

EK-VK100-PS-001

VK100

POCKET SERVICE GUIDE

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CONTENTS

1 TROUBLESHOOTING

1.1	Introduction	1
1.2	Troubleshooting with Self-Test	1
1.3	Troubleshooting the Basic Terminal	1
1.4	Recommended Spares List	1

2 OPERATING SUMMARY

2.1	Introduction	11
2.2	SET-UP Default Switch Pack Settings	11
2.3	SET-UP Parameter Summary	11

3 TESTING

3.1	Introduction	22
3.2	Power-Up Self-Tests	22
3.3	Diagnostic Tests	23
3.3.1	External Communications Test	23
3.3.2	Hardcopy Communications Test	24
3.3.3	Display Test	24
3.3.4	Color Bar Test	25
3.3.5	Screen Alignment Pattern	26
3.4	Error Codes	26

4 ADJUSTMENTS

4.1	Introduction	34
-----	--------------------	----

5 REMOVAL AND REPLACEMENT

5.1	General	35
5.2	Top Cover Removal	36
5.3	Keyboard Assembly Removal	36
5.4	Power Supply Assembly Removal	37

5.5	Power Supply Regulator Board Removal	38
5.6	Power Supply Fan Assembly Removal	39
5.7	Terminal Logic Board Removal	39

6 PHYSICAL/FUNCTIONAL BLOCK DIAGRAM

FIGURES

2-1	VK100 Default SET-UP Switches	12
5-1	Module Removal Sequence	35
5-2	VK100 Terminal (Bottom View)	36
5-3	Keyboard Assembly Removal	37
5-4	VK100 Terminal (Rear View)	38
5-5	Power Supply Assembly Removal	38
5-6	Power Supply Fan Assembly Removal	40
5-7	Terminal Logic Board Removal	40
6-1	VK100 Physical/Functional Block Diagram	41

TABLES

1-1	Fatal Error Codes	2
1-2	Nonfatal Error Codes	3
1-3	VK100 Troubleshooting	4
1-4	On-Site Recommended Spares	9
1-5	DIGITAL Servicenter Recommended Spares	10
2-1	SET-UP Parameter Summary	13
3-1	Fatal Error Codes	27
3-2	Nonfatal Error Codes	28

1 TROUBLESHOOTING

1.1 INTRODUCTION

This chapter contains all of the troubleshooting information for the VK100 (GIGI) terminal. This chapter can be used in two ways. If you have an error message on the terminal LEDs or monitor refer to Paragraph 1.2. If you have a problem with the terminal but it was not detected with the self-tests, refer to Paragraph 1.3.

1.2 TROUBLESHOOTING WITH SELF-TEST

The VK100 contains a series of internal self-tests designed to isolate a failure to a field replaceable unit (FRU). Tables 1-1 and 1-2 show the error codes, the detected failure, and the FRU to replace.

1.3 TROUBLESHOOTING THE BASIC TERMINAL

Table 1-3 lists some possible VK100 failures and associated symptoms. To use the table simply select the symptom that matches the terminal failure. The last two columns of the table indicate any simple checks that can be made and the recommended corrective action. The corrective actions are listed in the order of priority; the most probable module is listed first. If two modules have the same priority the easiest to replace is listed first.

1.4 RECOMMENDED SPARES LIST (RSL)

There are two levels of basic support for the VK100 terminal: on-site, and DIGITAL Servicenter. Table 1-4 lists the recommended spares for on-site support. Table 1-5 lists the recommended spares for DIGITAL Servicenter support.

2 TROUBLESHOOTING

Table 1-1 Fatal Error Codes

LED Error Code								
	N							
O	O		H					
N	S		R					
L	C	B	D					
L	O	R	A	C				
I	C	O	S	O				
N	A	L	I	P	L	L		
E	L	L	C	Y	1	2	Meaning	
							Module to Replace	
0	X	0	0	0	0	0	Microprocessor error	Logic
X	0	0	X	X	X	X	Data code	
0	X	0	0	0	0	X	ROM error	Logic
X	0	0	0	?	?	?	Data code	
0	X	0	0	0	X	0	RAM Error	Logic
X	0	0	0	?	?	?	Data code	
0	X	0	0	0	X	X	CRT controller error	Logic
X	0	0	X	X	X	X	Data code	
0	X	0	0	X	0	0	CRT controller timeout	Logic
X	0	0	X	X	X	X	Data code	
0	X	0	0	X	0	X	Vector timeout error	Logic
X	0	0	X	X	X	X	Data code	

X = ON
0 = OFF
? = Variable condition

Table 1-2 Nonfatal Error Codes

LED Error Code						
N	O	H	A	R	D	C
S	B	D	C	O	S	O
R	A	C	L	L	Screen	Module to
O	S	O	1	2	Code	Replace
L	I	P	L	L	Screen	Module to
L	C	Y	1	2	Code	Replace
0	0	0	0	B	KB Err	Keyboard
0	0	0	B	0	IC Err	Logic
0	0	0	B	0	ID Err	Logic
0	0	0	B	0	IT Err	Logic
0	0	0	B	0	EC Err	Logic
0	0	0	B	0	ED Err	Logic
0	0	0	B	0	ET Err	Logic
0	0	0	B	0	EM Err	Logic
0	0	0	B	0	HC Err	Logic
0	0	0	B	0	HD Err	Logic
0	0	0	B	0	HT Err	Logic
0	0	0	B	B	KC Err	Keyboard and Logic
0	0	0	B	B	KD Err	Keyboard and Logic
0	0	0	B	B	KT Err	Keyboard and Logic
0	0	B	0	0	None	Logic
0	0	B	0	B	KB Err	Keyboard and Logic
0	0	B	B	0	IC Err	Logic
0	0	B	B	0	ID Err	Logic
0	0	B	B	0	IT Err	Logic
0	0	B	B	B	KC Err	Keyboard and Logic
0	0	B	B	B	KD Err	Keyboard and Logic
0	0	B	B	B	KT Err	Keyboard and Logic
0	B	0	0	0	None	Logic
0	B	0	0	B	KB Err	Keyboard and Logic
0	B	0	B	0	IC Err	Logic
0	B	0	B	0	ID Err	Logic
0	B	0	B	0	IT Err	Logic
0	B	0	B	B	KC Err	Keyboard and Logic
0	B	0	B	B	KD Err	Keyboard and Logic

4 TROUBLESHOOTING

Table 1-2 Nonfatal Error Codes (Cont)

LED Error Code						
N O S C R O L L	B A B I C	H A R D S O P Y	L 1	L 2	Screen Code	Module to Replace
0	B	0	B	B	KT Err	Keyboard and Logic
0	B	B	0	0	None	Logic
0	B	B	0	B	KB Err	Keyboard and Logic
0	B	B	B	0	IC Err	Logic
0	B	B	B	0	ID Err	Logic
0	B	B	B	0	IT Err	Logic
0	B	B	B	B	KC Err	Keyboard and Logic
0	B	B	B	B	KD Err	Keyboard and Logic
0	B	B	B	B	KT Err	Keyboard and Logic

0 = LED off

X = LED on

B = LED blinking

Table 1-3 VK100 Troubleshooting

Type of Problem	Symptom	Check	Corrective Action
Power	No LEDs, no video on monitor, no SET-UP key response, no fan	Line fuse	Replace if open.
		Power cord	Reconnect at both ends, Replace power cord if open.
		Power supply connections J2 and J3	Reconnect power supply. Replace power supply.

Table 1-3 VKI00 Troubleshooting (Cont)

Type of Problem	Symptom	Check	Corrective Action
Power (Cont)	No LEDs, no video on monitor, no SET-UP key response, Fan is on.	Check power supply voltages: +12, +5, -12, (Fig. 6-1)	If voltages are wrong replace power supply.
			If voltages are ok: Replace keyboard.
			Replace logic board.
	No LEDs, no SET-UP key response, Fan is on and video present on monitor.		Replace keyboard.
			Replace logic module. Replace power supply.
	No LEDs, Fan is on, SET-UP key responds, and video is present on monitor.		Replace keyboard.
			Replace logic module.
No fan, SET-UP key responds, LEDs are on and video is present on monitor.	Fan is obstructed. Fan cable.	Clear obstruction.	
		Replace power supply.	
	Error code displayed in LEDs (self-test error).		See Tables 1-1 and 1-2.
Video with a color monitor,	No cursor displayed,	HP, HM, or VM SET-UP features are set wrong.	Change SET-UP feature settings.

6 TROUBLESHOOTING

Table 1-3 VK100 Troubleshooting (Cont)

Type of Problem	Symptom	Check	Corrective Action
Video w/color monitor (Cont)		Monitor brightness	Increase monitor brightness.
		Monitor power on	Turn monitor power on.
		Have customer check monitor fuse.	Have customer replace monitor fuse.
		Run color bar and screen alignment self-tests	Replace logic board. Replace video cable.
		Have customer swap monitor with another	If problem is solved the monitor is bad. Monitor repair is the customer's responsibility.
	Wrong color displayed.	Check video connections.	Reconnect video cable. Replace video cable. Have customer adjust monitor.
	Incorrect data displayed or sync is lost.		Replace video cable. Replace logic module.

Table 1-3 VK100 Troubleshooting (Cont)

Type of Problem	Symptom	Check	Corrective Action
		Monitor is bad,	Monitor repair is the customer's responsibility.
	No color is displayed. The monitor display is always white.		Replace logic module.
Video with black and white (mono-chrome) monitor.	No cursor displayed.	HP, HM or VM SET-UP features are set wrong.	Change SET-UP feature settings.
		Monitor brightness.	Increase monitor brightness.
		Monitor power on.	Turn monitor power on.
		Have customer check monitor fuse.	Have customer replace monitor fuse.
		Run color bar and screen alignment self-test	Replace video cable. Replace logic module.
		Have customer swap monitor with another.	If problem is solved, the monitor is bad. Monitor repair is the customer's responsibility.

Table 1-3 VK100 Troubleshooting (Cont)

Type of Problem	Symptom	Check	Corrective Action
	Incorrect data is displayed or sync is lost.		Replace video cable. Replace logic module.
		Monitor is bad.	Monitor repair is the customer's responsibility.
Hardcopy	No hardcopy output (1 or more terminals)	Make sure all GIGI and LA34VA terminals are turned on. Make sure correct I/O cables are used and connected	
		Perform the hardcopy self-test on all GIGI terminals in the string.	Replace logic module on failing unit. Replace hardcopy cable.
		Perform the LA34VA self-test.	The problem is in the LA34VA.
	Wrong data is printed.	Check the SET-UP parameters at GIGI and LA34VA terminals.	Change the SET-UP parameters.
		Perform the hardcopy self-test.	Replace logic module. The problem is in the LA34VA.

Table 1-3 VK100 Troubleshooting (Cont)

Type of Problem	Symptom	Check	Corrective Action
Communication	VK100 does not communicate with the host system.	Check the SET-UP parameter settings in the terminal and make sure that they agree with the host system.	Change the SET-UP parameters.
		Perform the external communications self-tests.	Replace logic module. Replace communications cable.
			The problem is in either the modem (if one is used) or the system.

Table 1-4 On-Site Recommended Spares

Qty	Description	Part Number
1	Logic module	54-14230-00
1	Power supply assembly	70-17387-00
1	Keyboard assembly	70-17397-FS
1	"Y" type cable	17-00197-00
1	Video cable, coax.	17-00223-00
1	Loopback connector (EIA)	12-15336-00
1	Loopback connector (20 mA)	70-15503-00
1	Power cord (115 V)	17-00083-09
1	Power cord (230 V)	17-00083-10
1	Power cable (dc)	70-17389-00
10	Plunger, 5/16 dia.	90-09964-00
10	Grommet, snap-in, 5/16 dia.	90-09966-01
4	Screw, sems, slotted head, 4-40 × 3/8	90-09702-00
1	Fuse, 2 A, 250 V box of 5	90-07215-00
4	Screw, sems, slotted head, 10-32 × 3/8	90-06444-00
1	Keycap removal tool	74-16355

Table 1-5 DIGITAL Servicenter Recommended Spares

Qty	Description	Part Number
1	Logic module	54-14230-00
1	Power supply assembly	70-17387-00
1	Power supply module (PCB only)	12-16987-00
1	Power cable (dc)	70-17389-00
1	Receptacle assembly (ac)	70-17411-00
1	Power cord (115 V)	17-00083-09
1	Power cord (230 V)	17-00083-10
1	Power switch, 2-pole, 16 A	12-17051-00
1	Fan assembly	12-16488-00
1	Fuseholder	12-16931-00
1	Keyboard assembly	70-17397-FS
1	Keyboard distribution cable	70-17390-00
10	LED, ANCD @ 10 mA	11-10864-00
10	Keyboard plunger	12-11862-00
10	Keyboard spring	12-11863-00
20	Keyboard contact, quadfurcated	12-11865-00
20	Keyboard contact	12-11866-00
1	Switch, array cap. solid adapter	12-14332-00
1	Fuse, reg. blow, 2 A 250 V (box of 5)	90-07215-00
2	Screw, Sems, slotted head, 10-32 × 3/8	90-06444-00
10	Support, C Bd. standoffs	90-09313-00
10	Screw, Sems, slotted head, 4-40 × 3/8	90-06444-00
10	Plunger, 5/16 dia.	90-09964-00
10	Grommet, snap-in, 5/16 dia.	90-09966-01
10	Screw, captive, hex slotted	12-16682-00
10	Bumper, round	90-09538-00
10	Bumper, square	90-09624-00
10	Fastener, pinch-on	90-09601-00
10	Screw, hex head, slotted, 6-32 × 5/16	90-09967-00
2	Case, bottom	70-17394-00
2	Case, top	70-17395-00
1	"Y" type cable	17-00197-00
1	Video cable, coax	17-00223-00
1	Loopback connector (EIA)	12-15336-00
1	Loopback connector (20 mA)	70-15503-00
2	Foam insert, top	99-06742-00
2	Foam insert, bottom	99-06742-01
2	Carton, die-cut	99-06793-00
2	Polybag	99-05128-17
2	Tape	99-06486-00

2 OPERATING SUMMARY

2.1 INTRODUCTION

This chapter contains a summary of the VK100 terminal operation. The information is divided into two areas: the SET-UP default switch pack, and the SET-UP parameters.

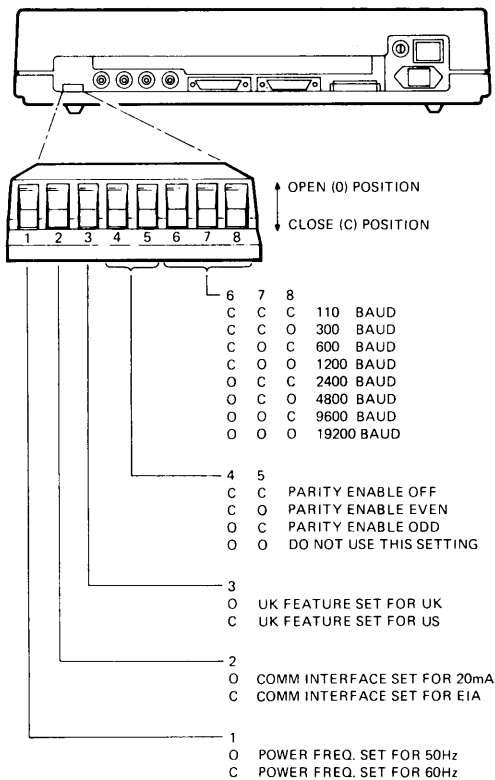
2.2 SET-UP DEFAULT SWITCH PACK SETTINGS

Figure 2-1 shows the location of the SET-UP default switch pack, how the switches are numbered, and summarizes all of the switch combinations.

2.3 SET-UP PARAMETER SUMMARY

Table 2-1 summarizes all of the SET-UP parameters. The first column lists all of the SET-UP parameters in the order they appear on the monitor screen. The second column shows the feature code and the third column shows all of the possible setting codes for the parameter. The next column shows the exact message displayed on the screen and the last column is a brief description of what the parameter does for that setting. This table is only a brief summary of the SET-UP parameters and how they affect the GIGI terminal. For a more complete description of each parameter and how it affects the terminal see the *GIGI Installation and Owner's Manual*, EK-VK100-IN.

12 OPERATING SUMMARY



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Figure 2-1 VK100 Default SET-UP Switches

Table 2-1 SET-UP Parameter Summary

Feature	Feature Code	Set Code	Displayed Message	Meaning
Transmit Speed	TS	0	TS0 110*	Set transmit speed to 110 baud
	TS	1	TS1 300	Set transmit speed to 300 baud
	TS	2	TS2 600	Set transmit speed to 600 baud
	TS	3	TS3 1200	Set transmit speed to 1200 baud
	TS	4	TS4 2400	Set transmit speed to 2400 baud
	TS	5	TS5 4800	Set transmit speed to 4800 baud
	TS	6	TS6 9600	Set transmit speed to 9600 baud
	TS	7	TS7 19.2	Set transmit speed to 19,200 baud
Receive Speed	RS	0	RS0 110*	Set receive speed to 110 baud
	RS	1	RS1 300	Set receive speed to 300 baud
	RS	2	RS2 600	Set receive speed to 600 baud

*This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of the GIGI Terminal Installation and Owner's Manual.

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message	Meaning	
	RS	3	RS3 1200	Set receive speed to 1200 baud	
	RS	4	RS4 2400	Set receive speed to 2400 baud	
	RS	5	RS5 4800	Set receive speed to 4800 baud	
	RS	6	RS6 9600	Set receive speed to 9600 baud	
	RS	7	RS7 19.2	Set receive speed to 19,200 baud	
Local/ Line	LL	0	LL0	Locl	Local mode
	LL	1	LL1	OnLn†	On-line mode
BASIC	BA	0	BA0	Off†	BASIC disabled
	BA	1	BA1	Locl	BASIC enabled in Local mode
	BA	2	BA2	Host	BASIC enabled in Host mode
Parity Enable	PE	0	PE0	Off*	Parity off, bit 8 set to SPACE
	PE	1	PE1	Even	Even parity on, bit 8 set to even parity and checked
	PE	2	PE2	Odd	Odd parity on, bit 8 set to odd parity and checked
XON/XOFF	XO	0	XO0	Off	XON/XOFF not sent automatically

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message	Meaning
	XO	1	XO1 On†	XON/XOFF sent automatically
Scroll	SM	0	SM0 Off	No scrolling
	SM	1	SM1 Jump	Jump scroll
	SM	2	SM2 Smth†	Smooth scroll
	SM	3	SM3 Wrap	Wrap scroll
Reverse Video	RV	0	RV0 Off†	Normal video (white on black)
	RV	1	RV1 On	Reverse video (black on white)
Horiz. Margins	HM	0	HM0†	No horizontal margins
	HM	1-9	HM (1-9)	Horizontal margins 1 to 9 characters from left and right
Vert. Margins	VM	0	VM0†	No vertical margins
	VM	1-9	VM (1-9)	Vertical margins 1 to 9 characters from top and bottom
Expansion Mode	EM	0	EM0 Norm†	Normal display

*This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of the GIGI Terminal Installation and Owner's Manual.

†Default value of feature.

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message		Meaning
	EM	1	EM1	Expn	Expanded mode (double width text characters)
Horiz. Position	HP	0-9	HP	(0-9)	Horizontal display position
	HP	5	HP5†		Normal horizontal display position
Over-strike	OS	0	OS0	Off†	Normal text replacement
	OS	1	OS1	On	Overlay text writing
Visual Cursor	VC	0	VC0	Off	Disable visual cursor
	VC	1	VC1	Text	Enable text visual cursor
	VC	2	VC2	Grph	Enable graphics visual cursor
	VC	3	VC3	Both†	Enable both cursors
Text Display	TD	0	TD0	Norm†	Normal processing of text display
	TD	1	TD1	Text	Display all characters as text (transparency mode): all characters are displayed as text and not processed except LF which is

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message	Meaning
				displayed as next line
	TD	2	TD2 Ctrl	Process all characters normally, display all nonrecognized characters as text
Graphics Display	GD	0	GD0 Norm†	Normal processing of graphics
	GD	1	GD1 Text	Display graphics commands as text
	GD	2	GD2 Top	Display last line of ReGIS at top of screen
	GD	3	GD3 Bottom	Display last line of ReGIS at bottom of screen
Graphics Prefix	GP	0	GP0 Off†	Disable graphics prefix mode
	GP	1	GP1 = "!"	Enable graphics prefix mode. Character shown in quotes is prefix character.
Single Character	SC	0	SC0 Off†	Normal communications operation

†Default value of feature.

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message		Meaning
	SC	1	SC1	On	Single character operation
Local Echo	LE	0	LE0	Off†	No local echo
	LE	1	LE1	On	Local echo every keystroke
New Line	NL	0	NL0	Off†	New line mode disabled
	NL	1	NL1	On	New line mode enabled
Auto Hardcopy	AH	0	AH0	Off†	Disable auto hardcopy mode
	AH	1	AH1	On	Enable auto hardcopy mode
Auto Wrap-around	AW	0	AW0	Off	Disable auto wraparound
	AW	1	AW1	On†	Enable auto wraparound
Key Repeat	KR	0	KR0	Off	Disable key repeat feature
	KR	1	KR1	On†	Enable key repeat feature
Keyclick	KC	0	KC0	Off	Disable keyclick
	KC	1	KC1	On†	Enable keyclick
Margin Bell	MB	0	MB0	Off	Disable right margin bell
	MB	1	MB1	On†	Enable right margin bell

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message		Meaning
Terminal Mode	TM	0	TM0	VT52	VT52 mode
	TM	1	TM1	ANSI†	ANSI mode
Keypad Mode	KP	0	KP0	Norm†	Numeric keypad mode
	KP	1	KP1	Appl	Application keypad mode
Cursor Key Mode	CK	0	CK0	Norm†	Cursor key mode
	CK	1	CK1	Appl	Cursor key application mode
Pro-grammed Keypad Mode	PK	0	PK0	Off†	Programmed keypad disabled
	PK	1	PK1	On	Programmed keypad enabled
Tablet Locator Mode	TL	0	TL0	Off†	Only 4 cursor keys control locator mode
	TL	1	TL1	On	Tablet and cursor keys control locator mode
UK Character Set	UK	0	UK0	US*	US character set
	UK	1	UK1	UK	UK character set

*This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of the GIGI Terminal Installation and Owner's Manual.

†Default value of feature.

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message		Meaning
Comm. Interface Used	CI	0	CI0	EIA*	EIA comm. interface selected
	CI	1	CI1	20 mA	20 mA comm. interface selected
Hardcopy Speed	HS	0	HS0	110	Set hardcopy speed to 110 baud
	HS	1	HS1	300	Set hardcopy speed to 300 baud
	HS	2	HS2	600	Set hardcopy speed to 600 baud
	HS	3	HS3	1200	Set hardcopy speed to 1200 baud
	HS	4	HS4	2400	Set hardcopy speed to 2400 baud
	HS	5	HS5	4800	Set hardcopy speed to 4800 baud
	HS	6	HS6	9600†	Set hardcopy speed to 9600 baud
	HS	7	HS7	19.2	Set hardcopy speed to 19.2K baud
Power Freq.	PF	0	PF0	60 Hz*	60 Hz power frequency
	PF	1	PF1	50 Hz	50 Hz power frequency
Interlace	IL	0	IL0	Off†	Interlace turned off

Table 2-1 SET-UP Parameter Summary (Cont)

Feature	Feature Code	Set Code	Displayed Message		Meaning
	IL	1	IL1	On	Interlace turned on
Self Test	ST	1	ST1	PwUp	Select power-up self-test
	ST	2	ST2	ExCm	Select external comm. test
	ST	3	ST3	HcCm	Select hardcopy comm. test
	ST	4	ST4	Dspl	Select display pattern test
	ST	5	ST5	CBar	Select color bar test pattern
	ST	9	ST9	Rept	Repeat selected test(s) until failure
	ST	0	ST0	Clr	Clear all selected test(s)

*This default value is determined by the settings of the default SET-UP switch pack. The procedure to change these settings is located in the installation chapter of the GIGI Terminal Installation and Owner's Manual.

†Default value of feature.

Monitor: Digital does not sell or service
a monitor that will work w/ the VK-100.
Monitor should be: 75 Ω INT SYNC

3 TESTING

3.1 INTRODUCTION

The GIGI terminal contains a complete set of hardware self-test programs that check all of the major terminal functions. The self-test indicates that a problem exists and where the problem is.

Self-test mode has two tests: power-up tests and diagnostic tests. Power-up tests automatically check the condition of the terminal every time terminal power is turned on. Diagnostic tests check the terminal outputs. Diagnostic tests do require optional test connectors.

This chapter gives all of the steps to follow to test the GIGI terminal. Paragraph 3.2 describes the power-up tests. Paragraph 3.3 describes the diagnostic tests. Paragraph 3.4 describes the error codes and their meanings.

3.2 POWER-UP SELF-TESTS

Power-up self-tests check the following terminal circuits:

- Microprocessor
- Visual and audible indicators
- Read only memory (ROM)
- Random access memory (RAM)
- CRT controller
- CRT timing
- Vector timing
- Video bit map
- Vector generator
- Keyboard
- Communications (internal).

The power-up self-test can be started in four different ways:

1. Turn the terminal power switch to the ON position.

2. Reset the terminal by pressing the **SHIFT** and auxiliary keypad **PF4** keys together in SET-UP mode.
3. Select the SET-UP self-test feature (ST1).
4. Receive a command from the host computer.

The power-up self-test takes about 15 seconds. While the test is running the monitor displays various patterns that do not make sense. This is normal. Once the test is complete the cursor appears in the upper-left corner of the monitor and *only* the ON LINE indicator lights. If the self-test finds an error it shows on either the keyboard indicators or the monitor. Paragraph 3.4 contains all of the error codes and their meanings.

3.3 DIAGNOSTIC TESTS

The GIGI terminal contains five diagnostic tests. Each test is discussed individually.

- External Communications Test
- Hardcopy Communications Test
- Display Test
- Color Bar Test
- Screen Alignment Pattern

3.3.1 External Communications Test

This test is an extension of the internal communications test in the power-up test. In the external communications test the transmit and receive lines are connected through a special loopback connector. A predefined set of characters are then transmitted. The terminal receives the characters and compares them to the characters transmitted. If the characters do not match an error is indicated. This test is performed for all communications speeds.

This test requires an optional loopback connector.

To start the external communications test perform the following steps:

1. Turn terminal power off.
2. Disconnect the communications cable from the rear of the terminal.
3. Install the optional loopback connector on the terminal communications output connector. Loopback connector part number 12-13336-00 is for EIA communications; part number 70-13503-00 is for 20 mA current loop communications.
4. Turn terminal power on.

5. Place the terminal in SET-UP mode.
6. Verify CI SET-UP feature (CI0=EIA; CI1=20 mA).
7. Set the self-test SET-UP feature for selection 2 (ST2).
8. Exit SET-UP mode by pressing the SET-UP key. This starts the test.

If no error is found by the test the cursor is displayed on the monitor. Paragraph 3.4 lists the displayed error codes and their meanings.

3.3.2 Hardcopy Communications Test

This test is similar to the external communications test described above. In the hardcopy communications test the transmit and receive hardcopy output lines are connected through an EIA loopback connector. A pre-defined set of characters is then transmitted. The terminal receives the characters and compares them to the characters transmitted. If the characters do not match an error is indicated.

This test requires an optional loopback connector.

To start the hardcopy communications test perform the following steps:

1. Turn terminal power off.
2. Disconnect the hardcopy printer cable from the rear of the terminal.
3. Install the optional loopback connector on the terminal hardcopy connector. The loopback connector is part number 12-13336-00.
4. Turn terminal power on.
5. Place the terminal in SET-UP mode.
6. Set the self-test SET-UP feature for selection 3 (ST3).
7. Exit SET-UP mode by pressing the SET-UP key. This starts the test.

If no error is found by the test the cursor is displayed on the monitor. Paragraph 3.4 lists the displayed error codes and their meanings.

3.3.3 Display Test

This test displays a full screen of blue, red, green, white, black, and a crosshatch pattern. Each display

screen lasts for approximately one-half second and the crosshatch pattern remains on the screen at the end of the test. On a black and white monitor the test displays full screens of increasing intensity.

To start the display test perform the following steps.

1. Place the terminal in SET-UP mode.
2. Set the self-test SET-UP feature for selection 4 (ST4).
3. Exit SET-UP mode by pressing the SET-UP key. This starts the test.

An error in this test occurs if one of the display screens is not shown. If this happens the monitor attached to the GIGI terminal may have failed. Proceed with the color bar test.

To clear the monitor screen reset the terminal by pressing the SHIFT and PF4/RESET Keys together.

3.3.4 Color Bar Test

This test displays a color bar/grey scale pattern on the monitor. The color bar/grey scale pattern consists of eight equally spaced vertical bars. On a color monitor the bars are in the following order from left to right:

Black	*Green	<i>Sync signal is on Green line</i>
Blue	Cyan	
Red	Yellow	
Magenta	White	

On a monochrome (black and white) monitor the bars show as different shades of grey. The bars start as black on the left and increase in intensity to a white bar on the right of the display.

To start the color bar test perform the following steps:

1. Place the terminal in SET-UP mode.
2. Set the self-test SET-UP feature for selection 5 (ST5).
3. Exit SET-UP mode by pressing the SET-UP key. This starts the test.

An error in this test occurs if the color bar/grey scale pattern is not displayed or a portion of the pattern is missing. Either error condition indicates that the attached monitor has failed, the video cable is not connected properly, or the GIGI terminal has failed. If you

suspect that the terminal has failed connect it to a different monitor and perform both the display and color bar/grey scale tests. If the same symptoms are present the second time the terminal has probably failed.

To clear the monitor screen reset the terminal by pressing the **SHIFT** and **PF4/RESET** Keys together.

3.3.5 Screen Alignment Pattern

This test fills the screen with a crosshatch pattern. The crosshatch pattern is used to adjust the display monitor connected to the GIGI terminal.

To place the screen alignment pattern on the monitor screen perform the following steps:

1. Place the terminal in SET-UP mode.
2. Set the self-test SET-UP feature for selection 4 (ST4).
3. Exit SET-UP mode by pressing the **SET-UP** key. This starts the display test. At the end of the display test the screen alignment pattern remains on the screen.

To clear the monitor screen reset the terminal by pressing the **SHIFT** and **PF4/RESET** Keys together.

3.4 ERROR CODES

There are two broad categories of errors: fatal and nonfatal. Fatal errors cause the terminal to immediately stop all operations. No intelligible information is displayed on the screen. The monitor most likely contains a random pattern. The only error indication (in addition to the random pattern) is an error code displayed on the keyboard LEDs. The possible fatal error codes are shown in Table 3-1.

The fatal error code displayed on the keyboard LED indicators contains two different messages: an error code, and a data code. The error code lights the **LOCAL** indicator and displays a code in the **BASIC**, **HARDCOPY**, **L1**, and **L2** indicators. The data code lights the **ON-LINE** indicator and is displayed in the **BASIC**, **HARDCOPY**, **L1**, and **L2** indicators. The GIGI terminal alternates between each message about every one-quarter second.

Nonfatal errors do not halt the terminal processor. Instead, the terminal displays an error code on the keyboard LEDs and in the center of the monitor screen. The terminal may still be used if a nonfatal error occurs. In this case, the terminal remains in on-line or local mode

with the appropriate indicator lit. The error is indicated by any of the BASIC, HARDCOPY, L1 or L2 indicators blinking. An example of this type of occurrence is a keyboard error. If the self-test detects a keyboard error, the L2 indicator blinks, and the message KB ERR is shown on the monitor screen.

Table 3-2 lists all of the non-fatal error codes the terminal displays and what they mean to the terminal.

Table 3-1 Fatal Error Codes

Error Code Displayed							Meaning
O N L I N E	L O C A L	N O S O L L	H A R D C O P Y	L 1	L 2		
	X	0	0	0	0	0	Microprocessor error
X		0	X	X	X	X	Data code
	X	0	0	0	0	X	ROM error
X		0	0	?	?	?	Data code
	X	0	0	0	X	0	RAM error
X		0	0	?	?	?	Data code
	X	0	0	0	X	X	CRT controller error
X		0	X	X	X	X	Data code
	X	0	0	X	0	0	CRT controller timeout
X		0	X	X	X	X	Data code
	X	0	0	X	0	X	Vector timeout error
X		0	X	X	X	X	Data code

X = ON

0 = OFF

? = variable condition

Table 3-2 Nonfatal Error Codes

LED Error Code						
N		H				
O		A				
S		R				
C	B	D				
R	A	C				
O	S	O				
L	I	P	L	L	Screen	
L	C	Y	1	2	Code	Meaning
0	0	0	0	B	KB Err	Keyboard error
0	0	0	B	0	IC Err	Internal communications control signal error
0	0	0	B	0	ID Err	Internal communications data loopback error
0	0	0	B	0	IT Err	Internal communications timeout error
0	0	0	B	0	EC Err	External communications control signal error
0	0	0	B	0	ED Err	External communications data loopback error
0	0	0	B	0	ET Err	External communications timeout error
0	0	0	0	0	EM Err	External communications modem signal error
0	0	0	B	0	HC Err	Hardcopy communications control signal error

Table 3-2 Nonfatal Error Codes (Cont)

LED Error Code					Screen	Meaning
N	O	H	L	L	Code	
S	C	R	P	1		
A	B	D	2			
R	A	C				
O	S	O				
L	I	P	1	2	Code	Meaning
L	C	Y				
0	0	0	B	0	HD Err	Hardcopy communications data loopback error
0	0	0	B	0	HT Err	Hardcopy communications timeout error
0	0	0	B	B	KC Err	Keyboard and internal communications control signal error
0	0	0	B	B	KD Err	Keyboard and internal communications data loopback error
0	0	0	B	B	KT Err	Keyboard and internal communications timeout error
0	0	B	0	0	none	Vector generator error
0	0	B	0	B	KB Err	Vector generator and keyboard error
0	0	B	B	0	IC Err	Vector generator and internal communications control signal error

Table 3-2 Nonfatal Error Codes (Cont)

LED Error Code							
N							
O		H					
		A					
S		R					
C	B	D					
R	A	C					
O	S	O					
L	I	P	L	L	Screen		
L	C	Y	1	2	Code	Meaning	
0	0	B	B	0	ID Err	Vector generator and internal communications data loopback error	
0	0	B	B	0	IT Err	Vector generator and internal communications timeout error	
0	0	B	B	B	KC Err	Vector generator, keyboard and communications control signal error	
0	0	B	B	B	KD Err	Vector generator, keyboard and internal communications data loopback error	
0	0	B	B	B	KT Err	Vector generator, keyboard and internal communications timeout error	
0	B	0	0	0	None	Video RAM error	
0	B	0	0	B	KB Err	Video RAM and keyboard error	

Table 3-2 Nonfatal Error Codes (Cont)

LED Error Code							
N							
O		H					
		A					
S		R					
C	B	D					
R	A	C					
O	S	O					
L	I	P	L	L	Screen		
L	C	Y	1	2	Code	Meaning	
0	B	0	B	0	IC Err	Video RAM and internal communications control signal error	
0	B	0	B	0	ID Err	Video RAM and internal communications data loopback error	
0	B	0	B	0	IT Err	Video RAM and internal communications timeout error	
0	B	0	B	B	KC Err	Video RAM, keyboard and internal communications control signal error	
0	B	0	B	B	KD Err	Video RAM, keyboard and internal communications data loopback error	
0	B	0	B	B	KT Err	Video RAM, keyboard and internal communications timeout error	

Table 3-2 Nonfatal Error Codes (Cont)

LED Error Code						
N O S C R O L L	B A S I C	B A S I C	P L Y	L 1	L 2	Screen Code Meaning
0	B	B	0	0	None	Video RAM and vector generator error
0	B	B	0	B	KB Err	Video RAM, vector generator and keyboard error
0	B	B	B	0	IC Err	Video RAM, vector generator and internal communications control signal error
0	B	B	B	0	ID Err	Video RAM, vector generator and internal communications data loopback error
0	B	B	B	0	IT Err	Video RAM, vector generator and internal communications timeout error
0	B	B	B	B	KC Err	Video RAM, vector generator, keyboard and communications control signal error

Table 3-2 Nonfatal Error Codes (Cont)

LED Error Code						
N						
O		H				
		A				
S		R				
C	B	D				
R	A	C				
O	S	O				
L	I	P	L	L	Screen	
L	C	Y	1	2	Code	Meaning
0	B	B	B	B	KD Err	Video RAM, vector generator, keyboard and internal communications data loopback error
0	B	B	B	B	KT Err	Video RAM, vector generator, keyboard and internal communications timeout error

0 = LED off

X = LED on

B = LED blinking

4 ADJUSTMENTS

4.1 INTRODUCTION

The VK100 is *not* adjustable. All power supply and video outputs are constant. The appropriate module must be replaced if an output is low or not present.

The video monitor *is* adjustable. The monitor is provided by the customer and is the responsibility of the customer. Adjustments to the monitor must be made by the customer or a service technician who has been qualified by the monitor manufacturer. DIGITAL does not supply any monitor for use with the VK100 terminal.

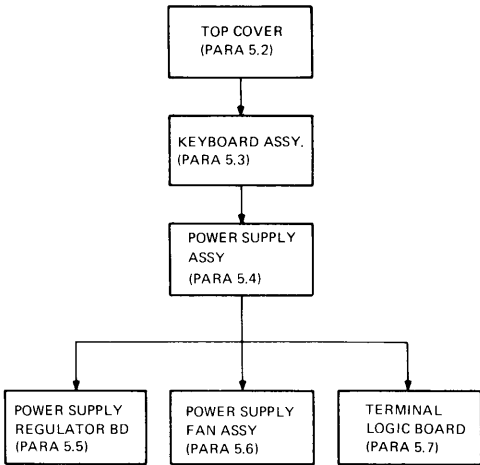
The best way to determine if the monitor requires adjustment is to swap the suspected bad monitor with one that is working correctly. If the problem disappears the monitor is bad. If the problem remains the VK100 terminal contains a problem. Use the procedures in Chapters 1 and 3 to test the terminal and locate the problem.

5 REMOVAL AND REPLACEMENT

5.1 GENERAL

This chapter contains the removal and replacement information for the mechanical subassemblies of the VK100 (GIGI) terminal.

Figure 5-1 lists all removal procedures in this chapter and the sequence in which they are performed. As an example, Figure 5-1 shows that to remove the terminal logic board the top cover, keyboard assembly, and power supply assembly removal procedures must be performed first.



MA 6703

Figure 5-1 Module Removal Sequence

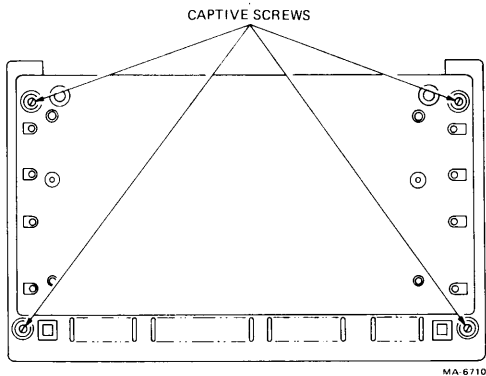


Figure 5-2 VK100 Terminal (Bottom View)

5.2 TOP COVER REMOVAL

Perform the following steps to remove the top cover.

1. Remove power from the terminal by disconnecting the ac plug.
2. Turn the terminal over so that the bottom of the terminal is accessible.
3. Loosen the four (4) captive screws at the corners of the terminal (Figure 5-2). The screws may be loosened with either a nutdriver or a blade-type screwdriver.
4. Grasp the top and bottom halves of the terminal and turn the terminal over so that the keyboard is face up.
5. Grasp the top cover by its sides and lift the cover up and off the terminal.
6. Install the top cover by performing steps 1 through 5 in reverse.

5.3 KEYBOARD ASSEMBLY REMOVAL

Perform the following steps to remove the keyboard assembly.

1. Remove the terminal top cover (Paragraph 5.2).
2. Release the four (4) pop fasteners securing the keyboard assembly to the terminal (Figure 5-3). To release the pop fasteners pull up on the plungers.

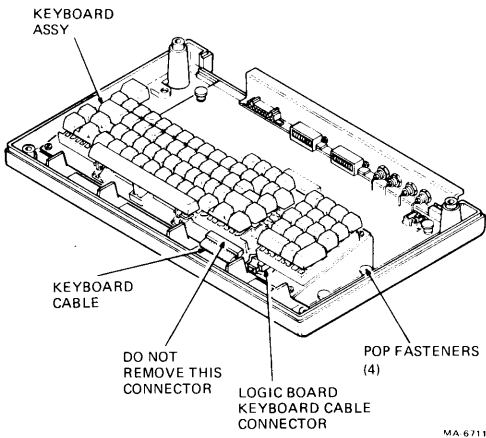


Figure 5-3 Keyboard Assembly Removal

3. Gently remove the keyboard assembly from the terminal and place it in front of the terminal.
4. Disconnect the keyboard ribbon cable from the logic board.

CAUTION

Do not disconnect the keyboard ribbon cable from the keyboard. Any attempts to do so will damage the connector and force replacement of the entire keyboard assembly.

5. Remove the keyboard assembly.
6. Install the keyboard assembly by performing steps 1 through 5 in reverse.

5.4 POWER SUPPLY ASSEMBLY REMOVAL

Perform the following steps to remove the power supply assembly.

1. Remove the terminal top cover (Paragraph 5.2).
2. Remove the keyboard assembly (Paragraph 5.3).
3. From the rear of the terminal, remove the grounding screw securing the connector bracket to the power supply chassis (Figure 5-4). The screw may be removed with either a nutdriver or a blade-type screwdriver.

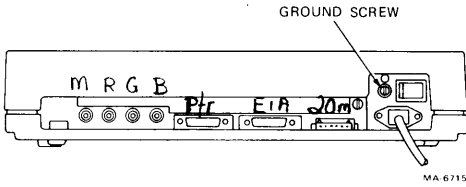


Figure 5-4 VK100 Terminal (Rear View)

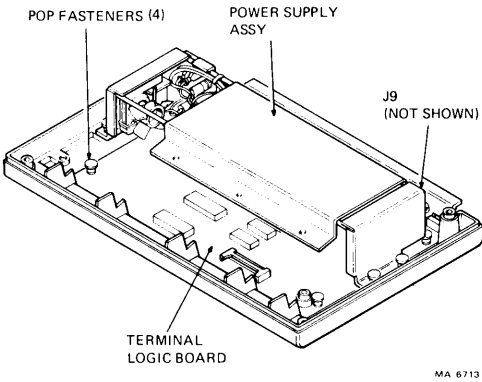


Figure 5-5 Power Supply Assembly Removal

4. Release the four (4) pop fasteners securing the power supply assembly to the terminal (Figure 5-5). To release the pop fasteners pull up on the plungers.
5. Gently remove the power supply assembly from the terminal and place it next to the rear edge of the terminal.
6. Disconnect the 6-wire power output cable from J9 on the terminal logic board.
7. Remove the power supply assembly.

NOTE

P14 connects to J14 for 115 V operation or P14 connects to J13 for 230 V operation.

8. Install the power supply assembly by performing steps 1 through 6 in reverse.

5.5 POWER SUPPLY REGULATOR BOARD REMOVAL

Perform the following steps to remove the power supply regulator.

1. Remove the terminal top cover (Paragraph 5.2).
2. Remove the keyboard assembly (Paragraph 5.3).
3. Remove the power supply assembly (Paragraph 5.4).
4. Disconnect the 3-wire connector from J11 on the regulator board.
5. Disconnect the 6-wire connector from J14 (115 V) or J13 (230 V) on the regulator board.
6. Remove the power output cable from J10 on the regulator board.
7. Remove the four (4) screws securing the regulator board to the power supply chassis. Remove the regulator board. The screws may be removed with either a nutdriver or a blade-type screwdriver.
8. Install the power supply assembly by performing steps 1 through 6 in reverse.

5.6 POWER SUPPLY FAN ASSEMBLY REMOVAL

Perform the following steps to remove the power supply fan assembly.

1. Remove the terminal top cover (Paragraph 5.2).
2. Remove the keyboard assembly (Paragraph 5.3).
3. Remove the power supply assembly (Paragraph 5.4).
4. Disconnect the 6-wire connector from J14 (115 V) or J13 (230 V) on the power supply regulator board.
5. Remove the two (2) screws securing the fan assembly to the power supply chassis (Figure 5-6). The screws may be removed with either a nutdriver or a blade-type screwdriver.
6. Install the power supply assembly by performing steps 1 through 4 in reverse.

5.7 TERMINAL LOGIC BOARD REMOVAL

Perform the following steps to remove the terminal logic board.

1. Remove the terminal top cover (Paragraph 5.2).
2. Remove the keyboard assembly (Paragraph 5.3).

40 REMOVAL AND REPLACEMENT

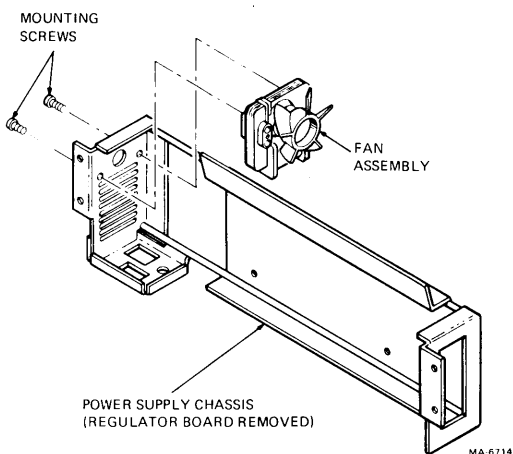


Figure 5-6 Power Supply Fan Assembly Removal

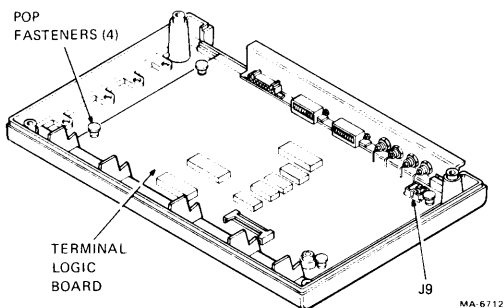
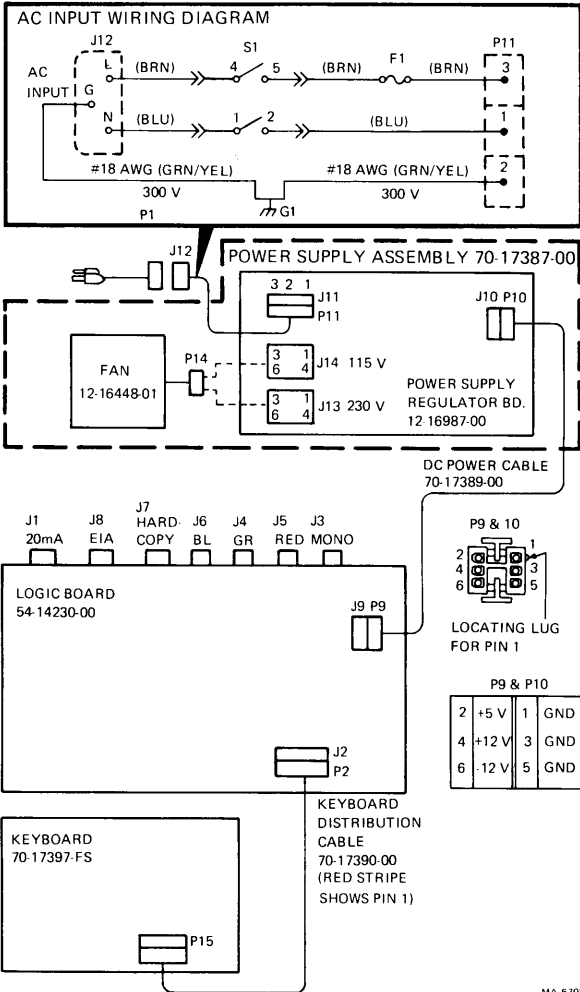


Figure 5-7 Terminal Logic Board Removal

3. Remove the power supply assembly (Paragraph 5.4).
4. Release the four (4) pop fasteners securing the logic board to the bottom cover (Figure 5-7). To release the pop fasteners pull up on the plungers.
5. Remove the terminal logic board.
6. Install the terminal logic board by performing steps 1 through 5 in reverse. Be sure to set the Default SET-UP switches to the customer settings.

6 PHYSICAL/FUNCTIONAL BLOCK DIAGRAM



MA 6708

Figure 6-1 VK100 Physical/Functional Block Diagram

