GRiD®

GRiD Convertible

Computer User's Guide

GRiD Convertible Computer
User's Guide

February 1993

P.O. Box 612706
DFW Airport, TX 75261

Manual Name: GRiD Convertible Computer User's Guide
Order Number: 002260-40
Issue Date: February 1993
Revision: B

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Federal Communications Commission Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- This computer has been FCC-certified under test conditions which include the use of SHIELDED cables. GRiD-supplied cables are shielded. To reduce the possibility of causing interference to radio, television, and other electric devices, it is important that shielded cables be used when connecting external devices. Be sure that all cables are properly connected.
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an electrical outlet on a circuit different from that to which the receiver is connected.
- Disconnect peripherals and accessories one at a time to determine which device may be causing interference. For non-GRiD Systems products, contact the dealer or manufacturer for assistance.

Digital devices, including personal computers, are operated under the authority of the Federal Communications Commission. Changes or modifications to the equipment described in this manual, which are not expressly approved by GRiD Systems Corporation, could void your authority to operate the equipment if harmful interference is caused to radio and television reception.

Canadian Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Safety Agencies (TUV, CSA, and UL)

Safety Agency markings for the pen are located on the back side of the battery housing, beneath the battery cover.

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ABOUT THIS BOOK

This manual describes how to operate the GRiD® Convertible™ computer from GRiD Systems Corporation. It shows you how to set up and get started using your computer, and includes detailed information about how to use all of the controls, connectors, and other features of the computer.

GRiD Convertible computers may be used as a "tablet" with the display closed; a pen is used to interact with pen-compatible applications. The computer is also used as a "notebook"; the display is opened to access a keyboard.

Manual Organization

The information in this manual is organized as follows:

- **Chapter 1** shows you how to get started using your GRiD Convertible computer. Read this chapter first if you want to get started quickly.
- **Chapter 2** describes the computer in detail and explains each hardware feature.
- **Chapter 3** describes the internal features that are available for your computer.
- **Chapter 4** describes how to use the different options that are available for powering the computer.
- **Chapter 5** describes and explains how to use the storage PC Cards and the internal hard disk that are used for storing data and programs in the GRiD Convertible computer. It also describes the external floppy drive.
- **Chapter 6** provides troubleshooting and diagnostic information and explains what to do if you have problems with the computer. Computer error messages also are described in this chapter.

- **Chapter 7** contains important safety information and describes how to care for and maintain the computer.

- **Chapter 8** provides information about using the MS-DOS operating system software on the GRiD Convertible computer.

- **Chapter 9** explains how to use the utility programs supplied for the GRiD Convertible computer.

- **Appendix A** provides the GRiD Convertible computer specifications; **Appendix B** tells how to install additional system RAM, and **Appendix C** provides a system memory map and connector pinout information.

A postage-paid customer response form is included at the end of this manual. Please use the form to comment on the usefulness and readability of this manual.

Related Publications

The following publications contain related information:

- *Internal Modem User's Guide* provides detailed information on using the optional internal modem and the modem command set.

- *PenRight! Application User's Guide* provides information on handwriting and using the pen effectively in PenRight!™ applications.

- The manuals in the *PenRight! Pro Software Development Kit* provide information on developing custom PenRight! programs for the GRiD Convertible computer.

- *Microsoft® Windows™ 3.1 User's Guide* provides information on using the Windows software.

- *Microsoft® Windows™ for Pen Computing 1.0 User's Guide* provides information on using the Windows pen software.

- *GRiD Model 2260 Computer Service Manual* provides information on diagnosing problems and repairing the GRiD Convertible computer.

Notational Conventions

The following conventions are used to distinguish key elements of text in this manual:

bold	Used for commands, options, switches, and literal portions of syntax that must be entered exactly as shown.
italics	Used for file names, variables and placeholders that represent the type of text to be entered by the user.
`monospace`	Used for sample command lines, program code and examples, and sample sessions.
keycaps	Used to identify keys or key sequences on the optional computer keyboard or Screen Keyboard.

Occasionally, multi-key operations, such as "press **Shift-Tab**," are described. When you see a hyphen between two keycap names, press the keys in the order in which they appear. Thus, when you read "press **Shift-Tab**," you should press the **Shift** key and, while holding it down, press and release the **Tab** key. When you see hyphens between three keycap names, press the first two keys and, while holding them down, press and release the last key.

Note that the symbol **Enter** is used throughout this book to identify the **Enter** key.

CHAPTER 1:
GETTING STARTED

This chapter shows you how to get started quickly with your GRiD Convertible computer. It covers checking the contents of the shipping box, setting up the computer, and starting up (booting) the operating system.

Checking the Contents of the Box

The parts included in the computer shipping carton are shown in Figure 1-1.

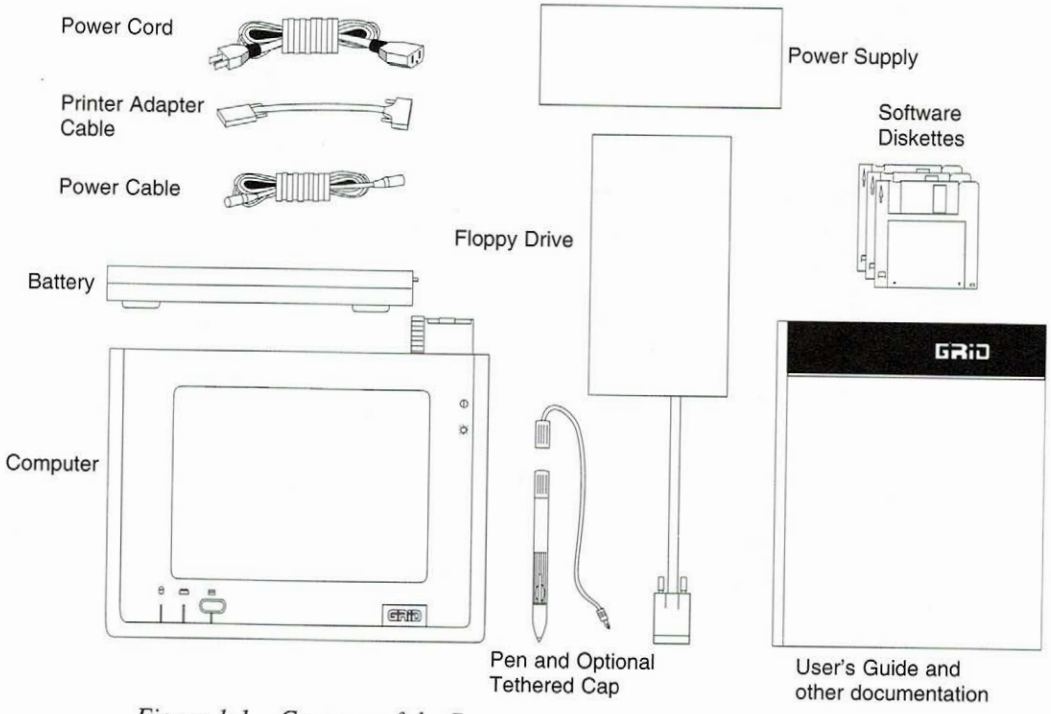


Figure 1-1. Contents of the Box

Check for shipping damage or missing parts. If any equipment is missing or damaged, and you are in the U.S., immediately contact an authorized GRiD Systems representative, call the GRiD Resource Center (GRC) at 1-800-654-GRID (4743), or write to: GRiD Systems Corporation, GRiD Resource Center, P.O. Box 612706, DFW Airport, TX 75261. Outside of the U.S., contact your local GRiD Systems representative or distributor.

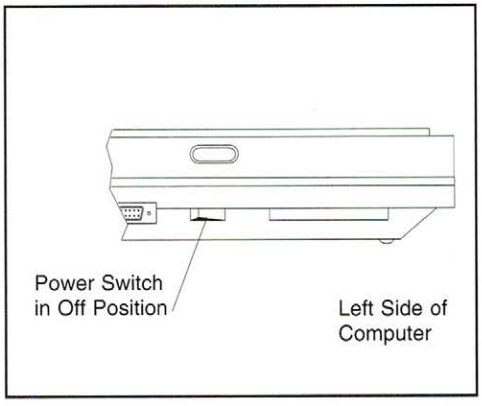
Keep the shipping carton and original packing materials in case you need to return your GRiD Convertible computer to GRiD Systems for upgrading or service. Do not return your computer to GRiD Systems until you have received prior authorization from the GRC or your GRiD Systems representative.

Getting Started

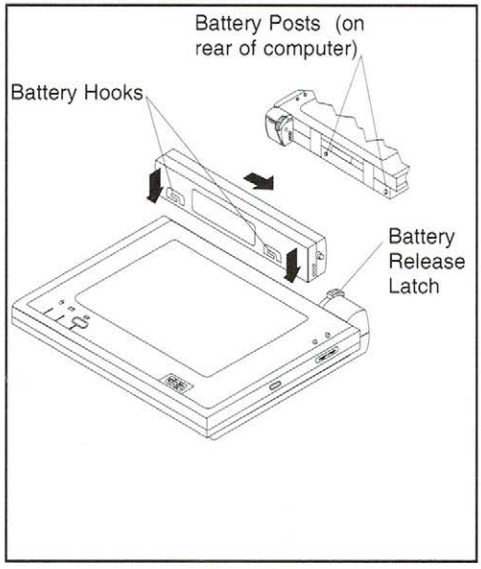
When you first receive your GRiD Convertible computer from GRiD Systems, the battery pack is not charged. You will need to use the power supply included with the computer to operate the computer and charge the battery pack. Refer to Chapter 4 for information on charging the battery pack.

After unpacking your GRiD Convertible computer from its shipping materials, follow these simple steps to get started:

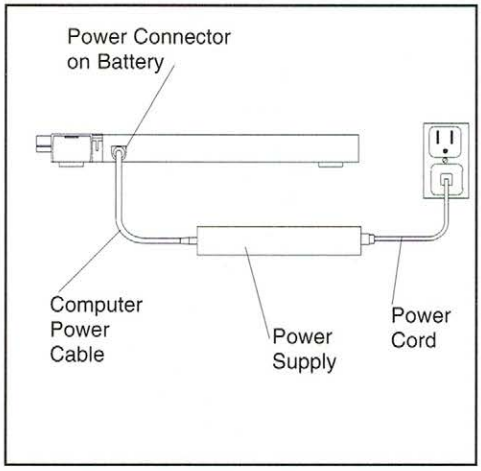
1. **Make sure the power switch on the side of the computer is off.** Press the front of the switch to turn off the computer.



2. **Connect the battery to the rear of the computer.**
   - Open the battery release latch by pushing the latch away from the computer.
   - Put the battery hooks onto the battery posts (located on the rear of the computer), and slide the battery down.
   - Slide the battery toward the battery release latch until it locks into place.
   - Close the battery release latch by sliding it towards the computer. Refer to page 4-8 for more detailed instructions.

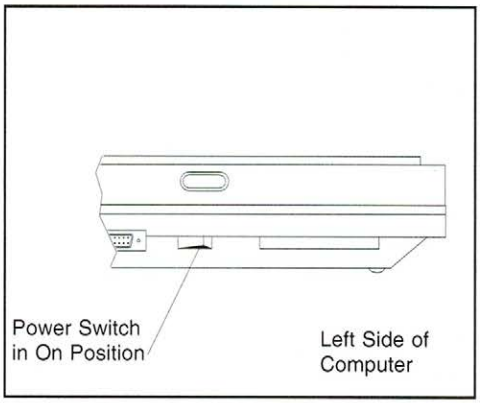


3. **Connect the power supply to the GRiD Convertible computer and plug it into a power outlet.** Plug one end of the computer power cable into the power connector on the computer battery; plug the other end of the cable into the power supply. Plug one end of the power cord into the power cord socket on the power supply; plug the other end into a power outlet that accepts a three-prong plug. If you use a plug adapter, make sure it is properly grounded.

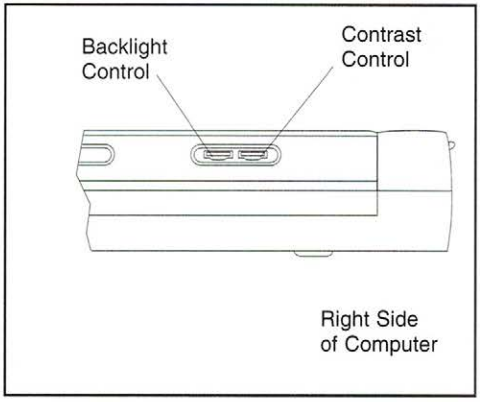


4. **Turn on the computer.** Press the back of the power switch to turn it on.

   When you turn on the power, the computer runs a self-test and loads the MS-DOS operating system into its system memory. It then loads the Microsoft® Windows™ for Pen Computing software.



5. **Adjust the contrast and brightness of the screen if it is blank or you cannot see it clearly**. There are two controls on the right side of the display. The screen backlight intensity is adjusted by turning the control closest to the front of the computer. The screen contrast is adjusted by turning the control closest to the back of the computer. Refer to the section The Sides on page 2-24 for additional information on the controls.



NOTE: The brightness of the screen affects power consumption—the brighter the screen, the greater the power consumption. Therefore, it is a good idea to decrease the backlight brightness to conserve power when using a battery pack.

The battery pack recharges fully in about 1.5 hours. You do not need to leave the computer on or leave the battery attached to the computer; the battery pack recharges as long as the power supply is connected to the battery and plugged in to a power outlet. Refer to Chapter 4 for more information about using the battery pack and other power options.

If you want to connect other devices to your computer, such as a printer or floppy diskette drive, refer to Chapters 2 and 5.

CAUTION

Put the computer into standby or turn off the power and turn off the power on the external device before connecting or disconnecting any external device. Failure to turn off the power can cause damage to the equipment.

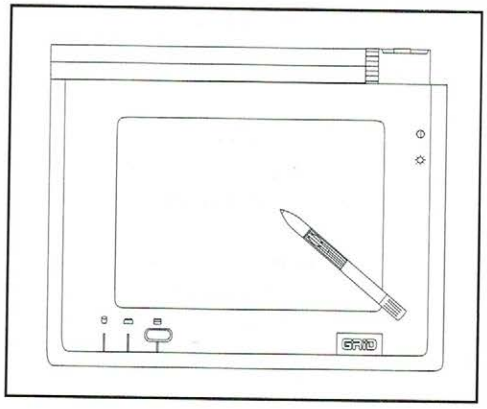
GRiD Convertible computers contain low power circuits that can be damaged by static discharge or transient voltage.

Using the Display

The display accepts pen input. It also displays information entered by the pen or from a keyboard.

Using the Display with a Pen

You may use the pen directly on the display to interact with pen-compatible applications. The pen performs conventional mouse pointing functions under Microsoft Windows for Pen Computing. It also performs drawing and character recognition functions, depending on the application.



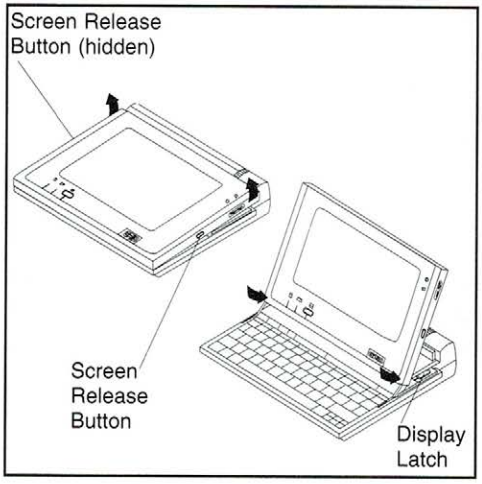
For anything other than simple mouse pointing functions, it is recommended that the display be closed and latched. Refer to page 2-2 for information on the pen.

Use the pen to access programs and enter data according to the instructions provided with your pen-based software application.

Using the Display with the Keyboard

The display also displays information entered via the keyboard. To access the keyboard:

- Simultaneously press the screen release buttons on each side of the computer.
- Lift up the back edge of the display and push the bottom edge toward the back of the computer until it locks into position.



Refer to page 2-12 for information on using the keyboard.

CAUTION

Use the display latch to release the display before attempting to close it. Failure to release the display latch may result in breakage of the arm.

To close the computer, push the display latch toward the back of the computer. Then push the top of the screen away from you. Lower the screen until it locks into position. You should apply some downward pressure to make sure the latches lock.

CAUTION

Be careful to keep your fingers away from the hinge area at the lower edge of the screen when you are opening or closing the display.

Storage Devices

Your GRiD Convertible computer is equipped with the following storage options:

- A PCMCIA card slot that accepts storage PC Cards as well as PCMCIA (version 2.0 compatible) input/output cards.
- An internal hard disk drive.
- A 3.5-inch external floppy diskette drive.

The hard disk is already formatted and contains all of the MS-DOS operating system files and the Windows for Pen Computing files. You can start MS-DOS and Windows from the hard disk simply by turning the computer on. To set up your computer to boot directly to the MS-DOS prompt, modify the *autoexec.bat* file (refer to page 8-3).

Each of the storage devices installed in your computer is assigned a separate drive letter by which it can be accessed. The device letters are shown in Table 1-1 (assuming one partition on each storage device). You can also check your device letters by using the **devices** command (refer to page 9-30).

Table 1-1. Storage Device Drive Letters

Device Letter	Storage Device
A	External Floppy
C	Hard Disk
D	Storage PC Card

Refer to Chapter 5 for information on using the storage devices.

CAUTION

Do not bend PC Cards. PC Cards contain delicate electronic circuits that can be damaged by unusual stresses. Do not store the cards in a wallet.

Starting Up the Operating System (Booting)

When you turn on the GRiD Convertible computer, it performs a RAM test and loads the MS-DOS operating system into main memory (RAM). The RAM test is being performed when numbers representing memory increment on the screen. If you want to terminate the test, press **Esc** or the **spacebar** or touch the pen to the screen. Loading the operating system in this way is called a cold start or boot.

When you boot the computer, it follows a specific order when choosing the storage device from which to load the operating system software. The computer first searches for the operating system software on the hard disk. If it does not find the software there, it looks on the external floppy diskette. You can change the default boot sequence by setting the **config boot** command; refer to the section Configurator beginning on page 9-7. You can override the default boot sequence by pressing the **H** key to boot from the hard disk or the **E** key to boot from the external floppy.

When your computer was shipped from the factory, it was set up to load Windows for Pen Computing software after it loads MS-DOS.

Warm Restart

Once a cold start or boot is complete, you may on occasion find it necessary to restart your computer. For example, if the software you are using locks up the computer, it will not respond to normal input from the keyboard or pen.

CAUTION

Data in main memory is lost when the computer is restarted. Data previously saved on disk is retained. You should save important data to the hard disk every few minutes. Make sure the disk in-use lights are off before performing a warm restart.

When necessary, you should restart the computer by pressing and holding the **Ctrl** and **Alt** keys and then pressing the **Del** key:

This method, called a warm restart or warm boot, restarts the operating system while leaving your power switch on. This saves wear and tear on the power supply and power switch, and the booting time is faster than if you pressed the power switch. A warm restart also uses less battery power than when the power switch is used.

If the warm restart method is unsuccessful, you must turn the power switch off and turn it on again to restart the computer. When you use the power switch to restart the computer, always wait a few seconds before turning the computer on again.

Configuring Your Computer

As you begin using your computer, you may want to change its configuration. The computer configuration includes such items as the device from which the system should start up, system power control, the screen brightness and other attributes, the device names for the serial port and optional modem, the speed of the microprocessor, and the status of the standby and auto-standby modes. Refer to the section Configurator, beginning on page 9-7, for information on changing your computer configuration.

Setting a Password

The GRiD Convertible computer provides the ability to protect your file system from unauthorized use by allowing you to set a password. If you set a password on your computer, you will be required to enter the password (using the keyboard) each time you turn on or restart the computer. Refer to the section Password on page 9-30 for information on the **setpass** command.

If you type the wrong password at the password prompt, your computer will restart until you enter the correct password. If you forget your password and you are in the U.S., call the GRiD Resource Center at 1-800-654-GRID (4743) for assistance.

Outside the U.S., contact your local GRiD Systems representative or distributor. While GRiD Systems will try to provide assistance, remembering the password is your responsibility.

NOTE: You are not prompted for the password when the computer comes out of standby.

Closing the Computer

To prepare your GRiD Convertible computer for travel, perform the following steps.

1. Save any files you are working on.

   CAUTION

   Wait until the disk in-use light goes out before you turn off the power. This ensures that you will not lose any data. The disk in-use light indicates that disk access is occurring; turning off power during disk access could cause loss of data.

2. Turn the computer power switch off.

3. Close the screen (if necessary).

4. Disconnect all cords and cables from the computer.

5. Place the computer in the carrying case to transport it. Be sure to protect the screen from contact with sharp objects or from bumping into stationary items.

CHAPTER 2:
GETTING TO KNOW YOUR GRID CONVERTIBLE COMPUTER

This chapter describes the GRiD Convertible computer in detail and explains each hardware feature on the top, front, sides, and bottom of the computer.

The Top

The top of the GRiD Convertible computer in its "tablet" form is shown in Figure 2-1. Each item shown in the figure is explained in the following sections.

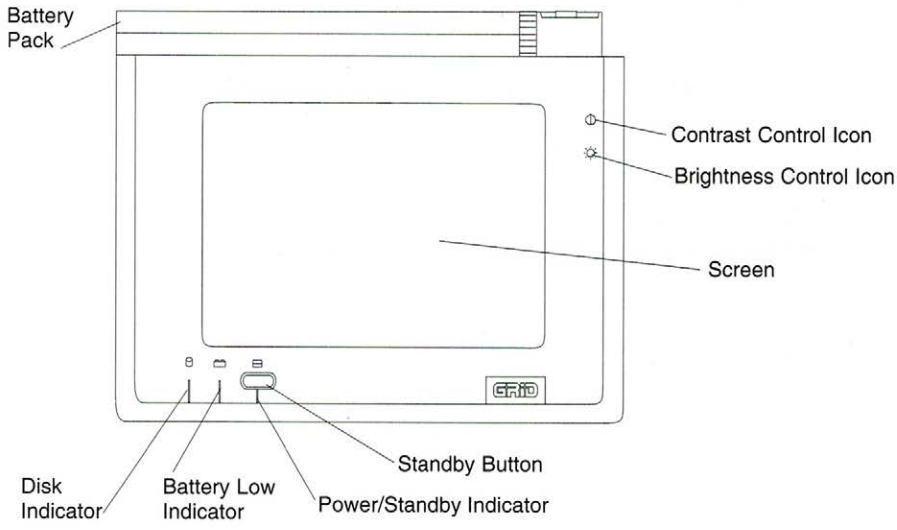


Figure 2-1. Top View of GRiD Convertible Computer

Screen

The screen is a Video Graphics Array (VGA) backlit Liquid Crystal Display (LCD) that fills most of the area on the top of the GRiD Convertible computer.

The screen acts as both a display and a data input device. The computer displays all information on the screen. You can give information to the computer by writing on the screen with the pen, if you are using a pen-based application. Sensors under the screen enable the computer to track your motions as you write.

The screen uses the VGA graphics standard and has a resolution of 640 by 480 pixels. (A pixel is one dot.)

Because the screen is monochrome, it uses shades of gray to represent colors. This is called color mapping. The LCD screen can display up to 64 different shades of gray simultaneously. For instructions on changing how colors are mapped to shades of gray, refer to the information on the Color function key on page 2-20.

You can also connect an external VGA-compatible monitor to your computer. For more information on connecting an external monitor, refer to the section Monitor Connector on page 2-30.

The screen contrast and backlight intensity are adjusted by controls on the right side of the computer. These controls are described beginning on page 2-28.

Pen

You can interact with pen-based software applications on the GRiD Convertible computer by writing on the screen with the pen.

When you are not using the pen, it stores neatly in the holder on the right side of the GRiD Convertible computer, as shown in Figure 2-2.

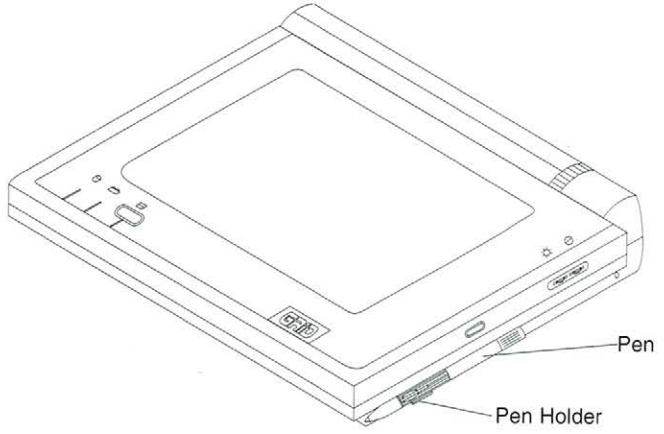


Figure 2-2. Pen Stored in Computer

Since the pen is battery powered, it is designed so that if it is not used (that is, not touched to the computer screen) for five minutes, the pen shuts down to conserve power. To wake up the pen, press the tip of the pen to the screen and release it. This wakes up the pen and it is ready to use.

Attaching the Pen with the Optional Tether

The pen was shipped with an optional tethered pen cap. If you want to attach the tether, unscrew the pen cap that was shipped on the pen. Replace that cap with the tethered cap. The opposite end of the pen tether connects to the pen tether fastener on the computer. Push the pointed connector into the round hole on the right side of the computer (refer to Figure 2-3). The tether is designed to pull out of the computer with a firm tug. The pen tether will not support the weight of the computer.

NOTE: The tether is not designed to be continuously inserted and removed. It is built to withstand only a limited number of insertions; therefore, you should plan to leave it connected.

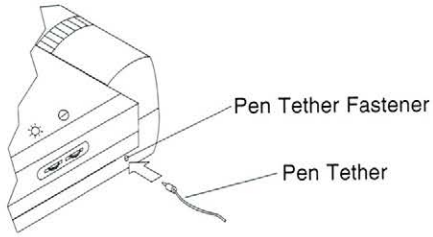


Figure 2-3. Attaching the Pen to the GRiD Convertible Computer

Testing the Pen Batteries

The pen contains two small batteries that should last at least a year.

A utility has been provided to test the pen batteries. You can run this test by selecting "Test pen battery" from the Executive Menu, as described on page 9-6.

You should change the batteries in the pen soon after the low-battery indication, so that your computer will continue to operate. After you receive the low-battery indication, the batteries may continue to last as long as a month before they become completely exhausted. However, there is no certainty that they will last that long, so we recommend that you change the batteries as soon as possible.

It is a good practice to change the pen batteries once a year regardless of their status. This will prevent a pen failure at an unexpected time.

Changing the Pen Batteries

To replace the batteries, unscrew the pen cap. Remove the old batteries. Insert two new lithium battery cells. Be sure the positive ends of the batteries point toward the top of the pen. After the batteries are changed, replace the pen cap. The following replacement batteries may be used in the pen:

Eveready Battery Company Inc., E13E or 393
Rayovac Corp., RN13 or RW48
Duracell Corp., MS13

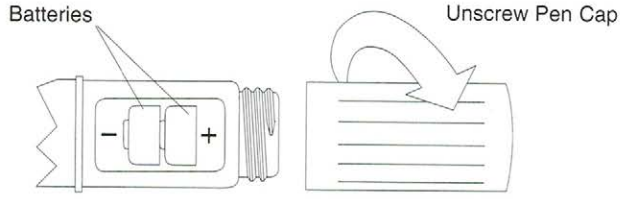


Figure 2-4. Changing the Pen Batteries

WARNING

Batteries may explode if they are mistreated. Do not recharge them, disassemble them, or dispose of them in fire. Dispose of the used batteries promptly. Keep batteries away from children as they contain harmful chemicals if swallowed.

Standby Button

The standby button puts the GRiD Convertible computer into and out of *standby mode*. Standby mode is used to save battery power.

In standby mode, all of the computer subsystems are turned off, except for the system RAM. This both preserves your work and saves a great deal of battery power. Because the computer system RAM continues to receive power, all of your work is maintained and you can return to it exactly as you left it.

NOTE: A storage PC Card is not affected by standby mode. It receives power from its own internal battery.

We recommend that you save the file you are working on before pressing the standby button. Standby does not automatically save your files onto a permanent storage device.

You can use standby mode if you are going to stop using the computer for a while, but you do not want to turn the computer off. When you press the standby button, the screen goes blank and the computer appears to be off, but your work is still preserved in system RAM. The green power/standby indicator blinks to remind

you that the computer is in standby. To return to normal operation, press the standby button again; the screen will turn on and show the same thing that was displayed before you first pushed the standby button.

NOTE: Standby mode has been tested with a wide range of "off-the-shelf" MS-DOS applications and generally is reliable. However, it is possible that it may not work properly with some MS-DOS applications; some applications may not be able to return from standby mode. Before using it with a new MS-DOS application, we suggest that you test it yourself to protect yourself against data loss. It is a good idea to save the file you are working on before pressing the standby button.

If you find that standby mode does not work properly with an application and you have enabled the automatic standby feature, you should disable it before running that application.

Automatic Standby

To conserve power automatically and make your computer battery pack last longer, you can set up your computer so that it goes into standby mode when you have not touched the pen to the screen or typed on the keyboard for a certain number of minutes. For example, you could set it so that it goes into standby mode if you have not entered anything for five minutes. When you want to start working again, just press the standby button and continue from where you stopped. Automatic standby only functions when you are running from a battery.

An application program that is continually updating the display will prevent automatic standby from occurring. This could happen if a clock is displayed, for example.

To set the time interval for automatic standby mode, use the **config autostandby** command. Refer to the description of this command on page 9-14.

NOTE: Automatic standby may not work with some MS-DOS application programs.

The GRiD Convertible computer also automatically enters standby mode in an attempt to preserve your work in system RAM if you are operating on battery power and the battery pack becomes nearly exhausted. You are alerted by the battery indicator and a beeping sound when the battery is low.

Power/Standby Indicator

The power/standby indicator is a green Light Emitting Diode (LED). This indicator glows green to indicate the power switch is on and the system is not in standby. The indicator flashes when the power switch is on and the computer is in standby.

Battery Low Indicator

The battery low indicator is a flashing red LED. This indicator alerts you when the battery pack is low. This indicator is normally off. It flashes when the GRiD Convertible computer is running on battery power and the battery pack is nearly exhausted; you may have as little as two minutes of battery power remaining. The exact amount of battery life remaining in the battery pack depends on many factors and is difficult to predict.

The computer also beeps when the battery pack is low. These beeps start at the same time that the battery low indicator begins to flash. The beeping feature is controlled by the **config lowbeep** command; for more information, refer to the description of this command on page 9-20.

When you see the battery low indicator light or hear the beeps, you should **immediately save the file** you are working on to avoid losing any data. You should also terminate any active communication session. Then, take one of the following actions:

- Connect the power supply to the GRiD Convertible computer to supply external power. This recharges the battery pack while you operate the computer.

- Press the standby button to put the computer into standby mode, then remove the battery pack and replace it with another charged battery pack. While you change battery packs, a small internal rechargeable battery, called the *bridge* battery, maintains standby power for at least a few minutes, up to five minutes.

If you do not take any action to supply more power to the GRiD Convertible computer when the battery low indicator flashes, the battery pack will continue to drain. When it is almost exhausted, the computer automatically enters standby mode in an attempt to preserve your work in system RAM. When this happens, the screen goes blank, the battery low indicator blinks, and the standby indicator blinks. This feature is known as low-power standby.

To return to your work, connect the power supply or install a charged battery pack, then press the standby button to exit standby mode.

The computer can remain in standby mode for up to one hour after entering low power standby. When the battery pack and the internal bridge battery are exhausted, the computer turns off. You may lose data if you have not saved your work.

Disk Indicator

This indicator glows green to indicate when disk access is occurring. This indicator shows disk access on the internal hard drive or the SunDisk card and the storage PC Card. You should not remove a storage card or turn off the computer when this indicator is lit, since this could cause loss of data.

Contrast Control and Backlight Brightness Control Icons

The icons on the top of the computer identify the controls for the contrast and backlight brightness. These controls are located on the right side of the computer; refer to page 2-28.

The Front View

The front view of the computer shows the computer with the keyboard accessible for use in "notebook" mode. The information on the screen, the indicator lights below the screen, and the standby button work exactly as described in the section The Top, beginning on page 2-1. The other features provided when the computer is in notebook mode are described in this section.

NOTE: You may also use the pen to interact with the application even though the keyboard is accessible.

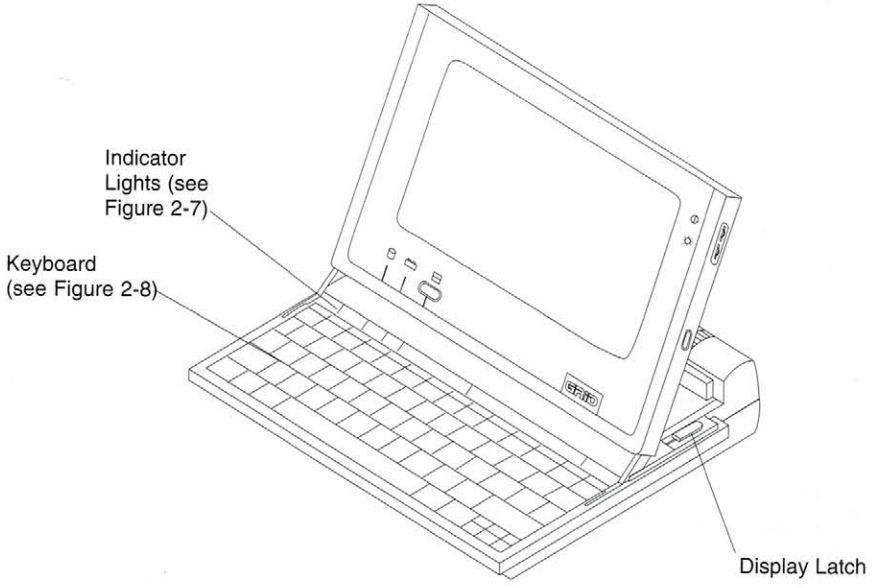


Figure 2-5. The Front View

Opening the Display

To raise the display to use the GRiD Convertible as a "notebook" computer:

1. Simultaneously press in on the screen release buttons on each side of the display (see Figure 2-6).

2. Lift up the back edge of the display.

3. Push the bottom of the display toward the back of the computer until it locks into place. You will hear a click indicating the display has latched. Failure to latch the display open may cause it to fall unexpectedly and may damage the screen.

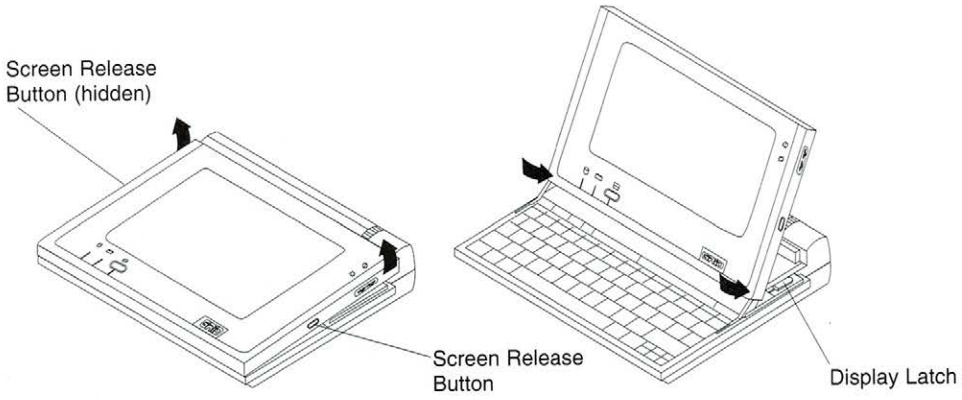


Figure 2-6. Opening the Display

Closing the Display

To close the display on the GRiD Convertible computer:

NOTE: Release the display latch before attempting to close the display.

1. Slide the display latch (located behind the display on the right side of the computer) toward the back of the computer.

2. Push the top of the display away from you and lower the display until it locks into place. Some downward pressure may be required to lock the display.

CAUTION

Be careful to keep your fingers away from the hinge area at the lower edge of the screen when you are closing the screen.

Indicator Lights

Six indicator lights are located above the keyboard. They are shown in Figure 2-7 and defined as follows:

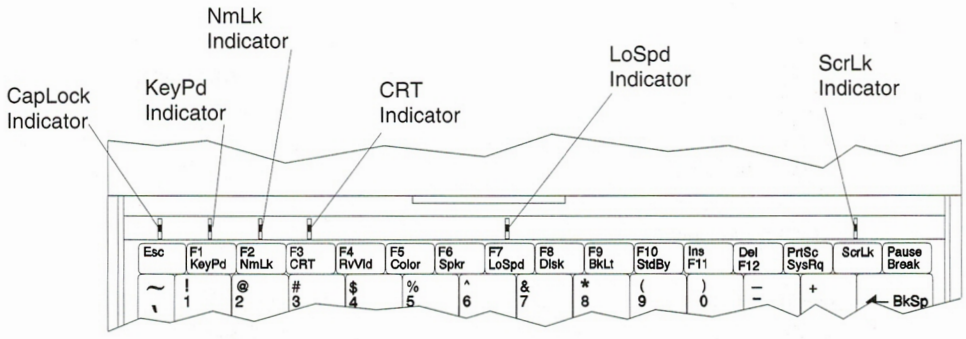


Figure 2-7. Indicator Lights

- **CapLock**: This indicator glows green when the keyboard is in CapsLock mode. To put the keyboard into CapsLock mode, press the **CapLock** key. In CapsLock mode, all alphabetic keys return capital letters. To turn CapsLock off, press the **CapLock** key again.

- **KeyPd**: This indicator glows green when the **FN-KeyPd** keys are pressed to activate the embedded numeric keypad. When KeyPd is activated, the numeric keypad embedded in the keyboard returns numeric values or cursors. To turn off the keypad, press **FN-KeyPd** again.

- **NmLk**: This indicator glows green when the embedded numeric keypad is in NumLock mode; the computer has NumLock activated when it boots. To put the embedded numeric keypad into or out of NumLock mode, press **FN-NmLk**.

- **CRT**: This indicator glows green when the computer video signal is sent to the monitor connector on the rear of the computer. If the internal screen is blank, the video output is displayed only on an external monitor attached to the monitor connector. If the indicator light is on and video output is displayed on the internal screen, your computer is displaying in simultaneous mode; this means video output is displayed on both the internal screen and the external monitor. Simultaneous mode requires more battery power and reduces the contrast on the internal screen. For optimum performance on the internal display, this indicator should be off. Press **FN-CRT** to cycle through the CRT modes.

- **LoSpd:** This indicator glows green when the microprocessor is running at slow speed. The GRiD Convertible is equipped with a multi-speed microprocessor. The 80386SL microprocessor ordinarily runs at 25 MHz; however, it can be slowed to 12.5 MHz. You might want to run the microprocessor at slow speed to save power or if you have a piece of software that cannot run at the faster speed. To switch to the slower speed, press **FN-LoSpd**. To switch back to the faster speed, press **FN-LoSpd** again.

- **ScrLk**: This indicator glows green when the keyboard is in ScrollLock mode. To put the keyboard into ScrollLock mode, press the **ScrLk** key. The effect of ScrollLock mode is dependent on the application you are using. To turn ScrollLock off, press the **ScrLk** key again.

Keyboard

Figure 2-8 shows the GRiD Convertible U.S. keyboard. The keyboard provides you with all of the functionality of the IBM AT 101-key keyboard. The keys marked in blue on the keyboard are used together with the **FN** key to provide some functions.

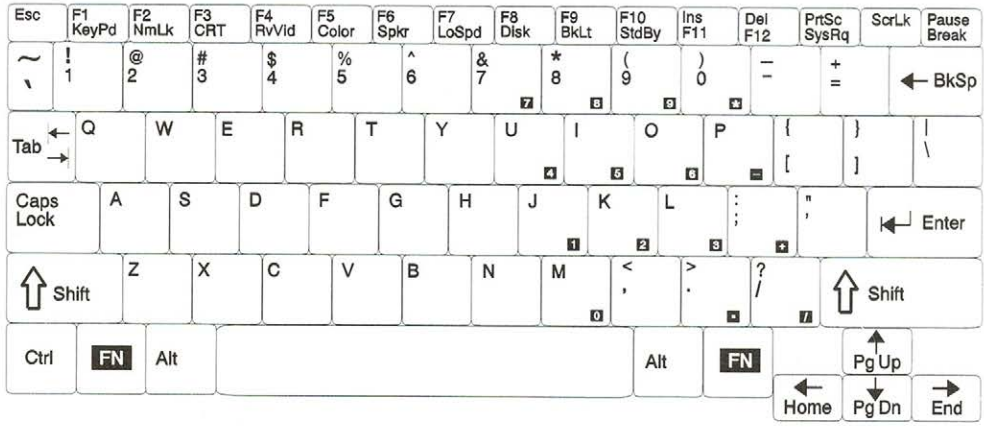


Figure 2-8. GRiD Convertible Keyboard

The ten special functions marked in blue on keys **F1** through **F10** are used to take advantage of some of the special features of your GRiD Convertible computer, such as changing the color mapping or processor speed. These are explained in the section Special Function Keys, beginning on page 2-18.

The other keys marked in blue provide the additional functions found on the IBM keyboard. For example, to use the **F11** IBM PC function key, hold down the **FN** key (you can use either key on the bottom row of the keyboard) and press the **F11** key.

NOTE: This section refers specifically to the GRiD U.S. keyboard. This information is generally applicable to keyboards used in other countries. If you have questions on your keyboard functions, please contact your local GRiD representative.

Using the Numeric Keypad

To conserve space, the GRiD Convertible keyboard overlays the numeric keypad keys on the regular alphanumeric keyboard (see Figure 2-9).

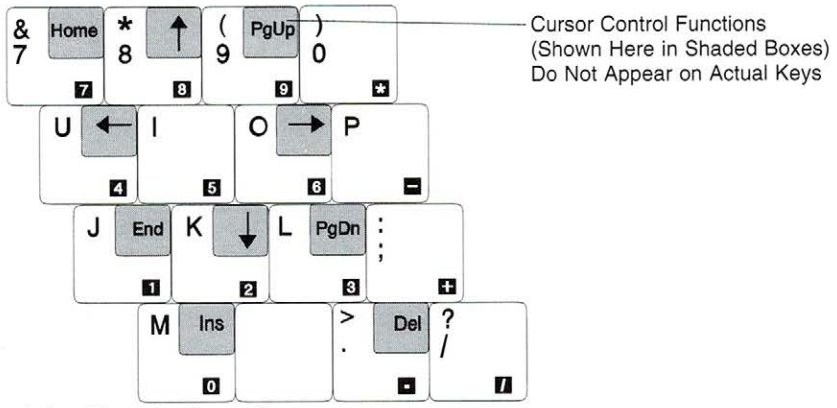


Figure 2-9. Numeric Keypad

To activate the numeric keypad, press **FN-KeyPd**. The KeyPd indicator glows green to indicate the embedded numeric keypad is activated.

The numeric keypad keys will either generate numbers or cursor control functions. When the NmLk indicator is on, the numeric keypad generates a number when a key is pressed. The system has NmLk on when it boots. To turn the NmLk indicator off, press **FN-NmLk**. With the NmLk indicator off, the numeric keypad generates the cursor control functions (which are not labeled on the actual keys).

Table 2-1 shows different ways of accessing numbers, cursor control functions, and alphanumeric characters, depending on whether the keyboard is in NumLock mode.

Table 2-1. Numeric Keypad Functions

	KeyPd Off	KeyPd On	
	NmLk On or Off	**NmLk Off**	**NmLk On**
Keypad Key	alphanumeric	cursor control keys (shaded boxes in Figure 2-9)	numerics printed on keycaps
Shift-Keypad Key	uppercase alphanumeric	numerics printed on keycaps	cursor control keys (shaded boxes in Figure 2-9)

If you need to enter an occasional numeric keypad key, such as the keypad + or - keys, a shortcut method is provided. You can generate any of the numeric keypad keys by pressing the **FN** key followed by the numeric keypad key. The numeric keypad key generated depends on the state of the NmLk indicator. Table 2-2 shows the shortcut keypad functions.

Table 2-2. Shortcut Numeric KeyPad Functions

	KeyPd Off		KeyPd On
	NmLk Off	**NmLk On**	**NmLk On or Off**
FN-Keypad Key	cursor control keys	numerics	alphanumeric
FN-Shift-Keypad Key	numerics	cursor control keys	uppercase alphanumeric

Table 2-3 lists IBM PC special keys and their GRiD Convertible equivalents, for keys that are different between the two computers.

Table 2-3. IBM PC Special Keys and GRiD Convertible Equivalents

Function Keys	
IBM Key	**GRiD Convertible Key**
F11	FN-F11
F12	FN-F12
Cursor Control Keys	
IBM Key	**GRiD Convertible Key**
End	FN-End
Home	FN-Home
PgDn	FN-PgDn
PgUp	FN-PgUp
Typewriter Keyboard Keys	
IBM Key	**GRiD Convertible Key**
Backspace	BkSp
Break	FN-Break
Scroll Lock	ScrLk
Ctrl (right)	FN-Ctrl

Table 2-3. IBM PC Special Keys and GRiD Convertible Equivalents (continued)

Numeric Keypad Keys (NmLk and KeyPd On)

IBM Key	GRiD Convertible Key
Num Lock	FN-NmLk
Gray +	numeric keypad + (;)
Gray -	numeric keypad - (P)
Gray *	numeric keypad * (0)
Gray /	numeric keypad / (/)
Gray .	numeric keypad . (.)
Gray Enter	Enter
1	numeric keypad 1 (J)
2	numeric keypad 2 (K)
3	numeric keypad 3 (L)
4	numeric keypad 4 (U)
5	numeric keypad 5 (I)
6	numeric keypad 6 (O)
7	numeric keypad 7 (7)
8	numeric keypad 8 (8)
9	numeric keypad 9 (9)
0	numeric keypad 0 (M)
Home	Shift-numeric keypad 7 (7) (See note following table)
End	Shift-numeric keypad 1 (J)
PgUp	Shift-numeric keypad 9 (9)
PgDn	Shift-numeric keypad 3 (L)
↑	Shift-numeric keypad 8 (8)
↓	Shift-numeric keypad 2 (K)
←	Shift-numeric keypad 4 (U)
→	Shift-numeric keypad 6 (O)
Ins	Shift-numeric keypad 0 (M)
Del	Shift-numeric keypad . (.)

NOTE: Although the cursor control keys are not labeled on the GRiD Convertible numeric keypad, the keys perform the same functions as on the IBM numeric keypad. Refer to Table 2-1.

Special Function Keys

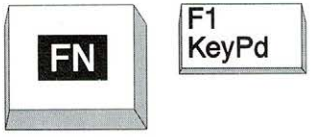
There are ten special function keys color-coded in blue on the keys **F1** through **F10**: **KeyPd**, **NmLk**, **CRT**, **RvVid**, **Color**, **Spkr**, **LoSpd**, **Disk**, **BkLt**, and **StdBy**.

These function keys control special features of your GRiD Convertible computer. To use one of these keys, press **FN** along with the key. The following sections describe these functions.

GRiD Systems also provides **config** commands as an additional method of controlling these functions—refer to the section Configurator, beginning on page 9-7, for details.

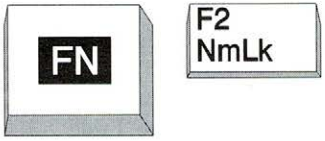
KeyPd

This activates the embedded numeric keypad. The numeric keypad keys have gray numerals on the keycaps. Refer to Table 2-1 for the operation of the numeric keypad. The KeyPd indicator light glows when this key is activated.



NmLk

When the keypad is active, this controls whether the numeric or cursor control keys are active on the embedded keypad. Refer to Table 2-1 for the operation of the numeric keypad. The NmLk indicator light glows when this key is activated.

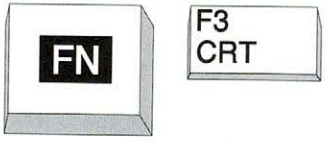


CRT

The **CRT** key controls the video output of the computer. You can select the display used for your computer operation: the internal screen, an external monitor, or simultaneous use of both displays.

The following key combination cycles the video output through these modes:

- internal display (default)
- external monitor
- simultaneous display



By default, the computer video signal is sent to the internal screen and data is displayed there. When you press **FN-CRT**, the computer video signal is sent to the monitor connector on the rear of the computer and data is displayed on an external monitor attached there. When you press it again, you display on both the internal screen and the external monitor (referred to as simultaneous display mode). Each time you press **FN-CRT**, the video output cycles between the three video modes.

When you are using only the external monitor, the 800- by 600-pixel Super VGA mode is supported.

The CRT indicator light comes on when the external monitor is in use. If the indicator is on and your screen is blank, the signal is sent to the external monitor only. If the indicator is on and you have information on your screen, you are using the simultaneous display mode.

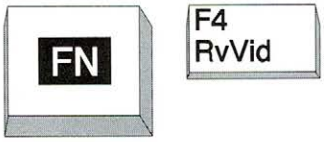
Using simultaneous mode reduces the contrast on the internal screen. The images on the external monitor are reduced in height in simultaneous mode so that the images on the internal screen and the external monitor have the same aspect ratio.

The CRT setting is saved when you turn off the computer.

NOTE: Using the simultaneous display mode increases power requirements, regardless of whether you actually have a CRT monitor connected. Your battery will not last as long.

RvVid

The following key combination toggles the internal screen between normal and reverse video:



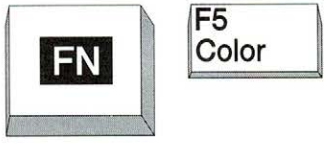
Pressing **FN-RvVid** toggles the internal screen between dark characters on a light background and light characters on a dark background. This commonly is referred to as reverse video. In some cases, you may find reverse video to be more pleasing to look at than normal video. You can also use the **config display** command to change between normal and reverse video; refer to the section Configurator, beginning on page 9-7.

The RvVid setting is saved when you turn off the computer.

Color

The **Color** key controls the color map mode of the computer screen. Because the screen is monochrome, colors are displayed as various shades of gray. A color map mode is a particular set of gray shades that correspond to a palette of colors. You can change the color map mode so that different shades of gray are assigned to the same set of colors. Some software may look better using a different color map than the default. There are six different color maps available.

You can change the color map mode by pressing the following keys:



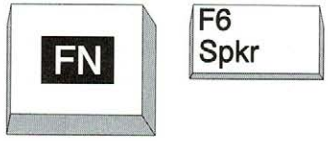
Each time you press **FN-Color**, the screen changes to use the next color map mode. After the sixth color map, the first one is selected again.

NOTE: If you have configured your screen for maximum contrast, you will not see different gray scales for each color map. Use the **config maxcontrast** and **config color** command to control screen contrast and color mapping; refer to the section Configurator, beginning on page 9-7.

The Color setting is saved when you turn off the computer.

Spkr

The **Spkr** key turns the computer speaker on and off. Press the following keys to control the speaker:

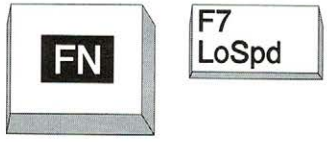


The speaker setting is saved when you turn off or restart the computer. You can also turn the speaker on and off with the **config speaker** command; refer to the section Configurator, beginning on page 9-7.

If you turn off the speaker, you will not hear the battery low warning beeps.

LoSpd

The **LoSpd** key controls the speed of the computer microprocessor. When you press the following keys, the microprocessor toggles between its fast (25 MHz) and slow (12.5 MHz) speeds:

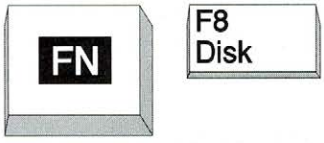


The LoSpd indicator glows green to remind you when the processor is running in slow speed.

You may want to operate the computer at slow speed to save battery power, but you generally won't need to use the slow speed unless your software cannot run at the faster speed. Occasionally, there are games and other programs that run better in the slow speed. You can also use the **config speed** command to change between fast and slow speeds; refer to the section Configurator, beginning on page 9-7.

Disk

The **Disk** key spins down the internal hard disk. The disk indicator glows green when the disk is spun down. This is useful for saving battery power when you are not using the hard disk. The hard disk automatically spins up as soon as a disk access is required. When you press the following keys, the hard disk motor is turned off:

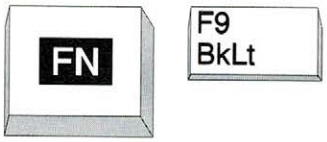


For example, you could use this feature to save battery power by moving the files you need to work with to a storage PC Card. Then shut down the hard disk and work from the storage PC Card.

The hard disk can also be controlled with the **config harddisk** command; refer to the section Configurator, beginning on page 9-7.

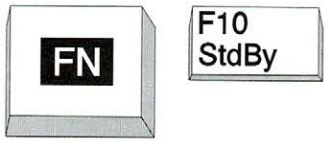
BkLt

The **BkLt** key turns the backlight on and off. The backlight can also be controlled with the **config backlite** command; however, pressing **FN-BkLt** takes precedence over the **config backlite** command setting. Refer to the section Configurator, beginning on page 9-7. Press the following keys to turn the backlight on and off:



StdBy

The **StdBy** key puts the computer into standby mode. When you press the following keys, the computer goes into standby mode as soon as all disk operations are completed:



In standby mode, all computer systems are turned off, except for the system Random Access Memory (RAM). This both preserves your work in memory and saves a great deal of battery power. Because the computer system RAM continues to receive power, all of your work is maintained and you can return to it exactly as you left it.

We recommend that you save the file you are working on before putting the computer into standby mode.

You can use standby mode if you are going to stop using the computer for a while, but you do not want to turn the computer off. When you press **Fn-StdBy**, the screen goes blank and the computer appears to be off, but your work is still preserved in system RAM. The power/standby indicator flashes green to remind you that the computer is in standby mode. To return to normal operation, press the **spacebar** or press the Standby button; the screen will turn on and show the same thing that was displayed before you entered standby mode.

For more details on standby mode, refer to the section Standby Mode on page 4-2.

The Sides

The side views of the GRiD Convertible computer are shown in Figure 2-10. Each item shown in the figure is explained in the following sections.

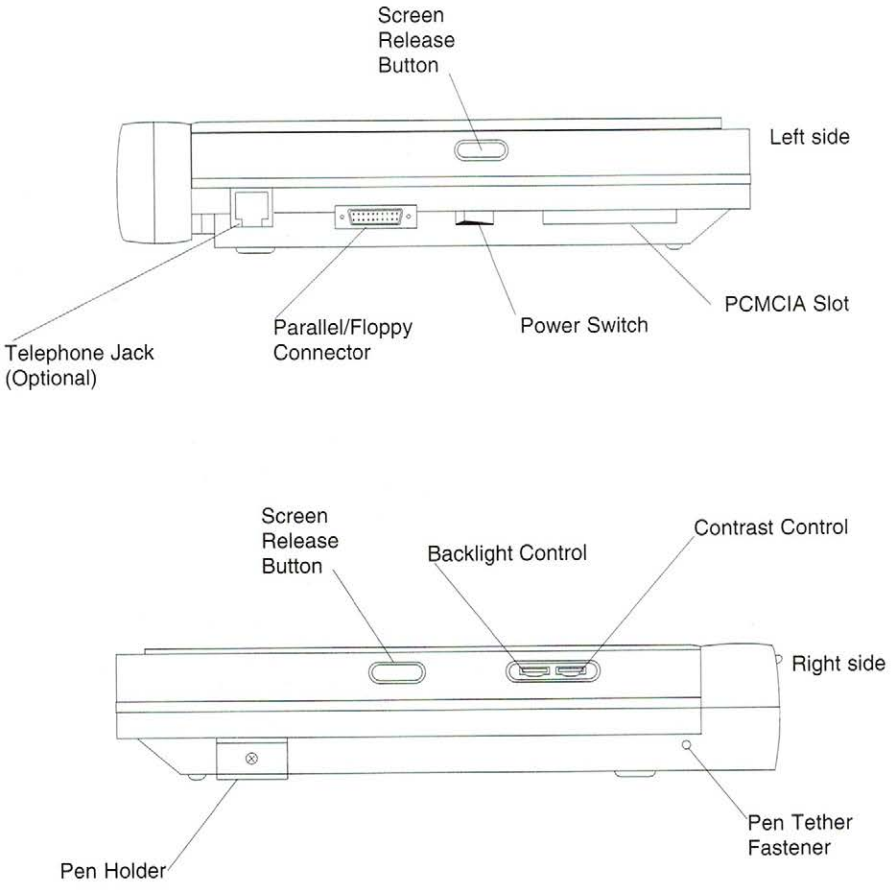


Figure 2-10. Side Views of GRiD Convertible Computer

PCMCIA Slot

The PCMCIA slot allows you to use personal computer cards (PC Cards) that are compatible with the 68-pin Personal Computer Memory Card International Association (PCMCIA) Release 2.0 standard. PC Cards are about the size and shape of a credit card.

Type I PC cards include memory enhancement and storage cards. Use of storage PC Cards is described in Chapter 5. Type II PC Cards may also provide memory enhancement and storage. Some Type II PC Cards provide input/output capabilities such as modems, Token-Ring and Ethernet connectivity, and 3270 emulation.

The PCMCIA slot on the GRiD Convertible supports Type I and Type II cards.

Power Switch

The power switch turns on and off the GRiD Convertible computer. Press the back of the switch to turn on the computer. Press the front of the switch to turn off the computer.

CAUTION

The computer system (working) memory is erased when you turn off the power. If you want to save your work, be sure to do so before turning off the power. Refer to the documentation for your application program for instructions on how to save your work.

Parallel/Floppy Connector

The parallel/floppy connector is a 26-pin microminiature connector. You can use the printer adapter cable (shipped with the computer) to connect a parallel printer. Alternately, you can connect the 3.5-inch floppy drive to this connector; refer to Chapter 5 for information on the floppy drive.