GRiD 2101 DISK SYSTEM OWNER'S MANUAL

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Order Number 2101-40

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Manual Name : 2101 Disk System Owner's Manual
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Loading the Disk System 2101 with GRiD Software

NOTE: Before attempting to load all of the software onto the Disk System 2101, you should read pages 1-5 through 1-13 of the System Basics section and pages 2-10 through 2-11 of the GRiDManager section in the GRiD Management Tools Reference manual.

1) Plug the power cord into a wall socket and into the Disk System 2101. Turn on the Disk System 2101's power switch.

2) Attach the GPIB cable to the Disk System 2101 and to the GRiD Compass. Make sure that the cables are firmly connected.

3) Remove the cardboard insert from the floppy diskette drive. DO NOT LOSE THE INSERT! To avoid damaging the floppy drive you must re-insert it into the floppy drive whenever you wish to move the Disk System 2101.

4) Plug in the GRiD Compass, hold down the "H" key and turn on the power switch.

5) When the GRiD Compass shows the File form on the display, place the diskette labelled Management Tools Revision 3.0.0 in the floppy drive.

6) Select the GRiDManager program by filling out the File form with the GRiDManager title. See pages 1-5 through 1-13 of the System Basics section in the GRiD Management Tools Reference manual for details.

7) Use GRiDManager's CODE-D (duplicate) function to load all of your software onto the Disk System 2101's hard disk. Read pages 2-8 to 2-11 of the GRiDManager section in the GRiD Management Tools Reference manual to learn how to use the CODE-D command. To this, you must fill out the Source file form with the following information:

```
Device:  Floppy disk
Subject: ...
Title:   ...
Kind:    ...
```

Remember from pages 2-10 and 2-11 of the GRiD Management Tools Reference manual that "...", the wildcard character, is generated by typing CODE-W. When the Source file form contains the above information, confirm the form with a CODE-RETURN.

8) After the confirm, the Destination file form will be displayed. Fill it out with the following information:

```
Device:  Hard disk
Subject: ...
Title:   ...
Kind:    ...
```

When the Destination file form contains the above information, confirm the form.

9) The verification form will appear on your display. Set verification to "Disabled" and confirm. All of the floppy diskette files will be copied from the floppy diskette to the hard disk.

10) Remove the floppy diskette from the floppy drive. If you have purchased GRiD software in addition to the GRiD Management Tools, insert the next diskette into the floppy drive.

11) Repeat steps 7 through 10 until you have duplicated all of the floppy diskettes onto the hard disk.

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CHAPTER 1: PHYSICAL DESCRIPTION

The 2101 Disk System comprises two disk drives in one box: a hard disk drive on the left and a floppy diskette drive on the right. See Figure 1-1 below.

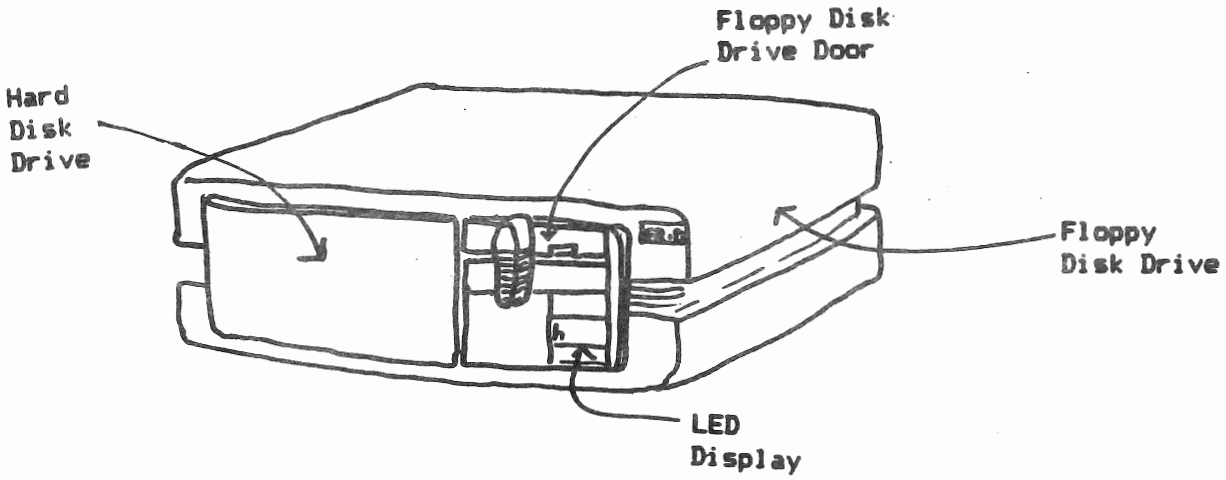


Figure 1-1. The Disk Unit: Front View

THE FRONT VIEW

The front view of the disk unit is shown in Figure 1-1 and is described in the paragraphs that follow.

The Display

The 4-digit Light-Emitting-Diode (LED) display located below and to the right of the floppy disk opening shows you when either the hard disk or floppy disk is being accessed. When the hard disk is being accessed, the letter "H" lights up:

```
 ------------
| H |  |  |  |
 ------------
```

When the floppy disk is being accessed, the letter "F" is displayed:

```
 ------------
|  |  |  | F |
 ------------
```

The display is also used during the self-test sequence to let you know how the test is progressing. See Chapter 2 for a discussion of the self-test.

The Hard Disk Drive

The hard disk, in the left side of the disk unit, is not externally visible; it is permanently sealed within its drive and cannot be removed from it. The disk (a rigid platter) spins continuously, though it only reads or writes data when explicitly instructed to do so. When the hard disk is being accessed to read or write data, the letter "H" is illuminated on the LED display. The hard disk holds over ten million characters of data.

The Floppy Diskette Drive

The 5 1/4" floppy diskette drive occupies the right portion of the disk unit. The drive only spins the diskette when instructed to read or write data. When the floppy diskette is being accessed to read or write data, the letter "F" is illuminated on the LED display, and the drive emits clicking and other sounds.

Floppy diskettes, or "floppies," are flexible 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 jacket.

One floppy diskette stores up to 360 thousand characters of data.

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

THE REAR VIEW

Figure 1-2 shows the rear view of the disk unit.

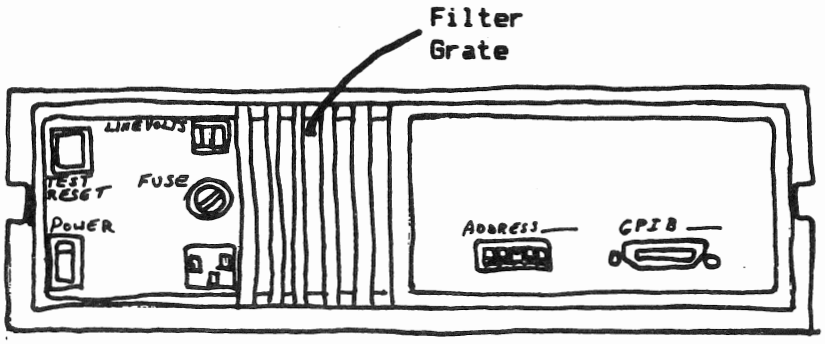


Figure 1-2. The Disk Unit: Rear View

The Power Switch

When the Power switch is in the off position, you can see a little red circle on its top. Pressing in the upper portion of the switch will turn the unit on. Pressing the lower portion of the switch will turn the unit off.

CAUTION: Never turn either the disk unit or the computer off when the LED display shows that the hard disk or floppy disk is in use. The in-use display means that file access is taking place. Turning either the disk or computer off could destroy files. Additionally, never turn the disk unit on or off while there is a floppy diskette inserted in the disk unit.

The Power Connector

The three-prong male connector provides a ground plug. The male end of the power cord supplied with the disk unit also has three prongs and should be plugged into an outlet that accepts this type of plug. If the power outlet does not provide proper grounding, read and write errors may occur.

The Fuse

The fuse protects the drive unit from out of range electrical input. The fuse that comes with the unit is a 1.5 ampere, slow-blow fuse mounted in a gray holder/cover for the 110 VAC Line Voltage setting. (A description of the Line Voltage switch is given in the paragraph that follows.)

If you switch to the 220 VAC setting, be sure to exchange the 1.5 ampere fuse for a 750 milliampere slow-blow type fuse which is mounted in a black holder/cover. You can gain access to the fuse by turning the fuse cover in a counter-clockwise direction. The appropriate fuse and a power cord that can be used in European countries can be obtained from GRiD. The order number for this European packet is 31022-00.

The Line Voltage Switch

The Line Voltage switch lets you switch betwen 110 volts AC and 220 volts AC. In Figure 1-3 below, the switch is set to its leftmost position for 110 volts. WARNING: Always make sure this switch is on its proper setting before plugging the power cord into an electrical outlet. An incorrect voltage setting could damage the disk unit when power is applied. Also ensure that you have the appropriate fuse installed for the line voltage you've selected.

Figure 1-3. The Line Voltage Switch

The Test/Reset Switch

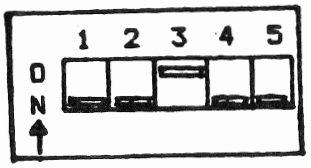
This switch resets the internal circuitry of the disk unit and also initiates a self-test sequence that checks out operation of the hard disk drive. The self-test sequence is described in chapter 2. You should not need to use this test/reset function unless you suspect that the disk unit has been malfunctioning. WARNING: pressing the Test/Reset switch while the LED display indicates that the hard disk or floppy disk is being accessed can result in loss of data.

The GPIB Connector

Use this connector to connect the disk unit to the computer and to other peripherals. Chapter 2 describes the GPIB connector in detail and shows you how to connect the disk system with the computer.

The Address Switches

These switches set up an address that the computer uses to direct data to and from the disk unit. The switches should be set with switch 3 on (up) and the others off (down) as shown below:



The Filter

The disk unit has a fine-mesh filter installed behind a protective grate to prevent entry of dirt and dust particles through the fan aperture. The filter should be removed and cleaned every three months or when dirt becomes visible on the filter surface. To remove the filter, press down firmly on the top surface of the protective grate and then ease the retaining prongs out and away from the disk unit.

The filter can be cleaned by by holding it under running water. Dry the filter THOROUGHLY before replacing it. To replace, set the filter on the backside of the protective grate. Then, insert the grate's lower prongs into the bottom slots of the fan aperture and ease the upper prongs into the top slots.

CHAPTER 2: SET UP AND OPERATION

This chapter shows you how to set up and test your disk system and how to use it.

CONNECTING THE DISK SYSTEM AND THE COMPUTER

To set up the disk system, you need the following items:

- A Compass Computer
- The 2101 Disk System
- A power cord
- A GPIB cable

Select a sturdy, flat work area, free of any dirt or debris (old papers, pens, etc.) Beware of setting the unit on carpeted or "plush" surface; this can impede ventilation and lead to damage from overheating.

Cables that attach to each device's GPIB connector link most GRiD peripherals. GPIB conventions let you hook any device to any other device. For example, Figure 2-1 shows a disk, then a printer, and finally a plotter connected to the computer. A device's position relative to the computer doesn't matter. You could just as easily put the plotter first, then the disk, followed by the printer.

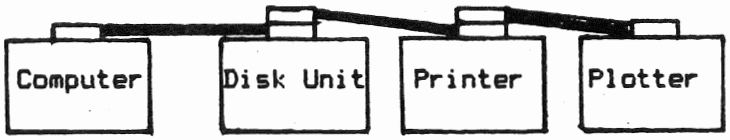


Figure 2-1. A Typical System Configuration Using GPIB Cables.

When attaching the GPIB cables, follow the example shown in Figure 2-1; attach only one connector to the computer and no more than two on any peripheral. See Figure 2-2 below.

The GPIB connector has a "D" shape. The broader part of the connector is on top. Take advantage of the connector screws; tighten them down to ensure uncompromised data transmission. To tighten, use your fingers; do not use tools, Tools may overtighten and cause damage. Avoid applying heavy pressure to the connector itself.

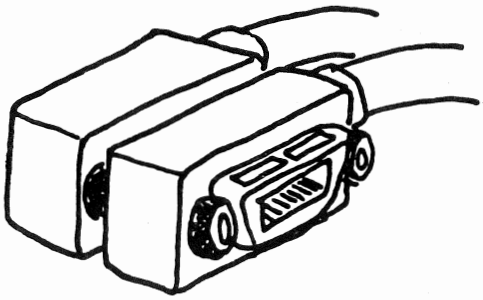


Figure 2-2. Two Connected GPIB Cables

CONNECTING THE DISK UNIT TO THE COMPUTER

1. Make sure that the computer, the disk unit, and other peripherals are turned off.

2. Connect a GPIB cable to the connector on the back of the disk unit (see GPIB instructions above).

3. Connect the other end of the cable onto the back of the computer. If you have already connected another device to the computer, connect the disk unit to another device's GPIB connector.

4. Connect the female end of the power cord to the back of the disk unit and the male end of the cord to an appropriate power source. Ensure that the Line Voltage switch on the back of the disk unit is set to the correct position.

5. Make sure everything is plugged in, then turn the disk unit on and then the computer.

SELF-TESTING THE DISK UNIT

After you have connected the disk unit to the computer and turned the computer and disk unit on, you can cause the disk unit to run a self-test to verify that it is operating properly. To initiate the test, simply press the Test/Reset button on the back of the disk unit. This initiates the following sequence.

First, all four positions on the LED Display of the disk unit are fully lit as solid squares. Then a sequence of five individual tests are conducted. As each test is being performed, the LEDs display the test that is in progress; for example, TST1, TST2, and so on. Tests 1 and 4 require about 30 seconds each and tests 2, 3 and 5 require only a few seconds each. After all the tests have been successfully completed, the LEDs display 'PASS'. The GPIB address of the disk system (usually, 04) is then displayed in the form 'A=04'. Finally, the LEDs display 'H' (for hard disk) and 'F' (for floppy disk) to complete the self-test.

If any part of any test fails, the LEDs display an error number, for example 'E03', and the self-testing sequence stops at that point. If this should occur, contact the GRiD Customer Support Center.

OPERATING THE FLOPPY DISKETTE DRIVE

Operation of the floppy diskette drive simply consists of following a simple procedure for inserting and removing diskettes from the drive. This section also describes other procedures to follow regarding the floppy diskettes themselves: formatting diskettes, write-protecting the diskettes, and general guidelines for taking

care of your diskettes.

To insert a floppy diskette into the disk unit, rotate the latch mechanism on the front of floppy drive opening to the horizontal position, then slide the diskette into the opening. See Figure 2-3, "Inserting a Diskette into the Floppy Drive." Be sure the diskette label enters last and faces upward. The square notch should be on the left side of the diskette. Sometimes a "write-protect" tab will cover this notch. ("Write protecting" a diskette is discussed later in this section.)

Push the diskette in until you hear a 'click' indicating that it is all the way in. Then rotate the latch mechanism clockwise to the vertical position until it 'clicks'.

WARNING: Always make sure that the disk unit is turned on before you insert a floppy diskette. If you turn power on or off while a floppy is in the disk unit, data on the diskette may be destroyed.

To remove a diskette from the disk unit, simply rotate the latch counterclockwise to the horizontal position. The diskette will automatically be ejected from the drive.

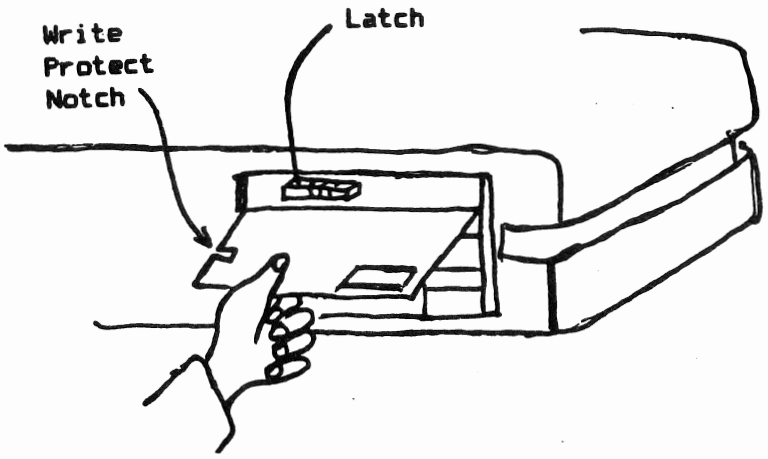


Figure 2-3. Inserting a Diskette into the Floppy Drive

Formatting Floppy Diskettes

The disk unit expects floppy diskettes to have their data organized in a very particular format. To ensure that a new diskette can be read and written by the disk unit, you must format each diskette before the floppy drive can use it. To format a diskette you must run the MediaFormat program as described in the Compass Computer System Reference Manual.

Write-Protecting Floppy Diskettes

If you have data stored on a diskette that you want to protect from being inadverdently being written over, you can put a "write-protect" tab over the write-protect notch on the edge of diskette. (See Figure 2-3 for the location of the write-protect notch.) Typically, a sheet of self adhesive "tabs" for covering this notch are included in the box in which your diskettes are held.

Taking Care of Floppy Diskettes

To prevent destroying data on your floppy diskettes, treat them with care -- as though they were fine phonograph recordings. Always keep the following tips in mind:

- Do not touch the surface of the diskettes through the openings in their jackets. An invisible scratch on the surface of the diskette, or even a fingerprint can cause errors.

- Always return a diskette to its protective envelope after removing it from the drive. You should store diskettes in protective casings -- such as diskette boxes or albums -- and it is best to store them vertically.

- Keep them away from magnetic fields, such as those generated by magnetic office items (paper clip dispensers, magnetic paper holders, etc.) or electronic instruments (TV's, speakers, and even CRT's).

- Do not expose diskettes to direct sunlight or extremes of temperature. For optimum long-term storage, keep diskettes at a temparature between 60 and 70 degrees Fahrenheit (15 to 20 degrees Celsius). The maximum permissable temperature range at which diskettes should be stored is from 50 F-125 F (10 C-52 C).

- Do not bend, fold, staple, or otherwise mistreat a diskette. Never write on a diskette label with any implement other than a felt tip pen and then, only with a gentle pressure.

DEVICE PRECEDENCE

The computer chooses the device (Bubble, Hard Disk or Floppy Disk) from which it loads the operating system software according to which device has precedence. (The operating system is a group of programs that give the computer its basic capabilities, such as running application programs and communicating with peripherals.)

The order of precedence is as follows. The computer looks first to the bubble memory for the operating system software. If the software does not exist on the bubble, the computer turns to the hard disk. Finally, if the hard disk doesn't hold the needed program or hasn't reached operating speed, the computer checks the floppy disk.

It is possible to override this automatic precedence. This becomes necessary only in the case of certain maintenance activities. The rest of this section shows you how to load the operating system from the hard disk and the floppy and how to return precedence to the bubble.

STARTING FROM THE HARD DISK

1. Turn the computer off.

2. Turn the disk unit on and give it approximately 30 seconds to come up to speed.

3. Turn the computer on.

4. Immediately (within approximately 2 seconds) press the "H" key (for Hard disk) on the computer keyboard. The hard disk will activate and the letter "H" will be displayed on the LEDs. You can now release the "H" key. The computer will load the operating system from the hard disk. Note: If the hard disk does not have the required operating system software, the message "Cannot boot: Storage medium error" will be displayed.

STARTING FROM A FLOPPY DISKETTE

1. Turn the computer off.

2. Turn the disk unit on.

3. Insert a system diskette (one containing a copy of the operating system) in the floppy drive.

4. Turn the computer on.

5. Immediately (within approximately 2 seconds) press the "F" key (for Floppy disk) on the computer keyboard. The floppy disk will activate and the letter "F" will be displayed on the LEDs. You can now release the "F" key. The computer will load the operating system from the floppy disk. If you inserted a diskette that does not have the operating system software, the message "Cannnot boot: Storage medium error" will be displayed.

Returning Control to the Bubble

To return control to the bubble, press CODE-U (the Usage command) and select Bubble as the medium to be activated. Additionally, if you turn the computer off and then back on, control will automatically be returned to the bubble.

BACKING UP FILES ON FLOPPY DISKETTE

We cannot overemphasize the importance of making copies of important files. This process of "backing up" files protects your work from accidentally writing one file over another, power failures, media failures, etc. Make backups of files daily, if not more often. For a discussion of how to back up your files by duplicating them to floppy diskettes, refer to the Compass Computer System Reference Manual.