GRiDCase Plus Owner's Guide

GRiDCase Plus Owner's Guide

September 1986

Limited Warranty and Limitation of Liability

You should carefully read the following terms and conditions. You will be deemed to have accepted these terms and conditions if you have not returned the product with your proof of purchase to your GRiD dealer, within 5 days of the date of payment.

The term "Products," as used herein, means hardware, hardware parts, and documentation sold by GRiD.

1. Warranty

GRiD warrants that the Products sold hereunder shall be free from defects in materials and workmanship for a period of 90 days after date of shipment. Defective Products will be repaired or replaced, at GRiD's option, by GRiD during the warranty period. You shall notify GRiD of the defective Product within the 90-day period, obtain a Product Repair Order and return the Product to GRiD along with proof of purchase data. If this Product is delivered by mail, you agree to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location and to use the original shipping container or equivalent. Contact an authorized GRiD Systems dealer or write to: GRiD Systems Corporation, GRiD Resource Center, 2535 Garcia Avenue, P.O. Box 7535, Mountain View, California 94039-7535 for further information.

You are responsible for removing any data or programs or keeping backup copies prior to returning Products to GRiD. GRiD shall not be liable for loss of data contained in any returned equipment.

This warranty is not valid if the Products have been abused, misused, altered, neglected, or if repairs are attempted by unauthorized personnel.

Except as provided above, GRiD makes no warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

2. Limitation of Liability

In no event will GRiD be liable for special, incidental, or consequential damages, however caused. GRiD's liability under or for breach of this agreement shall be limited to refund of the purchase price.

3. General

You shall not assign this Agreement nor any rights hereunder without the prior written consent of GRiD. GRiD reserves the right to withhold such consent for any reason whatsoever. Subject to the foregoing, this Agreement shall bind and inure to the benefit of the respective parties hereto and their heirs, personal representatives, successors, and assigns.

The Terms and Conditions of this Limited Warranty and Limitation of Liability and of the Class A Software License Agreement represent the entire Agreement between GRiD and you relating to Product purchases and software licensing and may only be modified in writing, signed by both parties.

By reading this agreement, you acknowledge that you understand it, and agree to be bound by its terms and conditions.

WARNING: This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of Federal Communications Commission (FCC) Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference (FCC, part 15.818a). The section "Dealing with Radio Frequency Interference" in Chapter 7 describes some procedures that may correct interference.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find helpful the FCC booklet *How to Identify and Resolve Radio and TV Interference Problems.* This booklet (Stock No. 004-000-00345-4 [FCC, Part 15.838 B]) is available from the United States Government Printing Office, Washington, DC 20402.

Contents

List of Figures and Tables

About This Book

This manual introduces you to the GRiDCase Plus™ computer. It shows you how to set up your GRiDCase Plus and gives you the basics of how to operate it.

To begin using the GRiDCase Plus computer, read Chapter 1 which gives step-by-step instructions for setting up.

Books You May Need   You may want to refer to the following books for further information on using the GRiDCase Plus.

GRiD-OS Publications

InteGRiD Software Manual (Order Number: 029600-43), for reference information on GRiD's integrated MS-DOS application environment.

Getting Started: GRiD Software for the GRiDCase (Order Number: 029100-43), for introductory information on GRiD software.

Management Tools Reference (Order Number: 029200-43), for reference information on the GRiD Management Tools.

GRiDMaster User's Guide (Order Number: 021231-43), for information on using GRiDMaster.

GRiDTerm and GRiDReformat User's Guide (Order Number: 021141-43), for information on using GRiDTerm.

GRiD3101 and GRiDReformat User's Guide (Order Number: 021151-43), for information on using GRiD3101.

GRiDVT100 and GRiDReformat User's Guide (Order Number: 021191-43), for information on using GRiDVT100.

MS-DOS Publications

Using MS-DOS on the GRiDCase Plus (Order Number 029550-44), for introductory information on using MS-DOS on the GRiDCase Plus.

GRiDCase MS-DOS Reference: Release 3.2 Version D (Order Number: 029550-40), for reference information on using MS-DOS on the GRiDCase Plus.

Hardware Publications

Model 32170 GRiDCase 3½-Inch Pocket Floppy Diskette Drive (Order Number 032170-40) for information on setting up and operating the pocket floppy disk drive.

Model 2200 GRiDCase Base Station Owner's Guide (Order Number: 002200-40), for information on setting up and operating the base station.

Model 2201 GRiDCase Portable Hard Disk Drive Owner's Guide (Order Number: 002201-40), for information on setting up and operating the portable hard disk drive.

Model 2202 GRiDCase Portable 5¼-Inch Diskette Drive Owner's Guide (Order Number: 002202-40), for information on setting up and operating the portable 5¼-inch floppy disk drive.

Model 2203 GRiDCase Portable 3½-Inch Diskette Drive Owner's Guide (Order Number: 002203-40), for information on setting up and operating the portable 3½-inch floppy disk drive.

Model 2210 GRiDCase Tape Backup Unit Owner's Guide (Order Number 002210-40) for information on using the tape backup unit.

Model 32150 GRiDCase Expansion Chassis (Order Number 032150-40) for information on setting up and operating the five-slot expansion chassis.

Chapter 1: Setting Up the GRiDCase Plus

This chapter describes how to prepare your GRiDCase Plus™ for use. It covers checking the contents of the shipping box, setting up the computer, starting up (booting) the operating system, and closing up the computer for travel.

Checking the Contents of the Box

Figure 1-1 shows the parts included in each shipping carton.

Figure 1-1. *Contents of Box*
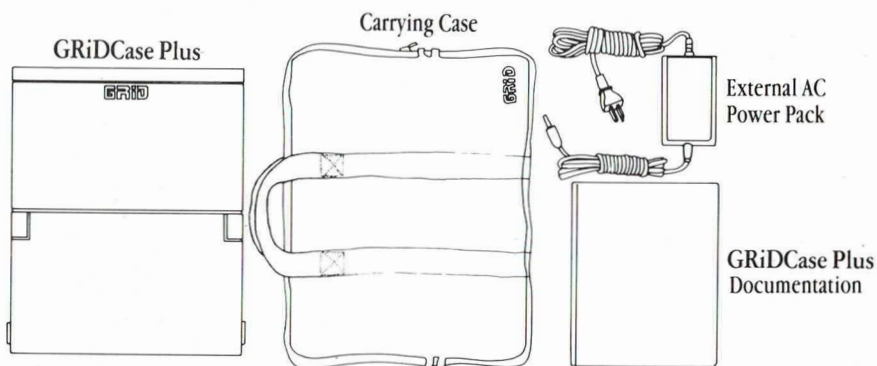
Check for shipping damage or missing parts. If there are any problems, contact the GRiD representative who sold you the GRiDCase Plus.

Keep the shipping carton and all original packing materials in the event you need to return your GRiDCase Plus for upgrading or service. Do not ship the computer in a carton other than the original shipping carton, as damage may result.

Also, if your GRiDCase Plus has an internal floppy diskette drive, keep the travel diskette that comes in it. Whenever you transport the GRiDCase Plus you should protect the drive by placing this special diskette in it.

The AC Power Pack

The AC Power Pack shipped with your GRiDCase Plus is one option for powering the computer. In addition to the power pack, there are other available options for powering your system. Chapter 4 explains all the available methods for powering your computer.

Starting Up Your GRiDCase Plus

Begin by clearing a sturdy, flat work surface.

You should have handy the item(s) you plan on using to power the computer. These can be the External AC Power Pack included with your GRiDCase Plus, the optional Battery Pack, or the optional Internal AC Power Pack. For information on powering your computer, see Chapter 4.

To Set Up and Start Up the GRiDCase Plus

1. **Make sure the on/off switch is off.**

   The on/off switch is on the back of the GRiDCase Plus at the far right as you face the front of the computer. Press the bottom of this switch to turn off the computer. When the computer is turned off, a red circle is visible on the top of the switch.

   Off Position
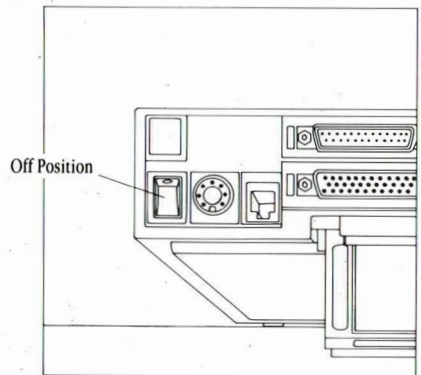
2. **Pull down the computer's leg. (Optional)**

   You may want to use the leg on the bottom of the GRiDCase Plus to provide a better angle for viewing the screen and using the keyboard. If you do, pull down the leg until it locks into place.
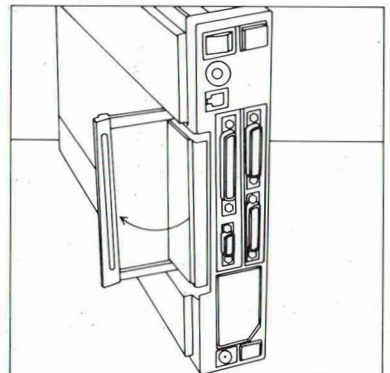
3. **If you are using an AC Power
    Pack as an external power
    pack, connect it to the
    computer and plug it in.**

    Plug the end of your power pack
    cord into the DC input connector
    on the back of the computer.
    Then plug one end of your power
    cord into the power cord socket
    on the AC Power Pack, and the
    other end into a wall outlet that
    accepts a three-prong plug. If a
    plug adapter is used, make sure it
    is properly grounded.
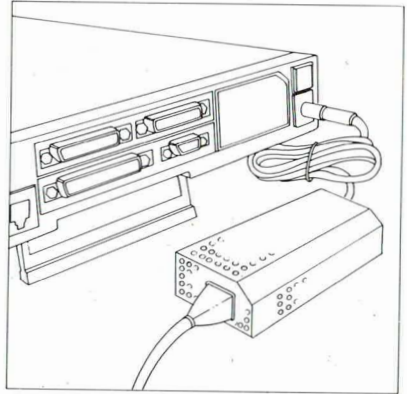
3a. **If you are using the Battery
    Pack, insert it into the
    computer.**

    Hold the Battery Pack with the
    label facing you. Insert it into the
    power pack slot on the back of
    the computer until it clicks into
    place.
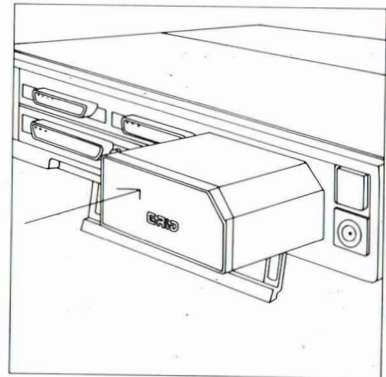
3b. **If you are using an AC Power
    Pack as an internal power
    pack, insert it into the
    computer.**

    Hold the Internal AC Power Pack
    with the label facing you. Insert it
    into the power pack slot on the
    back of the computer until it
    clicks into place. Plug one end of
    your power cord into the power
    cord socket on the back of the
    power pack and the other end
    into a wall outlet that accepts a
    three-prong plug. If a plug
    adaptor is used, make sure it is
    properly grounded.
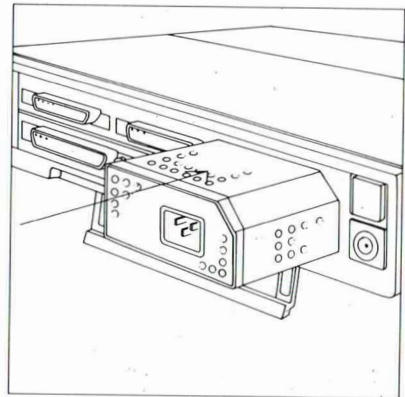
4. **Lift up the screen.**

   The screen is locked to the frame by one latch on each side. Pull these latches toward you and lift the screen.

   CAUTION: The screen must be treated with care. Never use abrasive substances on the screen. For complete information on cleaning the screen, see the section Cleaning Your GRiDCase Plus in Chapter 8.
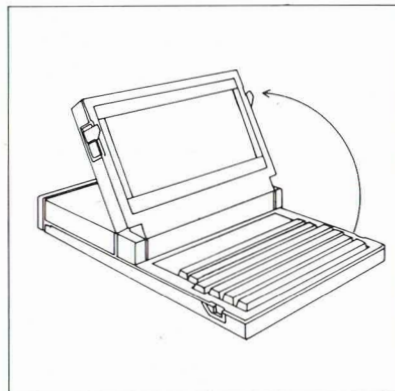
5. **Write protect the diskette. (Optional)**

   To protect the data on your 3½-inch operating system diskette, slide the write-protect tab on the back-side of the diskette until the hole is uncovered.

5a. **Remove the travel diskette by pressing the eject button.**
   When moving your GRiDCase Plus always keep the travel diskette in the internal floppy drive.

Hole

Write-Protect Tab Down

Back Side of Diskette
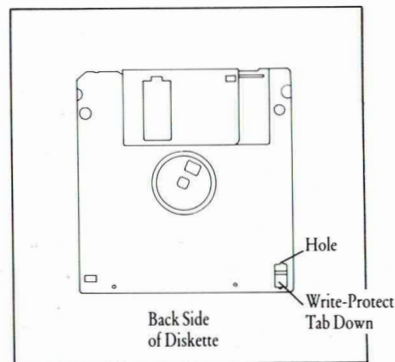
6. **Insert the operating system diskette until it clicks into place.** (Not required if you have the operating system in ROM or on an attached external storage device.)

   Hold the diskette with the label facing upwards and the metal edge closest to the disk drive opening. Insert it into the internal diskette drive. An arrow on the diskette shows the proper direction for inserting.
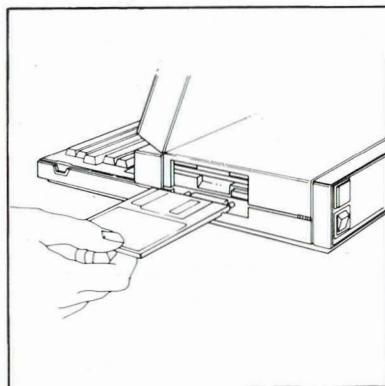
Never jam the diskette into the
drive. If you have difficulty
inserting the diskette, press the
eject button, then try again.

7. **Turn on the on/off switch.**

Press the top of this switch to
turn on the computer.

NOTE: If you have the operating
system in Read Only Memory
(ROM), the computer will load it
unless you designate otherwise.
To start from your floppy
diskette, press **F** when you hear
the beep after turning on the
power. If you wish to use an
operating system located on
another disk or diskette device,
see the section Starting Up the
Operating System (Booting)
below for instructions.

On Position
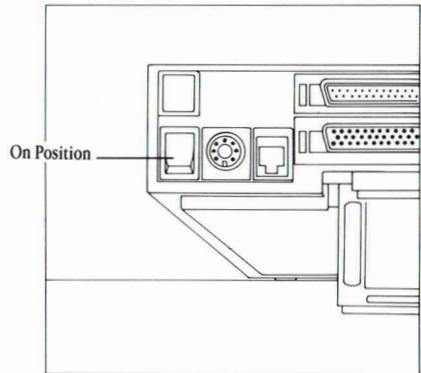
Wait for the software to load. When you turn on the power, the computer
loads software from your 3½-inch diskette in the internal diskette drive
into main memory (RAM). This takes anywhere from 20 to 60 seconds,
depending on the operating system and your system configuration.

When the loading is finished, the initial operating-system screen is displayed.

If you want to connect any other devices to your computer, such as a
printer, external hard disk, or pocket diskette drive, see the sections "The
Side View" and "The Rear View" in Chapter 2, and Chapter 6, Connecting
External Devices.

CAUTION: To avoid damaging your GRiDCase Plus, before connecting
or disconnecting any external device, *always turn off the power of the
GRiDCase Plus and the device.* The GRiDCase Plus contains low power
circuitry which can be damaged from static discharge. Static discharge
occurs any time you connect or disconnect any external device (printer,
storage device, AC power pack and so on) to the GRiDCase Plus when the
power is on.

You may want to adjust the screen angle by tilting the screen to the desired position. Also, depending on the lighting conditions, you may need to adjust the contrast/brightness of the screen using the contrast/brightness control switch to the right of the screen.

Note that increasing the screen intensity on the GRiDCase 3 Plus will increase power consumption and, therefore, decrease battery life.

If You Have An Internal Hard Disk

If your GRiDCase Plus has an internal hard disk, and you want to start up the operating system from the hard disk, you will first need to start up the system from diskette and then copy the operating system from diskette to the hard disk.

To load programs and data onto the hard disk, you need either a ROM cartridge or an external floppy disk drive. If you do not have either of these, call your GRiD representative for more information.

If you are using the MS-DOS operating system, use the SYS command to copy the operating system to the hard disk. See *Using MS-DOS on the GRiDCase Plus* for more information on how to use the SYS command.

If you are using the GRiD operating system see the *GRiD Software* Manual for more information on how to load GRiD-OS onto your internal hard disk.

Starting Up the Operating System (Booting)   The computer follows a specific order when choosing the storage device from which to load the operating system software. This device ordering is shown in Table 1-1. The computer first searches for the operating system software in ROM, and if it does not find the software there, it looks on the hard disk system, and so on.

You can override the normal loading sequence and choose the device from which you want the computer to load the operating system software. To start from another device, hold down the key indicated in Table 1-1 for several seconds as you turn on the power switch. For example, to start from your external floppy you would press **E** while turning on the power.

Table 1-1. *Order of Devices Searched During Loading*

Device	Key	
Read Only Memory (ROM)	R	
Hard Disk	H	(External or internal, depending on switch settings)
Internal Floppy	F	(Internal or pocket diskette drive, depending on switch settings)
External Floppy	E	

NOTE: If you have two or more of the same type of device connected to your computer, the computer will only search the first device (designated by the address switch settings), of those that are the same, for the operating system software. For example, if you have two hard disks and two diskette drives, the computer searches the first hard disk, then the internal floppy, and finally the first external diskette drive. See Appendix B for information on switch settings for multiple devices of the same type.

Warm Start-Up   Once start-up is complete, you may on occasion find it necessary to restart your computer again as you work. For example, it is necessary to restart your computer if you are switching operating systems.

At this point, you should start up the GRiDCase Plus by pressing

☐ CTRL-ALT-Del (under MS-DOS)

   or

☐ CTRL-CODE-SHIFT-minusSignKey for one full second (under GRiD-OS)

   This method, called a warm start-up, restarts the operating system while leaving your power supply on. This saves wear and tear on the power supply and on/off switch, and the booting time is faster than if you pressed the on/off switch. Also, a warm start helps conserve battery power.

   If the warm start-up method is unsuccessful you should press the on/off switch. When you use the on/off switch to restart the computer, **always wait a few seconds** before turning on the computer again. This ensures that the software is loaded properly.

Closing Up Your GRiDCase Plus   To prepare your GRiDCase Plus for travel, reverse the setup process.

To Close Up the GRiDCase Plus

1. Save your files. For information on saving files, MS-DOS users should consult the *MS-DOS Reference* manual. GRiD Software users should consult the *Management Tools Reference* manual.

    WARNING: If you have the internal hard disk option installed, wait at least five seconds after disk activity ceases for the hard disk to "park" before you turn off the power. The system automatically moves the disk heads to a part of the disk that contains no data. This allows you to move the GRiDCase Plus without damaging the hard disk and losing data.

2. If you have a diskette drive, remove the diskette, and insert the travel diskette into the drive.

3. Turn off the power.

4. Close the screen panel.

    Press it down gently until you hear it click shut.

5. Disconnect all cords.

6. Retract the computer leg, if extended.

    Pick up and turn the computer so that you can get a good grip on its leg. Firmly push the leg *towards* the rear of the computer, keeping your fingers out of the way, until it reaches its closed position.

Don't forget your peripherals, cables, diskettes, and any accessories you want to take with you.

Chapter 2: Getting to Know Your GRiDCase Plus

This chapter introduces you to your GRiDCase Plus, giving a detailed description of the top, front, side, and rear views of the computer.

The Top View The top view of the GRiDCase Plus is shown in Figure 2-1. Note that the GRiD logo is on the top of the case, toward the rear, and the screen latches are on the sides, toward the front.

Figure 2-1. *Top View of the GRiDCase Plus*
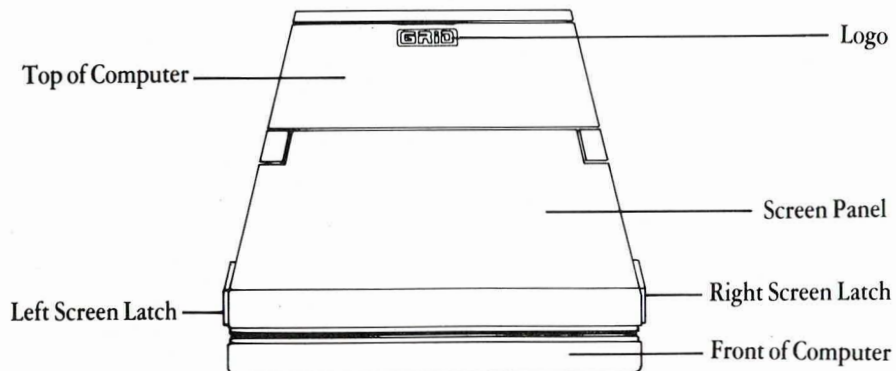
The Front View   The front view of the GRiDCase Plus is shown in Figure 2-2.

Figure 2-2. *Front View of the GRiDCase Plus*
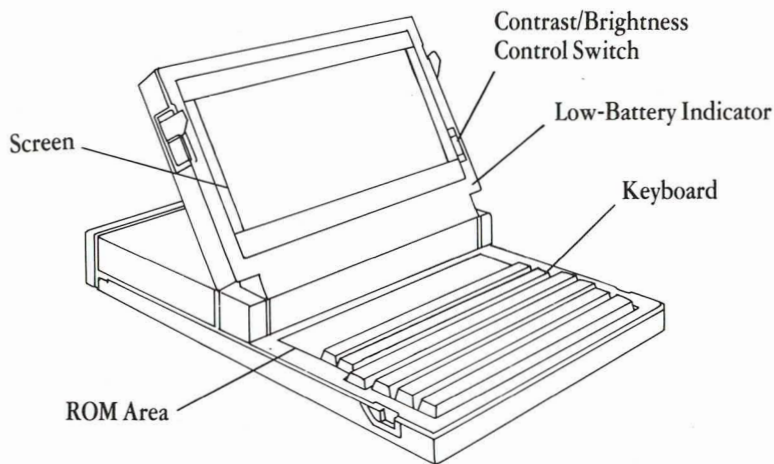
Contrast/Brightness Control Switch

The contrast/brightness control switch, at the right of the screen, controls the brightness of the plasma screen (GRiDCase 3 Plus computer) and the contrast of the LCD screen (GRiDCase 2 Plus computer). This switch increases the contrast or brightness of the screen when pushed toward the top of the screen, and decreases the contrast or brightness when pushed toward the bottom of the screen.

NOTE: If you are using the GRiDCase 3 Plus, the brightness of the screen increases power consumption. Therefore, you should decrease the brightness to conserve power when using a Battery Pack.

In addition, when using the GRiDCase 3 Plus, you can conserve power and decrease the effects of the start-up power surge by moving the brightness control to its lowest position while booting the computer and then changing it to an acceptable viewing level afterwards.

Keyboard

Figure 2-3 shows the keyboard. If you're planning to run MS-DOS on your GRiDCase Plus, note that the keyboard provides you with all the functionality of the IBM PC/XT keyboard. The keys marked in green and blue provide the additional functions found on the IBM PC keyboard.

Figure 2-3. *GRiDCase Plus Keyboard*
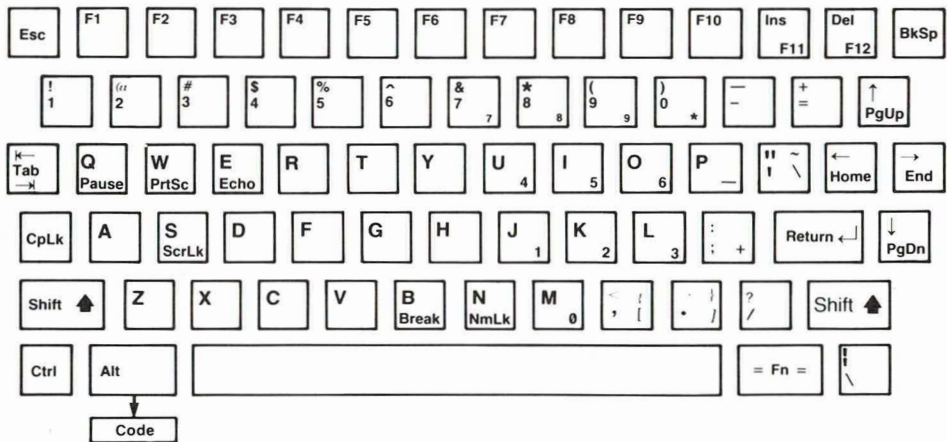
To use the F11 IBM PC function key, hold down the Fn key (in the lower right-hand corner of the keyboard) and press the Ins key. To use the F12 function key, hold down the Fn key and press the Del key. To use function keys F13 through F20, hold down the Shift key and press one of the keys F3 through F10, where F3 corresponds to F13, and so on.

Using the Numeric Keypad

The numeric keypad is located on the keys marked in red. To use the keypad, you must use MS-DOS; the keypad does not work with the GRiD-OS.

The keys in the keypad work in one of three modes: Full Keypad Access, Temporary Keypad Access, and Operator Key Only Access.

Full Keypad Access. In order to lock in the keypad function you must first have the NUMPAD software driver installed (for information about this driver, see *Using MS-DOS on the GRiDCase Plus*). Once NUMPAD is activated, press the FN and NmLk (N) keys together. To unlock the keypad so that you can use the letter keys again, press the Fn and NmLk (N) keys a second time.

Temporary Keypad Access. If you occasionally use an external keyboard you may want to use temporary keypad access by not installing the NUMPAD software. Installing NUMPAD causes an external keyboard to return numbers instead of letters (for example "1" instead of "j)" when in NumLock mode. If you do not install NUMPAD your external keyboard will function properly. Additionally you can still access the GRiDCase Plus numeric keypad keys by first pressing the Fn and NmLk (N) keys together as before; then after you are in NumLock mode you must press Fn and the appropriate key together to get your keypad number (for example, Fn plus "J" will result in a keypad "1").

Operator Key Only Access. This is a special case of temporary keypad access. Several popular applications use the keypad operator keys (Plus, Minus and Asterisk) for command keys. These three keys (located on "0," "P" and ";" respectively) can be accessed by pressing Fn and the appropriate key **whether you have pressed NumLk or not.**

Table 2-1 lists IBM PC and PC/XT special keys and their GRiDCase Plus equivalents. Any key sequence shown in parentheses is an alternative sequence and accomplishes the same function as the primary key sequence that precedes it.

Table 2-1. *IBM PC and PC/XT Special Keys and GRiDCase Plus Equivalents*

Function Keys

Function Key	IBM Key	GRiDCase Plus Key
F1	F1	F1
F2	F2	F2
F3	F3	F3
F4	F4	F4
F5	F5	F5
F6	F6	F6
F7	F7	F7
F8	F8	F8
F9	F9	F9
F10	F10	F10
F11	Shift-F1	Fn-F11
F12	Shift-F2	Fn-F12
F13	Shift-F3	Shift-F3
F14	Shift-F4	Shift-F4
F15	Shift-F5	Shift-F5
F16	Shift-F6	Shift-F6
F17	Shift-F7	Shift-F7
F18	Shift-F8	Shift-F8
F19	Shift-F9	Shift-F9
F20	Shift-F10	Shift-F10

Cursor-Control Keys

IBM Key	GRiDCase Plus Key
→	→
←	←
↓	↓
↑	↑
End	Fn-End
Home	Fn-Home
PgDn	Fn-PgDn
PgUp	Fn-PgUp

Typewriter Keyboard Keys

IBM Key	GRiDCase Plus Key
Break	Fn-Break
Echo	Fn-Echo
Enter	Return
Pause	Fn-Pause
Shift-PrtSc	Fn-PrtSc
Right Shift	Right Shift
Left Shift	Left Shift
Tab	Tab
Shift-Tab	Shift-Tab

Numeric Keypad Keys

IBM Key	GRiDCase Plus Key
Del	Del
Ins	Ins
Num Lock	Fn-NmLk
Gray	numeric keypad+ (;)
Gray −	numeric keypad − (P)
Gray *	numeric keypad * (O)
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)
Scroll Lock	Fn-ScrLk

Special Characters

IBM Key	GRiDCase Plus Key
[	Fn-[
]	Fn-]
{	Fn-Shift-{
}	Fn-Shift-}
~	Fn-Shift-~
`	Fn-`

If you are using GRiD Software, you can learn how to use the keyboard in the *Management Tools Reference* manual.

MS-DOS users should consult the *MS-DOS Reference* manual to learn how the keys function on the GRiDCase Plus.

Low-Battery Indicator

The low-battery indicator lights when the Battery Pack is running low. When this happens you should **immediately** save any file you are working on and supply external power or recharge the Battery Pack. The amount of remaining battery life depends on your system configuration and power usage. See Chapter 4 for information on battery life and recharging the Battery Pack.

CAUTION: When the GRiDCase Plus loses power, any data currently in main memory (RAM) is lost. You should save your data often.

ROM Area

The ROM area contains sockets where you can insert ROM cartridges. A ROM cartridge is a storage device for programs. Each cartridge can hold up to 128K (about 131,000 characters). You can install up to four ROM cartridges, giving you 512K characters of additional storage space. In addition, four more ROM cartridges can be installed inside the GRiDCase Plus by a GRiD Representative, giving you 512K more additional storage. Refer to the *Read Only Memory (ROM) Installation and Use* guide that came in your ROM package for information on installing ROM cartridges.

CAUTION: Always turn off the power before attempting to install or remove ROM cartridges.

Screen

The screen is used to display your data. You should treat it with care. For complete instructions on cleaning the screen, see the section Cleaning your GRiDCase Plus in Chapter 8.

Additionally, if you have the optional video output connector, you can connect an external color monitor to your computer as described in the Video Output Connector section in Chapter 3.

The Side View

The side view of the GRiDCase Plus is shown in Figure 2-4.

Figure 2-4. *Side View of the GRiDCase Plus*

In-Use Light

Portable Floppy Port

Diskette Drive

Diskette Eject Button
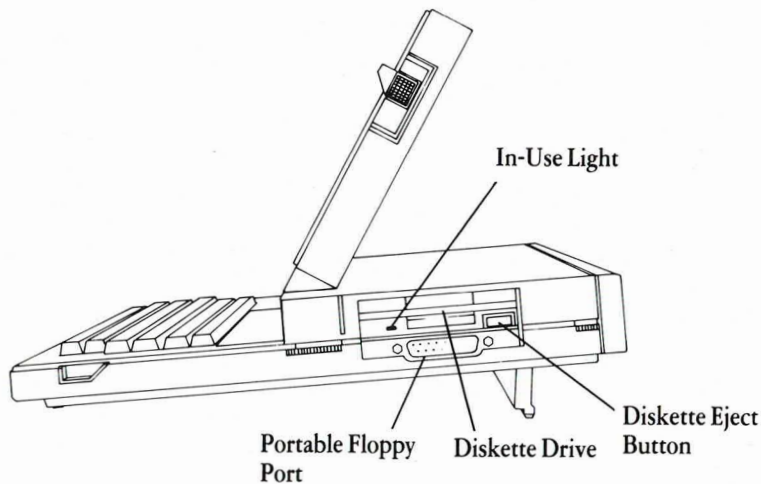
Diskette Drive

The internal diskette drive is a 3½-inch floppy diskette drive that uses double-sided, double-density 3½-inch floppy diskettes. Insert floppy diskettes into the open drive slot. For complete information on using the diskette drive and on the recommended floppy diskettes, see Chapter 5.

Diskette Eject Button

The diskette eject button, below and to the right of the diskette slot, is used to eject the floppy diskette currently in the diskette drive. To remove a diskette, push in the diskette eject button until the floppy diskette pops out.

Floppy Disk In-Use Light

The in-use light, above and to the left of the diskette drive opening, indicates when a floppy diskette is being accessed. Under GRiD-OS, this light may also turn on when you are being prompted to insert a diskette.

CAUTION: Never release a floppy diskette when the in-use light is lit, unless prompted to do so; for example, when you are prompted to insert the correct diskette during a file duplication using GRiD Software. The in-use light indicates that file access may be taking place. Releasing the floppy diskette at this time, when not prompted to do so, could destroy files.

External Floppy Port

The external floppy port is where you connect the pocket diskette drive. Though this port looks like the centronics port on the back of the GRiDCase Plus, it only supports the pocket diskette drive. For more information on connecting the pocket diskette drive, see Chapter 6, Connecting External Devices.

Optional Hard Disk

Figure 2-5 shows the GRiDCase Plus with the optional 10 MB internal hard disk. For more information about the internal hard disk, see Chapter 5, Using the Internal Diskette and Hard Disk Drives.

Figure 2-5. *Side View with Internal Hard Disk option*
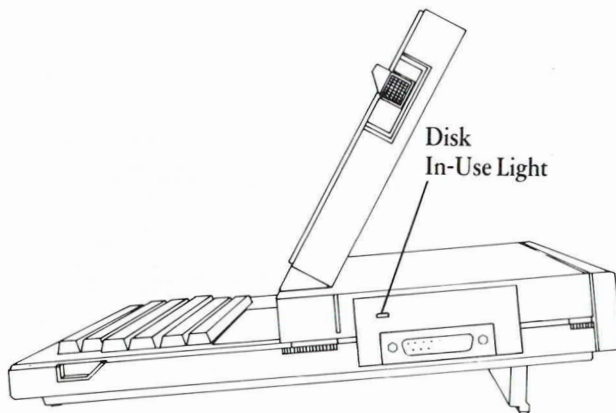
Disk
In-Use Light

Hard Disk In-Use Light

The in-use light, above and to the left of the internal hard disk, indicates when the hard disk is being accessed.

The Rear View

The rear view of the GRiDCase Plus is shown in Figure 2-6. You will use many of the items shown here when setting up your computer. Each item is explained in alphabetical order on the following pages. To help you with setting up, a label containing all the connector names appears below the rear panel of the computer on the foot.

Figure 2-6. *Rear View of the GRiDCase Plus*
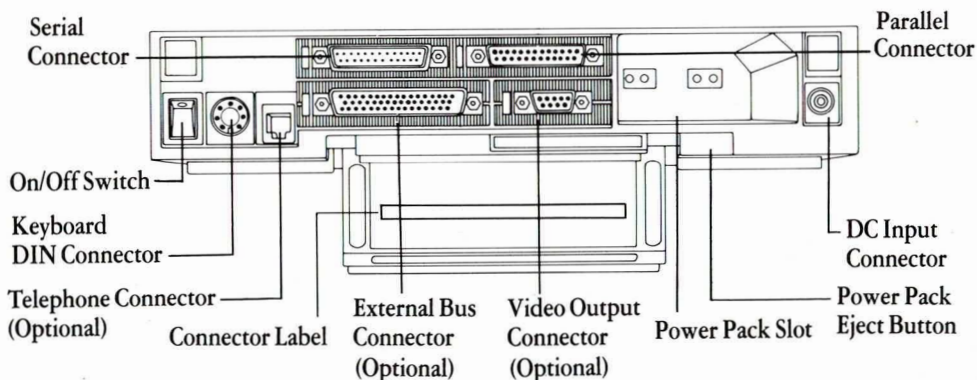
DC Input Connector

The DC input connector connects the GRiDCase Plus to your External AC Power Pack or Auto/Boat Adapter as described in Chapter 4.

Keyboard DIN Connector

The keyboard DIN connector connects the GRiDCase Plus to an external keyboard or keypad.

Connecting a Keyboard or Keypad to the DIN Connector   You can connect an IBM PC or PC/XT keyboard or a GRiD-supplied keypad to your GRiDCase Plus.

To Connect a Keyboard or Keypad to the GRiDCase Plus

1. Turn off the computer and any other peripherals.

   CAUTION: Before connecting or disconnecting a keyboard, keypad or any other external device, turn off the power. Failure to do so may damage your unit.

2. Plug the pointed end of the keyboard or keypad cord into the keyboard DIN connector on the back of the computer. The cord fits into the connector in only one way. Be sure to correctly match up the end of the cord with the connector pins.

3. Turn on the computer and any peripherals.

You can now use either the external keyboard, the keypad, or the GRiDCase Plus keyboard.

External Bus Connector (Optional)
The external bus connector connects the GRiDCase Plus to external devices. Note the trapezoidal or "D" shape; it makes an improper connection impossible. Chapter 6 gives instructions for connecting storage devices to the external bus connector.

On/Off Switch
The on/off switch, on the far left, turns the computer on and off, and loads some start-up programs into main memory (RAM). When the computer is turned off, a red circle is visible on the top of the switch. To turn on the computer, press the top of the switch. To turn it off, press the bottom of the switch. You can also use this switch to restart the computer. See the section Warm Start-Up in Chapter 1 for details.

CAUTION: Never turn off the computer when the in-use light for the internal diskette drive or any other external storage device is lit. The in-use light means that file access may be taking place; turning off the computer at this time can destroy data. (Under GRiD Software, if the in-use light is on but you are being prompted to insert the correct diskette, you can safely turn off the computer if the diskette drive is empty.)

Parallel Connector
The parallel (also known as "Centronics") connector, connects the GRiDCase Plus to printers and other parallel devices using a Model 6220 Centronics cable. Note the trapezoidal or "D" shape; it makes an improper connection impossible. Only one peripheral at a time may be connected to the GRiDCase Plus through the parallel connector.

Connecting Printers to the Parallel Connector   Before using a printer for the first time, GRiD Software users must ensure that the *printer driver* for that printer resides on some currently attached and operating storage device (for example, on a diskette in the floppy drive). A *printer driver* is a program which allows the computer to communicate with a particular make and model of printer. In addition, you must make sure that the correct printer driver is specified under the Current Printer item of the GRiDManager Options form. Refer to the Options section under the GRiDManager chapter in the *Management Tools Reference* manual and to the *InteGRiD Software* manual for more details.

Several printers are supported under GRiD Software. Check with your local GRiD representative for the most up to date information on printer compatibility. The parallel versions of the printer drivers for GRiD-supported printers can be found on your original GRiD Software diskette.

If you are using MS-DOS, most of your applications software packages include their own printer drivers. Refer to your software manual to determine which printers the program supports.

Before connecting the printer, make sure that the configuration switches on the printer are set properly. These switches determine how the printer operates. The configuration switches for GRiD-supplied printers are set before they are shipped, so you generally do not need to change them. In some cases, the switches need to be changed when switching between GRiD Software and MS-DOS applications software. For your convenience the correct switch settings are included in Appendix B.

After the switches are set correctly, you are ready to connect the printer to the GRiDCase Plus, using a GRiD Model 6220 Centronics Cable.

To Connect a Printer to the GRiDCase Plus

1. Turn off the computer, the printer, and any other peripherals.

   CAUTION: Before connecting or disconnecting a printer or any other external device, turn off the power. Failure to do so may damage your unit.

2. Attach the plug end of the Centronics cable to the parallel connector on the back of the computer.

3. Attach the other end of the Centronics cable to the parallel connector on the back of the printer.

4. Check your printer manual for instructions on loading the ribbon and paper into the printer.

5. Position your paper so that the print head is at the top of the page.
6. Make sure all power cords are plugged in.
7. Turn on the printer (and any other peripherals), and then turn on the computer.

Power Pack Slot

The AC Power Pack or Battery Pack fits into the Power Pack slot. See Chapter 4 for a description of these items and how to use them.

Power Pack Eject Button

The power pack eject button, below and to the right of the power pack slot, ejects the Battery Pack or the Internal/External AC Power Pack (used internally) from the power pack slot.

To remove your power pack, push in the power pack eject button until the power pack pops out.

CAUTION: Always save your work before ejecting the Battery Pack from the power pack slot; any data in RAM (main memory) is lost when you remove it if there is no other source of power to the GRiDCase Plus.

Also, never remove the Battery Pack when the in-use light for the internal diskette drive or any other external storage device is lit. The in-use light means that file access may be taking place; removing power at this time can destroy data. (Under GRiD-OS, if the in-use light is on but you are being prompted to insert the correct diskette, you can safely turn off the computer if the diskette drive is empty.)

WARNING: Never eject an Internal/External AC Power Pack without first removing the power cord from either the wall socket or the power pack, as a shock could result.

Serial Connector

The serial connector connects the GRiDCase Plus to external modems, serial printers, and other serial devices. Only one peripheral at a time may be connected to the GRiDCase Plus through the serial connector. This connector is an RS-232C connector. Note the trapezoidal or "D" shape; it makes an improper connection impossible.

NOTE: The serial connector and the internal modem (described in Chapter 3) share the same internal circuitry. This means that you cannot use both the internal modem and a device attached to the serial connector at the same time. When the power to the serial connector is turned on, power to the internal modem is turned off, and vice versa. Under GRiD-OS, the operating system automatically turns on the power to the appropriate device.

Under MS-DOS, you must set the power to the internal modem or serial connector using the MODE command. To conserve power, when you are finished using the internal modem or serial connector, turn it off. For instructions on using the MODE command, refer to the manual *Using MS-DOS on the GRiDCase Plus.*

When operating under GRiD-OS or InteGRiD, you must select "GRiDCase" as the Current Serial choice in the GRiDManager Options form. Refer to the section Options under the GRiDManager chapter in the *Management Tools Reference* manual for more details.

Connecting an External Modem to the Serial Connector   You may want to connect an external modem for transmitting and receiving data at high speeds (the internal modem operates at either 300 or 1200 bits per second) or for operating through a telephone system outside the U.S.A. or Canada.

You can connect an external modem (using a Model 6200 serial cable) to the serial connector on the rear panel of the computer.

If you are an MS-DOS user, you can connect any modem that is compatible with the software you are using. Consult the manual that accompanies the software for the correct switch settings for your modem.

If you are a GRiD-OS user, only the Hayes SmartModem should be connected to your GRiDCase Plus.

The switches for the Hayes SmartModem must be set as shown in Appendix B for the modem to function properly. The switches are located inside the front of the modem on the left. You can reach them by removing the plastic frontpiece of the modem.

After the switches are set, you are ready to connect your modem to the GRiDCase Plus.

To Connect a Modem

1. Turn off the computer, modem, and any other peripherals.

    CAUTION: Before connecting or disconnecting a modem or any other external device, turn off the power. Failure to do so may damage your unit.

2. Attach the plug end of the Model 6200 serial cable into the serial connector on the back of your modem.

3. Attach the other end of the cable to the serial connector on the back of the GRiDCase Plus.

4. Plug in the power cord (or wall adapter cord) from the modem into a wall outlet.

5. Turn on the modem (and any other peripherals) and then turn on the computer.

   NOTE: MS-DOS users should activate the serial port using the MODE command. Refer to *Using MS-DOS on the GRiDCase Plus* for instructions.

Connecting a Printer to the Serial Connector You can connect a serial printer (using a Model 6200 serial cable) to the serial connector on the rear panel of the computer.

Read over the above section Connecting Printers to the Parallel Connector. You must follow the same prerequisites before connecting a printer to the serial or parallel connector.

To Connect a Printer to the GRiDCase Plus

1. Turn off the computer, the printer, and any other peripherals.

   CAUTION: Before connecting or disconnecting a printer or any other external device, turn off the power. Failure to do so may damage your unit.

2. Attach the plug end of the serial cable to the serial connector on the back of the computer.

3. Attach the other end of the serial cable to the serial connector on the back of the printer.

4. Check your printer manual for instructions on loading the ribbon and paper into the printer.

5. Position your paper so that the print head is at the top of the page.

6. Make sure all power cords are plugged in.

7. Turn on the printer (and any other peripherals) and then turn on the computer.

   NOTE: MS-DOS users should activate the serial port using the MODE command. Refer to *Using MS-DOS on the GRiDCase Plus* for instructions.

Telephone Connector (Optional)

The telephone connector lets you access the optional internal modem. The connector is a standard RJ-11 jack for receiving the end of the cord that normally plugs into the back of your telephone. For more information on using the internal modem, see Chapter 3.

Video Output Connector (Optional)

The optional video output connector connects the GRiDCase Plus to a color monitor or video projector.

Note the trapezoidal or "D" shape; it makes an improper connection impossible. Chapter 3 gives instructions for connecting a monitor or video projector to the video output connector.

CAUTION: Before connecting or disconnecting a color monitor or any external device, turn off the power. Failure to do so may damage your unit.

Chapter 3: Built-In Options

This chapter describes the built-in options available for your GRiDCase Plus computer.

The Options

The built-in options are listed in Table 3-1.

Table 3-1. *Available Options for Your GRiDCase Plus*

Item	Description
Internal Hard Disk	Provides 10 MB of memory for your GRiDCase Plus
External ROM Cartridges	Provides up to 512K characters of external Read Only Memory which you install yourself
Internal ROM Cartridges	Provides up to 512K characters of Read Only Memory and are installed by factory authorized personnel
External Bus Connector	Allows GRiD storage peripherals to be attached to the GRiDCase Plus
Internal Modem	Allows data transmission at 300 or 1200 baud (Hayes compatible)
Internal RAM	Available in several sizes, up to 640K of main memory
Numeric Processor	Provides faster calculations using an 8087 processor
Video Output Connector	Allows a color monitor to be hooked up to the GRiDCase Plus

Internal Hard Disk

The internal hard disk comes with 10 MB of memory and formatted for use with MS-DOS.

External ROM Cartridges

The Read Only Memory (ROM) cartridges are a permanent storage device for programs. By using programs in ROM, you no longer need to carry these programs on floppy diskettes or any other storage device. Also, GRiD Software programs that execute directly from ROM leave you more space in main memory (RAM) for the data files you are working on. Finally, using programs in ROM helps to extend battery life by decreasing the amount of diskette drive usage.

You can install the ROM cartridges into the ROM sockets located just above the keyboard (see Figure 2-2). You can install up to four ROM cartridges, giving you up to 512K characters of additional space for programs. For information on installing and removing ROM cartridges, see the *Read Only Memory (ROM) Installation and Use* guide that comes with your ROM package.

CAUTION: Always turn off the power before attempting to install or remove ROM cartridges.

NOTE: If you have programs with identical names in both external and internal ROM cartridges, the external ROM version will always override the internal ROM version. This means that whenever you run the program, the external ROM version will be used.

Internal ROM Cartridges
Up to four additional internal ROM cartridges can be factory installed inside your GRiDCase Plus computer, including 128K EPROMS. Together with the external ROM cartridges they can provide up to 1 Megabyte of additional memory space for programs.

External Bus Connector
The external bus connector lets you connect external GRiD peripherals to your GRiDCase Plus including diskette drives, networks, and tape backup units. Without it, the only external disk drive you can attach to the GRiDCase Plus is the pocket diskette drive that attaches to the external floppy port on the side.

Internal Modem
The internal modem transmits and receives data through the telephone system. Because the internal modem resides inside the GRiDCase Plus, it provides greater convenience over an external modem when traveling or moving your equipment. The internal modem operates through most standard telephone systems in the U.S.A. or Canada at either 300 or 1200 bits per second.

With the appropriate software, you can communicate with computers inside and outside the GRiD family of products, as shown in Figure 3-1.

Figure 3-1. *Communication Inside and Outside the GRiD Family of Products*
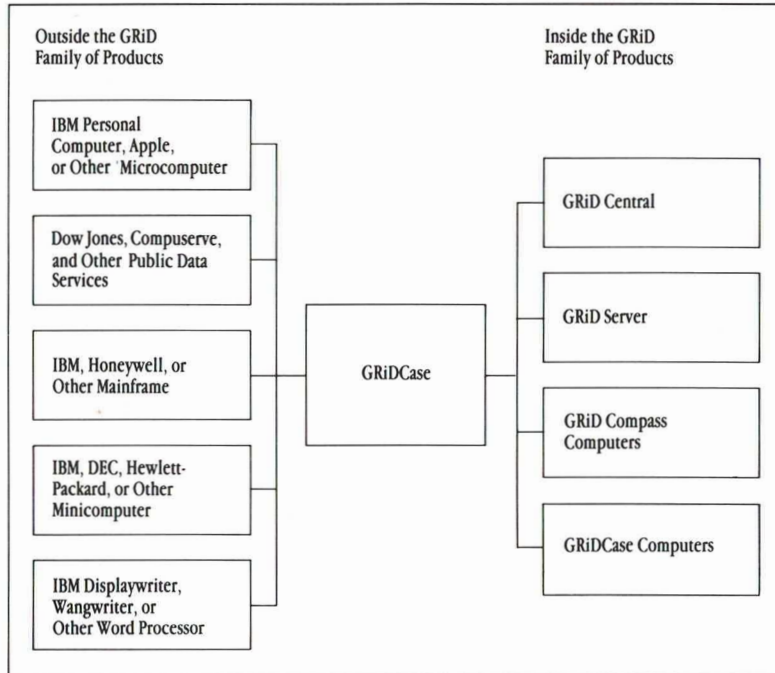
Notifying the Telephone Company   The Federal Communications Commission (FCC) may ask that you contact your local telephone company before using telephone lines to transmit data. If you are asked to notify your local telephone company, they will need the following information.

☐ Manufacturer—GRiD Systems Corporation

☐ Equipment model number—1253 or 1263

☐ FCC registration number—B468NR-68618-DM-E

☐ Modem model number—Cermetek Model 1750

   This number is printed on a sticker inside the storage well that holds the leg.

☐ Ringer equivalence—0.3A 0.4B

Connecting the Telephone Line   Your phone cord plugs into the telephone connector on the back of the GRiDCase Plus (see Figure 3-2). Most offices and residences now use the standard plug-in jack connector (RJ-11C).

To connect a GRiDCase Plus to the telephone system, unplug the cord from the back of your telephone and plug it into the telephone connector on the back of the computer (see Figure 3-2).

Figure 3-2. *GRiDCase Plus Connected to Phone Jack*

Telephone Jack —

Telephone Cord

— Telephone Connector
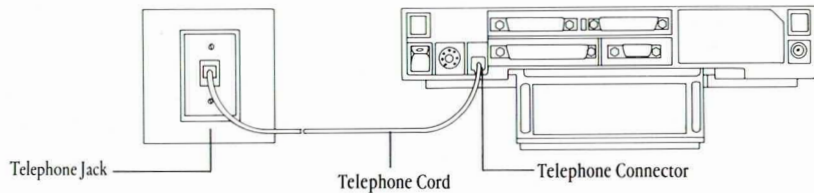
To use your telephone while your computer is connected to the same phone line, you will need a T-connector (available from any electronics store) and another telephone cord. Unplug the telephone cord from the back of your phone and plug the T-connector into its place. Now plug both the original telephone cord and the extra telephone cord into the T-connector. Plug the other end of the extra cord into the GRiDCase Plus. See Figure 3-3.

Figure 3-3. *Phone and Modem Connected to Telephone System*

— Telephone Connector

T-connector —

— Telephone Jack

Telephone Cords —
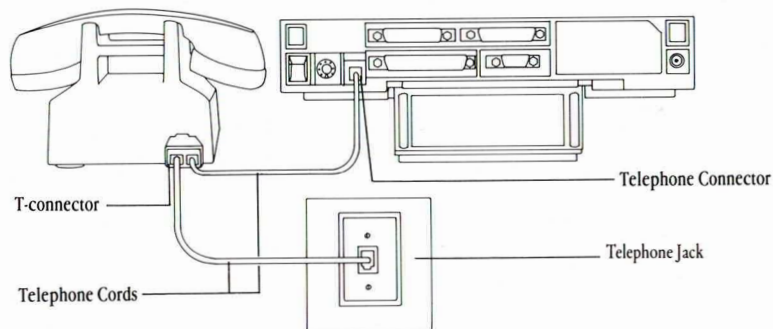
With the appropriate software, you can now use the same telephone line either to speak on the phone **or** to transmit and receive data from another computer (you *cannot* talk and send data at the same time).

NOTE: When connecting to a remote computer, the modem speaker is turned off immediately after the connection is made.

If your internal modem is not working properly, see Appendix A, Testing the Modem, to determine if it is your modem or the telephone line that is causing the problem.

NOTE: The GRiDCase Plus modem will not function with digital PBX telephone systems that use digital telephone sets. If you are unsure whether or not your GRiDCase Plus will work with your PBX telephone system, contact your local GRiD representative.

Alternative Telephone Connections   There are some telephone systems that do not use the RJ-11C plug-in jack connector. Some use different types of connectors and others are permanently wired. Read this section if you find that there is no RJ-11C connector available to plug into your GRiDCase Plus telephone connector.

Some older telephone systems use four-prong connectors. These require an adapter available from any electronics store. (One such adapter is the Radio Shack Model 279-351.)

Some offices use large Amphenol connectors for phones that have several lines coming in. Many adapters are available to tap into these connectors. (Radio Shack Models 43-271 and 43-270 are two commonly available adapters.)

In situations where the telephones are permanently wired, the simplest solution is to use a special coupler that attaches to the handset of the telephone and provides an RJ-11C connector for plugging into the GRiDCase Plus. The two following couplers are available at many electronics dealers or computer stores. (These couplers may not function in all situations.)

☐   The GRiD Acoustic Modem Adaptor (Model 32180), which attaches to almost any size and shape handset. This adapter supports 300 baud communications and, in some cases, can be used in 1200 baud communications.

☐   The Black Jack (from the Microperipheral Corporation), which attaches to telephone handsets with round mouthpieces.

There are also many models of acoustic couplers available with built-in modems. These attach to the serial connector on the GRiDCase Plus. Most can transmit at 300 Baud and some can transmit at 1200 Baud. These are available at many computer stores.

Using the Modem Under MS-DOS   Before you can use your internal modem under MS-DOS, you must turn it on using the MODE MODEM = ON command. Your MS-DOS application program may also require you to change the modem switch settings. Because the modem is internal, there are no physical switches to set, however, the Hayes Smartmodem™ switch settings are emulated in software.

The switch settings are automatically set as follows whenever the modem is turned on: switches 1, 5, 6, and 7 up (on), and switches 2, 3, 4, and 8 down (off). These are the settings required for the CROSSTALK™ application. NOTE: These are NOT the Hayes factory default switch settings.

If your application requires settings different from these, you can use the MODE command to change them, as well as to change the baud rate, which is normally set at 1200. For details on using the MODE command to change the switch settings or the baud rate, refer to *Using MS-DOS on the GRiDCase Plus*.

Using the Modem Under GRiD Software   Before you can use your internal modem under GRiD Software, you must activate it using the GRiDManager program. Press **CODE-O** in GRiDManager to display the Options form. Set the Current Modem item to "GRiDCaseHayesInternal." For more details on GRiDManager, refer to the *Management Tools Reference*.

Internal RAM

RAM, or main memory, is the internal working space of the GRiDCase Plus where programs reside (unless in ROM) as they are executed and where worksheet, graph, text, and other files reside as the user works with them. RAM is available in several sizes up to 640K.

Numeric Processor

The numeric processor is an 80-bit 8087 arithmetic coprocessor designed for faster calculations used with graphs, worksheets, and other kinds of files.

GRiD Software uses the 8087 coprocessor if it is available. Check your MS-DOS application documentation to see if an 8087 is required or not.

Video Output Connector

The video output connector connects the GRiDCase Plus to an IBM PC color monitor or video projector.

Connecting a Color Monitor to the Video Output
Connector   You can connect any IBM PC color monitor to your GRiDCase Plus provided it is an RGB (Red-Green-Blue) color monitor.

To Connect the Color Monitor to the GRiDCase Plus

1. Turn off the computer, the monitor, and any devices attached.

   CAUTION: Before connecting or disconnecting a color monitor or any external device, turn off the power. Failure to do so may damage your unit.

2. Attach the cable from the monitor to the video output connector on the back of the computer.

3. Plug the power cord from the monitor into a properly grounded outlet.

4. Turn on the monitor (and any other peripherals) and then turn on the computer.

Any data you enter on your keyboard appears on both your color monitor and the GRiDCase Plus screen.

If circles or other graphic images appear distorted on an external monitor under GRiD Software, you can correct this using GRiDManager. You should set the Aspect Ratio item in the Options form to External Monitor. Refer to the Options section under the GRiDManager chapter in the *Management Tools Reference* manual for more details.

Connecting a Video Projector to the Video Output
Connector   You can connect the following color and monochrome video projectors to the GRiDCase Plus:

☐ Sony Model VPH-1020Q or Electrohome ECP1000 Color Video Projector. This requires the Electrohome 38-800307-61 PC color interface, which outputs a separate signal for red, green, blue, and external synchronization via coaxial connectors.

☐ Electrohome EDP-58 Monochrome Video Projector. This requires the Electrohome 38-800003-60 Model IM-56 monochrome interface and Model 800-037 wiring harness, which outputs a monochrome signal.

☐ Vivid Systems Vivid LimeLight Computer Projector Model LLCP. This reguires the Vivid Systems Model VARGB IBM PC/XT Color Adapter, which outputs a monochrome signal with shading.

See your local Electrohome or Vivid Systems dealer for assistance in connecting these projectors.
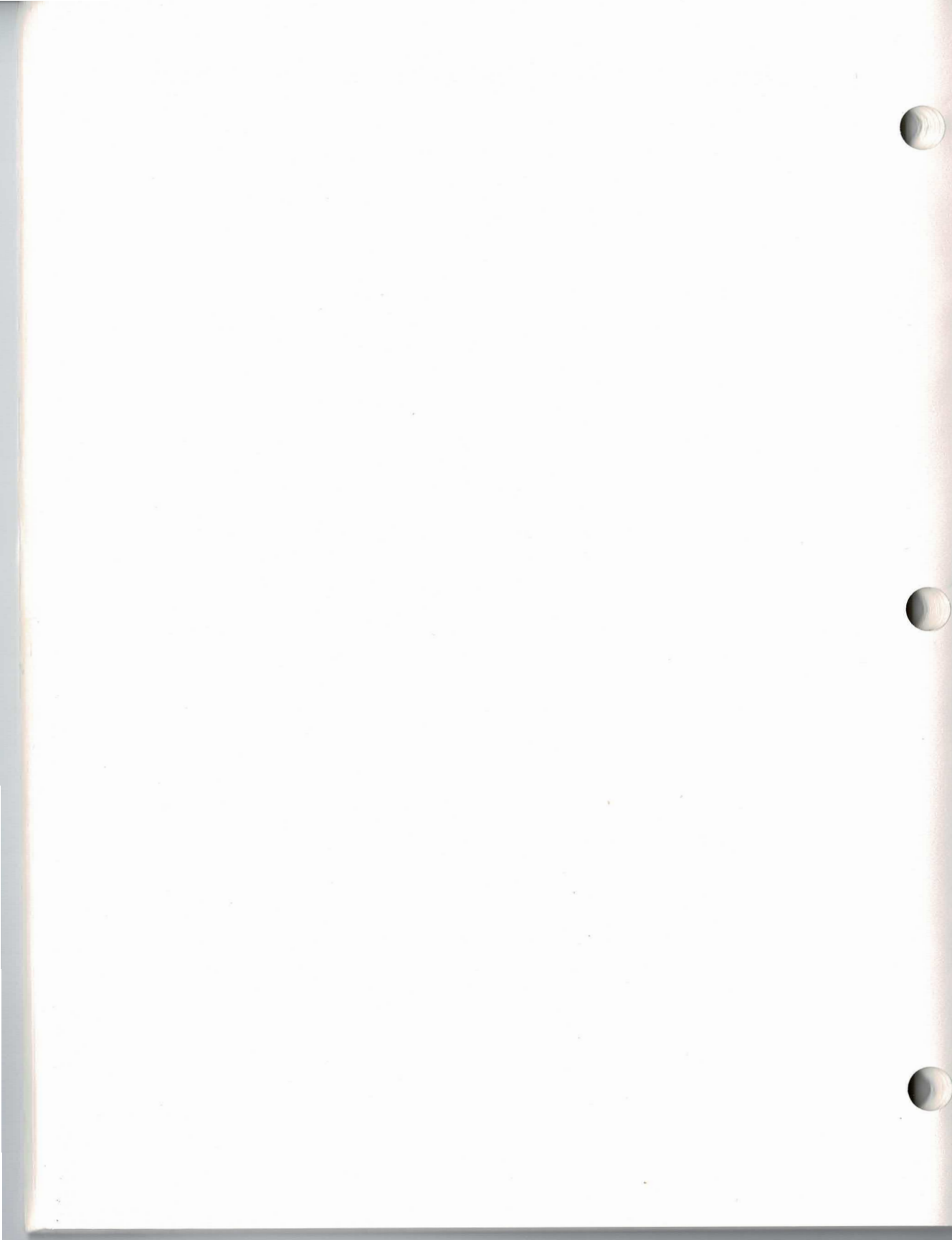
Chapter 4: Power Options

This chapter describes the options available for powering your GRiDCase Plus and the external devices attached to it. You may already have acquired some of these items. If not, you can obtain them by contacting a GRiD representative.

The Power Options Table 4-1 provides a summary of the available power options. Each option is explained in greater detail below.

Table 4-1. *Power Options for Your GRiDCase Plus*

Power Source	Description
AC Power Pack Model 32137	When used externally, powers GRiDCase Plus from an AC wall outlet and simultaneously recharges the Battery Pack currently in the power pack slot. A cord connects the AC Power Pack to the DC input connector on the back of the GRiDCase Plus and to an ordinary wall socket. When used externally the Power Pack converts alternating current (AC) into direct current (DC) for the GRiDCase Plus, the internal diskette or hard disk drive, the pocket diskette drive (if attached), and one external device. You must use the 2200 Base Station or additional Internal/External AC Power Packs to provide power for additional external devices.
	When used internally, the AC Power Pack fits into the power pack slot on the back of the GRiDCase Plus and powers the GRiDCase Plus and the internal diskette drive only. A cord connects the power pack to a wall outlet. You must use an additional Internal/External AC Power Pack or 2200 Base Station to provide power for any additional external devices.
	There is no voltage switch—the Power Pack automatically senses the voltage (110 or 220) your AC wall outlet supplies and sets it for you.
Internal Battery Pack Model 32110	Powers GRiDCase Plus from rechargeable battery pack. Provides 1 to 6 hours of power to the GRiDCase Plus and the internal diskette or hard disk drive only, depending on your GRiDCase Plus model and system configuration. You must use an External AC Power Pack or 2200 Base Station to provide power for any external devices. The Battery Pack fits into the power pack slot on the back of the GRiDCase Plus. See Recharging Your Battery Pack below for methods of recharging the battery pack.

Power Source	Description
External Battery Pack Model 32135	Provides 3 to 20 hours of power to the GRiDCase Plus and internal diskette drive only, depending on your GRiDCase Plus model and system configuration.
Auto/Boat Adapter Model 32136	Powers GRiDCase Plus from the cigarette-lighter socket of a car or boat, or from the External Battery Pack.
External Battery Charge Model 32115	Recharges Internal Battery Pack in about 12 hours.
2200 Base Station	Powers GRiDCase Plus and external devices. The power pack slot in the front of the base station recharges the Battery Pack in about four hours. See Chapter 6 for information on using the base station to power multiple external devices.

Connecting the AC Power Pack Externally

The AC Power Pack provides power for the GRiDCase Plus from both 110-volt and 220-volt wall outlets and recharges the battery pack (if installed). Recharging the batteries takes about 12 hours and occurs whether or not your computer is turned on. When used externally, the AC power pack will adequately support the GRiDCase Plus, the Pocket Diskette Drive, and one storage device attached to the peripheral connector.

A power cord is included with the power pack for connecting it to the wall outlet.

To Install the AC Power Pack Externally

1. Turn off the computer.

   CAUTION: Before connecting or disconnecting the External AC Power Pack or any other external device, turn off the power. Failure to do so may damage your unit.

2. Attach one end of your power pack cord to the power pack.

3. Attach the other end of your power pack cord to the DC input connector on the back of the computer.

4. Attach one end of the power cord to the power cord socket on the back of the power pack.

5. Plug the other end into a wall outlet that accepts a three-prong plug (see Figure 4-1). If a plug adapter is used, make sure it is properly grounded. Ensure that the power pack is resting on its bottom so that none of the air vents on the sides and top are blocked.

6. Turn on the computer.

NOTE: If you intend to power your GRiDCase Plus and one external device using the AC Power Pack, you must plug the power pack into the GRiDCase Plus and not the external device. Power will not be transmitted to the GRiDCase Plus if the only power provided is a single AC Power Pack connected to the external device.

Figure 4-1. *Installing the AC Power Pack Externally*

Connecting the AC Power Pack Internally

The AC Power Pack provides power for the GRiDCase Plus from either a 110-volt or 220-volt wall outlet. When used internally, the AC Power Pack will supply adequate power for the GRiDCase Plus and a Pocket Diskette Drive; it will NOT support any storage devices attached to the peripheral connector.
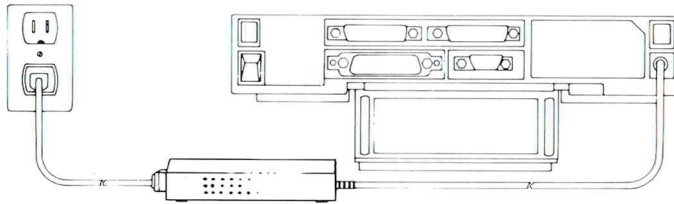
To Install the AC Power Pack Internally

1. Turn off the computer.

    CAUTION: Before connecting or disconnecting the power pack or any external device, turn off the power. Failure to do so may damage your unit.

2. Remove the power pack cord from the power pack.

3. Hold the power pack with the label facing you.

4. Insert it into the power pack slot on the back of the computer until it clicks into place (see Figure 4-3).

5. Plug one end of your power cord into the power cord socket at the back of the power pack and the other end into a wall outlet that accepts a three-prong plug. If an adapter is used, make sure it is properly grounded.

6. Turn on the computer.

Figure 4-2. *Installing the AC Power Pack Internally*

Power Pack Slot

Power Pack

To remove the power pack, push the power pack eject button (below and to the right of the power pack slot) until the power pack pops out.

Using the Internal Battery Pack
The Internal Battery Pack provides power to the GRiDCase Plus from rechargeable batteries permanently sealed inside the battery pack.

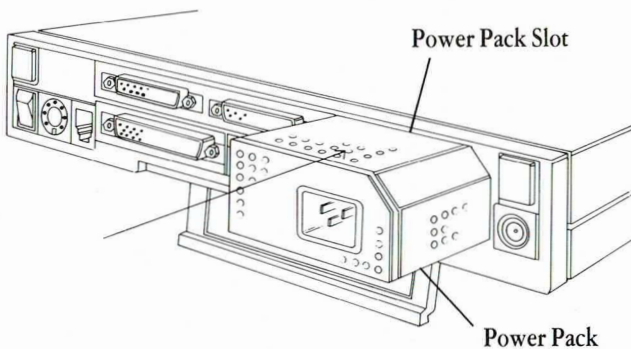### To Install the Battery Pack

1. Turn off the computer.

   CAUTION: Before connecting or disconnecting the battery pack or any external device, turn off the power. Failure to do so may damage your unit.

2. Hold the battery pack with the label facing you.

3. Insert it into the power pack slot on the back of the computer until it clicks into place (see Figure 4-2).

4. Turn on the computer.

Figure 4-3. *Installing the Battery Pack*

To remove the battery pack, push in the power pack eject button (below and to the right of the power pack slot) until the battery pack pops out.
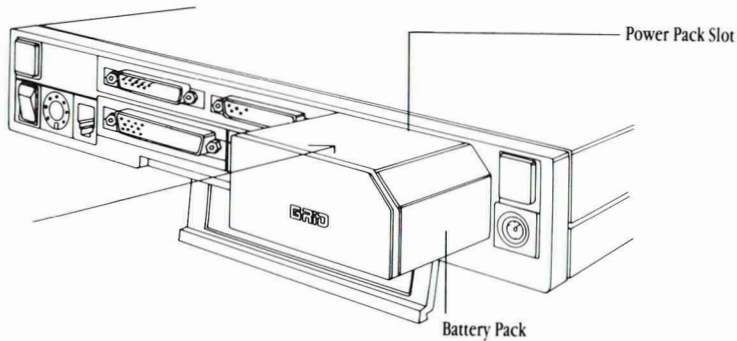
The Life of Your Battery Pack   The GRiDCase Plus Battery Pack can last up to six hours on the GRiDCase 2 Plus, and up to one and a half hours on the GRiDCase 3 Plus. You will get the fullest capacity out of your battery pack after you have fully discharged and recharged it about three times. Thereafter, the life of your battery pack depends on the following factors:

□   The type of screen—if your GRiDCase Plus has a red plasma screen, lower the intensity of the display. This decreases the power drain on the battery. If your GRiDCase Plus has an LCD screen, the contrast level of the screen does not affect the power usage. Overall, the GRiDCase 3 Plus, with the red plasma screen, consumes more power than the models with LCD screens.

□   The number of processors—if your GRiDCase Plus has the optional 8087 numeric processor, it requires more power than if it has only the 80C86.

□   The use of the optional internal modem or any serial device. At system startup the serial port and modem are both inactive. When the modem or the serial port are activated, power consumption increases. If you are an MS-DOS user, you should deactivate the modem or serial port when they are not in use. Use the MS-DOS commands MODE MODEM = OFF or MODE SERIAL = OFF to deactivate the modem or serial port. If you are a GRiD-OS user, the modem and serial port are automatically deactivated when not in use.

□   The use of the internal diskette drive: power consumption increases when the internal diskette drive runs.

□   The use of the internal hard disk option: the hard disk uses more power than the standard internal floppy drive.

□   Storing the battery pack in high temperatures (over 90° F) for two months or longer without any recharging: note that it might take a few rechargings for the battery pack to return to normal after such storage conditions.

□   Restarting the computer by using the on/off switch to turn the computer off and then on again: instead, try using the warm start-up method—GRiD-OS users should press CTRL-CODE-SHIFT-minusSignKey; MS-DOS users, CTRL-ALT-DEL.

NOTE: Do not use any operating system other than those supplied for the GRiDCase Plus computer. Other operating systems are not designed to optimize battery life.

Recharging Your Battery Pack   You should always wait for the battery to become fully discharged, indicated by the low-battery indicator lighting, before recharging your battery pack. If you frequently recharge your battery pack before it is fully discharged, the batteries may lose some of their capacity.

CAUTION: To avoid overcharging the batteries, never leave a charged battery pack in the power pack slot for more than a few days while the AC Power Pack is connected to the GRiDCase Plus. The Power Pack continually recharges the battery pack (as explained below).

When the low-battery indicator illuminates, indicating the power in your battery pack is low, *do not* immediately remove the battery pack. First, save any data you are working with and *then* remove the battery pack. (Removing the battery pack cuts off the power; any data currently in main memory (RAM) is lost.)

You can then either install a fresh battery pack or recharge your old one. The method you use to recharge the battery pack depends on the power options available to you, as summarized in the following table.

If you have an:	Then:
External AC Power Pack	Leave the discharged battery pack in the power pack slot and connect the Internal/External AC Power Pack to the GRiDCase Plus as explained above. The batteries recharge in about 12 hours regardless of whether the GRiDCase Plus is on or off.
External Battery Charger	Insert the battery pack into the charger as explained below in the section "Using the External Battery Charger." The batteries recharge in about 12 hours.
2200 Base Station	Insert the battery pack into the power pack slot on the front of the base station. The batteries recharge in about four hours regardless of whether you are using your GRiDCase Plus or any other device connected to it.

Connecting the External Battery Pack

The External Battery Pack provides 14 to 20 hours of power to the GRiDCase 2 Plus, and 3 to 5 hours of power to the GRiDCase 3 Plus. The Auto/Boat Adapter is used to connect the battery pack to the GRiDCase Plus, and is provided with the battery pack.

To Connect the External Battery Pack

1. Turn off the computer.

   CAUTION: Before connecting or disconnecting the battery pack or any external device, turn off the power. Failure to do so may damage your unit.

2. Plug the pointed end of the auto/boat adaptor into the socket at the end of the battery pack power cord (see Figure 4-4).

3. Plug the other end into the DC input connector on the back of the computer.

4. Turn on the computer.

Figure 4-4. *Installing the External Battery Pack*
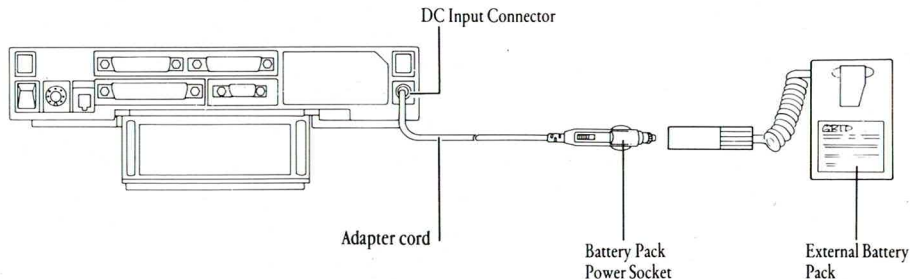
To conserve battery pack power, follow the guidelines given in the section above on the Internal Battery Pack. When the External Battery Pack begins to lose power it will produce a beeping sound. When this happens, save your data immediately. Then supply external power to your GRiDCase Plus or use an Internal Battery Pack. Refer to the information provided with the External Battery Pack for recharging instructions.

Connecting the Auto/Boat Adapter

The Auto/Boat Adapter lets you power your GRiDCase Plus from the cigarette-lighter socket of a car or boat, or from the External Battery Pack (see Figure 4-5).

To Connect the Adapter

1. Turn off the computer.

   CAUTION: Before connecting or disconnecting the auto/boat adapter or any external device, turn off the power. Failure to do so may damage your unit.

2. Plug the pointed end of the adapter cable into the cigarette-lighter socket.

3. Plug the other end into the DC input connector on the back of the computer.

4. Turn on the computer.

CAUTION: Most automobiles cut off power to the cigarette-lighter socket when starting the engine. If the GRiDCase Plus is connected to the cigarette-lighter socket when you start the engine, any data currently in main memory (RAM) is lost.

We recommend having a battery pack installed in your GRiDCase Plus to ensure continuous power while operating from a car cigarette-lighter socket. Note that the auto/boat adapter will not completely recharge a battery pack installed in the GRiDCase Plus; it supplies much less power than the GRiD AC Power Pack.

Figure 4-5. *Installing the Auto/Boat Adapter*
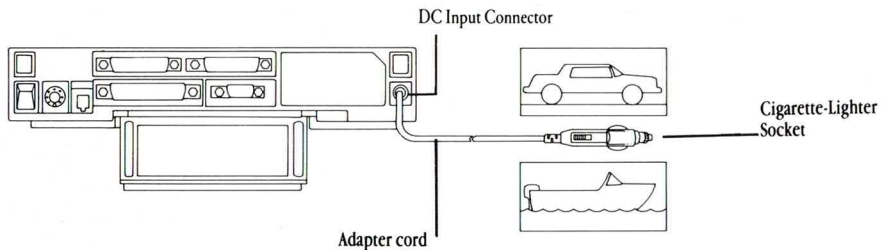
Using the External Battery Charger

The external battery charger recharges your battery pack in about 12 hours. The external battery charger comes with a Y cable that has three DC jacks, two male and one female. The third connector on this cord allows you to run your computer while the battery is recharging.

To Recharge the Battery Pack

1. Place the battery pack inside the charger and secure it in place with the elastic strap.
2. Connect one male connector of the Y cable to the battery charger.
3. Plug the female connector of the Y cable into the external AC power supply.
4. If you want to run your computer while the battery is recharging, plug the second male connector into the back of the GRiDCase Plus.

In about 12 hours the battery pack is fully recharged.

You can also use an adapter cord supplied with the battery charger to connect the battery charger to the AC Power Pack.

Using the 2200 Base Station

The 2200 Base Station powers external devices attached to the GRiDCase Plus and is also used to recharge your battery pack. See the section "Connecting Multiple External Devices" in Chapter 6 for information on using the base station to power external storage devices. The instructions for recharging the battery pack are given below.

To Recharge the Battery Pack

1. Set up the base station by following the steps shown in the manual that accompanies it.
2. Insert the battery pack, with the label facing you, into the battery pack slot on the front of the base station until it clicks into place (see Figure 4-6).

Figure 4-6. *Inserting Battery Pack into 2200 Base Station*
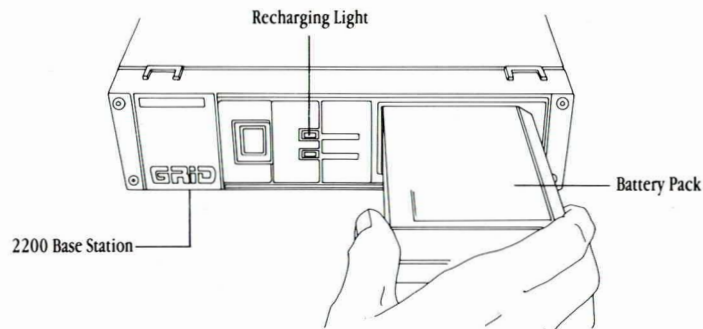
3. Turn on your base station if it is not turned on already.

Battery pack recharging takes about four hours. You can use your GRiDCase Plus or any device connected to it while your battery pack is being recharged. The charging light, above the power light, comes on when the battery is fully engaged in the charging slot. After about four hours, remove the battery pack by pushing the battery pack eject button, below the slot, until the battery pack pops out.

NOTE: The charging light does not turn off whe the battery is fully charged.

Chapter 5: Using the Internal Diskette and Hard Disk Drives

This chapter describes how to use the internal diskette and hard disk drives. The diskette drive is located on the side of your computer (see Figure 2-4) and accepts double-sided, double-density, 3½-inch floppy diskettes. The hard disk is also located on the side of your computer (see Figure 2-5).

Taking Care of the Diskette Drive

Observe the following rules for taking care of the diskette drive:

- [ ] Only use good-quality diskettes such as the recommended Sony OM-D4440, Xidex 3022-3000, Maxell MF2DD, 3M 5337, or Fuji MFNB2 (or equivalent) 3½-inch diskettes.
- [ ] Never place a damaged or dirty diskette into the drive.
- [ ] Never place foreign objects into the drive.
- [ ] Whenever you transport the computer, **always** protect the diskette drive by inserting the travel diskette that originally came in the system into the drive.

Floppy Diskettes

Floppy diskettes are plastic disks that have been coated with a magnetic material (much like the coating on audio recording tape). The diskette spins inside a protective plastic case. One 3½-inch floppy diskette stores up to 720K of data.

Floppy diskettes should be removed from the drive when not being used. By changing diskettes you can store and retrieve information for many different applications.

CAUTION: Among the variety of diskettes available on the market, certain types, when used in a GRiDCase Plus diskette device, may either malfunction or cause you to lose data. To avoid this problem, use only Sony OM-D4440, Xidex 3022-3000, Maxell FM2DD, 3M 5337, or Fuji MFNB2 (or equivalent) diskettes with the following characteristics:

Double sided
Double density
Soft sectored
135 TPI (tracks per inch)

Figure 5-1 shows the front and back side of a 3½-inch floppy diskette. An arrow on the front side shows you the direction in which to insert the diskette into the drive. The write-protect tab is used to protect your floppy diskettes from being overwritten (see description below).

Figure 5-1. *Front and Back Side of Floppy Diskette*

Front Side   Back Side

Metal Part

Label

Write Protect Tab
(slides forward to
write-protect
diskette)
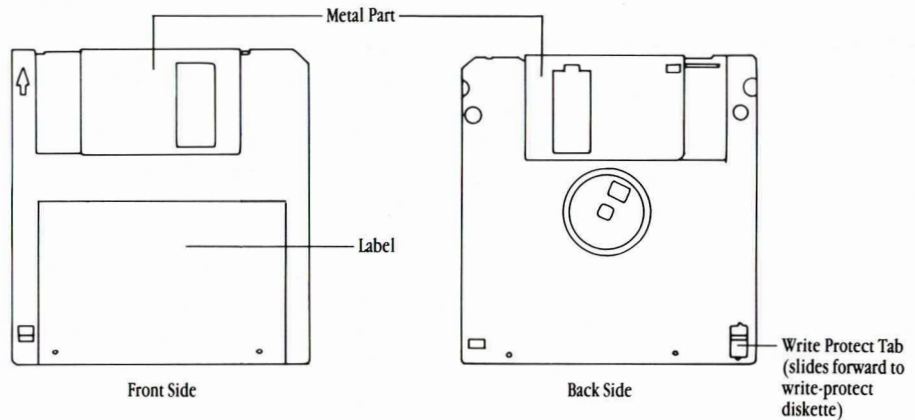
Inserting and Removing Floppy Diskettes
The following instructions show how to insert and remove your floppy diskette.

To Insert a Floppy Diskette:

1. If you do not want to inadvertently write over the floppy disk, write protect the diskette by sliding the write-protect tab on the back-side of the diskette until it uncovers the hole.
2. Hold the diskette with the larger label side up. An arrow on the diskette points in the direction you should insert the diskette: the metal part goes in first (see Figure 5-2).
3. Push the diskette into the drive until it clicks into place.

Figure 5-2. *Inserting a Floppy Diskette into the Drive*
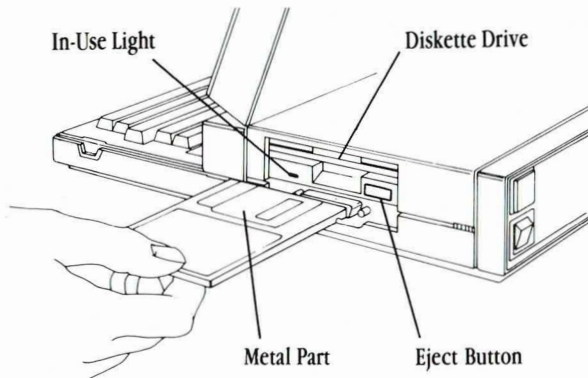
To remove your diskette, push the diskette eject button until the floppy diskette pops out.

CAUTION: Never release a floppy diskette when the in-use light is lit, unless prompted to do so; for example, when you are prompted to insert the correct diskette during a duplication under GRiD-OS. The in-use light indicates that file access may be taking place. Releasing the floppy diskette at this time, when not prompted to do so, could destroy files.

Write-Protecting Floppy Diskettes
If you have data stored on a floppy diskette that you want to protect from being inadvertently written over, you can write protect it by sliding the write-protect tab on the back-side of the diskette until it uncovers the hole (see Figure 5-1).

Formatting Floppy Diskettes
The diskette drive expects floppy diskettes to have their data organized in a particular format. To ensure that a new diskette can be read and written to by the diskette drive, you must format each diskette before the diskette drive can use it.

CAUTION: Formatting any medium erases all data on it. Therefore, use extreme caution when formatting diskettes.

To format a floppy diskette for GRiD-OS, run the Initialize Media program as described in the *Management Tools Reference* manual. To format a diskette for MS-DOS, run the FORMAT command as described in the *MS-DOS Reference* manual.

Taking Care of Floppy Diskettes

To prevent loss of data on your floppy diskettes, treat them with care. Below are a few tips for handling floppy diskettes:

□ Do not touch the surface of the diskette by moving the metal slide. This slide protects the recording surface while the diskette is not being used.

An invisible scratch on the surface of the diskette, or even a fingerprint, can cause errors.

□ Keep diskettes away from magnetic office items such as paper clip dispensers, magnetic paper holders, telephones, etc.

□ Do not set the diskette on top of a TV, color monitor, speaker, or CRT.

□ Do not carry a diskette and a calculator together in your pocket.

□ Do not expose diskettes to microwaves or infrared rays.

□ Do not expose diskettes to temperatures below 50°F (10°C) or above 140°F (60°C).

□ Keep diskettes away from wall adapters.

□ For optimum long-term storage, keep diskettes at a temperature between 60° and 70°F (15° to 20°C).

□ Never use a damaged diskette.

□ Do not remove a diskette from the drive while the in-use light is lit, unless prompted to do so by the computer. Removing the diskette at this time, when not prompted to do so, can destroy data.

□ Do not leave your data diskette in the drive while traveling. Doing so may seriously damage the diskette. While traveling, always insert the special travel diskette that originally came in the drive.

□ Keep your diskettes away from cigarette smoke.

□ Label and date all diskettes. This is especially important when making back-up copies.

Backing Up Files on Floppy Diskette

It is very important that you make back-up copies of your important diskettes in case you lose or damage them. You can then make another copy from the back-up diskette.

GRiD-OS users can make back-up copies using the Duplicate command (CODE-D) in GRiDManager or the Duplicate Media program as described in the *Management Tools Reference* manual.

MS-DOS users can make back-up copes using the COPY or DISKCOPY commands as described in the *MS-DOS Reference* manual.

Taking Care of Your Hard Disk

Although the internal hard disk in your GRiDCase Plus is ruggedly built to withstand the shocks that come with transporting your system, you should treat the hard disk with the same care you would give any expensive piece of equipment.

The hard disk has an auto "parking" mechanism that moves the disk heads to a part of the disk that does not contain data. This safety feature ensures that neither your data or the disk is damaged when the GRiDCase Plus is moved. Whenever the disk has been inactive for five seconds, the disk heads are parked, and it is then safe to turn off and move your computer.

Caution: Always wait at least five seconds before turning off your computer to allow time for the autopark mechanism to work.

Installing MS-DOS

The hard disk comes formatted for use with MS-DOS and has been loaded at the factory with the minimum software required to initialize the system. To load additional software on the hard disk you will have to connect either to an external GRiD disk drive (such as GRiD Models 32170, 2201, or 2202) or to an IBM PC or compatible system using a GRiD Model 6201 PCMaster/PCSlave Serial cable and software contained on your MS-DOS diskettes. See your *Using MS-DOS on the GRiDCase Plus* manual for details on how to use the PCMaster/PCSlave software.

Backing Up Files on the Hard Disk

It is a good idea to make back up copies of important files that you use on your computer no matter what storage device you use. Because a hard disk can hold so much information, it is even more important to regularly back up the files on the hard disk.

There are two ways to make backup copies of disk files:

□ to diskette

□ to tape

To copy the files to diskettes, use the DOS COPY, XCOPY or BACKUP command. Unless you use XCOPY, you will need to build the same directory structure on the diskette as you have on the hard disk before copying the files. If you have many files, keep in mind that you will need to monitor the copying process so that you can insert a new diskette as one becomes full. See the *GRiDCase MS-DOS Reference* manual for information about the COPY, XCOPY, and BACKUP commands.

If you have a GRiD 2210 Tape Backup Unit, you can back up your disk files to tape. Backing up files onto tape is easier and more efficient because you do not have to worry about duplicating the directory structure of your disk files. In addition, tapes hold more files than diskettes. For information about backing up files to tape, see the *GRiDCase Tape Backup Unit Owner's Guide.*

Chapter 6: Connecting External Devices

This chapter describes how to connect external devices to your GRiDCase Plus. For more detailed information on how to use these devices, consult the manual that accompanies each device.

Power Requirements   Table 6-1 summarizes the power options used for powering the GRiDCase Plus and external devices connected to it. The AC Power Pack can supply power to the GRiDCase Plus and one external device connected to the external bus connector. Additional devices require a GRiD 2200 Base Station for their power supply, or individual External AC Power Packs. The Internal Battery Pack, AC Power Pack used internally, or Auto/Boat Adapter alone cannot power GRiDCase Plus and an external device EXCEPT for the pocket diskette drive—the pocket diskette drive works with any GRiDCase Plus power source.

Table 6-1. *Powering GRiDCase Plus and Attached External Bus Devices*

Power Source	GRiDCase Plus & 1 Device	GRiDCase Plus & 2 or More Devices
AC Power Pack	Yes	No
Internal Battery Pack	No	No
External Battery Pack	No	No
Auto/Boat Adapter	No	No
Model 2200 Base Station	Yes	Yes

**Connecting A Single External Device to the Bus
Connector**   You connect your external device to the external bus connector located on the rear panel (see Figure 6-1), using the Model 6211 external bus cable.

Figure 6-1. *External Device Connects to External Bus Connector*
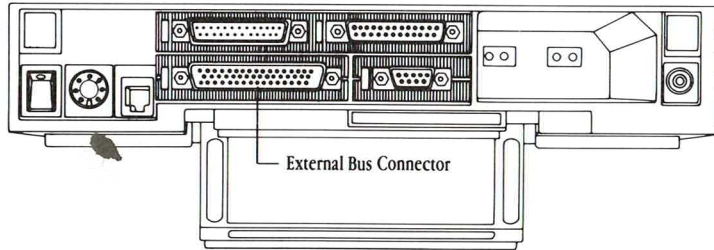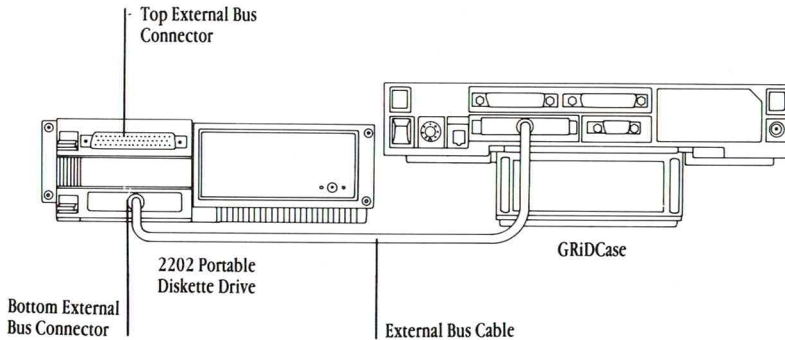

External Bus Connector

Figure 6-2 shows an external bus cable connecting the 2202 Portable Diskette Drive to the GRiDCase Plus.

Figure 6-2. *Cable Connecting GRiDCase Plus to 2202 Portable Diskette Drive*

Top External Bus Connector

2202 Portable Diskette Drive

Bottom External Bus Connector

GRiDCase

External Bus Cable

To Connect a Single External Device to the GRiDCase Plus

1. Turn off the computer, the external device, and any other devices.

    CAUTION: Before connecting or disconnecting any external device, always turn off the computer and all external devices. Failure to do so may damage your equipment.

2. If your external device has address switches, set them correctly. These switches set the device's address, allowing the computer to exchange data with it. Consult Appendix B or the manual supplied with your device to determine the correct switch settings.

3. Attach the jack end of the Model 6211 external bus cable to the bottom connector on the rear panel of the GRiD device. Because of its trapezoidal shape, the cable plugs into the connector in only one way. If it does not fit in easily the first time, turn the end of the cable upside down. Tighten the thumbscrews to firmly connect the cable to the computer.

4. Attach the other end of the external bus cable to the external bus connector on the back of the computer.

5. Connect the Internal/External AC Power Pack to the GRiDCase Plus. For instructions on connecting the power pack, see Chapter 4.

   NOTE: If a single AC Power Pack is used to power the GRiDCase Plus and one external device, the power pack must be plugged into the GRiDCase Plus, not the external device. Power from an AC Power Pack connected to an external device is not transmitted through the device's external bus connectors. However, you can connect a single power pack to the external device if you power the GRiDCase Plus separately with an Internal AC Power Pack or Battery Pack.

6. Turn on the external device, then turn on the computer.

Connecting Multiple External Devices to the Bus Connector

To connect more than one external device, connect the 2200 Base Station to the GRiDCase Plus; stack the additional devices on top of the Base Station as explained below. You can attach several devices to the GRiDCase Plus in any sequence. The order is not important as long as they are properly connected. (You can also power additional external devices using a separate AC Power Pack for·each one.)

The number of external devices you can connect to the 2200 Base Station is limited by the amount of power that the Base Station provides. Refer to the *Model 2200 GRiDCase Base Station* Owner's Guide for further details.

Every GRiD peripheral device has two external bus connectors; the bottom one is a male connector, and the top one a female. A lever to the right of each connector lets you rotate them up and down 90 degrees (see Figure 6-3). By rotating the connectors in opposite directions (the bottom one facing down, and the top one facing up) you can stack devices on top of one another, eliminating the need for additional cables.

Figure 6-3. *External Bus Connectors on Device*

Lever Rotates
Connector 90 Degrees

Jack (Female) Connector

External Bus
Connectors

Plug (Male) Connector
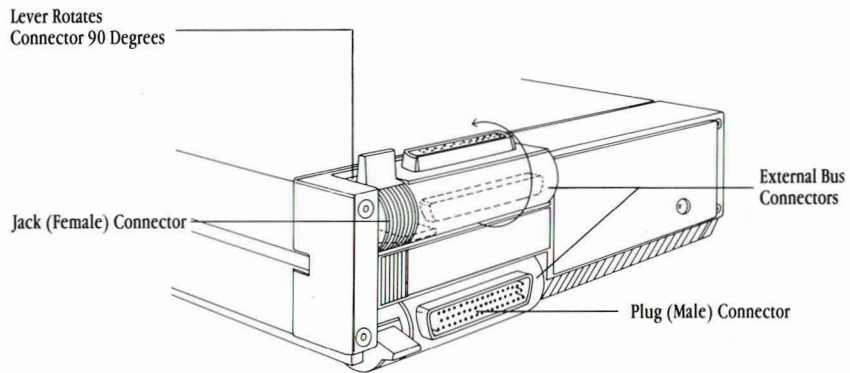
For example, let's say you want to stack together a 2200 base station, 2201 disk system, and 2202 diskette drive in that order. First make sure that all power to these devices is OFF. Next, connect the external bus cable from the GRiDCase Plus to the bottom device on the stack, the base station. You then stack the disk system on top, by connecting its bottom connector to the top connector on the base station. You follow the same procedure to stack the diskette drive on top of the disk system.

Figure 6-4 shows you how these devices appear when they are stacked together.

Figure 6-4. *Devices Stacked Together*

2202 Diskette Drive

2201 Disk System
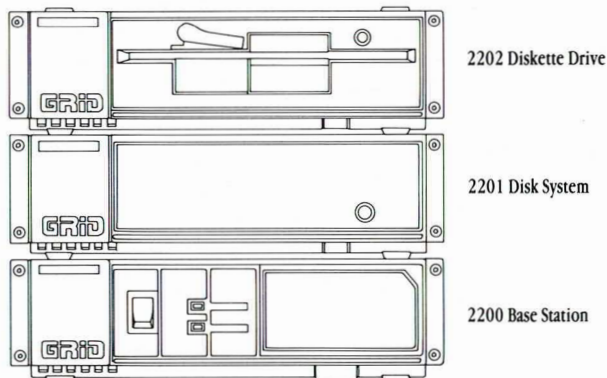
2200 Base Station

You can connect several external devices (no more than three diskette and four hard disk devices) to the 2200 Base Station, but you must specify a different address for each device of the same type. To determine the correct switch settings for each additional device, see Appendix B.

CAUTION: Before connecting or disconnecting any external device, always turn off the computer and all external devices. Failure to do so may damage your equipment.

Also, note that the GRiDCase Plus recognizes all of the devices currently attached to it only during start-up. This is another reason why it is important that you turn off the computer and all devices before connecting a new device. If you connected a peripheral device after the system was turned on it may at the least cause the system to "hang," and at the worst it could even damage your peripheral device.

If you connect your 2200 Base Station to the GRiDCase Plus, you can then connect other devices by stacking them on top of the Base Station.

To Connect the Base Station and Other Devices to the GRiDCase Plus

1. Turn off the computer, the Base Station, and any other peripherals.

   CAUTION: Before connecting or disconnecting any external device, always turn off the computer and all external devices. Failure to do so may damage your equipment.

2. Attach the jack end of the Model 6211 external bus cable to the bottom connector on the rear panel of the Base Station.

3. Attach the other end of the external bus cable to the external bus connector on the back of the computer.

4. Plug one end of your power cord into the power cord socket on the 2200 Base Station.

5. Plug the other end of your power cord into a wall outlet that accepts a three-prong plug. If a plug adapter is used, make sure that it is properly grounded.

6. Stack your devices on top of the Base Station following the procedure explained above. The order in which you connect devices is not important as long as they are all connected together.

   You can have no more than three diskette devices stacked together. For information regarding the total number of devices you can stack, refer to the *Model 2200 GRiDCase Base Station Owner's Guide.*

7. Ensure that each device has the correct switch settings. See Appendix B.

8. Turn on the Base Station, turn on all peripherals, and then turn on the computer.

Connecting the Pocket Diskette Drive   You must connect the pocket diskette drive to the external floppy port (located on the side of the GRiDCase Plus) using the special cable that is provided. **Only the pocket diskette drive can use this connector.** Figure 6-5 shows where this connector is located.

Figure 6-5.   *Connecting the Pocket Diskette Drive*

Pocket Floppy
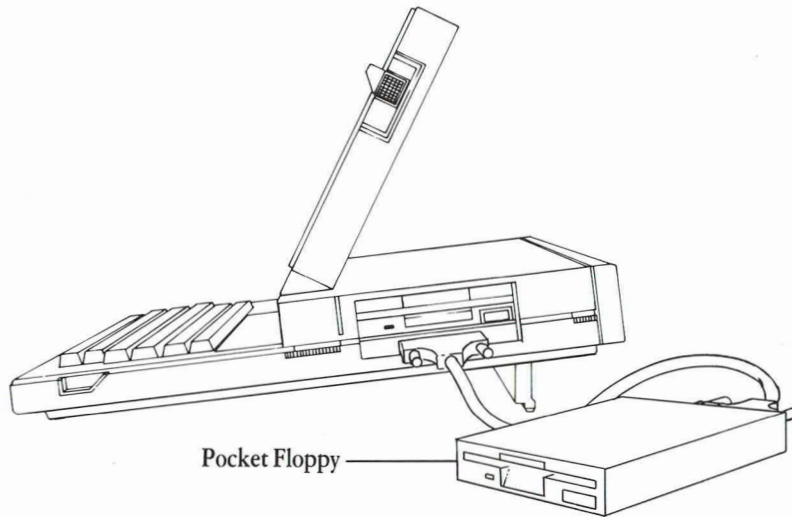
The pocket diskette drive works with any power option; an AC power source is not necessary to use the pocket diskette drive. In addition, the pocket diskette drive works in any power configuration regardless of how many external devices you have connected to the external bus connector. If you attach additional devices using the external bus connector, refer to Table 6-1 in this chapter. The power sources specified in this table apply whether or not you are using a pocket diskette drive.

To Connect a Pocket Diskette Drive to the GRiDCase Plus

1. Turn off the computer, the pockette diskette drive, and any other devices.

   CAUTION: Before connecting or disconnecting any external device, always turn off the computer and all external devices. Failure to do so may damage your equipment.

2. If your external device has address switches, set them correctly. These switches set the device's address, allowing the computer to exchange data with it. Consult Appendix B or the manual supplied with your device to determine the correct switch settings.

3. Attach one end of the pocket diskette drive cable to the external floppy port on the side of the GRiDCase Plus unit. If it doesn't fit in easily the first time, turn the end of the cable upside down. Tighten the thumbscrews on each side of the connector to firmly attach the cable to the GRiDCase Plus.

4. Attach the other end of the pocket diskette drive cable to the pocket diskette drive.

5. Turn on the computer.
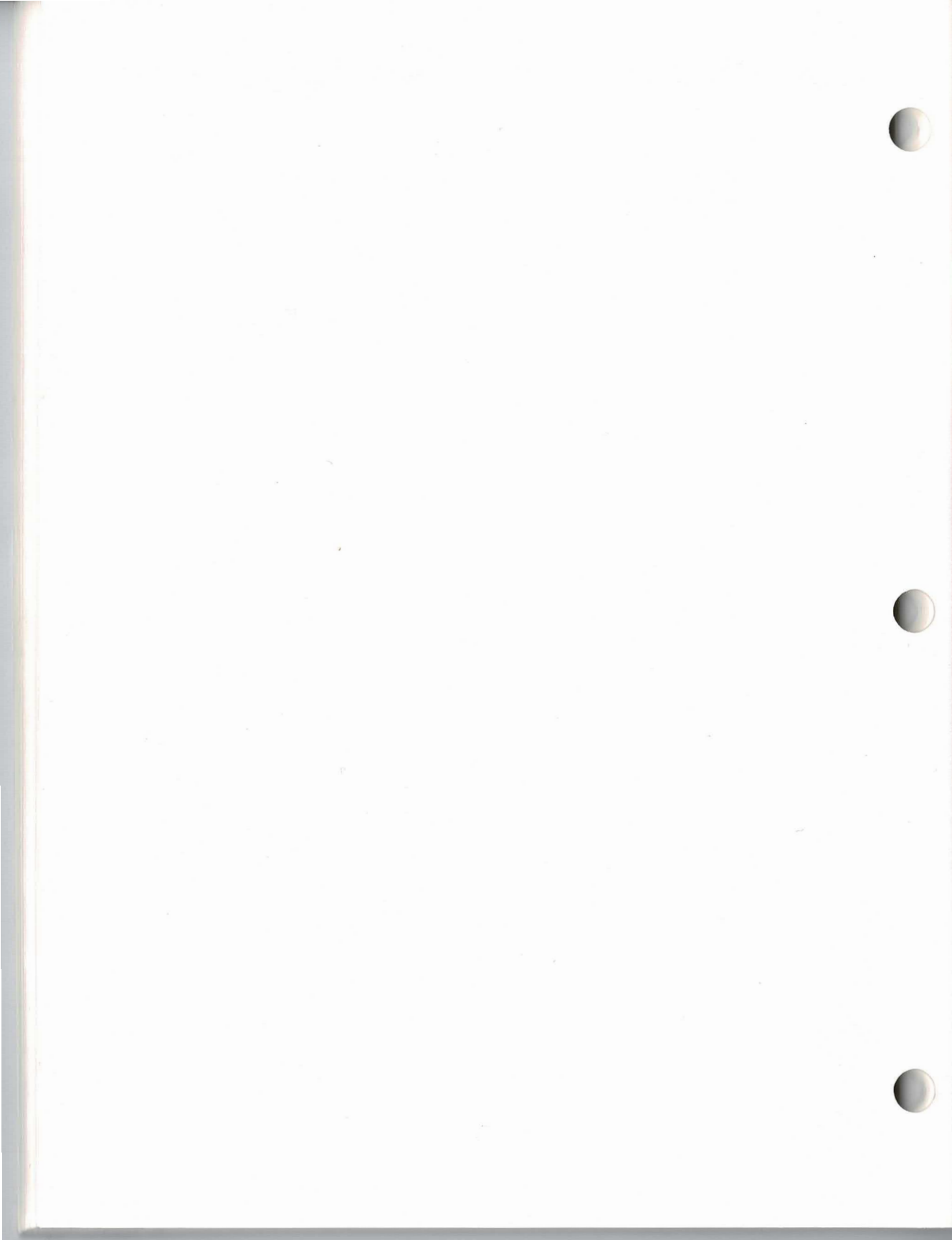
Chapter 7: Troubleshooting

This chapter describes problems that might arise as you use your GRiDCase Plus, and provides tips on how to resolve them.

Identifying the Problem

There are generally two types of problems: problems with computer hardware or software, and problems due to user errors.

User Errors in Setting Up the GRiDCase Plus

Table 7-1 lists common problems you might encounter when setting up your computer system. To use the table, look for your problem under the heading Symptoms, identify the Cause, and follow the suggested Remedy.

Table 7-1. *Troubleshooting Chart*

Symptom	Cause	Remedy
No response when GRiDCase Plus is turned on	External AC Power Pack	Check that power pack is firmly connected to GRiDCase Plus and to live wall outlet.
	Batteries need recharging	Recharge batteries using External AC Power Pack, Battery Recharger, or Base Station.
GRiDCase Plus boots but low-battery light is lit	Batteries need recharging	Recharge batteries using External AC Power Pack, External Battery Recharger or Base Station

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Symptom	Cause	Remedy
No response from GRiD external device	External AC Power Pack not plugged in	Check that power pack is firmly connected to device and to live wall outlet.
	Battery pack	Battery pack cannot power GRiD external device. See "Power Options" in Chapter 4.
	Cable not hooked up correctly	Connect external bus cable securely and properly to device (see Chapter 6).
	Base Station	Check that Base Station used to power the device is connected to computer and is turned on (see Chapter 4).
	Device not recognized	Turn on device and reboot system to add device to current list of devices.
	Bad cable	Call the GRiD Resource Center.
	Other internal floppies attached have incorrect switch settings	Check to see that the configuration switch settings are set correctly. (See Appendix B).
No response from pocket diskette drive	Other external floppies attached have incorrect switch settings	Check to see that the configuration switch settings are set correctly. (See Appendix B).
	Bad cable	Call the GRiD Resource Center.
1701 diagnostic error	Hard disk malfunction	Call the GRiD Resource Center.

Symptom	Cause	Remedy
No response when printer is turned on	Not plugged in	Plug in power cord.
	Hardware not functioning	Run a self-test. (Refer to manual that comes with the printer.)
	Cables not hooked up correctly	Connect cables securely and properly. (See Chapter 2.)
	Switches set incorrectly	Check that configuration switches are set properly. (See Appendix B.)
Printer won't print	No printer driver	For GRiD Software users, check that you have driver for that make and model printer. Refer to the **Options** form under GRiDManager in *Management Tools Reference* manual.
	Printer not supported	For MS-DOS users, check the software manual to make sure the program supports the attached printer.
	Switches set incorrectly	Check that configuration switches are set properly. (See Appendix B.)
GRiDCase Plus slow to respond	With GRiD/OS, it takes about 40–60 seconds to boot system from floppy	Be patient.
	With MS-DOS, it takes about 20 seconds to boot system from floppy	Be patient.

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Symptom	Cause	Remedy
Installed ROMS don't show up in in directory or or title list	ROMs not seated properly	Turn off GRiDCase Plus and peripherals, leaving power cord plugged in. Ensure that ROMs are seated correctly or try a different socket.
Incorrect date or time on screen	Time-of-day clock set incorrectly	Set correctly. (For GRiD/OS users, refer to *Management Tools Reference* manual. For MS-DOS users, refer to the *MS-DOS Reference* manual).
Internal modem	Telephone line bad	Check telephone line by making a phone call on doesn't that line (see Appendix A) function or connect GRiDCase Plus to another outlet.
	Modem not turned on	GRiD Software users set Current Modem item in GRiDManager Options form to GRiDCaseHayesInternal. MS-DOS users use the command MODE MODEM = ON.
	Switch settings are incorrect under MS-DOS	MS-DOS users set software switches correctly using MODE command (refer to the *MS-DOS Reference* manual).
External modem doesn't function	Telephone line bad	See remedy above.
	Serial port not turned on	GRiD Software users set Current Serial item in GRiDManager Options form to GRiDCase. MS-DOS users use the command MODE SERIAL = ON.
	Switches set incorrectly	Check that modem configuration switches are set properly. (See Appendix B.)

Symptom	Cause	Remedy
External keyboard doesn't function	Not connected to GRiDCase Plus	Check that cord is firmly connected to GRiDCase Plus rear panel. (See Chapter 2.)
	Not IBM PC or IBM PC/XT keyboard	Connect an IBM PC or PC/XT keyboard only.
Monitor screen blank	Not plugged in	Check that cable is firmly connected to GRiDCase Plus and monitor's power cord is plugged into wall outlet. (See Chapter 3.)
	Not turned on	Check that monitor's on/off switch is on.
	Brightness control knob turned down	Check that brightness control knob is turned up sufficiently.
	Not RGB color monitor	Connect an IBM PC RGB color monitor only.
GRiDCase Plus unable to boot	Diskette in internal diskette drive	If booting from floppy, check the diskette to see if it has correct operating system software.
	Diskette in other storage device	If booting from other device, check if operating system software is correct.
	Storage device not recognized	Turn off all devices, then GRiDCase Plus, and ensure that all connections are secure. Wait five seconds; turn on devices and GRiDCase Plus and attempt to reboot.
	Insufficient power	Provide sufficient power to GRiDCase Plus and peripherals (see Chapters 4 and 6).
	Power drain caused by saturated Screen.Init file on GRiDCase 3 Plus	Delete Screen.Init file or substitute a less saturated image (fewer lighted pixels).

❯

Symptom	Cause	Remedy
Bad or missing Command Interpreter error message	Booting from MS-DOS ROM with non-DOS diskette in internal drive	Remove the non-DOS diskette from the internal drive.

If, after consulting the troubleshooting chart, you've determined the problem is not due to a user error, try to determine whether it is a software or hardware problem.

Software or Hardware Problems

If you have problems with specific software problems under GRiD Software, you might try erasing the copy of the file(s) in question and replacing them with a different copy of the same version(s).

If this still doesn't work, and if you have ordered a GRiD Customer Support Service (CSS) contract with your GRiDCase Plus, call the GRiD Resource Center at (415) 961-4743 between 8:00 and 4:00 Pacific time. Make sure you know the tracking number of your GRiDCase Plus; it is located on the rear of the GRiDCase Plus underneath the support foot.

If you decide your problem is not a set-up or software problem, then it may be a hardware problem. Call the GRiD Resource Center for help with diagnosing the problem.

CAUTION: Your GRiDCase Plus must have the correct software to work properly when you first turn it on.

Required MS-DOS Files

If you are using MS-DOS, you need the MS-DOS boot diskette which contains the hidden system files and the file COMMAND.COM. For communications with GRiD Server, you need the following additional files:

SERVER.EXE
PHONELNK.EXE (If using the modem)
GRIDLNK.EXE (If using the Model 2230 GRiDLink unit)

Required GRiD-OS Files

If you are using GRiD-OS, you always need the following files in your
Programs subject on an active device, regardless of the application you use:

Title	Kind
CCOS	System
Common	Shared
Executive	Run

For communications with GRiD Central and GRiD Server, you need the
following additional files in your Programs subject:

Title	Kind
GRiDManager	Run Sign-on
PhoneLink	Device (If using Phonelink)
GRiDCaseHayesInternal	Modem (If using Phonelink)
GRiDCase	Serial
GRiDLink	Device (If using GRiDLink)

The Scancase Program

The Scancase program shows the status of
input/output devices attached to your GRiDCase Plus and lists the factory-
installed hardware options. The command is useful in the following
instances:

□ To find out if your GRiDCase Plus has the built-in options your
applications require.

□ To provide information to GRiD personnel responsible for analyzing
possible malfunctions in your system.

The Scancase program is provided for both GRiD-OS and MS-DOS users.
Under GRiD-OS, it is provided on the system diskette under the Subject
Programs, with a Title of Scancase and a Kind of Run. MS-DOS users access
the program by using the command SCANCASE, also provided on the system
diskette.

The following summarizes the information displayed by SCANCASE:

ROM BIOS Date.   (Read Only Memory Basic Input Output System). ROM
BIOS is the basic operating system component installed in the GRiDCase
Plus when it is manufactured. The date discloses when the BIOS code for
your GRiDCase Plus was released.

8087.   States whether the internal number processor is installed or not installed in your GRiDCase Plus. The processor is designed for faster calculations in graph, worksheet, and other arithmetic applications.

Available RAM.   (Random Access Memory) The number of bytes of main memory available in your GRiDCase Plus.

Internal Storage Device.   Indicates whether you have an internal hard disk or floppy disk.

Pocket Floppy Disk or Second Floppy Disk.   The notation *present* indicates that this device is attached and operating properly; *not present* indicates a possible malfunction if this device is attached.

Active External Bus Device(s).   Lists the devices attached to the external bus connector of the GRiDCase Plus, and the date the version of the code for the internal ROM of each GRiD device was written; the notation *attached peripheral* appears for each non-GRiD device attached.

Parallel (Centronics) Interface.   States whether a printer or other device is attached to the parallel connector.

Modem.   States whether a GRiD-installed internal modem is present in your GRiDCase Plus and gives the checksum of the modem PROM.

Dealing with Radio Frequency Interference   If you suspect that your GRiDCase Plus is interfering with another electronic device (such as a TV or radio), do the following:

With the system turned on, watch and/or listen to the device that seems to be picking up radio frequency interference. Turn off the computer. If interference subsides significantly, you may confidently trace your problems to the computer. If no change occurs, the problem lies elsewhere (possibly in the other electronic device itself).

If the computer seems to be the cause, try these methods for lessening interference. Make sure the computer and the other electronic device are turned on to determine if one or more of these suggestions work.

☐   Change the position of the electronic device's antenna. In the case of radios, this may mean moving the radio itself.

☐   Move the computer around so it faces a new direction.

☐   Move the computer farther away from the other electronic device. If this means unplugging the computer, be sure to turn it off before you unplug it.

☐ Plug either the computer or the electronic device into a different outlet. If possible, plug the two instruments into outlets on different wiring circuits.

☐ If peripherals are connected to the computer, be sure to use shielded cables.

If these solutions still do not produce satisfactory reception, contact your local GRiD representative or dealer.
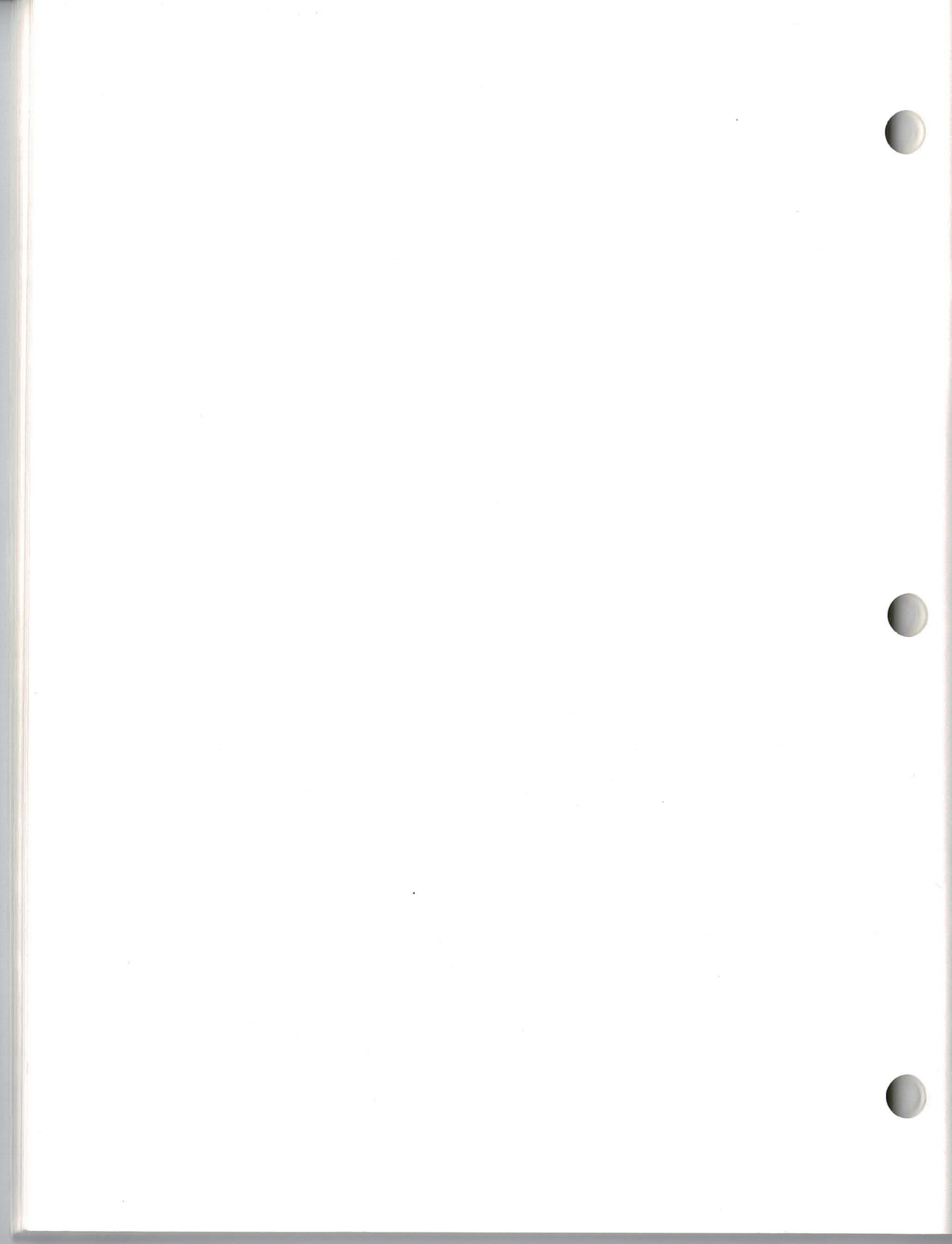
Chapter 8: Maintenance

This chapter describes how to care for your GRiDCase Plus. Although the GRiDCase Plus is basically durable, you should treat it as you would any precision instrument—with care.

Warnings   Observe the following warnings. Ignoring these warnings could lead to possible physical injury.

- [ ] Do not operate the computer in a dirty or dusty environment.
- [ ] Do not get the computer wet; electrical equipment should not be operated in a moist environment.
- [ ] Do not operate your computer in any potentially flammable atmosphere.
- [ ] Do not attempt to open the computer case; it contains no user-serviceable parts. Such action voids your warranty and service contract and can damage the computer.
- [ ] Arrange any power cords or other cords so they can't be pulled out or tripped over when the computer is in use.
- [ ] Make sure you properly ground any power-plug adapter.
- [ ] Always turn off the computer before unplugging it.

Cautions   Observe the following cautions. Ignoring these cautions could damage your unit.

- [ ] Always turn off the computer and peripherals before connecting or disconnecting any external devices.
- [ ] Operate the computer only when the surrounding temperature is from 41° to 113°F (5° to 45°C).
- [ ] Operate the computer only when the relative humidity level is from 20% to 80% noncondensing.
- [ ] Store the computer where the surrounding temperature is from – 4° to 149°F (– 20° to 65°C).
- [ ] Do not store or set up the computer (or its peripherals) in direct sunlight.
- [ ] Do not subject the computer to unnecessary shock or vibration.
- [ ] When cleaning the computer, never use any cleaning agent such as dust wax, spray cleaner, or any abrasive substance.
- [ ] Never turn off the computer when the in-use light on the internal diskette drive or any other external storage device is lit. Turning off the computer at these times can destroy data. (Under GRiD-OS, if the in-use light is on but you are being prompted to insert the correct diskette, you can safely turn off the computer if the diskette drive is empty.)

Cleaning Your GRiDCase Plus   Before cleaning your GRiDCase Plus, turn it off and disconnect the power cord from the outlet.

To clean the case, use a slightly damp, soft cloth and, if necessary, a mild, nonabrasive detergent.

CAUTION: Never use any cleaning agent such as dust wax, spray cleaner, or any abrasive substance.

Wipe the case clean and then dry it.

To clean the screen, slightly dampen a soft cloth with an ammonia-based glass cleaner and gently wipe the screen. Use the cleaner sparingly so that no fluid runs down the screen and into the frame.

If necessary, dust the rear panel of your GRiDCase Plus with a dry cloth.

WARNING: To prevent shock hazard, *never* apply any liquid to the rear panel or inside the diskette drive opening.

Storing Your GRiDCase Plus   Always store your GRiDCase Plus between the temperatures − 4° and 149°F (− 20° to 65°C). To keep it free from dust and dirt, store it in the carrying case that comes with each GRiDCase Plus.

Traveling With Your GRiDCase Plus   When traveling with your GRiDCase Plus, keep it in a protective case and carry it instead of checking it as luggage. Many transportation carriers do not cover the replacement cost of your GRiDCase Plus should they lose or damage it. If you do check it as luggage, **always pack it in the original shipping carton and packing materials that came with your computer.** Any damage incurred due to improper shipping is considered abuse and will not be covered under extended warranty.

Always protect the internal diskette drive by placing the travel diskette that came with your computer into the drive whenever you transport it.

It should be safe to x-ray the GRiDCase Plus or any peripherals in airport security checks, but you can have it hand-checked, if you wish.

CAUTION: If you are carrying the battery pack inside the GRiDCase Plus, check that the on/off switch is off. If it were left on, the power in the battery pack would be discharged during transportation. As an extra precaution you may want to remove the battery pack from the computer and carry it separately.

Updating the Clock   The time-of-day clock, which displays the time and date on your screen, is not intended to replace your wristwatch. The precision of its time-measuring electronics may vary because of temperature changes. Check the time and date of your clock periodically. Also note that you must change the year when going from December to January.

If you are using MS-DOS, refer to the TIME command in the *MS-DOS Reference* manual.

If you are using GRiD-OS, see the section Set Time—CODE-? in the GRiDManager chapter of the *Management Tools Reference* manual.
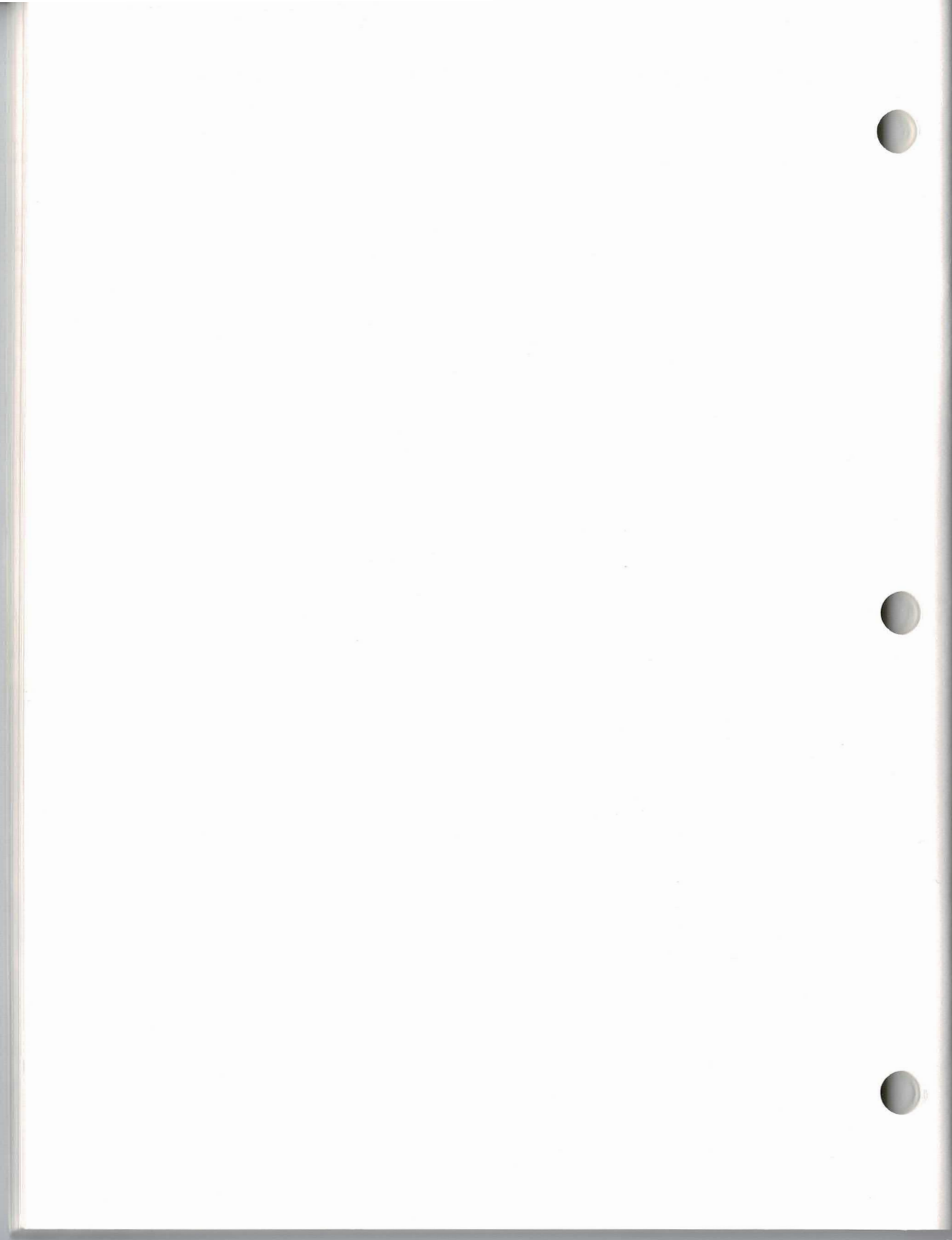
Appendix A: Testing the Modem

If you suspect that your modem is not working properly, run the Scancase program (see Chapter 7) to ensure that your computer recognizes the modem as a valid device. If the modem is recognized, do the following test to see whether your modem or your telephone line is causing the problem.

MS-DOS users can use any data communications software that runs under MS-DOS to perform the test. GRiD-OS users can use the GRiDAccess, GRiDTerm, GRiDVT100 or GRiD3101 applications to perform the test. You cannot perform this test if you need telephone operator assistance to make a phone call.

To Test Your Modem

1. Run your communications software according to the instructions supplied with it. Enter the phone number (415) 965-3229 to connect to a loopback modem at the GRiD Resource Center. This modem is used for testing; any data you send to it is automatically transmitted back to you.

2. Set the Baud Rate to 300.

   It should take less than 30 seconds to connect to the modem at the GRiD Resource Center. If you don't connect, disconnect and call again. You may have a bad phone line. If you still can't connect to the modem after trying about five more times, your modem is probably bad. To confirm whether or not your phone line is bad, try the test using a different phone line.

   If you do connect to the modem at the GRiD Resource Center, you will see a message on the screen indicating that you have made a successful connection.

   To make sure your modem is working properly, follow the next step.

3. Type a few characters on the keyboard. If you get an error message, or you see characters other than those you typed, or a different number of characters than you typed, disconnect and try again. You may have a bad phone line. If you still can't connect to the modem after trying about five more times, your modem is probably bad. Again, to be absolutely sure, you should try the test with a different phone line.

   If you haven't had any problems so far, repeat the above steps to see how your modem functions at 1200 baud.

If you complete all of the above steps successfully, you can be fairly sure
your modem functions properly. If you have any trouble with the test and
you have ordered a GRiD support service contract with your GRiDCase
Plus, phone the GRiD Resource Center at (415) 961-4743 between 8:00 and
4:00 Pacific Time. Make sure you know the tracking number of your
GRiDCase Plus; it is stamped on the rear of the machine underneath the
computer's leg.

Appendix B: Switch Settings on External Devices

This appendix gives the switch settings that apply when multiple disk and/or diskette drives are attached to the same GRiDCase Plus, as well as settings for other devices.

NOTE: The switch settings on external devices are read when the GRiDCase Plus starts up. If you change the switch settings after your GRiDCase Plus has started up, you must restart it for the new settings to take effect.

Switch Settings for the Pocket Diskette Drive   The pocket diskette drive's address switches are located on the back of the drive to the left of the external floppy port connector. The pocket diskette drive has only two valid switch settings when used with a GRiDCase Plus equipped with an internal floppy drive, and only one valid setting when used with a GRiDCase Plus equipped with an internal hard disk drive.

Table B-1. *Switch Settings for the Pocket Diskette Drive.*

Internal Drive	Switch 1	Switch 2	MS-DOS Device Description
Floppy Disk	off	off	A >
Floppy Disk	off	on	B >
Hard Disk	off	off	A >

Storage devices attached to the GRiDCase Plus' external bus port at the same time the pocket diskette drive is attached may cause the system to recognize the pocket diskette drive by a different device letter. Refer to the configuration information below for more details.

CAUTION: Never use the same switch setting on two different diskette drives or two different hard disk drives attached to the peripheral bus connector. If you do so your GRiDCase Plus will not initialize.

Device Switch Settings for MS-DOS

This section shows the address switch settings for disk or diskette devices attached to the GRiDCase Plus. These settings determine the letters that MS-DOS assigns to the device; you use the device letter when specifying the device in an MS-DOS command.

Assignment of Device Letters

The settings of the address switches on the back of the GRiD Pocket Diskette Drive, or on the bottom of GRiD external storage drives, determine the letters—A, B, C, etc.—that MS-DOS assigns to your devices.

The two switches on each device can specify one of four different addresses. Each setting corresponds to a value that MS-DOS uses as the address, as shown in Table B-2.

NOTE: The switch settings on storage devices are read when the GRiDCase Plus starts up. If you change the switch settings after your GRiDCase Plus has started up, you must restart it for the new settings to take effect.

Table B-2. *Device Addresses*

Address		
Binary	**Decimal**	**Switch Positions**[1]
00	0	off, off
01	1	off, on
10	2	on, off
11	3	on, on

[1]An arrow on the switches indicates the "on" position.

Note: The Model 32170 Pocket Diskette Drive only has two valid switch settings (00 and 01).

The switch settings shown in the following paragraphs cover the combination of devices that are most often used.

The remainder of this section is divided into two parts:

☐ Switch Settings for Typical Device Configurations, which contains the settings for the typical combination of diskette and disk devices that most users have. You will probably find the information you need in this section.

☐ Rules for MS-DOS Device Letter Assignments, which provides detailed information on how MS-DOS assigns letters according to your switch settings. This section is for users who have an unusual combination of disk and diskette devices; read this section only if you don't find the settings you need in the first section.

Switch Settings For Typical Device Configurations

The switch settings shown in the following paragraphs cover the combinations of devices that most users have. The following configurations are covered:

☐ Configuration 1:1 internal diskette drive

☐ Configuration 2:1 internal and 1 external diskette drive. (Drive B is internal, Drive A is external.)

☐ Configuration 3:1 internal and 1 external diskette drive. (Drive A is internal, Drive B is external.)

☐ Configuration 4:1 internal diskette drive and 1 hard disk

☐ Configuration 5:1 internal and 2 external diskette drives

☐ Configuration 6:1 internal and 1 external diskette drive, and 1 hard disk

☐ Configuration 7:1 internal hard disk

☐ Configuration 8:1 internal hard disk and 1 external diskette drive

☐ Configuration 9:1 internal hard disk and 1 external hard disk (Drive C is internal, Drive D is external)

☐ Configuration 10:1 internal hard disk and 1 external hard disk (Drive D is internal, Drive C is external)

☐ Configuration 11:1 internal hard disk, 1 external hard disk, and 1 external diskette drive

☐ Configuration 12:1 internal hard disk and 2 external diskette drives

Configuration 1: 1 internal diskette drive

Switch Settings	Device Letter	Drive
Not applicable	A, B	Internal diskette drive

NOTE: MS-DOS assigns a second "dummy" device letter to the internal diskette drive and another to the first external diskette drive, if present (shown in the next configuration). This allows operations for those commands that require both a source and target diskette. For example, on a single drive system, the following command

COPY A:SAMPLE.DAT B:

first reads into RAM the data file SAMPLE.DAT from the diskette currently in the diskette drive. MS-DOS then prompts you to insert a new diskette before the actually copying the file to its destination diskette.

The following command

DISKCOPY A: B:

copies a 3½-inch source diskette to a target diskette in the internal diskette drive. MS-DOS prompts you to insert the source and target diskettes at the appropriate times.

Configuration 2: 1 internal and 1 external diskette drive. Drive B is internal, Drive A is external

Switch Settings	Device Letter	Drive
Not applicable	B, D	Internal diskette drive
0 (off, off)	A, C	External diskette drive

Configuration 3: 1 internal and 1 external diskette drive. Drive A is internal, Drive B is external

Switch Settings	Device Letter	Drive
Not applicable	A, C	Internal diskette drive
1 (off, on)	B, D	External diskette drive

Configuration 4: 1 internal diskette drive and 1 hard disk

Switch Settings	Device Letter	Drive
Not applicable	A, B	Internal diskette drive
0 (off, off)	C	Hard disk drive

Configuration 5: 1 internal and 2 external diskette drives

Switch Settings	Device Letter	Drive
Not applicable	A, D	Internal diskette drive
1 (off, on)	B, E	External diskette drive 1
2 (on, off)	C	External diskette drive 2

NOTE: If one of the external drives is a pocket diskette drive connected to the external floppy port on the side of the GRiDCase Plus, it must be configcured as the first external drive (off, on). The only valid switch settings for the pocket floppy are (off, off) or (off, on).

Configuration 6: 1 internal and 1 external diskette drive, and 1 external hard disk

Switch Settings	Device Letter	Drive
Not applicable	A, D	Internal diskette drive
1 (off,on)	B, E	External diskette drive
0 (off,off)	C	Hard disk drive

Configuration 7: 1 internal hard disk

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk

Configuration 8: 1 internal hard disk and 1 external diskette drive

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A, B	External diskette drive

Configuration 9: 1 internal and 1 external hard disk. Drive C is internal, Drive D is external

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
1 (off,on)	D	External hard disk

Configuration 10: 1 internal and 1 external hard disk. Drive C is external, Drive D is internal

Switch Settings	Device Letter	Drive
Not applicable	D	Internal hard disk
0 (off,off)	C	External hard disk

Configuration 11: 1 internal and 1 external hard disk, and 1 external diskette drive

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A,B	External diskette drive
1 (off,on)	D	External hard disk

Configuration 12: 1 internal hard disk and 2 external floppy diskette drives

Switch Settings	Device Letter	Drive
Not applicable	C	Internal hard disk
0 (off,off)	A, D	External floppy disk 1
1 (off,on)	B, E	External floppy disk 2

NOTE: The hard disk is assigned the first available (no lower than C) letter after all physical floppy diskette drives have been assigned letters. The first two floppies addressed are assigned two logical device letters after the hard disk's letter is assigned.

Rules for MS-DOS Device Letter Assignments

This section lists the rules MS-DOS follows in assigning device letters for configurations that have an internal hard disk and for those configurations that have an internal diskette drive. Regardless of the configuration of your computer, you cannot have the same switch settings for two external floppy diskette drives or for two external hard disk drives. If you do, the system only recognizes one of the devices, and the second device will not be used. The system can, however, distinguish between an external hard disk and an external diskette drive that has the same switch settings.

If You Have an Internal Hard Disk   If you have an internal hard disk and external floppy diskette drives, keep in mind the following rules:

1. If you have a pocket diskette drive attached to the external floppy port, **its address switches must be set to 00 (off, off).** You may not be able to access the pocket diskette drive if you fail to do this.

2. If zero, or one, external floppy drives are attached to GRiDCase Plus, MS-DOS assigns the letter C to the internal hard disk. The internal hard disk doesn't have address switches; MS-DOS assumes by default that the setting is 00. If one external diskette drive is attached MS-DOS will assign the letters A and B to it.

3. When external devices are attached to the GRiDCase Plus, MS-DOS assigns letters to them in alphabetical sequence starting with A, in the following order:

   Diskette drive(s)
   Hard disk drive(s)
   Logical Diskette drive(s)

4. MS-DOS assigns letters to hard disk devices after assigning letters to the internal and external diskette devices. The first device letter that can be assigned to a hard disk is C.

5. MS-DOS assigns a second logical device letter to the two external diskette drives whose address switches are set to 00 and 01. The second device letter is assigned whether you have two external diskette drives or one external diskette drive and the pocket diskette drive.

Switch Settings	Device Letter	Drive
0 (assumed)	C	Internal hard disk
0 (off,off)	A, D	External diskette drive 1
1 (off,on)	B, E	External diskette drive 2

Note: If you have model 32170, the pocket diskette drive can only be set to 00 in this configuration.

6. MS-DOS alphabetically assigns a letter to each diskette device before assigning a second "dummy" letter to the diskette drives whose address are 00 and 01.

Switch Settings	Device Letter	Drive
0 (assumed)	E	Internal hard disk
0 (off,off)	A, F	External diskette drive 1
1 (off,on)	B, G	External diskette drive 2
2 (on,off)	C	External diskette drive 3
3 (on,on)	D	External diskette drive 4

7. Letters are assigned to hard disks using the first available letter after the physical floppy diskette devices have been assigned. Therefore, the letter MS-DOS assigns to the first hard disk drive depends on the number of external diskette drives present. Device letters are assigned according to the address settings as shown below:

Switch Settings	Device Letter	Drive
0 (off,off)	C, E, F, or G	Hard Disk Drive 1
1 (off,on)	D, F, G, or H	Hard Disk Drive 2
2 (on,off)	E, G, H, or I	Hard Disk Drive 3
3 (on,on)	F, H, I, or J	Hard Disk Drive 4

8. You CANNOT attach four external hard disks if you have an internal hard disk in your system. When one, two or three external hard disks are attached the internal hard disk assumes the lowest available number as its address (01, 10 or 11). If four external drives are attached then there are no more addresses available.

If You Have an Internal Floppy Diskette Drive   If you have an internal diskette drive, keep in mind the following rules:

1. If no external drives are attached to GRiDCase Plus, MS-DOS assigns the letters A and B to the internal diskette drive. The internal diskette drive doesn't have address switches; MS-DOS assumes by default that the setting is 00.

2. When external devices are attached to the GRiDCase Plus, MS-DOS assigns letters to them in alphabetical sequence starting with A, in the following order:

    Diskette drive(s)
    Hard disk drive(s)
    Logical diskette drive(s)

3. MS-DOS assigns a second device letter to the internal diskette drive and to the external diskette drive whose address switches are set to 01. If you want the internal diskette drive to be A and the external drive to be B, use the following switch settings. (This rule is applicable for either external bus floppy drives or external floppy port drives).

Switch Settings	Device Letter	Drive
0 (assumed)	A,C	Internal diskette drive
1 (off,on)	B,D	External diskette drive

4. Setting the address switch of an external diskette drive to 00 changes the default setting of the internal diskette drive to 01. This reverses the device letter assignments shown in rule 3 as follows:

Switch Settings	Device Letter	Drive
1 (assumed)	B,D	Internal diskette drive
0 (off,off)	A,C	External diskette drive

    CAUTION: Never set switches on two or more external diskette drives to 00 and 01 respectively. If you do, MS-DOS will not recognize the internal drive; a letter is not assigned, and you will not be able to use the internal drive.

5. MS-DOS alphabetically assigns a letter to each diskette device before assigning a second "dummy" letter to the internal diskette drive and to the first external diskette drive (if present), as shown below.

Switch Settings	Device Letter	Drive
0 (assumed)	A, E	Internal diskette drive
1 (off,on)	B, F	External diskette drive 1
2 (on,off)	C	External diskette drive 2
3 (on,on)	D	External diskette drive 3

6. MS-DOS assigns letters to hard disk devices after assigning letters to the internal and external diskette devices. The first device letter that can be assigned to a hard disk is C. A minimum GRiDCase Plus configuration would always contain at least the internal diskette drive assigned A and B.

7. Letters are assigned to hard disks using the first available letter after the external devices have been assigned. Therefore, the letter MS-DOS assigns to the first hard disk drive depends on the number of external diskette drives present. Device letters are assigned according to the address settings as shown below:

Switch Settings	Device Letter	Drive
0 (off,off)	C, E, F, or G	Hard Disk Drive 1
1 (off,on)	D, F, G, or H	Hard Disk Drive 2
2 (on,off)	E, G, H, or I	Hard Disk Drive 3
3 (on,on)	F, H, I, or J	Hard Disk Drive 4

Device Switch Settings for GRiD-OS

The two switches on the bottom of each external storage device must be set so that the attached devices will be recognized in the proper order. Table B-3 shows the address switch settings and corresponding GRiD-OS device description for disk or diskette devices attached to the GRiDCase Plus. Note that the switches are marked with an arrow indicating the "on" position.

Table B-3. *Switch Settings for Disk Devices using GRiD-OS*

Attached Device(s)	Switch Settings	GRiD-OS Device Description
3.5 or 5.25 inch Pocket Floppy[1]	0 (off,off)	Portable Floppy Disk
1st External Diskette Drive	1 (off,on)	External Floppy Disk 1
2nd External Diskette Drive	2 (on,off)	External Floppy Disk 2
3rd External Diskette Drive	3 (on,on)	External Floppy Disk 3
1st External Hard Disk Drive	0 (off,off)	External Hard Disk 1
2nd External Hard Disk Drive	1 (off,on)	External Hard Disk 2
3rd External Hard Disk Drive	2 (on,off)	External Hard Disk 3
4th External Hard Disk Drive[2]	3 (on,on)	External Hard Disk 4

Settings on Diconix 150 Portable Parallel Printers

The switch settings for the mother board in the Diconix 150 printers are as follows:

Switches 1 through 10 down (0)

[1]If you are using a pocket floppy diskette drive you cannot have an external diskette drive attached with the same switch settings of (off,off). If you do this the system will not recognize the pocket floppy drive.

[2]If you have the internal hard disk option on your GRiDCase Plus you **cannot** attach a fourth external hard disk. If you do this the system will not recognize the internal hard disk.

Settings on Epson FX80 and FX100 Parallel Printers   The switch settings for the mother board in the Epson printers are as follows:

Switch 1

1, 2, 3, 4, 5 down (off)
6, 7, 8 up (on)

Switch 2

1, 2 up (on)
3, 4 down (off)

NOTE: If your Epson printer contains an IEEE-488 interface card, you must remove this card for the parallel interface to operate properly.

Settings on Hewlett-Packard 2225C ThinkJet Parallel Printers   The switch settings for the Hewlett-Packard 2225C ThinkJet printer are as follows:

GRiD software

1, 2, 3, 4, 5, 6, 7, 8 down (off)

MS-DOS

2, 5, 6 up (on)
1, 3, 4, 7, 8 down (off)

Settings on Hayes Smartmodem   The switch settings for an external Hayes Smartmodem are as follows:

GRiD software

1, 2, 4, 5, 6, 7 up (on)
3, 8 down (off)

MS-DOS

Refer to the manual that accompanies your communications software.
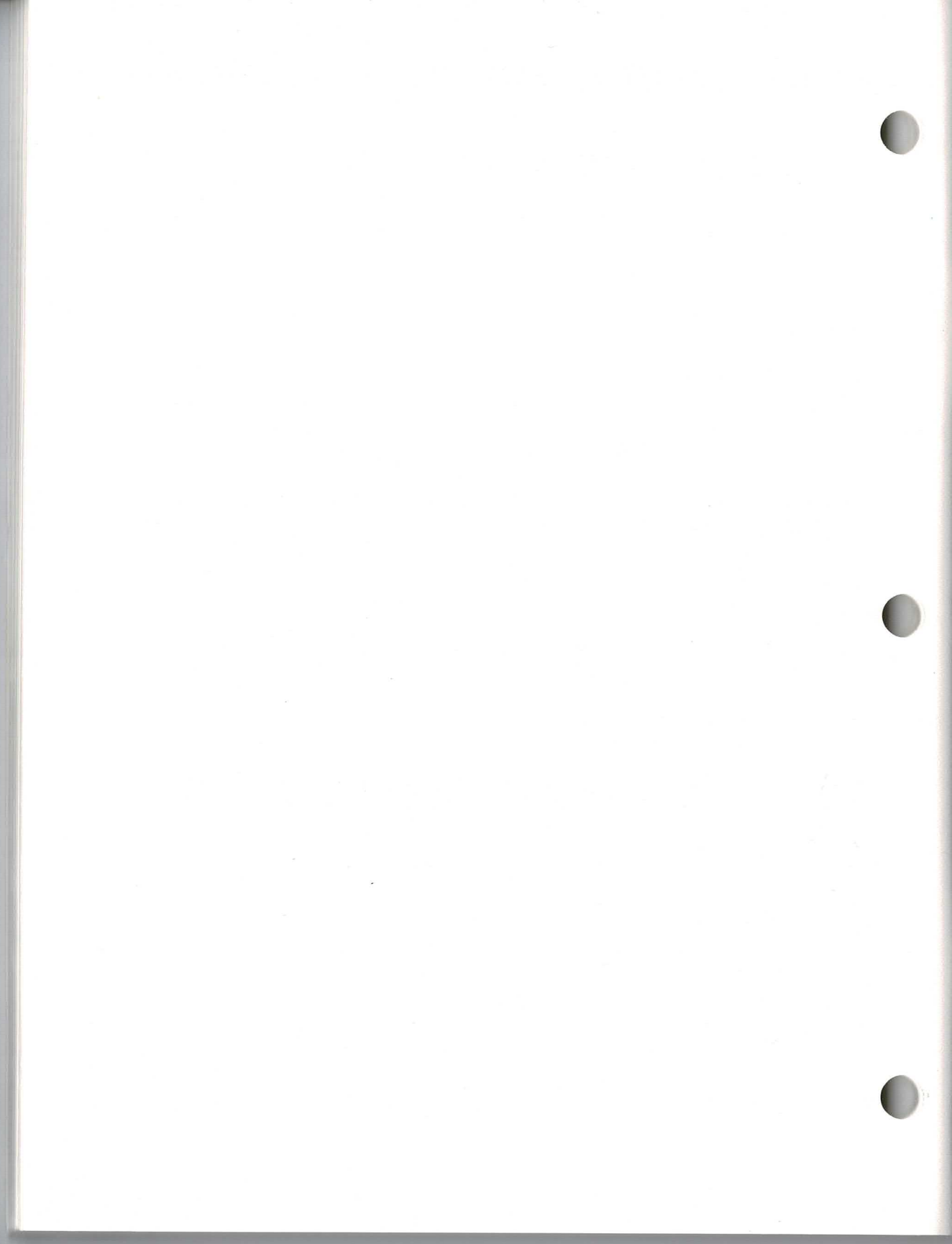
Appendix C: GRiDCase Plus Specifications

Microprocessors
Main microprocessor   80C86 (4.77 MHz clock speed)
Arithmetic co-processor   8087
(optional)

Memory
RAM   128K standard; 512K or 640K optional
ROM   4 user installable external
                                   sockets (512K)
                                   4 internal sockets available (512K),
                                   with capacity for 128K EPROMS.
Internal floppy   3.5-inch drive, 720K bytes per
disk drive   diskette

Display
Type   Enhanced LCD or Gas Plasma
Size   80 characters by 25 lines
                                   640x200 bit mapped, PC compatible
                                   9.5 inches diagonal
Aspect ratio   1:1.4

Interfaces
Serial   RS-232C 25 pin, PC compatible
Parallel   Centronics 25 pin, PC compatible
Pocket floppy connector   Access to portable floppy diskette drives
External bus connector   Access to peripherals and PC
   (optional)   expansion box, 50 pin
Video (optional)   RGB output, 9 pin, PC compatible
Keyboard   5 pin DIN plug for PC keyboard or
                                   10-key pad
Phone jack (optional)   RJ-11 for internal modem

Other Features

Built-in modem (optional)	1200/300 bits per second Hayes Smartmodem compatible Bell 212A/103A compatible Auto dial, auto-answer
Audio	Built-in speaker
Keyboard	71 keys (alphanumeric), PC compatible, tactile feedback
Clock/calendar	Internal lithium battery

Power Source

Internal/External AC power supply	10-25 W at 115 VAC or 220 VAC
Internal battery pack (optional)	Removeable NiCad rechargeable pack provides 1 to 6 hours power
External battery pack (optional)	3.5 lb NiCad rechargeable pack provides 3 to 20 hours power

Physical Characteristics

Case	Magnesium
Weight	11.5 lbs (internal floppy disk) 12.0 lbs (internal hard disk)
Height	2.25 inches (5.7 cm)
Width	11.5 inches (29 cm)
Length	15 inches (38 cm)
Operating temperature	41° to 113° F (5° to 45° C)
Storage temperature	−4° to 149° F (−20° to 65° C)
Operating humidity	20% to 80% non-condensing
Shock and vibration tolerance	50 Gs; 5 to 60 Hz, 3 Gs in storage

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