dots within the bottom loop. Move the five dots of the center line up one row. Then add one dot above the two dots on the left.

Page E-3 (Command Guide)

After "Delete Row," insert: Disable cursor; then under ADDS-VP insert CTRL W.

Immediately following the above insertion, also insert: Enable cursor; then under ADDS-VP insert CTRL X.

Under TVI-925 for "Erase to end of page with spaces," insert CLR SCRN. Under HZ-1500 for the same function, delete CLR SCRN.

Page E-6 (Command Guide)

Under ADDS-VP for "Lock keyboard," insert a boxed ESC # after CTRL D.

Under both TVI-910 and TVI-920, for "Enable XON/XOFF," insert CTRL O.

Page E-7 (Command Guide)

Under both TVI-910 and TVI-920, for "Disable XON/XOFF," insert CTRL N.

Page E-8 (Command Guide)

For the "Transparent print off" function, insert CTRL T under TVI-910, TVI-920, and TVI-925. Then under HZ-1500 insert a boxed CTRL T, a boxed Shift CTRL PRINT, and a boxed SET UP.

For the "Transparent print on" function, insert CTRL X under TVI-910 and TVI-925. Then insert a boxed CTRL X under HZ-1500.

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Addendum to the WY-50 Display Terminal Reference Manual, document 88-011-01:

Page E-7 (Command Guide)

Under ADDS-VP for "Send Character," delete the boxed ESC M.

Page E-8 (Command Guide)

For the "Transparent print off" function, under TVI-920 insert CTRL T, Shift CTRL PRINT, and SET UP. Then under ADDS-VP insert CTRL T.

For the "Transparent print on" function, insert ESC ~ and CTRL X under TVI-920.

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Chapter 1

SURVEYING THE TERMINAL

Designed for maximum human operating comfort, this terminal is a smart editing, alphanumeric VDT. It provides you with a full tilt and swivel video module, a detached low-profile keyboard, internal microprocessor controlled video and logic, and two bit-serial communications interfaces.

Without further programming, the terminal can be operated as both a conversational and a block device. Built-in firmware utilities consist of host computer/printer communications, editing and data entry functions, and nonvolatile storage of the display and transmission parameters. It supports a display memory of one page.

EXAMINE THE VIDEO MODULE

The compact video module is equipped with a 14-inch, non-glare, green phosphor CRT. Its base has a footprint of less than a square foot and attaches to the screen housing with a ball and socket. The screen can be tilted 13 degrees relative to the base and swiveled 270 degrees on its axis.

The standard screen format displays 26 rows 80 columns wide. In this format, each character is composed of a 7 x 13 matrix in a 10 x 13 cell. These characteristics supply high legibility, minimizing eye fatigue.

Figure 1-1 indicates the controls on the face of the video module, and Figure 1-2 shows the connectors on the rear panel.

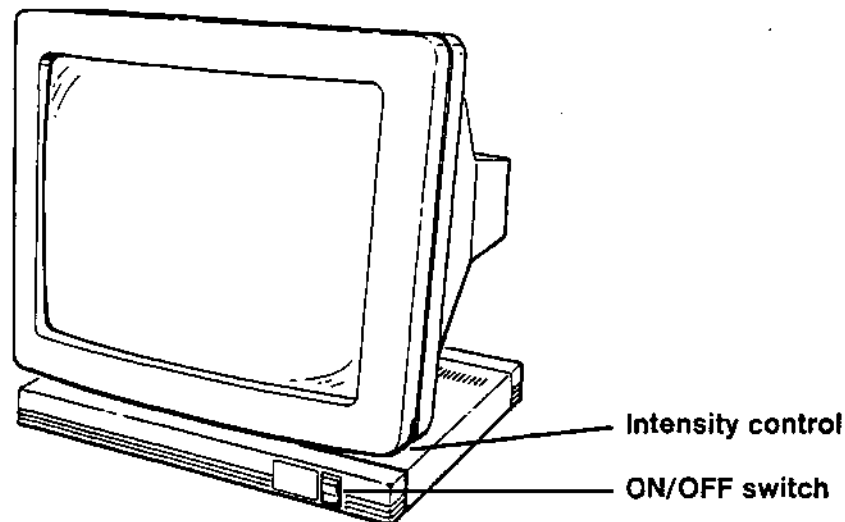


Figure 1-1. Video Module Controls



Figure 1-2. Video Module Connectors

EXAMINE THE KEYBOARD

The keyboard has an adjustable two-position base. Up, it gives the familiar feel of a conventional electric typewriter; down, it conforms to DIN specifications. A six-foot coiled cable connects the keyboard to the video module.

There are 101 keys arranged in three groups, an ASCII alphanumeric section, a programmable function key section of 16 keys shiftable to 32, and a numeric keypad. The keys have cylindrical step-sculptured keycaps.

Figure 1-3 illustrates the standard US (American) keyboard layout. Shaded keys indicate all non-alphanumeric keys. See Appendix D for guides to the UK (British) and non-English keyboard coding.

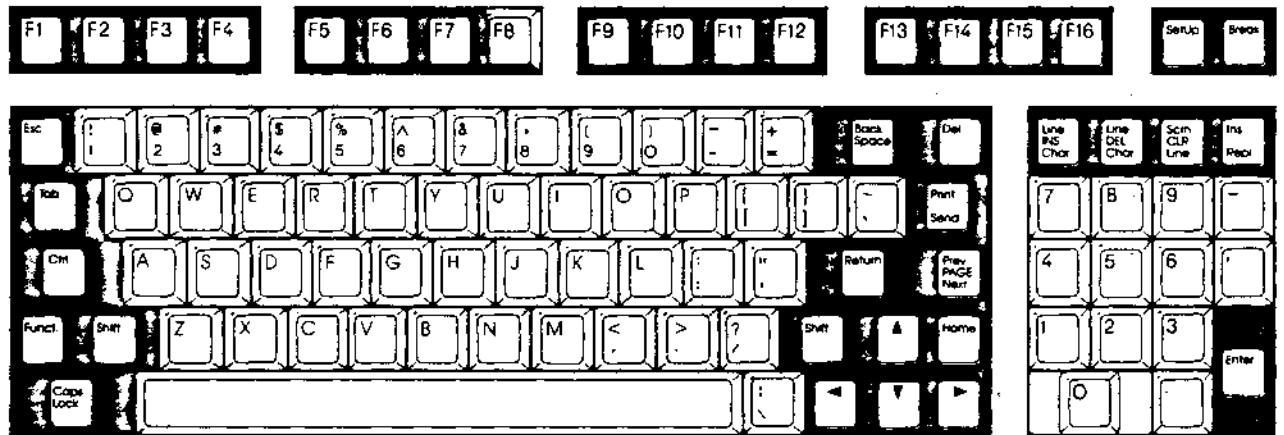


Figure 1-3. Keyboard Layout

Chapter 2

GETTING STARTED

The quickest, most effective way for you to become familiar with the terminal is through hands-on experience. First, read the following procedures and precautions before turning on the terminal. Then experience the pleasure of operating it.

INSTALL THE TERMINAL

1. If you have not already unpacked the terminal, carefully remove it from the container. Save all packing materials in case the terminal must be shipped again.

Caution: Sharp instruments should not be used to open the containers.

Immediately notify the transfer company, if there is any damage.

2. Place the terminal on any sturdy table or desk.
3. Set the ON/OFF power switch on the front of the video module base to OFF by pushing the bottom of the switch.
4. Connect the keyboard cable to its receptacle on the video module base. See Figure 1-2, if necessary.
5. First connect the power cord to its receptacle on the video module base. Then plug it into a nearby three-pronged, grounded electrical outlet.
6. Connect the host computer communications cable to the modem port. See Appendix B for the connector pin assignments.

Note: All the connectors are keyed so that connections can only be made correctly.

7. Connect the printer communications cable, if required, to the auxiliary port.

POWER ON AND OFF

After verifying that the terminal is properly installed, you are ready to proceed.

1. Turn on the terminal by pushing the top half of the ON/OFF switch.
2. Listen for an immediate beep. This indicates the power is on.

3. Watch for the cursor to display in the upper lefthand corner of the screen.

If the CRT were warm, you would first see the screen flash several display patterns as the power-on self test is run. See Chapter 7: "Running Self Tests" for details.

4. Adjust the screen brightness with the intensity control on the front lower righthand side of the video module. Turn it downward for high contrast and upward for dim.
5. Swivel the video module left or right and tilt it up or down, until you find your personal comfort level.

The recommended height for the center of the screen is 10 to 20 degrees below eye level. The keyboard should be at or below elbow height.

6. To shut off the terminal, just push the bottom half of the ON/OFF switch.

Chapter 3

SETTING UP

The first time the terminal is turned on, a default setup controls the way it operates for many variables. These parameters include the baud rate, the parity type, and the mode of communication with the host computer.

The screen width display characteristics can be configured in many ways by means of the setup and with escape sequences. The function keys are likewise easily programmed.

CHANGE THE SETUP PARAMETERS

You can accept the default setup or choose one to match your application. Whenever the parameters are changed, you can save the new choices so they will be in effect the next time the terminal is turned on; or you can easily return to the default setup, if necessary.

In addition, going into the setup is non-destructive. The application display area is not cleared or blanked out when the setup parameters are displayed.

1. Press **SHIFT** with **SET UP** to display the configuration fields.

The top row of the screen displays

```
Cursor-keys: select fields | SPACE: changes | FUNCT: F-Keys | ESC: Default
```

These fields prompt you in setting up your configuration.

The bottom row of the screen displays:

```
HANDSHAKE = NONE | SCREEN = 80 | CURSOR = BLOCK | BLINK? = ON | MODE = FDX
```

This is level 1 of five levels of parameter fields.

All the parameter fields are dim except the far left field in the bottom row which is normal intensity. This is the active field.

2. Press **SPACE** to display the next selection for a parameter.

All selections loop from one to another.

The first selection to display in a parameter field is the default, the one the terminal uses unless you make another choice. When you save any changes, the new configuration will be the one displayed after turning on the terminal. See Table 3-1 for a list of the selections that can be made for each parameter.

3. Press ► (CURSOR RIGHT) to activate the next field on the right.
The fields in each level of parameters loop from one to another.
4. Press ◀ (CURSOR LEFT) to activate the next field on the left.
If the far left field is active, the next field to become active will be the far right field.
5. Press ▼ (CURSOR DOWN) to display the next level of fields.
The five levels loop downward from one to the next each time this key is pressed. If level 5 is displayed, the next level to display will be level 1. The far left field always becomes active no matter what field was last active on another level.
6. Press ▲ (CURSOR UP) to display the previous level of fields.
The five levels loop upward from one to the next each time this key is pressed. If level 1 is displayed, the next level to display will be level 5.

Table 3-1. Setup Parameters

FIELD LEVEL 1			
HANDSHAKE = NONE			
SCREEN = 80			
CURSOR = BLOCK			
BLINK? = ON			
MODE = FDX			
Parameter	Selections		Explanation
HANDSHAKE	NONE XONKOFF DTR BOTH	(default)	Handshake protocol.
SCREEN	80 132 80 REV 132 REV	(default)	Screen column width.
CURSOR	BLOCK LINE	(default)	Cursor type.
BLINK?	ON OFF	(default)	Cursor display attribute.
MODE	FDX BLOCK HDX H-BLK	(default)	Communication mode.

FIELD LEVEL 2

DATA BIT = 8 STOP BIT = 1 PARITY BIT = NONE MODEM PORT BAUD RATE = 9600

Parameter	Selections	Explanation
DATA BIT	8 (default) 7	Character code length.
STOP BIT	1 (default) 2	Character stop bits.
PARITY BIT	NONE (default) ODD EVEN MARK	Parity bit type.
MODEM PORT BAUD RATE	9600 (default) 19200 38400 50 75 110 134.5 150 300 600 1200 1800 2000 2400 4800	MODEM port baud rate.

FIELD LEVEL 3

BLK END = US / CR AUTO NL = ON CR = CR AUTO SCRL = ON ALIX BAUD R = 9600

Parameter	Selections	Explanation
BLK END	US / CR (default) CR,LF/ETX	End-of-block coding.
AUTO NL	ON (default) OFF	Automatic new line.
CR	CR (default) CR,LF	RETURN action.
AUTO SCRL	ON (default) OFF	Automatic scrolling.

Parameter	Selections	Explanation
AUX BAUD R	9600 (default) 19200 110 134.5 150 300 600 1200 1800 2000 2400 3600 4800 7200	AUX port baud rate.

FIELD LEVEL 4

SCRL = JUMP STATUS = ON S.SAVER = OFF PROT = DIM TEST = OFF

Parameter	Selections	Explanation
SCRL	JUMP (default) SM-1 SM-2 SM-4 SM-8	Scrolling type.
STATUS	ON (default) OFF	Message field display.
S.SAVER	OFF (default) ON	Screen saver feature.
PROT	DIM (default) REV NORM	Protect attribute.
TEST	OFF (default) ON	Diagnostic self test. (requires jumpers)

FIELD LEVEL 5

KEYS ? = US / UK RET/ENTER = CR / CR COMPATIBLE MODE = WY50 ENHANCE = OFF

Parameter	Selections	Explanation
KEYS ?	US / UK (default) GERMAN FRENCH SPANISH DANISH	Language keyboard codes. (require special ROMs; US and UK are separate)

Parameter	Selections	Explanation
RET/ENTER	CR / CR (default) CRLF/TAB	RETURN/ENTER action.
COMPATIBLE MODE	WY50 (default) TVI910 TVI920 TVI925 ADDSVP HZ1500	Compatible terminal mode.
ENHANCE	OFF (default) ON	WY-50 code enhancement. (HZ-1500 and ADDS-VP)

PROGRAM THE FUNCTION KEYS

1. Press **SHIFT** with **SET UP**, if necessary, to display the setup parameters.
2. Press **FUNCT** in order to program the function keys.

The top row of the screen displays:

F1-F16: load current sequence **RETURN: enter new sequence** **FUNCT: exit**

These fields prompt you in defining the function keys.

The bottom row of the screen displays:

F 1 =

This is the prompt for the F1 sequence field.

3. Enter up to eight characters for the function key program sequence.

Although up to eight characters can be entered, only the first four characters of the sequence can be saved in nonvolatile RAM. If you attempt to enter more than eight characters, the beeper will sound in response to the error. The cursor does not move past the allotted field.

If you need function key sequences longer than four characters, send the sequence from the host computer as part of the initialization process normally provided.

Note: To enter the carriage return code (CR) as part of the sequence, press **CTRL M** instead of **RETURN**.

To correct errors, press the function key corresponding with the field and enter the sequence again.

4. Press RETURN to display the next function key field in numerical sequence.

F1 = displays for the shifted F1 field. It follows F16. After the shifted F16 field, the unshifted F1 field displays again.

5. Press the actual function key, shifted or unshifted to go directly to a specific function key sequence field at random.

For example: press SHIFT with F12; then press F6.

6. Press FUNCT again to return to the setup parameters.

SAVE SETUP CHANGES

1. Press SHIFT with SET UP with one of the levels of setup parameters displayed.

The top row displays:

Save changes for power-on? Y:yes (no. F-keys) A:F-keys also others: no

Save changes for power-on? flashes on and off.

2. Press Y or A to save changes in the setup, or go to instruction 3.

A. If you press Y, all changes except those made to the function key definitions are saved for the next power-on.

B. If you press A, all changes are saved.

The screen blanks and then displays the message field line (top row). The cursor returns to the position it was at before entering the setup.

Caution: Do not turn off the power before the screen display returns or the setup may not be saved correctly.

Note: The current key click status is also saved with the setup. The key click feature toggles on/off whenever you press SHIFT with ENTER. When on, a short, soft beep sounds in response to each key as it is pressed.

3. Press any other key instead of pressing A or Y to operate the terminal with the current parameter changes, but without saving them.

The terminal enters the communication mode set in level 1.

The next time the terminal is powered on the setup returns to the configuration as it was before these changes were made.

RETURN TO THE DEFAULT SETUP

press ESC, with any of the levels of setup parameters displayed, to call the default setup.

The terminal enters the full duplex conversation mode, which is the default. You can now enter and transmit data.

Chapter 4

CONTROLLING THE SCREEN

In addition to a cursor, the screen has three message fields and an application display area as represented by Figure 4-1. The position of the cursor

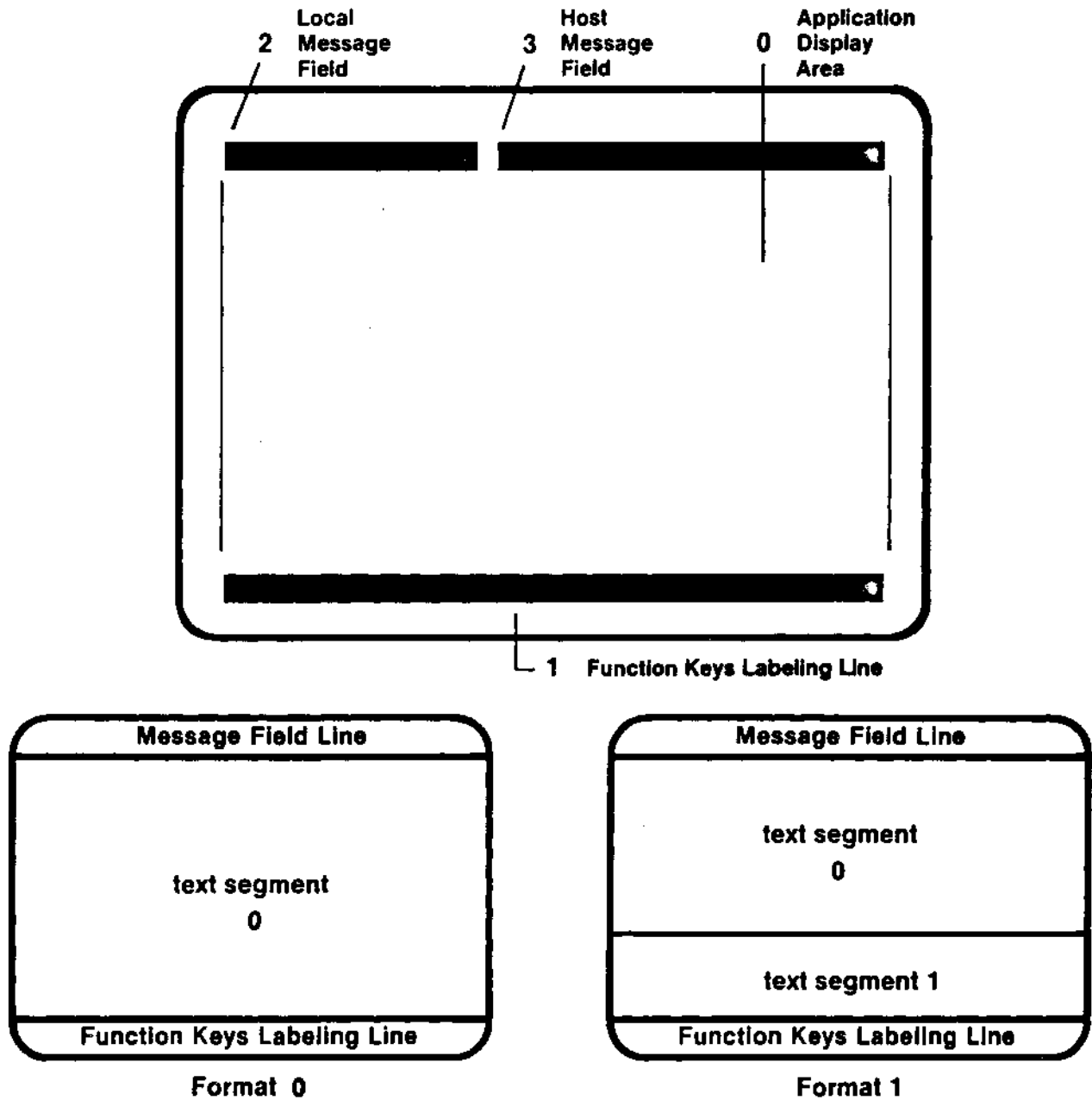


Figure 4-1. Display Fields and Formats

determines where your next keystroke has an effect. The host message field can display a message, such as a warning or a prompt, from the host computer. The local message field displays the current operating mode and submodes. When defined, function key labels display in their corresponding field in the bottom row of the screen.

SELECT SCREEN FEATURES

The cursor type, screen width, scrolling speed, protect character attribute, and on/off display are screen display features that can be controlled by an escape code sequence.

Send ESC ` n to set an option for a screen feature.

where

n = screen feature code (see Table 4-1)

Table 4-1. Screen Feature Codes

n	Screen Feature	
Ø	Cursor display off	
1	Cursor display on	(default)
2	Steady block cursor	
3	Blinking line cursor	
4	Steady line cursor	
5	Blinking block cursor	(default)
A	Normal protect character	
6	Reverse protect character	
7	Dim protect character	(default)
8	Screen display off	
9	Screen display on	(default)
:	80-column screen	(default)
;	132-column screen	
<	Smooth scroll @ 1 row per second	
=	Smooth scroll @ 2 rows per second	
>	Smooth scroll @ 4 rows per second	
?	Smooth scroll @ 8 rows per second	
@	Jump scroll	(default)

Note: When switching from an 80- to a 132-column screen or vice versa, a delay of 100 milliseconds is required. Blank the shifted and unshifted function key labeling line when making the change by sending ESC z (CR and/or ESC z) CR. Then send ESC A I ATTR and the new individual function key messages with the appropriate ESC z sequence. For escape sequence details see Table 6-4. After the change, you must move the cursor to the location desired.

Another feature is the screen saver (S. SAVER) parameter of the setup. When it is ON, the screen display shuts off, if there has not been any keyboard activity or transmission to the terminal for 17 minutes. The terminal, however, remains powered-on. Press any key to restore the display.

SELECT A SCREEN FORMAT

You can divide the application display area horizontally into two text segments of the same column width, 80 or 132 columns wide. (See Figure 4-1.)

1. Send ESC x 1 HRC to establish a split screen format.

where

HRC = row code 2 to 24 for the row number on which the lower text segment starts (see Table 4-2)

Both text segments are cleared, and the communication electronics are reset.

Any submodes that have been set are turned off.

An ACK is sent to the host computer, if the escape sequence originated from the host.

The cursor first displays in the home position of text segment 0, the upper part of the split screen. This is currently the active text segment.

2. Send ESC J or press PAGE PREV to activate text segment 1.

The cursor skips to the home position of text segment 1. This is now the active text segment.

3. Send ESC K or press PAGE NEXT to reactivate text segment 0.

The cursor skips to the character position where it was located when the text segment became inactive.

4. Send ESC x 0 to reestablish a standard screen format.

MOVE THE CURSOR

The exact action of the cursor depends upon the command entered through the keyboard or sent from the host computer.

1. Press one of the cursor position keys (e.g., ▼ (CURSOR DOWN), BACKSPACE, TAB, RETURN) to move the cursor from one row, column, or field to the next.

2. Send ESC = rc to move the cursor to a specific row and column of an 80-column screen.

where

r = row code (see Table 4-2)
c = column code (see Table 4-2)

3. Send ESC a rr R ccc C to move the cursor to a specific row and column of either an 80- or a 132-column screen.

where

rr = ASCII encoded decimal value of row relative to home, one or two digits
R = ASCII R
ccc = ASCII encoded decimal value of column relative to home, up to three digits
C = ASCII C

For example: ESC a 1 R 1 C positions the cursor at true home.

ESC a 10 R 10 C positions the cursor at row 10 column 10.

ENTER A HOST MESSAGE

At any time you can display a special message from the host computer. The display format conforms to that of the screen width of 80 or 132 columns.

Send ESC F aaaa CR to enter a message in the host message field.

where

aaaa = a character string up to 46 characters for an 80-column screen or up to 100 characters for a 132-column screen

ENTER FUNCTION KEY LABELS

In addition to the definition of the function keys in the setup, an escape sequence can be sent to display messages in the shifted and unshifted function key label fields of the bottom row of the screen.

1. Send ESC z n aaaa CR to enter a message in a selected function key label field.

where

n = field code (see Table 4-3)
aaaa = a character string of up to eight characters for an 80-column screen or up to seven characters for a 132-column screen

Table 4-2. Row/Column Codes

The HZ-1500 and ADDS-VP row and column codes are listed here for easy reference only.

	WY-50			
Row	TVI-910/920/925	Row Code	HZ-1500	Row Code
			Row Code	ADD-VP
				Row Code
1		(space)	CTRL @	CTRL @
2		|	CTRL A	CTRL A
3		"	CTRL B	CTRL B
4		#	CTRL C	CTRL C
5		\$	CTRL D	CTRL D
6		%	CTRL E	CTRL E
7		&	CTRL F	CTRL F
8		'	CTRL G	CTRL G
9		(	CTRL H	CTRL H
10		)	CTRL I	CTRL I
11		*	CTRL J	CTRL J
12		+	CTRL K	CTRL K
13		,	CTRL L	CTRL L
14		-	CTRL M	CTRL M
15		.	CTRL N	CTRL N
16		/	CTRL O	CTRL O
17		0	CTRL P	CTRL P
18		1	CTRL Q	CTRL Q
19		2	CTRL R	CTRL R
20		3	CTRL S	CTRL S
21		4	CTRL T	CTRL T
22		5	CTRL U	CTRL U
23		6	CTRL V	CTRL V
24		7	CTRL W	CTRL W

	WY-50			
Column	TVI-910/920/925	Column Code	HZ-1500	Column Code
			Column Code	ADD-VP
				Column Code
1		(space)	CTRL @	CTRL @
2		|	CTRL A	CTRL A
3		"	CTRL B	CTRL B
4		#	CTRL C	CTRL C
5		\$	CTRL D	CTRL D
6		%	CTRL E	CTRL E
7		&	CTRL F	CTRL F
8		'	CTRL G	CTRL G
9		(	CTRL H	CTRL H
10		)	CTRL I	CTRL I
11		*	CTRL J	CTRL P
12		+	CTRL K	CTRL Q
13		,	CTRL L	CTRL R
14		-	CTRL M	CTRL S
15		.	CTRL N	CTRL T

WY-50		HZ-1500	ADDS-VP
Column	Column Code	Column Code	Column Code
16	/	CTRL O	CTRL U
17	0	CTRL P	CTRL V
18	1	CTRL Q	CTRL W
19	2	CTRL R	CTRL X
20	3	CTRL S	CTRL Y
21	4	CTRL T	(space)
22	5	CTRL U	!
23	6	CTRL V	"
24	7	CTRL W	#
25	8	CTRL X	\$
26	9	CTRL Y	%
27	:	(space)	&
28	;	!	.
29	<	"	(
30	=	#)
31	>	\$	0
32	?	%	1
33	@	&	2
34	A	.	3
35	B	(	4
36	C	)	5
37	D	*	6
38	E	+	7
39	F	,	8
40	G	-	9
41	H	.	@
42	I	/	A
43	J	0	B
44	K	1	C
45	L	2	D
46	M	3	E
47	N	4	F
48	O	5	G
49	P	6	H
50	Q	7	I
51	R	8	J
52	S	9	K
53	T	:	L
54	U	;	M
55	V	<	N
56	W	=	O
57	X	>	P
58	Y	?	Q
59	Z	@	R
60	[	A	S
61	\	B	T
62	]	C	U
63	^	D	V
64	_	E	W
65	.	F	X
66	a	G	Y

WY-50		HZ-1500		ADDS-VP	
Column	Column Code	Column Code	Column Code	Column Code	Column Code
67	b	H	f		
68	c	I	g		
69	d	J	h		
70	e	K	i		
71	f	L	p		
72	g	M	q		
73	h	N	r		
74	i	O	s		
75	j	P	t		
76	k	Q	u		
77	l	R	v		
78	m	S	w		
79	n	T	x		
80	o	U	y		

2. Send ESC z n CR to clear the message for a particular function key.

where

n = field code (see Table 4-3)

When changing from one communication mode to another, after the new mode has been selected, clear all the function key labeling fields. Send ESC z (CR to clear the entire unshifted function keys labeling line, and send ESC z) CR to clear the entire shifted function keys labeling line. Then enter new function key labels as desired.

3. Send ESC z DEL to turn off the display of the shifted function keys labeling line.

SELECT DISPLAY ATTRIBUTES

Five attributes can be chosen individually or in combination for the display of data. These are: dim, reverse, underscore, blink, and blank. They are set for the entire screen, for fields of data, or for individual data by sending various escape sequences.

Protected characters or fields can be normal, dim, or reverse.

1. Send ESC A n ATTR to set a display attribute for a message field.

where

n = display field code (see Table 4-4)

ATTR = attribute code (see Table 4-5)

Table 4-3. Function Key Field Codes/Default Value Codes

Function Key	Field Code	Default Value Code	Function Key	Field Code	Default Value Code
F1	Ø	@	F9	8	H
Shift F1	P	`	Shift 9	X	h
F2	1	A	F1Ø	9	I
Shift F2	Q	a	Shift F1Ø	Y	i
F3	2	B	F11	:	J
Shift F3	R	b	Shift F11	Z	j
F4	3	C	F12	;	K
Shift F4	S	c	Shift F12	[	k
F5	4	D	F13	<	L
Shift F5	T	d	Shift F13	\	l
F6	5	E	F14	=	M
Shift F6	U	e	Shift F14	]	m
F7	6	F	F15	>	N
Shift F7	V	f	Shift F15	^	n
F8	7	G	F16	?	O
Shift F8	W	g	Shift F16	_	o

Note: Field codes ((unshifted message) and) (shifted message) specify the entire function keys labeling line as one message field of up to 78 characters for an 80-column screen or up to 130 characters for a 132-column screen.

80-column screen = eight function key label fields, shiftable to 16

132-column screen = 16 function key label fields, shiftable to 32

Default value codes are explained under "Send Function Key Program Sequences" in Chapter 6.

2. Send ESC G ATTR to set a display attribute for individual data.

where

ATTR = attribute code (see Table 4-5)

The attribute occupies a space at the current cursor location.

Table 4-4. Display Field Codes

WY-50 Display Field	n
Application Display Area	0
Function Key Labeling Line	1
Local Message Field	2
Host Message Field	3

Table 4-5. Display Attributes

ATTR	Display Attributes
(space)	Space code (20H)
0	Normal
1	Blank (no display)
2	Blink
3	Blank
4	Reverse
5	Reverse and blank
6	Reverse and blink
7	Reverse and blank
8	Under score
9	Under score and blank
:	Under score and blink
;	Under score, blink, and blank
<	Under score and reverse
=	Under score, reverse, and blank
>	Under score, reverse, and blink
?	Under score, reverse, blink, and blank
p	Dim
q	Dim and blank
r	Dim and blink
s	Dim and blank
t	Dim and reverse
u	Dim, reverse, and blank
v	Dim, reverse, and blink
w	Dim, reverse, and blank
x	Dim and under score
y	Dim, under score, and blank
z	Dim, under score, and blink
{	Dim, under score, blink, and blank
|	Dim, under score, and reverse
}	Dim, under score, reverse, and blank
~	Dim, under score, reverse, and blink

Chapter 5

MANAGING THE OPERATING MODES

The terminal operates in one of four communication modes. In addition, there are ten submodes that modify the way in which data is displayed or transmitted to the host computer. These modes are listed in Table 5-1 with their display labels.

Unless the STATUS parameter of the setup is set to OFF, the mode display labels display in the local message field of the top row when the corresponding mode or submode is on.

Table 5-1. Mode Display Labels

Mode	Display Label
COMMUNICATION MODES	
Block	<u>BLK</u>
Half duplex	<u>HDX</u>
Half-duplex block	<u>BLK</u>
Full duplex	<u>FDX</u>
SUBMODES	
Caps Lock	<u>CAPS</u>
Duplex Edit	(none)
Graphic	(none)
Insert	<u>INS</u>
Keyboard Lock	<u>LOCK</u>
Local Edit	(none)
Monitor	*
Protect	<u>PROT</u>
No Scroll	(none)
Write Protect	<u>WPRT</u>

CONTROL THE COMMUNICATION MODES

When the terminal is turned on, it operates in the communication mode selected in the setup. A different communication mode can be selected by changing the setup or by sending the corresponding escape code sequence.

See Figure 5-1 for a comparison of the transmission sequences for each of the modes.

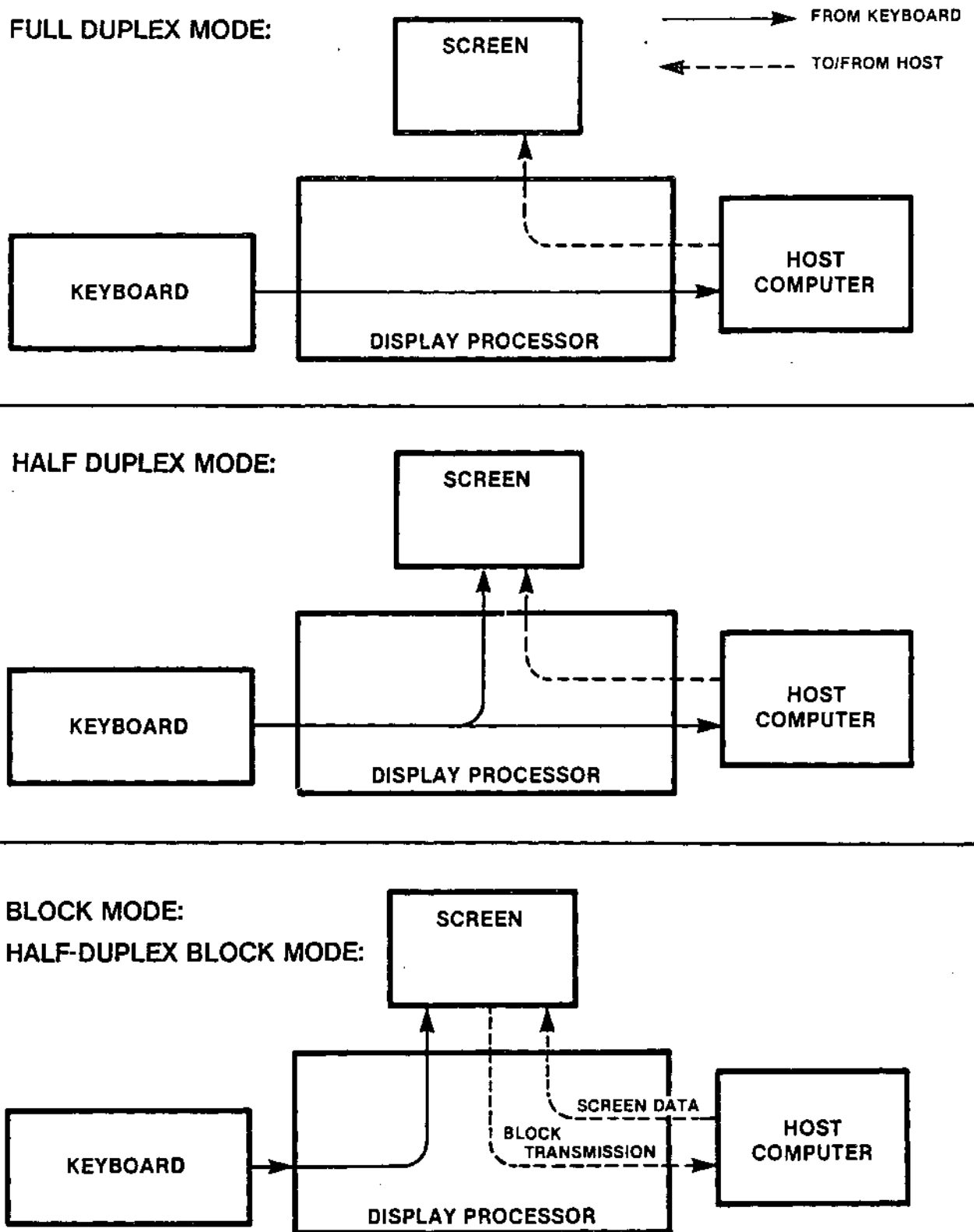


Figure 5-1. Communication Modes Transmission

CONVERSATION MODES

send ESC C to turn on one of the conversation modes which are selected as follows:

1. Send ESC D F to select the full duplex mode.

FDX displays in the local message field.

The terminal operates as a completely conversational device. Keystrokes send character codes to the host computer which returns them to the terminal in an echoplex fashion. Thus, in effect, all functions are controlled by the host computer.

2. Send ESC D H to select the half duplex mode.

HDX displays in the local message field.

The terminal operates in part as a conversational device. As in the full duplex mode, each character code is sent to the host computer which returns them to the terminal and displays the characters on the screen. The key codes for keys that generate escape codes are not transmitted. However, their corresponding escape code can be sent as a command.

3. Send ESC D H followed by ESC B to select the half-duplex block mode.

BLK displays in the local message field.

The terminal operates as in the normal half-duplex mode (see #2 above) except data is transmitted only when PRINT or SEND have been pressed.

BLOCK MODE

Send ESC B to turn on the block mode.

BLK displays in the local message field.

The terminal allows data to be entered and edited as though it were a buffered, off-line device. Keystrokes other than BREAK, SET UP, F1 through F16, and FUNCT are acted upon locally at the terminal and do not automatically transmit to the host computer. Data stored in the terminal are sent as message blocks and only when PRINT or SEND have been pressed.

Block transmissions are governed by the following rules:

- Null characters (00H) are not transmitted.
- Attributes are sent as spaces.
- If the protect submode is on, graphic character codes are sent as spaces.
- The end-of-block sequence sent to the host computer is the one set by the BLK END parameter in the setup: CR, LF/ETX or US/CR.

CONTROL THE OPERATING SUBMODES

The submodes are used in conjunction with the communication modes, and several can be in effect at the same time.

CAPS LOCK SUBMODE

1. Press CAPS LOCK to turn on the caps lock submode.

CAPS displays in the local message field.

When pressed, all alphabetic keys are entered in uppercase. Numeric keys are unaffected.

2. Press CAPS LOCK to turn off the caps lock submode.

Note: The current on/off status of the caps lock submode is saved with the setup.

DUPLEX EDIT SUBMODE

Send ESC l (L) to select the duplex edit submode.

If the terminal is in the full duplex mode, the key codes for keys that generate escape codes are transmitted to the host computer where they are acted upon.

The duplex edit submode remains in effect until the local edit submode is selected with ESC k.

GRAPHIC SUBMODE

1. Send ESC H SIX (CTRL B) to turn on the graphic submode.

Only the keys corresponding with the graphic character codes are active. (see Table 6-2.)

2. Send ESC H EIX (CTRL C) to turn off the graphic submode.

INSERT SUBMODE

1. Press INS or send ESC q to turn on the insert submode.

INS displays in the local message field.

The character at the cursor position and any characters to the right on the same row move right for each character entered.

2. Press REPL or send ESC r to turn off the insert submode.

KEYBOARD LOCK SUBMODE

1. Send ESC # to lock the keyboard.

LOCK displays in the local message field.

All keystrokes except BREAK, F1 through F16, and FUNCT are ignored.

2. Send ESC " from the host computer or press SHIFT with SET UP to go into the setup and then press SET UP unshifted to unlock the keyboard.

The communication electronics are reset.

LOCAL EDIT SUBMODE

Send ESC k to select the local edit submode.

In any communications mode, the key codes for keys that generate escape codes are not sent to the host computer. Instead, they are acted upon locally at the terminal.

The local edit submode remains in effect until the duplex edit submode is selected with ESC l (L).

MONITOR SUBMODE

1. Send ESC U or press CTRL with SHIFT and 1 on the numeric pad to turn on the monitor submode.

* displays in the local message field.

All received control codes are not acted upon, but their symbols are displayed.

2. Send ESC u or ESC X or press CTRL with SHIFT and 1 on the numeric pad to turn off the monitor submode.

NO SCROLL SUBMODE

1. Send ESC N to turn on the no scroll submode.

When a character is entered with the cursor at the last column and row of a text segment, the screen does not scroll and the cursor moves to the home position.

2. Send ESC O to turn off the no scroll submode.

When a character is entered with the cursor at the last column and row of a text segment the screen scrolls up one row.

PROTECT SUBMODE

1. Send ESC & to turn on the protect submode.

PROT displays in the local message field.

All cursor movement skips protected data, and external scrolling is inhibited. TAB moves the cursor to the next unprotected character field. Row insertions and row deletions are prohibited.

2. Send ESC ' to turn off the protect submode.

WRITE PROTECT SUBMODE

1. Send ESC) to turn on the write protect submode.

WRPT displays in the local message field only if the protect submode is also on.

If the protect submode is also on, all entered characters are displayed and stored with the protect attribute.

2. Send ESC (to turn off the write protect submode.

Chapter 6

ENTERING AND TRANSMITTING DATA

The keyboard serves as the means by which you can display, edit, and transmit data. When pressed, every key generates an ASCII character code or an escape code. The manner in which the code is acted upon is determined by the setup, the communication mode in particular.

SEND KEY CODES

Table 6-1 lists only those keys which generate codes that are transmitted to the host computer in the conversation mode, and unless noted, shifted key positions generate the same code as when unshifted. All alphanumeric keys generate the standard ASCII codes.

Table 6-1. Key Codes

Key	Generated Code		
COMMAND KEYS	WY-50 TVI-910/920/925	HZ-1500	ADDS-VP
ENTER	CTRL M (0DH) or CTRL I (09H)	CTRL M (0DH) or CTRL I (09H)	CTRL M (0DH) or CTRL I (09H)
Shift ENTER	(no generated code)		
ESC	CTRL [(1BH)	CTRL [(1BH)	CTRL [(1BH)
PRINT	ESC P	CTRL F (06H)	ESC P
SEND	ESC 7	~ 7	ESC 7
CURSOR POSITION KEYS	WY-50 TVI-910/920/925	HZ-1500	ADDS-VP
▼ (CURSOR DOWN)	CTRL J (0AH) in TVI-925: CTRL V (16H)	~ CTRL K (0BH)	CTRL J (0AH)
Shift ▼ (CURSOR DOWN)	CTRL J (0AH)	CTRL J (0AH)	CTRL J (0AH)

Key	Generated Code		
	WY-50 TVI-910/920/925	HZ-1500	ADDS-VP
◀ (CURSOR LEFT)	CTRL H (08H)	CTRL H (08H)	CTRL U (15H)
▶ (CURSOR RIGHT)	CTRL L (0CH)	CTRL P (10H)	CTRL F (06H)
▲ (CURSOR UP)	CTRL K (0BH)	~ CTRL L (0CH)	CTRL Z (1AH)
BACKSPACE	CTRL H (08H)	CTRL H (08H)	CTRL H (08H)
HOME	CTRL ^ (1EH)	~ CTRL R (12H)	CTRL A (01H)
Shift HOME	ESC {	~ CTRL R (12H)	CTRL A (01H)
PAGE NEXT	ESC K	CTRL A (01H)	ESC J
PAGE PREV	ESC J	CTRL E (05H)	ESC J
RETURN	CTRL M (0DH)	CTRL M (0DH)	CTRL M (0DH)
	or	or	or
	CTRL M (0DH)	CTRL M (0DH)	CTRL M (0DH)
	CTRL J (0AH)	CTRL J (0AH)	CTRL J (0AH)
TAB	CTRL I (09H)	CTRL I (09H)	CTRL I (09H)
Shift TAB	ESC I	~ CTRL I (09H)	ESC I
EDITING KEYS	WY-50 TVI-910/920/925	HZ-1500	ADDS-VP
CLR LINE	ESC T	~ CTRL O (0FH)	ESC K
CLR SCRN	ESC Y	~ CTRL \ (1CH)	ESC k
DEL CHAR	ESC W	CTRL C (03H)	ESC W
DEL LINE	ESC R	~ CTRL s (13H)	ESC l (L)
INS	ESC q	CTRL U (15H)	ESC q
INS CHAR	ESC Q	CTRL B (02H)	ESC Q
INS LINE	ESC E	~ CTRL Z (1AH)	ESC M
REPL	ESC r	CTRL D (04H)	ESC r

Note: For the generated function key value codes, see Table 4-3.

ENTER GRAPHIC CHARACTERS

There are 16 graphic characters you can display on the screen to make graphs, charts, and other line-drawn figures. They can be accessed one at a time in a normal operating mode or exclusively as a group in the graphic submode (see Chapter 5).

Send ESC H x to display a single graphic character.

where

x = the graphic character code (see Table 6-2)

Table 6-2. Graphic Character Codes

Graphic Character	x	Graphic Character	x
┐	0	┌	8
└	1	├	9
┌	2	─	:
└	3	▒	;
├	4	═	<
└	5	┘	=
┌	6	▯	>
▒	7	▒	?

ENTER NON-US CHARACTERS

In addition to the standard US (American) keyboard characters, there are a UK (British) and four non-English keyboard language sets: German, French, Danish, and Spanish. Guides to their keyboard layouts and the corresponding US character/key are represented in Appendix D.

Remember that the non-US language keyboards require a different character generator ROM than the standard keyboard. With the proper character generator ROM installed, they can be accessed by making the selection in the KEYS ? parameter of the setup.

SEND CONTROL CODES

In the full duplex mode, the terminal functions are controlled by code sequences received from the host computer. These control codes initiate actions as defined in Table 6-3. See Appendix E for a comparison by function of the control codes generated by the compatible terminal modes.

Press CTRL with control key to enter the control code through the keyboard.

where:

control key = the associated alphanumeric key (see Table 6-3)

Table 6-3. Control Codes

Control Code	ASCII Hex Code	Display Symbol	Control Key	Action
NULL	00	(blank)	@ or `	No action.
SOH	01	S _H	A or a	No action.
STX	02	S _X	B or b	No action.
ETX	03	E _X	C or c	No action.
EDT	04	E _T	D or d	No action.
ENQ	05	E _Q	E or e	Returns ACK to the host computer, if not busy.
ACK	06	A _K	F or f	No action.
BEL	07	B _L	G or g	Sounds the beeper.
BS	08	B _S	H or h	Backspaces the cursor.
HT	09	H _T	I or i	Tabs the cursor.
LF	0A	L _F	J or j	Moves the cursor down.
VT	0B	V _T	K or k	Moves the cursor up.
FF	0C	F _F	L or l	Moves the cursor right.
CR	0D	C _R	M or m	Moves the cursor to the far left position of the row.
SO	0E	S _O	N or n	Unlocks the keyboard.
SI	0F	S _I	O or o	Locks the keyboard.
DLE	10	┐	P or p	No action.
DC1 (XON)	11	┌	Q or q	Enables transmission from the host computer.
DC2	12	└	R or r	Turns on the auxiliary print function; data displays as it is sent to the printer.

Control Code	ASCII Hex Code	Display Symbol	Control Key	Action
DC3 (XOFF)	13	⏏	s	Stops transmission from the host computer.
DC4	14	⏏	T or t	Turns off the auxiliary print function or the transparent print function, whichever is on.
NAK	15	⏏	U or u	No action.
SYN	16	|	V or v	No action.
ETB	17	■	W or w	No action.
CAN	18	+	X or x	Turns on the transparent print function; data does not display when sent to the printer.
EM	19	⏏	Y or y	No action.
SUB	1A	—	Z or z	Clears all unprotected characters to spaces. The cursor moves to the home position.
ESC	1B	⏏	{ or [	Modifies the action of subsequent characters in an escape sequence (e.g., ESC 4). When followed by another control code, displays the symbol for that code.
FS	1C	=	| or \	No action.
GS	1D	⏏	} or]	No action.
RS	1E	||	^ or ~	Moves the cursor to the home position of the active text segment.
US	1F	⏏	_ or DEL	Moves the cursor down one row to the far left position.

The following rules apply in control code generated actions that involve cursor movement:

1. The cursor movement applies only to the active text segment.
2. If the protect submode is on, the cursor skips protected characters.
3. Except when the no scroll submode is on, if the cursor movement would result in the cursor leaving the active text segment, then the text automatically scrolls up.

RECEIVE ESCAPE CODES

When received from the host computer, an escape code initiates a special action or operation. In many cases, a multiple code sequence follows the escape code to specify one of a number of variables for that feature.

Some escape codes temporarily modify the setup. These commands are not saved in memory and have effect only for the duration of the function or until the terminal is powered off.

Table 6-4 lists the WY-50 escape codes in ASCII sorting order and fully describes their resultant action. Included are the associated multiple code sequences. See Appendix E for a comparison by function of the escape codes for the compatible terminal modes.

Table 6-4. Escape Codes

Escape Code	Action
ESC (space)	Reports the terminal identification to the host computer. If the terminal is a WY-50, it sends: 50 CR.
ESC !	Writes all unprotected character positions with a specified attribute code. This has a format of: ESC ! ATTR where ATTR = attribute code (see Table 4-5)
ESC "	Unlocks the keyboard.
ESC #	Locks the keyboard.
ESC &	Turns the protect submode on and prevents the auto scroll operation. The cursor skips protected data.
ESC '	Turns the protect submode off and allows the auto scroll operation. The cursor does not skip protected data.
ESC (	Turns the write protect submode off.
ESC)	Turns the write protect submode on. All subsequently received characters are protected.
ESC *	Clears the screen to nulls. The protect submode is turned off, and the cursor skips to the home position.
ESC +	Clears the screen to spaces. The protect submode is turned off, and the cursor skips to the home position.
ESC ,	Clears the screen to protected spaces. The protect submode is turned off, and the cursor skips to the home position.

Escape Code	Action
ESC -	Moves the cursor to a specified text segment. This has a multiple code sequence of: ESC - nrc where n = the text segment number, 0 or 1 r = the row code (see Table 4-2) c = the column code (see Table 4-2)
ESC .	Clears all unprotected character positions with a specified character code. This has a format of: ESC . CODE where CODE = the character hex value (see Appendix C)
ESC /	Transmits the active text segment number and the cursor address.
ESC 0	Clears all tab settings.
ESC 1	Sets a tab stop at the current cursor column.
ESC 2	Clears a tab stop at the cursor column.
ESC 4	Sends all unprotected characters to the host computer, beginning with the start-of-row up to and including the character at the cursor location.
ESC 5	Sends all unprotected characters to the host computer, beginning with the start-of-text up to and including the character at the cursor location.
ESC 6	Sends all characters to the host computer, beginning with the start-of-row up to and including the character at the cursor location.
ESC 7	Sends all characters to the host computer, beginning with the start-of-text up to and including the character at the cursor location.
ESC 8	Enters a start-of-message character (STX) at the cursor location.
ESC 9	Enters an end-of-message character (ETX) at the cursor location.
ESC :	Clears all unprotected characters to nulls. The cursor skips to the home position.
ESC ;	Clears all unprotected characters to spaces. The cursor skips to the home position.

Escape Code	Action
ESC =	Moves the cursor to a specified row and column for an 80-column screen. This has a format of: ESC = rc where r = the row code (see Table 4-2) c = the column code (see Table 4-2)
ESC ?	Causes the terminal to transmit the cursor address for the active text segment of an 80-column screen only. The transmission format is: rc CR where r = the row code (see Table 4-2) c = the column code (see Table 4-2)
ESC @	Sends all unprotected characters from the start-of-text up to and including the cursor location to the auxiliary (printer) port. Each row is terminated with: CR LF NULL Protected characters and attributes are replaced by spaces. If the protect submode is on, graphic characters are also replaced by spaces. If the protect submode is off, graphic characters are sent as their corresponding control codes.
ESC A	Sets a video attribute for a specific message field or the entire application display area. This has a multiple code sequence of: ESC A n ATTR where n = field code (see Table 4-4) ATTR = attribute code (see Table 4-5)
ESC B	Places the terminal in the block mode.
ESC C	Places the terminal in a conversation mode.
ESC D	Selects the full duplex or half duplex conversation modes. This has the multiple code sequence: ESC D x where x = F full duplex mode H half duplex mode
ESC E	Inserts a row of spaces; causes all rows from the current cursor row to the end of the active text segment to be moved down one row. If the protect submode is on, the insertion is prohibited.

Escape Code	Action
ESC F	<p>Enters a message in the host message field. This has a format of:</p> <p style="padding-left: 40px;">ESC F aaaa CR</p> <p>where</p> <p style="padding-left: 80px;">aaaa = a character string of up to 46 characters for an 80-column screen or up to 100 characters for a 132-column screen</p>
ESC G	<p>Sets a video attribute within the application display area. The attribute occupies a space at the cursor location. It applies to all following characters until the end of the active text segment or the occurrence of another attribute, whichever is encountered first. This has a multiple code sequence of:</p> <p style="padding-left: 40px;">ESC G ATTR</p> <p>where</p> <p style="padding-left: 80px;">ATTR = attribute code (see Table 4-5)</p>
ESC H	<p>Enters a graphic character at the cursor location. This has a multiple code sequence of:</p> <p style="padding-left: 40px;">ESC H x</p> <p>where</p> <p style="padding-left: 80px;">x = the graphic character code (see Table 6-2)</p> <p>ESC H STX (CTRL B) turns on the graphic submode. ESC H ETX (CTRL C) turns off the graphic submode.</p>
ESC I	Moves the cursor left to the previous tab stop.
ESC J	Activates the alternate text segment.
ESC K	Activates the alternate text segment. See ESC J.
ESC L	Sends all characters unformatted to the auxiliary (printer) port. Attribute codes are sent as spaces. Row-end sequences are not sent.
ESC M	Causes the terminal to send the character at the cursor position to the host computer.
ESC N	Turns the no scroll submode on.
ESC O	Turns the no scroll submode off.
ESC P	Sends all protected and unprotected characters to the auxiliary (printer) port, regardless of the mode setting.
ESC Q	Inserts a character at the cursor location. All characters from the cursor to the end of the row are moved one position to the right. The last character in the row is lost. If the protect submode is on, this operation halts at the end of an unprotected field or the end of the row, whichever is first.

Escape Code	Action
ESC R	Deletes a row. All following rows are moved up one row. If the protect submode is on, the deletion is prohibited.
ESC S	Sends a message unprotected. If the protect submode is off, all characters from the first start-of-message character (STX) left of the cursor position to a following end-of-message character (ETX), are sent to the host computer. The end-of-row sequence is sent at the end of each row, and the end-of-transmission sequence is sent as the transmission terminator. If the protect submode is on, each protected field is replaced by field separator code ICH. The STX and ETX are not sent.
ESC T	Erases all characters from the current cursor location to the end of the row and replaces them with spaces. If the protect submode is on, this operation halts at the end of an unprotected field or at the end of the row, whichever is encountered first.
ESC U	Turns the monitor submode on.
ESC V	Sets a protected column from the cursor row to the end-of-text.
ESC W	Deletes a character at the current cursor location. All characters right of the cursor to the end of the active text segment row are moved left one position. A space is stored in the last character position of the row. If the protect submode is on, this operation halts at the end of an unprotected field or the end of the row, whichever is encountered first.
ESC X	Turns the monitor submode off.
ESC Y	Erases all characters from the current cursor location to the end of the active text segment and replaces them with spaces. If the protect submode is on, only unprotected characters are cleared.
ESC]	Activates text segment 0.
ESC `	Sets the screen features. This has the following multiple code sequence: ESC ` n where n = screen feature code (see Table 4-1)

Escape Code	Action
ESC a	Moves the cursor to a specified row and column for a 132-column screen. This has a format of: ESC a rr R ccc C where rr = the ASCII encoded decimal value of the row, one or two digits R = ASCII R ccc = the ASCII encoded decimal value of the column, up to three digits C = ASCII C For example: ESC a 1 R 1 C positions the cursor at true home.
ESC b	Causes the terminal to transmit the cursor address for the active text segment. The transmission format is: rr R ccc C where rr = the ASCII encoded decimal value of the row, one or two digits R = ASCII R ccc = the ASCII encoded decimal value of the column, up to three digits C = ASCII C
ESC i	Moves the cursor to the next tab stop on the right.
ESC k	Turns the local edit submode on.
ESC l	Turns the duplex edit submode on.
ESC p	Sends all characters unformatted to the auxiliary (printer) port. Attribute codes are sent as spaces. Row-end sequences are not sent. The action is the same as ESC L.
ESC q	Turns the insert submode on.
ESC r	Turns the insert submode off.
ESC s	Sends a message. If the protect submode is off, this operation causes all characters from the first start-of-message character (STX) left of the cursor position to a following end-of-message character (ETX) to be sent to the host computer. The end-of-row sequence is sent at the end of each row, and the end-of-transmission sequence is sent as the transmission terminator. If the protect submode is on, each protected field is sent bracketed with the write protect on code ESC) and the write protect off code ESC (.
ESC t	Erases all characters from the current cursor location to the end of the row and replaces them with nulls. If the protect submode is on, this operation halts at the end of an unprotected field or at the end of the row, whichever is encountered first.

Escape Code	Action
ESC u	Turns the monitor submode off. See ESC X.
ESC x	Changes the screen display format. The sequences are: ESC x 0 for a full screen, 24 rows by 80 or 132 columns ESC x 1 HSR for a horizontal split screen where HSR = row code for the row number 2 to 24 on which the lower text segment starts (see Table 4-2)
ESC y	Erases all characters from the current cursor location to the end of the active text segment and replaces them with nulls. If the protect submode is on, only unprotected characters are affected.
ESC z	Enters a message into a selected function key label field or programs a user-defined sequence for a function key (maximum of eight label fields, shiftable to 16 for an 80-column screen; maximum of 16 label fields, shiftable to 32 for a 132-column screen). The message format is: ESC z n aaaa CR where n = field code (see Table 4-3) aaaa = a character string of up to eight characters for an 80-column screen or up to seven characters for a 132-column screen ESC z n CR clears a particular function key label field. ESC z DEL turns off the display of the shifted function key labeling line. The function key program format is: ESC z value SEQ DEL where value = the default value code (see Table 4-3) SEQ = the program sequence up to eight bytes (256 byte maximum for all function keys)
ESC {	Moves the cursor to the home position of the text segment.
ESC }	Activates text segment 1.

SEND FUNCTION KEY PROGRAM SEQUENCES

The function keys can be programmed for both their shifted and unshifted positions to transmit a code sequence defined by you. The sequence could be a frequently used combination of escape codes or control codes with a maximum length of eight bytes for each or a total of 256 bytes for all function keys. This can be accomplished by means of the setup or by sending an ESC z sequence as defined in Table 6-4.

An unprogrammed function key sends a default value code with the format:

SOH value CR

where

value = the default value code (see Table 4-3)

1. Send ESC z value SEQ DEL to program a function key.

where

value = the default value code (see Table 4-3)

SEQ = the program sequence

Note: The corresponding function key label is entered with another ESC z sequence as described under "Enter Function Key Labels" of Chapter 4.

2. Send ESC z value CR to clear the program sequence for a particular function key.
3. Press FUNCT with any alphanumeric key to generate additional function key code sequences.

The following sequence is transmitted:

SOH X CR

where

X = the alphanumeric key code

SEND PRINT DATA

In addition to the standard print functions initiated by escape sequences ESC L and ESC p (print all unformatted), ESC P (print page), and ESC @ (print unprotected), the auxiliary print function can be turned on to display all print data as it is being transmitted to the auxiliary (printer) port.

1. Press SHIFT with CTRL and PRINT or send DC2 (CTRL R) to turn on the auxiliary print function.

All data transmitted from the host computer is displayed on the screen and sent by the terminal to the auxiliary port and printed.

2. Press SHIFT with CTRL and PRINT or send DC4 (CTRL T) from the host computer to turn off the auxiliary print function.

If you do not wish to display data as it is transmitted to the auxiliary port, you can use the transparent print function.

1. Send CAN (CTRL X) to turn on the transparent print function.
All data transmitted from the host computer is sent by the terminal to the auxiliary port and printed without displaying on the screen.
2. Press SET UP or SHIFT with CTRL and PRINT, or send DC4 (CTRL T) from the host computer to turn off the transparent print function.

INTERUPT A TRANSMISSION

A break signal of approximately 250 milliseconds can be sent to the host computer whenever necessary.

Press BREAK to interrupt a transmission to or from the host computer.

The break signal continues as long as BREAK is held down.

Chapter 7

RUNNING SELF TESTS

There are two self tests. The power-on self test is performed whenever the terminal is turned on. It runs an internal verification of the memory, the microprocessor, and the display row buffer. The diagnostic self test is performed when designated in the TEST parameter of the setup. It runs a repetitive sequence that verifies the proper operation of the modem and auxiliary port electronics. The diagnostic self test destroys any previously saved (stored) setup configuration.

VERIFY THE MEMORY

Press the top half of the power switch to initiate the power-on self test.

If the CRT has been warmed up, a series of displays flashes on the screen.

If a faulty RAM chip is detected, the beeper sounds and the terminal cannot be operated. An error code displays near the bottom righthand corner of the screen (see Table 7-1).

The test has ended when the cursor displays at the home position.

Table 7-1. Self Test Error Codes

Error Code	Source
Ø	Buffer RAM chip Ø
1	Buffer RAM chip 1
9	Nonvolatile RAM
P	Control PROM
R	Display row buffer
X	Modem port
Y	Auxiliary port
Z	Microprocessor

VERIFY THE ELECTRONICS

Two communication loopback connectors are required, one each for the modem port and the auxiliary port.

1. Connect modem pin 2 to 3.
2. Connect auxiliary pin 2 to 3.
3. Select YES for the TEST parameter of the setup.
4. Press SHIFT with SET UP.

The diagnostic self test is run and repeats if no error is detected.

If an error is found, the self test stops, the beeper sounds, and an error code displays near the bottom righthand corner of the screen (see Table 7-1).

5. Press and hold down SHIFT with SET UP to end the diagnostic self test.

The screen blanks, the communications are reinitialized, and the setup returns to the default configuration. The TEST parameter of the setup automatically returns to NO.

Caution: Do not save setup changes when you have been running the diagnostic self test.

If YES has accidentally been saved for the TEST parameter, the terminal will always power-on in the continuous diagnostic self test.

Correct the situation by pressing and holding down the space bar until the display stops flashing. Then press and hold down SHIFT with SET UP to end the self test.

Remember: Whenever the diagnostic self test is run, data stored in the nonvolatile RAM is lost.

VERIFY THE KEY CODES

The keyboard diagnostic identifies each key and makes sure it is sending the right code.

1. Press and hold down the space bar at any time during a diagnostic self test.

A screen pattern with all characters and attributes (except blink) displays.

2. Press any key.

The associated WY-50 key symbol displays in duplicate at columns 10 and 11. If the key generates an escape code, ! also displays at column 9. See Table 7-2.

Control keys do not display a symbol. They are verified by a key click response or by being pressed with an alphanumeric key.

Note: The key codes for compatible terminals do not display for this test, regardless of the COMPATIBLE MODE parameter setting.

Table 7-2. Key Symbols for Keyboard Diagnostic

Key Type	Display
Alphanumeric	The uppercase alphanumeric character or symbol. a displays <u>AA</u> \$ displays <u>\$\$</u>
Control	None. However, CTRL pressed with any alphanumeric key: the control code symbol (see Table 6-3). CTRL and N or n displays <u>S₀</u> CTRL and Z or z displays <u>--</u>
Cursor Position	The ASCII code character (see Table 6-1). TAB displays <u>!H_T</u> ▼ (CURSOR DOWN) displays <u>!L_F</u>
Editing	The ASCII code character (see Table 6-1). INS displays <u>!qq</u> CLR LINE displays <u>!TT</u>
Function	The sequentially corresponding control code symbol as listed in Table 6-3. Some are associated with a display attribute. F1 displays <u>!(blank)</u> F16 displays <u>!S_I</u>

Attributes	Normal, dim, blink, blank, underscore, and reverse
Cursor	Block or line; blinking or nonblinking (user selectable)
Memory	One page

KEYBOARD

Type	Low-profile detached, with 6-foot coiled cable (1.83m) Two-position tilt (low position to DIN specification)
Keys	101, including 16 programmable function keys, shift-able to 32

COMMUNICATIONS

Ports	Two independent interfaces
Type	EIA RS-232C
Mode	Asynchronous TTY compatible (block and conversational)
Baud Rates	Modem: 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, 19,200, 38,400 bps Aux: 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 19,200 bps
Data Size	7 or 8 bits (user selectable)
Stop Bits	1 or 2 (user selectable)
Parity	Odd, even, mark, or none (user selectable)
Handshake Protocols	XON/XOFF, DTR, both, or none (user selectable)

COMPATIBILITY

Native Mode	WY-100 ADM-31
Compatible Mode	TeleVideo 910, 920, 925 ADDS Viewpoint Hazeltine 1500

POWER

Standard	90 to 130 VAC 60 Hz \pm 5%
Optional	200 to 240 VAC 50 Hz \pm 5%
Wattage	45 watts

ENVIRONMENT

Temperature	Operating: 32 to 113 degrees F (0 to 45 degrees C)
	Storage: -40 to +140 degrees F (-40 to +60 degrees C)
Humidity	10% to 90% relative, non-condensing
Altitude	Sea level to 15,000 feet (0 to 4,572m)

Appendix B

CONNECTOR PIN ASSIGNMENTS

The modem and auxiliary port connector pin assignments are listed below. The interface cables must not have any wires running to pins 9, 10, 11, 12, 14, 18, 19, 24, and 25 of the modem port.

MODEM RS-232C		AUXILIARY RS-232C	
Pin #	Signal	Pin #	Signal
1	Shield Ground	1	Shield Ground
2	Transmit Data	2	Receive Data from Printer
3	Receive Data	3	Transmit Data to Printer
4	Request to Send	4	Request to Send
5	Clear to Send		
		6	Data Set Ready
7	Signal Ground	7	Signal Ground
8	Data Carrier Detect	8	Data Carrier Detect
* 9	Leave unconnected		
*10			
*11			
*12			
*14			
*18			
*19			
20	Data Terminal Ready	20	Printer Ready
*24	Leave unconnected		
*25			

* Do not use. If connected, improper video display can result.

Appendix C

CHARACTER SET

Characters are made up of a 7 x 13 matrix for both 80- and 132- column screens. An 80-column screen has a 10 x 13 character cell, which is represented here. A 132-column screen has a 9 x 13 character cell.

Hex Value	00	01	02	03	04	05	06	07

(null)

Hex Value	08	09	0A	0B	0C	0D	0E	0F

Hex Value	10	11	12	13	14	15	16	17

Hex Value	18	19	1A	1B	1C	1D	1E	1F

Hex Value	20	21	22	23	24	25	26	27

(space)

Hex Value	28	29	2A	2B	2C	2D	2E	2F

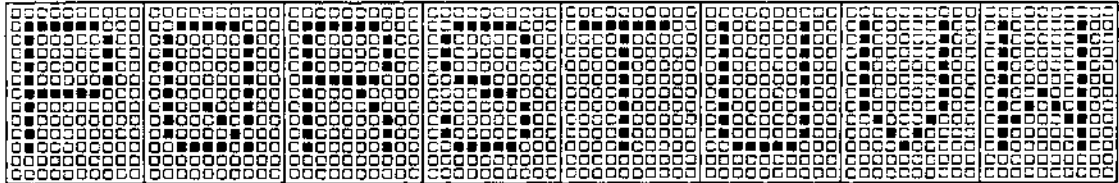
Hex Value	30	31	32	33	34	35	36	37

Hex Value	38	39	3A	3B	3C	3D	3E	3F

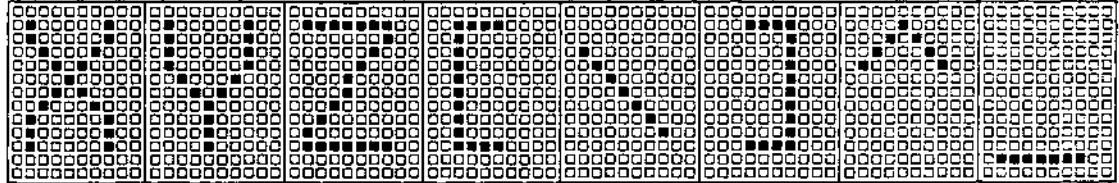
Hex Value	40	41	42	43	44	45	46	47

Hex Value	48	49	4A	4B	4C	4D	4E	4F

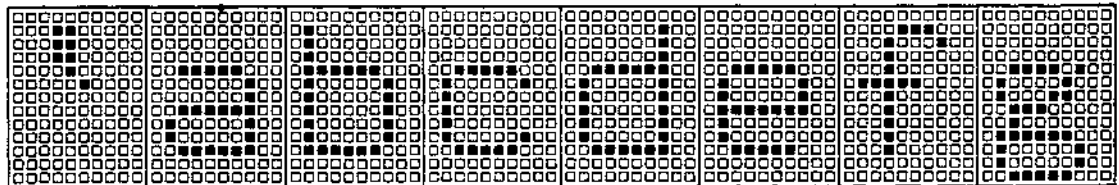
Hex Value 50 51 52 53 54 55 56 57



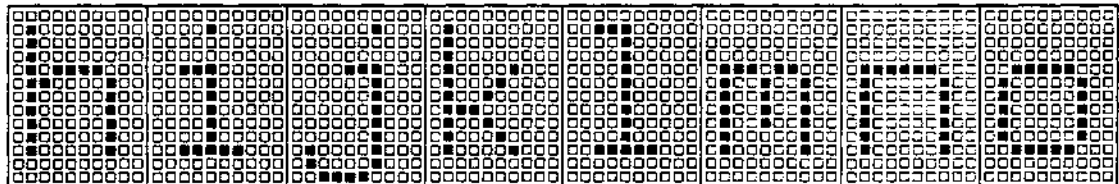
Hex Value 58 59 5A 5B 5C 5D 5E 5F



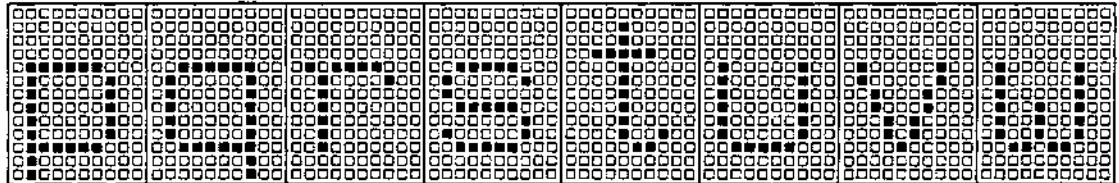
Hex Value 60 61 62 63 64 65 66 67



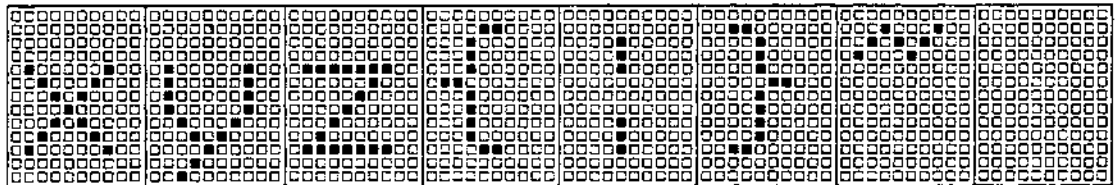
Hex Value 68 69 6A 6B 6C 6D 6E 6F



Hex Value 70 71 72 73 74 75 76 77



Hex Value 78 79 7A 7B 7C 7D 7E 7F



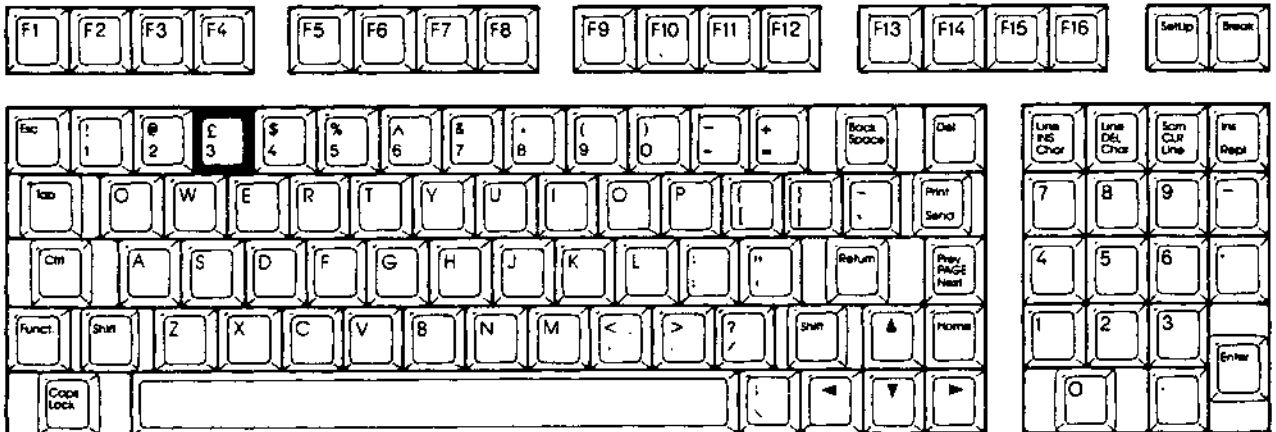
(del)

Appendix D

NON-US KEYBOARD GUIDES

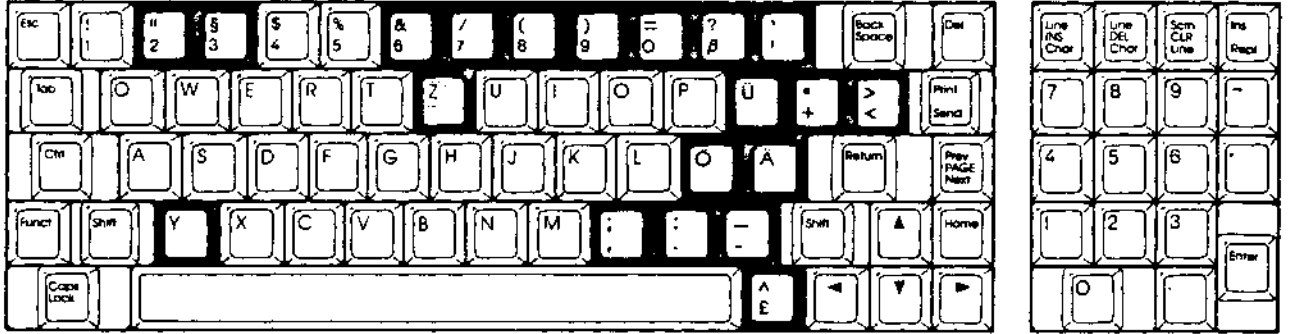
Represented here are guides to the optional non-US keyboard layouts and the variations in the standard character set. These layouts and characters are obtained when the corresponding special character generator ROM for the language has been installed in the terminal (see "Enter Non-US Characters" in Chapter 6). Where key positions for the keyboard codes differ from the standard keyboard, they are shaded.

	Hex Value 23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US											
UK											



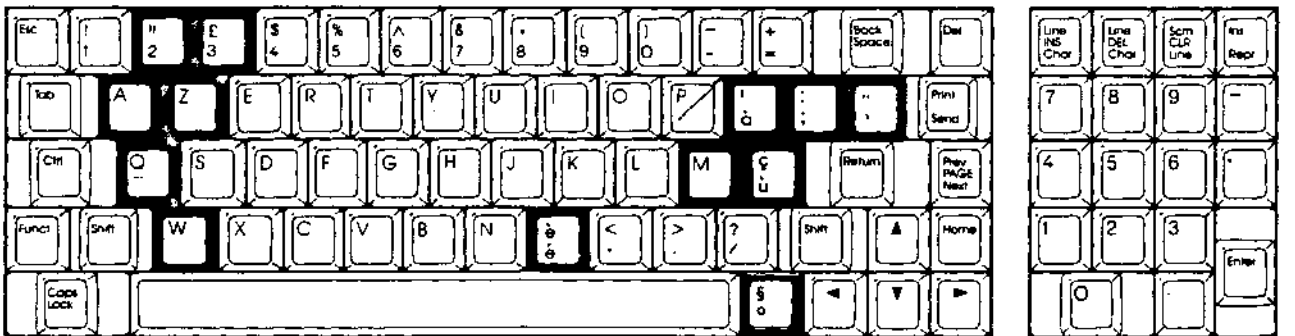
UK (BRITISH)

Hex Value	23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US											
German											



GERMAN

Hex Value	23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US											
French											



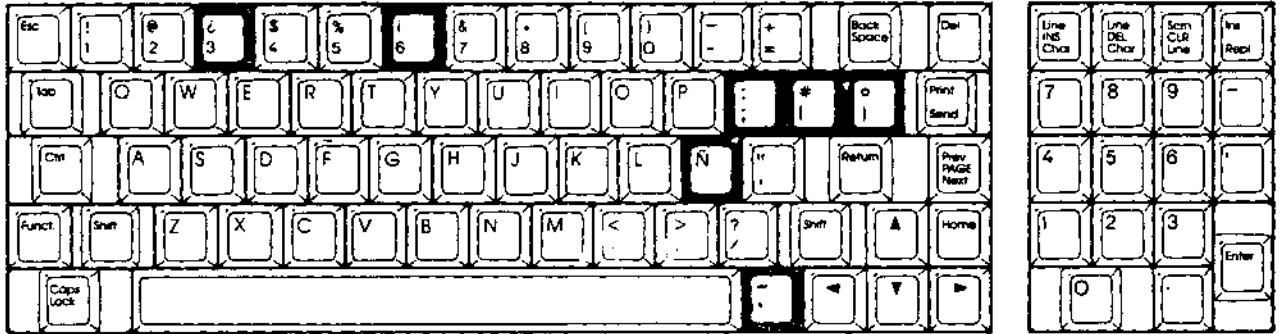
FRENCH

Hex Value 23 40 5B 5C 5D 5E 60 7B 7C 7D 7E

US

Spanish

23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	US	US	US	US	US	US	US	US	US	US
Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish	Spanish



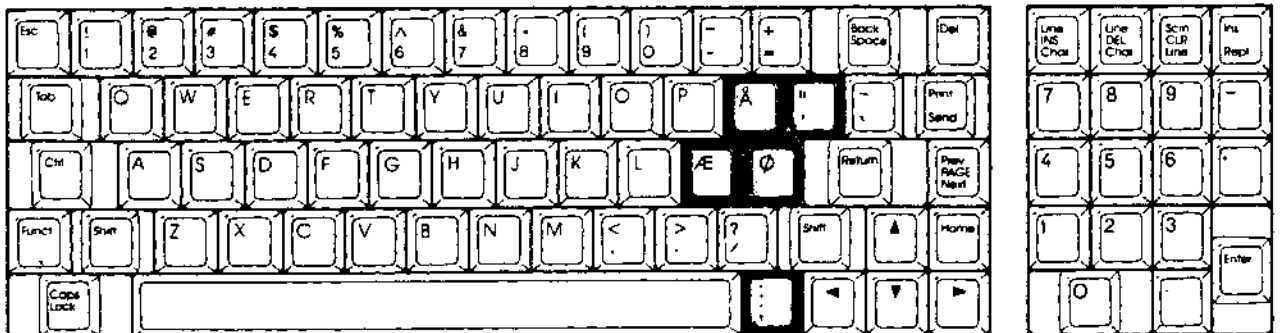
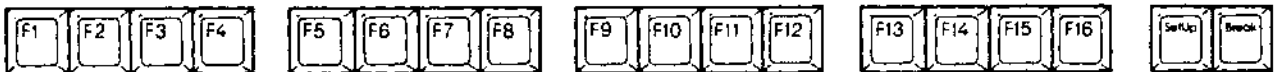
SPANISH

Hex Value 23 40 5B 5C 5D 5E 60 7B 7C 7D 7E

US

Danish

23	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	US	US	US	US	US	US	US	US	US	US
Danish	Danish	Danish	Danish	Danish	Danish	Danish	Danish	Danish	Danish	Danish



DANISH

Appendix E

COMMAND GUIDE

The command guide is a comparative listing by function of the control codes, escape codes, and keys that can generate those actions. The complete sequence formats for escape codes are not included. See "Escape Codes" in Chapter 6 for the exact escape sequences.

When ON has been chosen for the ENHANCE parameter in the setup, the generated codes for the Hazeltine 1500 and the ADDS Viewpoint terminals (when selected in the COMPATIBLE MODE parameter) are complemented by a majority of the WY-50 commands normally unavailable for those terminals. These commands appear below within a special box to indicate their availability. When the Hazeltine 1500 is enhanced, ESC can be interchanged with ~ in command sequences.

Function	Command					
CURSOR CONTROL	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Back tab	ESC I Shift TAB	ESC I Shift TAB	ESC I Shift TAB	ESC I Shift TAB	ESC I	ESC I Shift TAB
Home	CTRL ^ ESC { HOME	CTRL ^ ESC { HOME	CTRL ^ ESC { HOME	CTRL ^ ESC { HOME	~ CTRL R ESC { HOME	CTRL A ESC { HOME
Move down; no scroll				CTRL V ▼	~ CTRL K ▼	
Move down; scroll	CTRL J ▼	CTRL J ▼	CTRL J ▼	CTRL J Shift ▼	CTRL J Shift ▼	CTRL J ▼
Move left	CTRL H ◀ BACKSPACE	CTRL H ◀ BACKSPACE	CTRL H ◀ BACKSPACE	CTRL H ◀ BACKSPACE	CTRL H ◀ BACKSPACE	CTRL U ◀ BACKSPACE
Move right	CTRL L ▶	CTRL L ▶	CTRL L ▶	CTRL L ▶	CTRL P ▶	CTRL F ▶
Move up; no scroll	CTRL K ▲	CTRL K ▲	CTRL K ▲	CTRL K ▲	~ CTRL L ▲	CTRL Z ▲
Move up; scroll	ESC j	ESC j		ESC j		

Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Return (selectable)	CTRL M ENTER RETURN	CTRL M ENTER RETURN	CTRL M ENTER RETURN	CTRL M ENTER RETURN	CTRL M ENTER RETURN	CTRL M ENTER RETURN
Return new line (selectable)	CTRL RETURN	CTRL RETURN	CTRL RETURN	CTRL RETURN	RETURN	CTRL RETURN
Tab (selectable)	CTRL I ENTER ESC i TAB	CTRL I ENTER ESC i TAB	CTRL I ENTER ESC i TAB	CTRL I ENTER ESC i TAB	CTRL I ENTER ESC i TAB	CTRL I ENTER TAB
Skip to alternate text segment	ESC J ESC K PAGE NEXT PAGE PREV	ESC J ESC K PAGE NEXT PAGE PREV	ESC J ESC K PAGE NEXT PAGE PREV	ESC J ESC K PAGE NEXT PAGE PREV	ESC J ESC K	ESC J PAGE NEXT PAGE PREV
Skip to specific text segment	ESC -	ESC -	ESC -	ESC -	ESC -	ESC -
Skip to specific column		ESC]				CTRL P
Skip to specific row		ESC [				CTRL K
Skip to specific row and column (80-col.)	ESC =	ESC =	ESC =	ESC =	~ CTRL Q	ESC Y
Skip to specific row and column	ESC a	ESC d	ESC d	ESC d	ESC a	ESC a
DISPLAY CONTROL	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Activate text segment 0	ESC]				ESC]	ESC]
Activate text segment 1	ESC }	ESC }	ESC }	ESC }	ESC }	ESC }
Clear all to nulls	ESC *	ESC *	ESC *	ESC *	ESC *	CTRL L
Clear all to pro- tected spaces	ESC ,	ESC ,	ESC ,	ESC ,	~ CTRL W	ESC ,
Clear all to spaces	ESC +		ESC +		~ CTRL \ ESC + CLR SCRN	ESC +

Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Clear single tab	ESC 2	ESC 2	ESC 2	ESC 2	ESC 2	ESC 2
Clear tabs	ESC Ø	ESC 3	ESC 3	ESC 3	ESC 3	
Clear unprotected to nulls	ESC :	ESC :	ESC :	ESC :	~ CTRL \ ESC :	ESC :
Clear unprotected to spaces	CTRL Z ESC ;	CTRL Z ESC + ESC ;	CTRL Z ESC ;	CTRL Z ESC + ESC ;	~ CTRL] ESC ;	ESC ;
Clear unprotected with attribute	ESC !	ESC !	ESC !	ESC !	ESC !	ESC !
Clear unprotected with code	ESC .				ESC .	ESC .
Delete character	ESC W DEL CHAR	ESC W DEL CHAR	ESC W DEL CHAR	ESC W DEL CHAR	ESC W	ESC W DEL CHAR
Delete row	ESC R DEL LINE	ESC R DEL LINE	ESC R DEL LINE	ESC R DEL LINE	ESC R	ESC 1 (L) DEL LINE
Enter end-of-message (ETX)	ESC 9	ESC 9	ESC 9	ESC 9	ESC 9	ESC 9
Enter function key label	ESC z	ESC f	ESC f	ESC f	ESC z	ESC z
Enter graphic character	ESC H	ESC H	ESC H	ESC H	ESC H	ESC H
Enter host message	ESC F	ESC F	ESC F	ESC F	ESC F	ESC F
Enter start-of-message (STX)	ESC 8	ESC 8	ESC 8	ESC 8	ESC 8	ESC 8
Erase to end of page with nulls	ESC y	ESC y	ESC y	ESC y	ESC y	ESC y
Erase to end of page with spaces	ESC Y CLR SCRN	ESC Y CLR SCRN	ESC Y CLR SCRN	ESC Y CLR SCRN	~ CTRL X	ESC k CLR SCRN
Erase to end of row with nulls	ESC t	ESC t	ESC t	ESC t	ESC t	ESC t
Erase to end of row with spaces	ESC T CLR LINE	ESC T CLR LINE	ESC T CLR LINE	ESC T CLR LINE	~ CTRL O CLR LINE	ESC K CLR LINE

Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Insert character	ESC Q INS CHAR	ESC Q INS CHAR	ESC Q INS CHAR	ESC Q INS CHAR	ESC Q	ESC Q INS CHAR
Insert row with spaces	ESC E INS LINE	ESC E INS LINE	ESC E INS LINE	ESC E INS LINE	~ CTRL Z INS LINE	ESC M INS LINE
Scroll faster	Shift CTRL ▲	Shift CTRL ▲	Shift CTRL ▲	Shift CTRL ▲	Shift CTRL ▲	Shift CTRL ▲
Scroll slower	Shift CTRL ▼	Shift CTRL ▼	Shift CTRL ▼	Shift CTRL ▼	Shift CTRL ▼	Shift CTRL ▼
Select screen format	ESC x	ESC |	ESC |	ESC |	ESC x	ESC x
Select screen features	ESC `	ESC .	ESC .	ESC .	ESC `	ESC `
Set attribute for cursor	ESC `	ESC .	ESC .	ESC .	ESC `	ESC `
Set attribute for display field	ESC G	ESC G	ESC G	ESC G	ESC G	ESC G
Set attribute for message field/screen	ESC A	ESC \	ESC \	ESC \	ESC A	ESC A
Set attribute for protected character						ESC Ø
Set blank start			ESC _			
Set blank end			ESC q			
Set blink start			ESC ^			
Set blink end			ESC q			
Set protected column	ESC V	ESC V	ESC V	ESC V	ESC V	ESC V
Set reverse start			ESC j			
Set reverse end			ESC k			
Set tab	ESC l	ESC l	ESC l	ESC l	ESC l	ESC l

Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Set underline start			ESC l (L)			
Set underline end			ESC m			
MODE CONTROL	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Block mode on	ESC B Shift BREAK	ESC B Shift BREAK	ESC B Shift BREAK	ESC B Shift BREAK	ESC B Shift BREAK	ESC B Shift BREAK
Caps lock submode on/off	CAPS LOCK	CAPS LOCK	CAPS LOCK	CAPS LOCK	CAPS LOCK	CAPS LOCK
Conversation mode on	ESC C Shift BREAK	ESC C Shift BREAK	ESC C Shift BREAK	ESC C Shift BREAK	ESC C Shift BREAK	ESC C Shift BREAK
Duplex edit submode on	ESC l (L)			ESC l (L)		
Full duplex mode on	ESC D F	ESC D F	ESC D F	ESC D F	ESC D F	ESC D F
Graphic submode off	ESC H EIX	ESC H EIX	ESC H EIX	ESC H EIX	ESC H EIX	ESC H EIX
Graphic submode on	ESC H SIX	ESC H SIX	ESC H SIX	ESC H SIX	ESC H SIX	ESC H SIX
Half-duplex block mode on	ESC D H then ESC B	ESC D H then ESC B	ESC D H then ESC B	ESC D H then ESC B	ESC D H then ESC B	ESC D H then ESC B
Half duplex mode on	ESC D H	ESC D H	ESC D H	ESC D H	ESC D H	ESC D H
Insert submode off	ESC r REPL	ESC r REPL		ESC r REPL	ESC r	ESC r REPL
Insert submode on	ESC q INS	ESC q INS	.	ESC q INS	ESC q	ESC q INS
Local edit submode on	ESC k			ESC k	,	
Monitor submode off	ESC u ESC X Shift CTRL In	ESC u ESC X Shift CTRL In	ESC u ESC X Shift CTRL In	ESC u ESC X Shift CTRL In	ESC u ESC X Shift CTRL In	ESC u ESC X Shift CTRL In

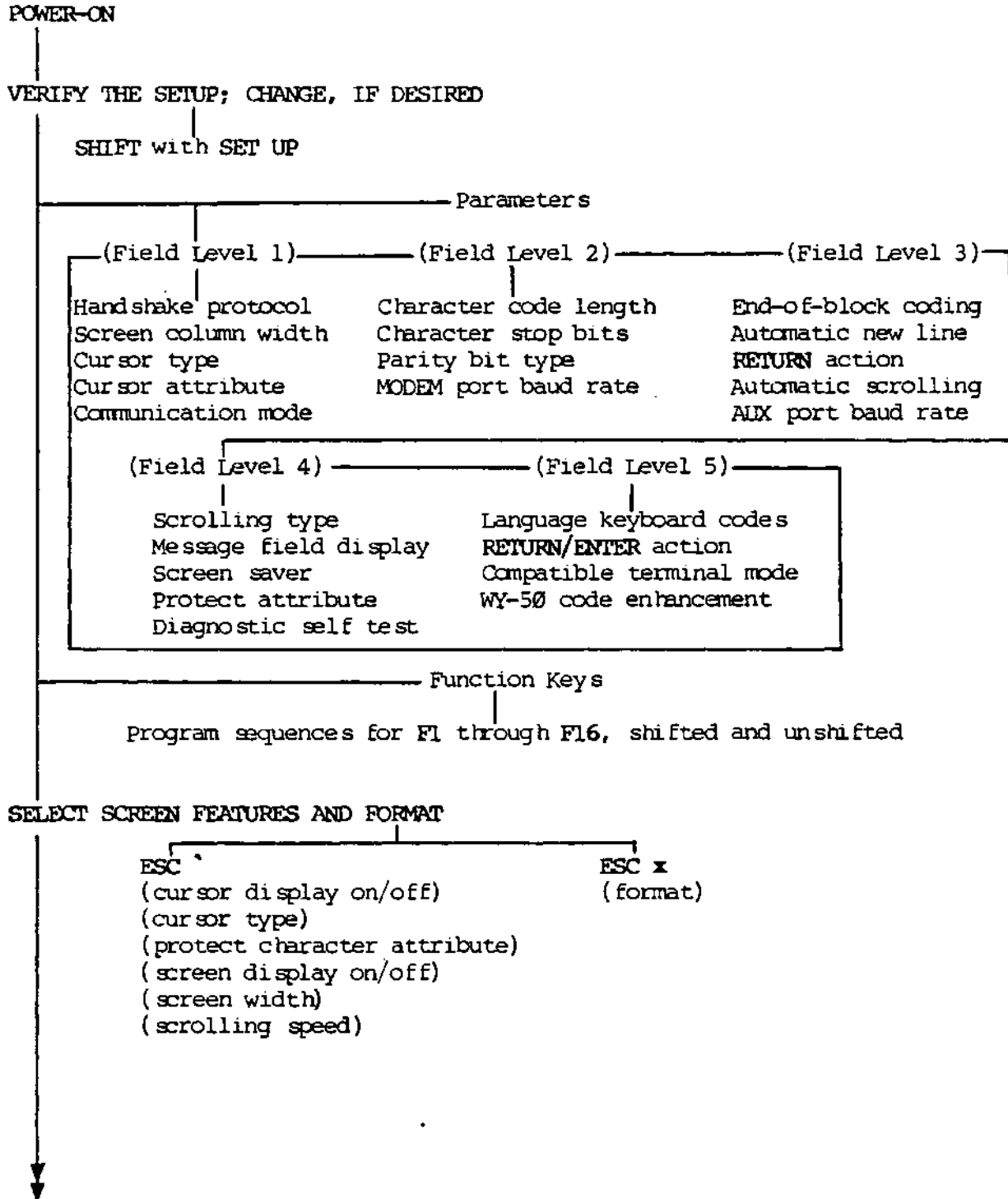
Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Monitor submode on	ESC U Shift CTRL ln	ESC U Shift CTRL ln	ESC U Shift CTRL ln	ESC U Shift CTRL ln	ESC U Shift CTRL ln	ESC U Shift CTRL ln
No scroll submode off	ESC O				ESC O	ESC O
No scroll submode on	ESC N				ESC N	ESC N
Protect submode off	ESC '	ESC '	ESC '	ESC '	ESC '	ESC '
Protect submode on	ESC &	ESC &	ESC &	ESC &	ESC &	ESC &
Write protect submode off	ESC (	ESC (	ESC (	ESC (	~ CTRL _	CTRL O
Write protect submode on	ESC)	ESC)	ESC)	ESC)	~ CTRL Y	CTRL N
TERMINAL CONTROL	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Display setup parameters	Shift SET UP	Shift SET UP	Shift SET UP	Shift SET UP	Shift SET UP	Shift SET UP
Identify terminal	ESC (SPACE)	ESC (SPACE)	ESC (SPACE)	ESC (SPACE)	ESC (SPACE)	ESC (SPACE)
Key click on/off	Shift ENTER	Shift ENTER	Shift ENTER	Shift ENTER	Shift ENTER	Shift ENTER
Lock keyboard	CTRL O ESC #	ESC #	ESC #	ESC #	~ CTRL U ESC #	CTRL D ESC 5
Sound beeper	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G	CTRL G
Unlock keyboard	CTRL N ESC " SET UP	ESC " SET UP	ESC " SET UP	ESC " SET UP	~ CTRL F ESC " SET UP	CTRL B ESC 6 SET UP
TRANSMISSION TO/FROM HOST	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Enable transmission	CTRL Q	CTRL Q	CTRL Q	CTRL Q		CTRL Q
Enable XON/XOFF				CTRL O		
Disable transmission	CTRL s	CTRL s	CTRL s	CTRL s		CTRL s

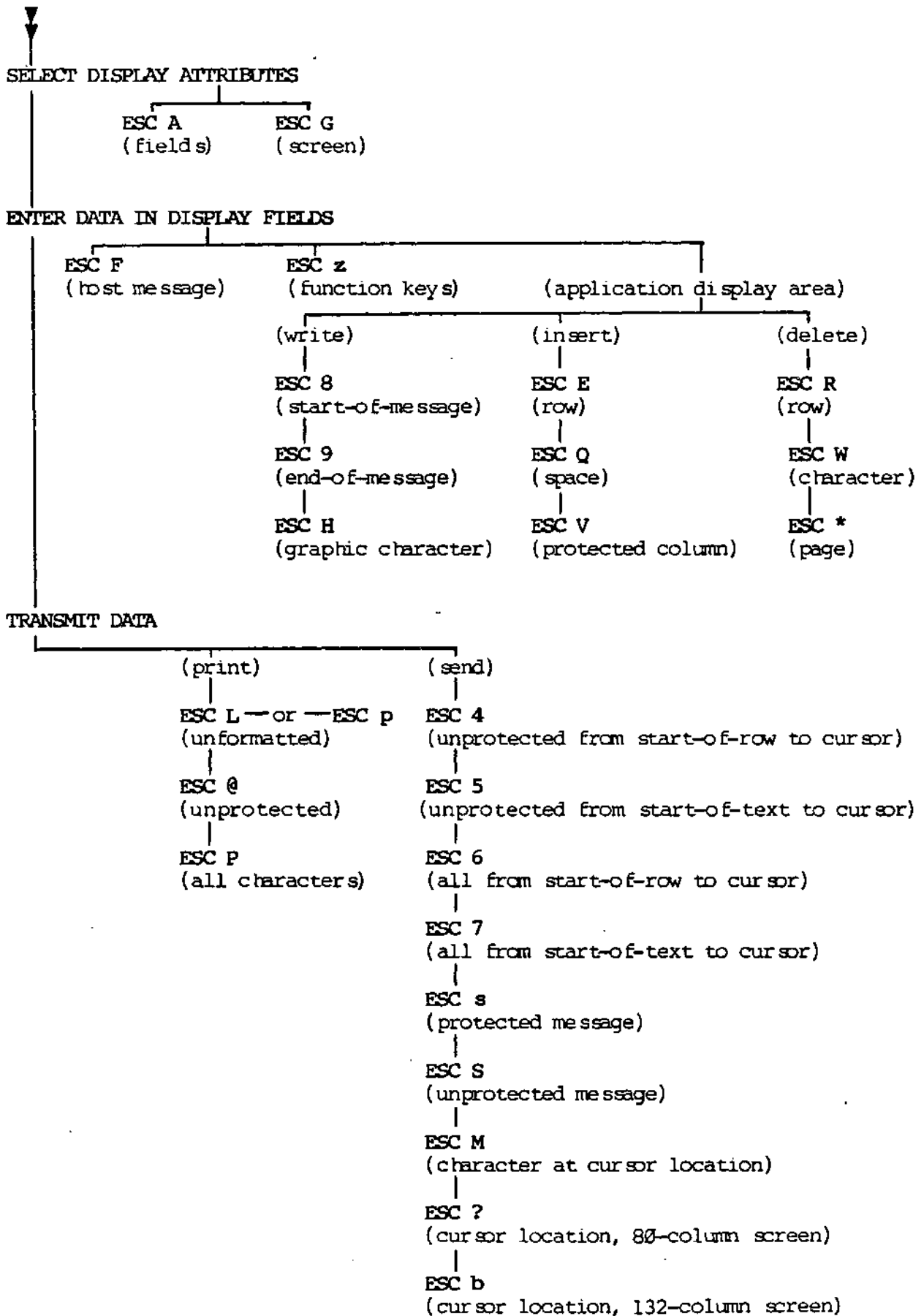
Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Disable XON/XOFF				CTRL N		
Initiate escape code sequence	CTRL [ESC	CTRL [ESC	CTRL [ESC	CTRL [ESC	CTRL [ESC	CTRL [ESC
Interrupt a transmission	BREAK	BREAK	BREAK	BREAK	BREAK	BREAK
Read cursor address and text segment	ESC /	ESC /	ESC /	ESC /	ESC /	ESC /
Read cursor row and column (80-col.)	ESC ?	ESC ?	ESC ?	ESC ?	~ CTRL E	ESC ?
Read cursor row and column (132-col.)	ESC b	ESC b	ESC b	ESC b	ESC b	ESC b
Return ACK	CTRL E	CTRL E	CTRL E	CTRL E	CTRL E	CTRL E
Send character	ESC M	ESC M	ESC M	ESC M	ESC M	ESC M
Send message	ESC s	ESC s	ESC s	ESC s	ESC s	ESC s
Send page	ESC 7 SEND	ESC 7 SEND	ESC 7 SEND	ESC 7 SEND	ESC 7 SEND	ESC 7 SEND
Send row	ESC 6	ESC 6	ESC 6	ESC 6	ESC 6	
Send unprotected message	ESC S	ESC S	ESC S	ESC S	ESC S	ESC S
Send unprotected page	ESC 5	ESC 5	ESC 5	ESC 5	ESC 5	
Send unprotected row	ESC 4	ESC 4	ESC 4	ESC 4	ESC 4	
TRANSMISSION TO PRINTER	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Auxiliary print off	CTRL T Shift CTRL PRINT SET UP	CTRL T ESC A Shift CTRL PRINT SET UP	CTRL T ESC A Shift CTRL PRINT SET UP	CTRL T ESC A Shift CTRL PRINT SET UP	CTRL T Shift CTRL PRINT SET UP	CTRL T Shift CTRL PRINT SET UP

Function	Command					
	WY-50	TVI-910	TVI-920	TVI-925	HZ-1500	ADDS-VP
Auxiliary print on	CTRL R Shift CTRL PRINT	CTRL R ESC @ Shift CTRL PRINT	CTRL R ESC @ Shift CTRL PRINT	CTRL R ESC @ Shift CTRL PRINT	CTRL R Shift CTRL PRINT	CTRL R Shift CTRL PRINT
Interrupt a transmission	BREAK	BREAK	BREAK	BREAK	BREAK	BREAK
Print all unformatted	ESC L ESC p	ESC L ESC p	ESC L ESC p	ESC L ESC p	ESC L ESC p	ESC L ESC p
Print page	ESC P PRINT	ESC P PRINT	ESC P PRINT	ESC P PRINT	ESC P PRINT	ESC P PRINT
Print unprotected	ESC @				ESC @	ESC @
Transparent print off	CTRL T Shift CTRL PRINT SET UP	ESC a Shift CTRL PRINT SET UP		ESC a Shift CTRL PRINT SET UP		ESC 4 Shift CTRL PRINT SET UP
Transparent print on	CTRL X	ESC `		ESC `		ESC 3

Appendix F

QUICK OPERATION MAP





Appendix G

USER'S GLOSSARY

ASCII a binary number code developed by the American Standard Code for Information Interchange that is assigned to each displayed and non-displayed character.

attribute a display feature such as dim, underscore, blinking, nonblinking, reverse video, and blank.

baud rate the rate of transmission, measured in bits per second (bps).

break a communication signal that halts transmission.

character string a sequence or group of connected characters, including any space characters.

column one of the 80 or 132 one-character-wide vertical display fields possible on the screen at the same time.

configuration the setup of terminal parameters.

control code a non-printing character that sends a command to or from the host computer.

CRT the abbreviation for cathode ray tube, the terminal screen.

cursor a screen position indicator that displays where the next keystroke will have an effect.

data all ASCII encoded characters and commands that can be transmitted.

default the parameter selection followed by the firmware in the absence of user specification.

DIN Deutsches Institut fur Normung, the standards institute of the German Federal Republic (West Germany).

ergonomic designed for maximum human operating comfort.

escape code an ASCII encoded sequence that initiates an action.

function a software routine that performs a task.

handshake the mutual signal a computer and a terminal exchange to assure orderly exchange of information.

home the character position at column 1 row 1 of the active text segment.

interface a communications cable and its plug/socket connectors.

key click an audible beep that sounds when a key has been pressed.

microprocessor a silicon chip that is the central processing unit of the microcomputer.

null a control character that serves to accomplish media fill or time fill.

operation the execution of a function or mode.

parameter a variable that determines the action taken for a subroutine.

parity a redundant bit added to a character so that an inaccurate retrieval of that group of bits is readily apparent.

reverse video a video attribute where data displays as dark characters on a light background.

row one of the 26 one-character-high horizontal display fields possible on the screen at the same time.

split screen an independent portion of the application display area.

text segment one of the split screen area in which data can be entered.

toggle to switch between one of two operating states, such as on/off.

VDT the abbreviation for video display terminal.