

**FIRST CLASS**

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*P E R I P H E R A L S*

**THE SIDER  
GS/OS HARD DISK  
DRIVERS**

**INSTALLATION / USER GUIDE**

**SIDER GS/OS**  
Hard Disk Device  
Drivers for use with the  
Sider Family of Drives

Installation / Users Guide

Part Number 103854

REVISION A

## PREFACE

The following manual contains instructions for installing the FIRST CLASS PERIPHERALS' custom OS/OS device drives for the Sider family of hard drives running with the APPLE has. The instructions in the manual assume you have a working knowledge of the APPLE system.

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COMPUSERVE APPLE VENDORS FORUM

(When in COMPUSERVE enter 'GO APPVEND'

and you will find us under sub-topic 6)

## **TRADEMARK INFORMATION**

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Sider, Sider D2, Sider D4, Sider D4A, Sider D4T, Sider C46, Sider D9, Sider C96

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# 1. OVERVIEW

## 1.1 BACKGROUND INFORMATION

This manual describes how to install the GS/OS drivers for your Sider hard disk drive. These drivers allow much faster access to data on your Sider than ever before. In many cases, your Sider will be twice as fast as before.

The ideal configuration in which to use the Sider's GS/OS drivers, would be to have GS/OS installed on your Sider hard disk. If you do not, use the Apple IIGS System Disk and Apple IIGS System Tools diskettes and the corresponding GS/OS manuals to install GS/OS on your Sider. If you do not yet have these diskettes, please consult your Apple dealer for help in obtaining them. They are MANDATORY for a proper understanding of basic GS/OS concepts.

You may be curious as to what the Sider drives do and how they fit into your computing needs. To address this, let's look briefly at what GS/OS represents and perhaps some of the philosophy which brought it to market. Apple's IIGS has long had more hardware capability than ProDOS could effectively use. Part of this was Apple's desire to provide downward compatible support for the entire Apple II family. As user demands for performance continued to mature, Apple introduced GS/OS to usher in a new era of capability for the Apple IIGS user.

GS/OS represents more than just a new operating system for the IIGS. It is its building block for the future. GS/OS is structured similar to Apples Macintosh operating system. Apple has learned that hardware technology is ever changing, and since it is the responsibility of the operating system to manage, among other things, hardware, the operating system must be sufficiently flexible to accommodate new and unforeseen advancements in hardware.

GS/OS does this through the use of sophisticated structuring techniques which includes providing for the use of device drives.

What a the operating system does by allowing the use of device drives is admit it can not predict the future. BUT it will leave a door open so companies like First Class Peripherals can provide it device drives which contain the information needed by GS/OS to use the device in the most efficient way.

What you will readily see each time you use your Sider configured to utilize the Sider GS/OS drivers is increased performance. Sixteen bit programs will load much faster and reads and writes to the drive will also be faster.

So that, in untechnical terms, is why GS/OS is important to you and to the future of the IIGS and to the future of First Class Peripherals.

As First Class Peripherals and other companies introduce new and exciting technologies, GS/OS will be capable of supporting them through the new drivers. In the case of First Class Peripherals, this means we can give you the most speed and performance for your computer dollar.

Before you start, check which model Sider you are using. If you have a Sider partitioned into various operating systems, i.e. DOS 3.3, Pascal, CP/M and/or ProDOS, then go to Chapter two for Multi-OS Sider Users. Likewise if you have a Sider 40mb or 90mb, running entirely ProDOS, refer to Chapters three and four respectively. Please note that there are 10mb, 20mb, and 40mb Multi-OS Sider drives. Make sure that you are using one of these before proceeding to the Multi-OS section.

If your Sider was originally configured for the Siderware Multi-OS environment, but you have since reinstalled, using a third party ProDOS only ROM and software, refer to chapter eight for information on using Siders custom drivers.

We have provided the latest release of Apple Computer's ProDOS Backup II utility with our GS/OS drivers diskette. This updated version of Backup II is compatible with the GS/OS operating system. If you have Backup II version 1.0.1, it will not function with GS/OS. Refer to Appendix C of this manual for instructions on how to use this utility.

In addition to Backup II, you can use the SiderFile utility to copy files onto diskettes. If you have one of the Sider tape backup subsystems, use SiderFile to back up entire volumes Onto digital Cassette tape. The ProSel back up program can also be used to back up the volumes. Use which ever utility best suits your needs and requirements. Keep in mind that the ProSel backup can only restore to a volume of the exact same size. Since the 40mb and 90mb Siders both use fixed volume sizes, this should not be a problem with these models.

## NOTES:

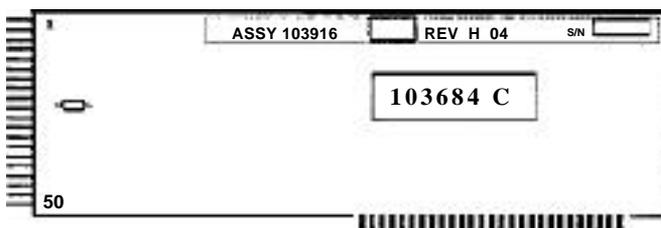
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# 2. MULTI-OS SIDER USERS

## 2.1 SIDER IDENTIFICATION

First Class Peripherals has five models of Multi-OS Siders: the Sider tOmb, the Sider J[ 20mb, the Sider D2, and some of the early Sider 40mb drives sold in 1987. If you have one of these, proceed through this section for information on installing the Sider GS/OS driver into the current ProDOS partition.

**NOTE:** The Multi-OS driver will increase the speed of data access to the GS/OS partition of the drive. It will have no performance effect on other operating system partitions.



In order to utilize the new driver, your Multi-OS Siders should have the same firmware EPROM installed in a socket near the center of the Sider Host Adapter card. The part number on this chip MUST be 103684C. Any other EPROM number will not function with the new Multi-OS driver. If the part number on the chip is 103684A, an upgrade package which includes a new chip, is available from First Class Peripherals. Call our sales line at 1-(800)-982-3232 for assistance.

**NOTE:** If you are using a third party ROM in the Host Adapter to configure a 10mb or 20mb Sider to run only ProDOS, a different driver is necessary. See Chapter eight.

Before the Sider GS/OS drive can be installed, the GS/OS operating system must first be installed to the ProDOS partition of the

Sider. If you already have GS/OS installed on a Multi-OS Sider, you are ready to proceed with the driver installation.

**NOTE:** If you have not yet installed GS/OS on your Sider, refer to **Appendix B** of this manual: Installing GS/OS on the Sider. You should also read Apple IIGS System Tools Manual, Chapter 1: Using the Installer for instructions on how to install GS/OS on a hard disk drive.

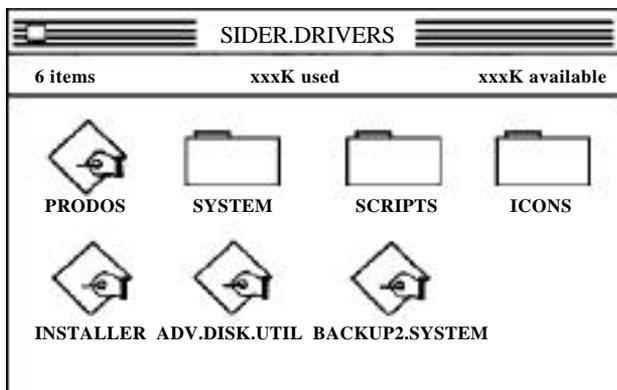
1. Once GS/OS is installed on the Sider, boot your Apple IIGS with the GS/OS Drivers For The Sider Hard Disk Drives 3.5 inch diskette supplied with this manual.

If you are at the Sider's Main Menu, place the Sider Drivers diskette in the floppy drive and select menu option 3 to boot into DOS. At the DOS 3.3 prompt type:

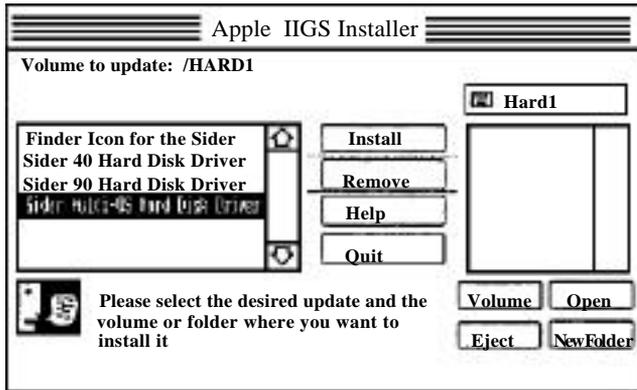
JPR#5 <RETURN> to boot the diskette.

This will cause the drivers diskette to load. After a short while, the standard Finder screen will appear with the Sider's icons displayed on the desk top. If the icon does not appear, you should check the Sider to see that it is on and properly connected.

2. Once the Finder displays, run the Installer application by either double-clicking on it's icon or by selecting and then opening it. The Installer's menu with 8 options will appear.



3. Select the volume where you want to add the GS/OS Sider driver. Click on the Volume button until the correct volume is displayed on the right portion of the window. This will be the first ProDOS volume on your Sider, usually named /HARD1.



4. After selecting the correct volume, select the correct driver to install. Click on the item named Sider Multi-OS Hard Disk Driver on the left side of the screen. Once this option is highlighted, click on the Install button to have the program copy the driver to the Sider.

A window displays the progress of the driver as it is copied to the Sider's /HARD1 volume.

5. When the copying completes the driver should be properly installed and ready to use. If, in the future, you boot from a floppy which does not contain the GS/OS driver you will need to re-boot from the Sider to load the drivers.

With the Multi-OS Sider GS/OS driver, your applications and data files can be used exactly as before. The only difference is that the Sider will now works almost twice as fast!

**NOTE:** For the Sider Multi-OS driver to recognize the Sider, the slot containing its interface card must be switched into the 'Your card' position in the Apple Control Panel desk accessory.

## 2.2 DAISY-CHAINING A MULTI-OS SIDER

An excellent way of adding storage capacity without sacrificing a slot is to daisy-chain a second Sider to the back of the first. (For a information on daisy-chaining, refer to the appropriate section of your Sider manual.) The Sider Multi-OS driver automatically recognizes a second Multi-OS Sider.

To daisy-chain one Sider to another, change the address jumper on the top rear of the second Sider so that drive will be properly recognized. This is done by moving the black (Or blue) plastic jumper one position to the left, putting it on the pins second from the right edge of the window.

### 2.2.1 Using More Than One Multi-OS Sider

If you have more than one Multi-OS Sider in your Apple IIGS, the driver will recognize all of them. You can have two Siders per slot /Host adapter in any slot except #3. This would allow for as many as twelve drives and twenty-four volumes to be on-line at any one time.

**NOTE:** If you would like Sider's hard disk icon to appear, rather than the default haiti disk icon, you should also install the Finder icon for the Sider. This is explained in the section **Installing The Sider Icons**. After doing this, when the Finder displays, you should see the Sider's icon rather than the regular hard disk icon.

# 3. SIDER D4A&D4T SUPPORTING ALL ProDOS

**NOTE:** If you own the earlier model Sider D4, manufactured from Feb. 1988 through July 1983, you cannot use the Sider40 driver provided with these utilities. Contact First Class Peripherals for further information.

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## 3.1 FORMATTING INFORMATION

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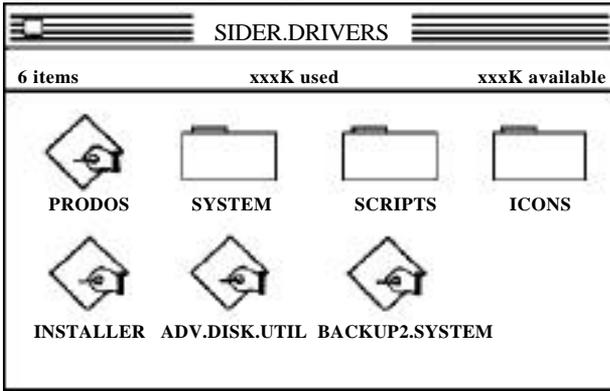
Before you install the Sider GS/OS driver on a forty megabyte drive, the Sider must first be reformatted. The initialization process will format the drive at its optimal interleave. After being formatted with the correct interleave and the GS/OS driver installed, your Sider40 can read data at a rate of over 5500 blocks per minute, doubling the normal speed.

**IMPORTANT INFORMATION:** For optimal results, the Sider bard drive, like all bard drives, should be turned on and given at least 30 minutes to stabilize at operating temperature before a format is issued. This precaution helps insure maximum reliability when the drive is in operation.

**WARNING:** Reformatting will erase, destroy, remove and delete ALL Information and data from the Sider. It is Important you back up the Sider before reformatting it. To aid you In this process, on we have provided Apple's latest version of BACKUP II on the drivers diskette. instructions for using it are found in Appendix C of this manual.

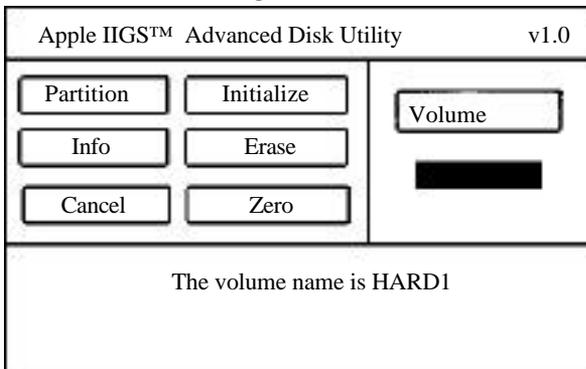
## 3.2 INSTALLATION PROCEDURE

1. After letting the Sider warm-up. Place the 'GS/OS Drivers For Sider Hard Disk Drives' 3-1/2 inch diskette in your floppy drive and boot your Apple from it.

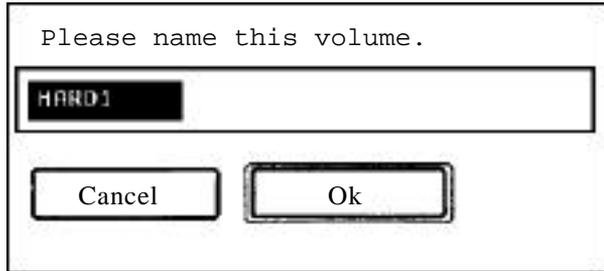


**NOTE:** It is mandatory to boot from the diskette in order to load the GS/OS drivers into memory ..

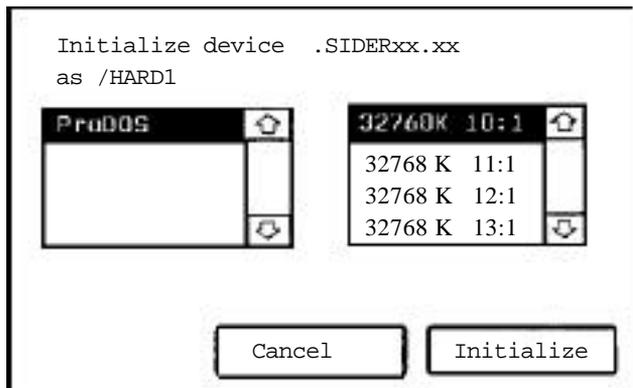
2. When the Finder Desk Top screen appears, double click on the **Advanced Disk Utility** icon.
3. When loaded, Pull down the File Menu with your mouse and select the Initialize/Erase option. A menu with seven 'buttons' will display. The Partition button, which will be dimmed, can not be used at this time. SEE **Appendix A: GS/OS Partitioning on the Sider.**



4. Click on the Volume button until the first Sider volume, usually named: /HARD1, appears.
5. At this point, click on the Initialize button. You will be prompted for a volume name. Click on the OK button to keep the same name or type in a new one.



6. A menu of various interleave options will display next. The default interleave for optimum GS/OS performance on a Sider D4A or D4T is 10:1. This value will be highlighted.



**NOTE:** A 10:1 interleave will give the best results for most applications. However, some applications may work better with a higher interleave. This can vary depending on whether the application is an 8-bit program or makes ProDOS-16 or GS/OS calls. Feel free to experiment with higher interleaves, such as 12:1, but remember you will have to reformat the drive each time you wish to change the interleave.

7. To initialize the Sider 40, click on the Initialize button. The screen will go blank, a stopwatch cursor will appear, and the initialization of the drive will begin. As the drive reformats, you may hear a series of tiny clicks. This is the Sider 40 setting up the drive with the correct interleave, and is normal.

**NOTE:** During the initialization process, which takes 8 to 9 minutes, all data on the drive is erased.

8. After initializing the /HARD1 volume, you must also erase the /HARD2 volume. To do this, click on the Volume button again to display /HARD2. Now click on the Erase button from the Advanced Disk Utility menu.
9. You will again be asked to name the volume. Click on the OK button to keep the same name or type in a new name. A menu will be displayed showing the size of the volume in megabytes. Click on the Erase button to complete the initialization process.

**NOTE:** If the second volume is not erased, the Finder will not be able to locate the information GS/OS needs to use it and will display a message that the volume was initialized for some other operating system

Initializing the second volume does not erase the entire drive, just the /HARD2 volume.

10. When the Advanced Disk Utility Menu reappears, click on the Cancel button. Use the mouse to pull down the File Menu and select the Quit Option to exit back to the GS/OS Finder.

At this point you have completed the initialization process of the Sider 40 and are ready to re-install the Apple IIGS operating system and restore the information you backed up.

If you are installing GS/OS for the first time on the Sider, refer to Appendix B of this manual: Installing GS/OS on the Sider. Also read Using the Installer in Chapter 1 of the Apple IIGS System Tools Manual, which you received with your GS/OS system diskettes from Apple.

If GS/OS was previously installed and you have backed up the entire contents of the /HARD1 volume with a backup utility then GS/OS will be restored when the files are rewritten to the Sider. Follow the proper restore procedures for whichever backup utility you have used.

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### 3.3 RE-INSTALLING SiderFile and ProSel

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Once GS/OS is installed, you may re-install the ProSel Disk Utilities to your Sider 40. Simply boot either the 5.25 or 3.5 inch installation diskette that came with your Sider 40. The first screen that appears will be from the format utility.

```
First Class Peripherals
Sider Hard Disk
ProDOS Format Utility

This program will format your hard disk into three Volumes
under the Apple ProDOS operating system

Once all options have been chosen you will be asked to continue
your choice by typing GO". You may press at any prior point
to abort and exit.

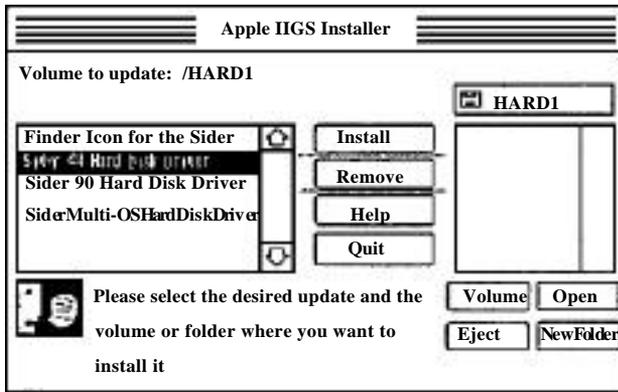
Do you wish to continue, Type (YES/NO)?
```

When it asks: "Do you wish to continue, Type (YES/NO)?" type "NP". The diskette will then skip over the format and take you into the installation screens for ProSel. Follow these screens exactly as you did when you first set up your Sider 40. ProSel will automatically adjust itself to work with GS/OS. Refer to the **Software Installation** section of the **Sider D4 Installation/User Guide** for detailed information regarding this.

## 3.4 INSTALLING THE GS/OS DEVICE DRIVERS

Whether you have just installed GS/OS or have just restored all your files (including GS/OS), the next step is to install the Sider 40 GS/OS driver onto the Sider.

1. Re-start your IIGS booting from the GS/OS Drivers For The Sider Hard Disk Drive 3.5 inch diskette supplied with this manual. When the Finder appears, run the Installer program by either double-clicking on its' icon or by selecting and then opening it. The Installer menu, showing 8 options, will then appear on your screen.
2. To install the Sider 40 GS/OS driver, select the destination volume by clicking on the Volume button until the correct volume is selected on the right portion of the window. This should be the first ProDOS volume on your Sider, i.e. /HARD1.
3. After selecting the volume, select the correct driver to install. For the Sider 40, click on the item named Sider 40 Hard Disk Driver on the left side of the screen. Once this option is highlighted, click on the Install button.



4. A window displays the progress, as the driver is copied to the volume. When this process completes, you should be able to boot GS/OS from the Sider and have the device driver active.

If you want our Custom Sider bard disk icon to appear rather than the default one, install the Finder Icon for the Sider. This is explained in the section Installing The Sider Icons.

If you installed the Sider icon file, when the startup process is complete and the Finder is displayed, you should see the Sider icons rather than the regular hard disk icons. If you do not see the new Sider icons, please redo the installation process.

---

## **3.5 USING THE SIDER 40**

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After installing the Sider 40 driver you can use your Apple IIGS just as before. However, the Sider now works about twice as fast! All your applications and data files can be used with no changes.

### **3.5.1 Using More Than One Sider 40**

If you have more than one Sider 40 connected to your Apple IIGS, the driver will correctly recognize all of them. You can have one Sider 40 per slot, except for slot 3, for a total of six drives and twelve volumes on-line at any one time.

**NOTE:** For the Sider 40 driver to recognize the Sider, the slot containing its interface card must be switched into the 'Your card' position in the Apple Control Panel desk accessory.

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## **3.6 3.3.2 DAISY-CHAINING THE SIDER 40**

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The current release of the Sider 40 driver does not support daisy-chaining a second Sider 40 to the first. Contact First Class Peripheral's technical support for further information on adding a second 40mb Sider in the future.

## NOTES

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# 4. SIDER D9 & C96 USERS

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## 4.1 FORMATTING INFORMATION

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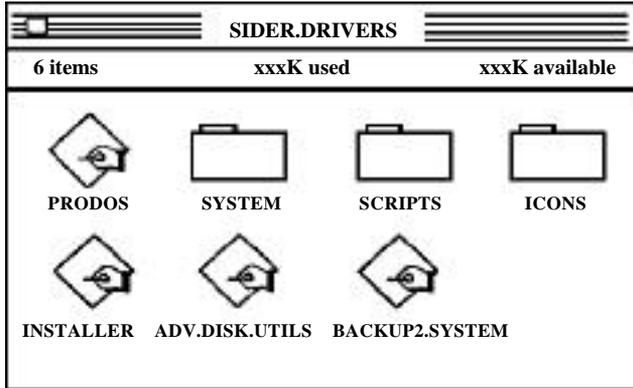
Before you install the Sider GS/OS driver on a ninety megabyte drive, the Sider must first be reformatted. The initialization process will format the drive at its optimal interleave. After being formatted with the correct interleave and the GS/OS driver installed, your Sider 90 can read data at a rate of over 6100 blocks per minute, doubling the normal speed.

**IMPORTANT INFORMATION:** For optimal results, the Sider hard drive, like all hard drives, should be turned on and given at least 30 minutes to stabilize at operating temperature before a format is issued. This precaution helps insure maximum reliability when the drive is in operation.

**WARNING:** Reformatting will erase, destroy, remove and delete ALL information and data from the Sider. It is important you back up the Sider before reformatting it. To aid you in this process, we have provided Apple's latest version of BACKUP II on the drivers diskette. Instructions for using it are found in Appendix C of this manual.

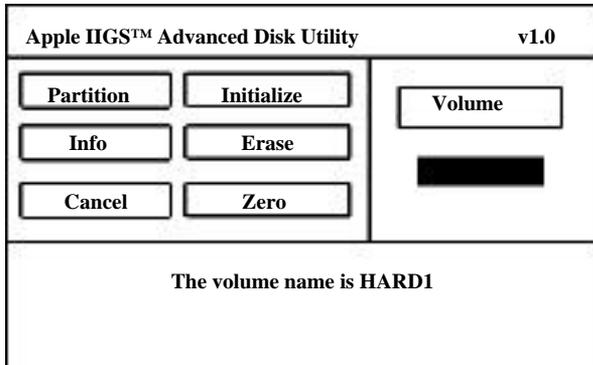
## 4.2 INSTALLATION PROCEDURE

1. After letting the Sider warm-up, Place the 'GS/OS Drivers For Sider Hard Disk Drives' 3-1/2 inch diskette in your floppy drive and boot your Apple from it.

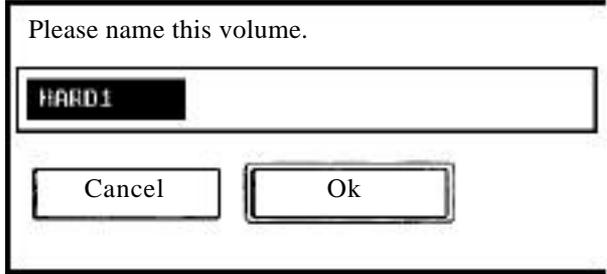


**NOTE:** It is mandatory to boot from the diskette in order to load the GS/OS drivers into memory..

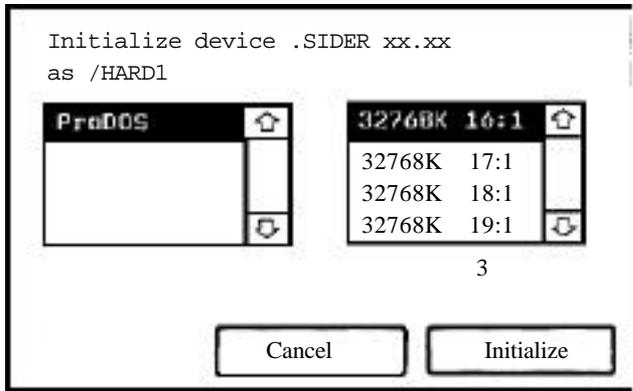
2. When the Finder Desk Top screen appears, double click on the Advanced Disk Utility icon.
3. This brings up the Advanced Disk Utility screen. Pull down the File Menu with your mouse and select the Initialize/Erase option. A menu with seven 'buttons' will display. The Partition button, which will be dimmed, can not be used at this time. SEE Appendix A: GS/OS Partitioning on the Sider.



4. Click on the Volume button until the first Sider volume, usually named: /HARD1, appears.
5. At this point, click on the Initialize button. You will be prompted for a volume name. Click on the OK button to keep the same name or type in a new one.



6. A menu of various interleave options will display next. The default interleave for optimum GS/OS performance on a Sider D9 or D96 is 16:1. This value will be highlighted.



**NOTE:** A 16:1 interleave will give the best results for most applications. However, some applications may work better with a higher interleave. This can vary depending on whether the application is an 8-bit program or makes ProDOS-16 or GS/OS calls. Feel free to experiment with higher interleaves, such as 20:1, but remember you will have to reformat the drive each time you wish to change the interleave.

7. To initialize the Sider 90mb, click on the Initialize button. The screen will go blank, a stopwatch cursor will appear, and the initialization of the drive will begin. As the drive reformats, you may hear a series of tiny clicks, this is normal.

**NOTE:** During the initialization process, which takes 8 to 9 minutes. all data on the drive is erased.

8. After initializing the /HARD1 volume, you must also erase the /HARD2 and /HARD3 volumes. To do this, click on the Volume button again to display /HARD2. Now click on the Erase button from the Advanced Disk Utility menu.
9. You will again be asked to name the volume. Click on the OK button to keep the same name or type in a new name. A menu will be displayed showing the size of the volume in megabytes. Click on the Erase button to complete the initialization process. Repeat this step for the /HARD3 volume.

**NOTE:** If the second and third volumes are not erased, the Finder will not be able to locate the information GS/OS needs to use them and will display a message that the volumes were initialized for some other operating system

Initializing the second and third volumes does not erase the entire drive, just the /HARD2 or /HARD3 volumes.

10. When the Advanced Disk Utility Menu reappears, click on the Cancel button. Use the mouse to pull down the File Menu and select the Quit Option to exit back to the GS/OS Finder.

At this point you have completed the initialization process of the Sider 90mb and are ready to re-install the Apple fiGS operating system and restore the information you backed up.

If you are installing as/os for the first time on the Sider, refer to Appendix B of this manual: Installing GS/OS on the Sider. Also read Using the Installer in Chapter 1 of the Apple IIGS System Tools Manual, which you received with your GS/OS system diskettes from Apple.

If GS/OS was previously installed and you have backed up the entire contents of the /HARD1 volume with a backup utility then GS/OS will be restored when the files are re-written to the Sider. Follow the proper restore procedures for whichever backup utility you have used.

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### 4.3 RE-INSTALLING SiderFile and ProSel

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Once GS/OS is installed, you may re-install the ProSel Disk Utilities to your Sider 90mb. Simply boot either the 5-1/4 or 3-1/2 inch installation diskette that came with your Sider 90mb. The first screen that appears will be from the format utility.

First Class Peripherals  
Sider Hard Disk  
ProDOS Format Utility

This program will format your hard disk into three volumes under the Apple ProDOS operating system

Once all options have been chosen, you will be asked to continue your choices by typing "GO". You may press ESC at any prior point to abort and exit.

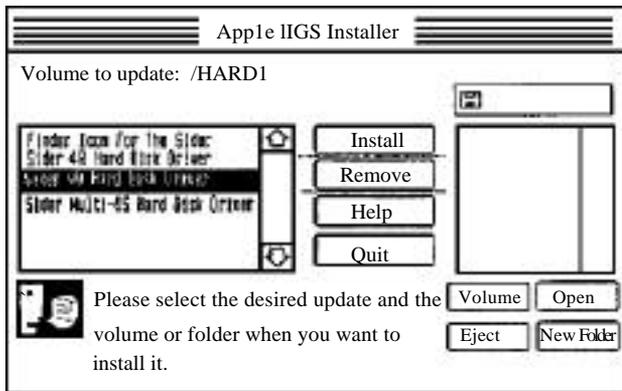
Do you wish to continue, type (YES/NO)?

When it asks: "Do you wish to continue, Type (YES/NO)?" type "NO". The diskette will then skip over the format and take you into the installation screens for ProSel. Follow these screens exactly as you did when you first set up your Sider. ProSel will automatically adjust itself to work with GS/OS. Refer to the Software Installation section of the Sider D9/C96 Installation/User Guide for detailed information regarding this.

## 4.4 INSTALLING THE GS/OS DEVICE DRIVERS

Whether you have just installed GS/OS or have just restored all your files (including GS/OS), the next step is to install the Sider 90mb GS/OS driver onto the Sider.

1. Re-start your IIGS booting from the **GS/OS Drivers For The Sider Hard Disk Drive** 3.5 inch diskette supplied with this manual. When the Finder appears, run the **Installer** program by either double-clicking on its' icon or by selecting and then opening it. The Installer menu, showing 8 options, will then appear on your screen.
2. To install the Sider GS/OS driver, select the destination volume by clicking on the Volume button until the correct volume is selected on the right portion of the window. This should be the first ProDOS volume on your Sider, i.e. /HARD1.
3. After selecting the volume, select the correct driver to install. For the Sider D9 or C96, click on the item named Sider 90 Hard Disk Driver on the left side of the screen. Once this option is highlighted, click on the Install button.



4. A window displays the progress, as the driver is copied to the volume. When this process completes, you should be able to boot GS/OS from the Sider and have the device driver active.

If you want our custom Sider bard disk icon to appear rather than the default one, install the Finder Icon for the Sider. This is explained in the section Installing The Sider Icons.

If you installed the Sider icon file, when the startup process is complete and the Finder is displayed, you should see the Sider icons rather than the regular hard disk icons. If you do not see the new Sider icons, please redo the installation process.

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## 4.5 USING THE SIDER 90mb

After installing the Sider 90mb driver you can use your Apple has just as before. However, the Sider now works about twice as fast! All your applications and data files can be used with no changes.

### 4.5.1 Using More Than One Sider 90

If you have more than one Sider connected to your Apple IIGS, the driver will correctly recognize all of them. You can have one Sider 90mb per slot, except for slot 3, for a total of six drives and twelve volumes on-line at any one time.

<p><b>NOTE:</b> For the Sider 90mb driver to recognize the Sider, the slot containing its interface card must be switched into the 'Your card' position in the Apple Control Panel desk accessory.</p>
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## 4.6 DAISY-CHAINING THE SIDER 90mb

The current release of the Sider 90 driver does not support daisy-chaining a second Sider to the first. Contact First Class Peripheral's technical support for further information on adding a second 90mb Sider.

## **NOTES**

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# 5. INSTALLING THE SIDER ICONS

The standard hard disk icon the Finder displays is dull and doesn't give an indication of the type of hard disk drive connected. The Installer utility on the **GS/OS Drivers For The Sider HardDisk Drives** diskette allows you to install a modified icon file which will display the hard drives resembling Siders. This section covers how to install the Sider icons onto your GS/OS startup disk.

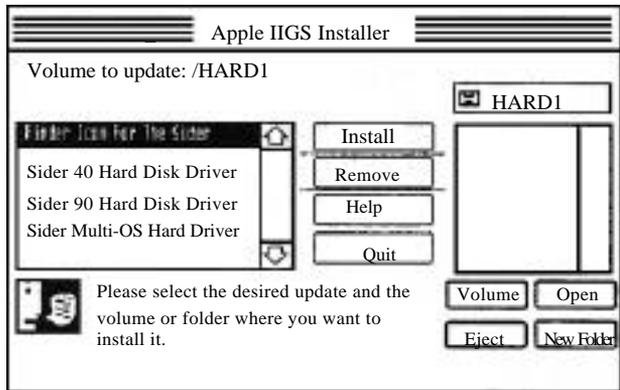
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## 5.1 ICON INSTALLER

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Run the **Installer** application by either double-clicking on its icon or by selecting and then opening it. The Installer menu, with 8 different options to install, will then appear on your screen.

To install the Sider icons file on your startup volume, select the first volume on your Sider by clicking on the **Volume** button until the correct volume is selected on the right portion of the window. This will be the first ProDOS volume on your Sider. The usual name for this volume is /HARD1.



After selecting the correct volume, select the correct item to install. Click on the item named **Finder Icon For The Sider**, which appears on the left side of the screen. Next click on the **Install** button to install the icon file.

**NOTE:** If the startup volume you are modifying is a 3.5 inch floppy diskette or a RAM Disk, select the proper volume name for that device.

As the icon file is copied over to the volume you selected, a window displays the progress of the installation. The copying should only take a few moments.

When finished, you can restart your Apple IIGS from the startup disk on which you just installed the Sider icons. When the startup process *is* complete and the Finder is displayed, you should see the Sider icons in place of the regular hard disk icon. If you do not see the new Sider icons, please redo the installation process.

**NOTE:** This installation updates the FINDER.ICONS file on the volume where you installed it. Since this update replaces the default hard disk icon with the Sider icon, any future hard disks you add to your Apple IIGS system will be displayed with the Sider icon, rather than with the generic hard disk icon.

# 6. SHUTTING DOWN YOUR APPLE IIGS

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## 6.1 POWER DOWN PROCEDURE

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When you turn off your Apple IIGS, you should use the Shut Down command on the Special menu of the Finder. When you turn your Apple IIGS off in this manner, GS/OS issues a shut-down call to all Sider drivers. The Sider drivers then issue a park head command to each attached drive.

This command to park the read/write heads moves the heads away from the sensitive information areas of the Sider hard disk, protects the drive when the drive and computer are turned off, extends the life of the drive, and improves reliability.

After you pull down and select the Shut Down option on the Special menu, the drive lights will flash and the drives will make a little noise. This is just the read/write heads moving to an unused area of the hard disk and is normal.

### 6.1.1 Sider D4A Special Note

After the Sider 40A is given a park head command, the next access to the drive will result in a loud sound coming from the disk drive for a second or two. This is normal as the read/write heads move back onto the data portion of the hard disk drive.

## **NOTES**

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# 7. NOTES FOR ADVANCED USERS

The Sider drivers can detect off-line and on-line conditions without a problem. This means that you can boot up your Apple IIGS from a different disk, run an application, and then turn your Sider on when you need to save or load information.

In the file dialogue within the application, just click on the Disk button until the Sider volume you want appears. Turning on the Sider while at the Finder will NOT result in a Sider icon showing upon the Finder screen because the Finder builds a list of on-line volumes when it first starts up.

If you turn the Sider on while at the Finder, it will be 'on-line' as far as GS/OS is concerned, but will not be displayed by the Finder. However, if you run an application and quit back to the Finder, the Finder will show the Sider icons for the drive just turned on.

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## 7.1 BOOTING FROM RAM/ROM DISK

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Booting from RAM or ROM disk is so fast that if you turn the Sider on at the same time you start up the system, the Sider may not be up to speed. Thus, it may not be ready by the time GS/OS or a desk accessory package wants to read information from the drive.

In the case of The Desktop Manager, if it can't find its files because the Sider wasn't up to speed, wait until the drive is ready. Then press RETURN when The Desktop Manager asks you to insert the disk with The Desktop Manager files on it.

This is true for any accessory package that may want to read information from the Sider before it's ready. Wait until the drive is up to speed. Then press <RETURN> or just restart your Apple IIGS.

NOTE: Running the Installer program to add one or more of the Sider Hard Disk Drivers to a RAM or ROM Disk is basically the same process described earlier. The only difference is that the destination volume you select when installing the driver must have the appropriate volume name for the RAM/ROM Disk.

Be sure to click on the Volume button until the correct destination volume name appears on the right side of the screen. Then proceed by clicking on the Install button.

## 7.2 CHANGING THE INTERLEAVE VALUE . TRANSWARP GS

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The default interleave values in the Sider 40 and Sider 90 drives are preset for the current speed of the Apple IIGS. When you run the Apple IIGS at faster speeds, e.g. with the TransWarp GS accelerator board, your Sider may be able to run significantly faster if formatted at a different interleave. Please contact First Class Peripherals to obtain the optimal interleave values for using the Sider hard disk drive with a faster Apple IIGS.

## 7.3 TECHNICAL SUPPORT

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If you have any questions, please contact your Sider dealer, or call First Class Peripherals technical support at (702) 883-8200.

### 7.3.1 In-house Bulletin Board

You may also reach us through our bulletin board at (702) 883-9264. Set your modem at 300, 1200, or 2400 baud with 8 data bits, no parity, and one stop bit. Xmodem and ASCII down loads are supported. ProDOS applications require that your modem software supports the Binary II file format and that you turn on this feature during the down load.

### 7.3.2 CompuServe Users

If you subscribe to CompuServe, you may also reach us through the MAUG Apple User Group. Type "GO APVENA" at any

CompuServe prompt to reach the Apple Vendors Forum. First Class Peripherals is subtopic number 6. Feel free to leave us a message in the Message section or visit topic 6 in the File section.

### 7.3.3 AppleLink Personal Edition

You can also contact us on Apple's Applelink Personal Edition. Visit the Industry Connection section of the Apple II hardware forum. A Sider support area is set up for your use in this section.

## NOTES

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# 8. SIDER'S USING THIRD PARTY, ProDOS ONLY ROMS

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## 8.1 OVERVIEW

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Some Sider users have replaced the original Sider Host Adapter firmware ROM (PN# 103684C) which ran the Siderware Multi-OS software, with a third party host adapter ROM which supports a 100% ProDOS configuration. Siders which might come under this alteration, include the 10MB Sider, the original Sider ][ 20MB, and/or the current Sider D2. Also included are very early 40MB Siders designed for the Siderware Multi-OS utilities, which were manufactured between Aug. 1987 and December 1987.

The Sider GS/OS drivers are designed so as to fully support all of Apple's ProDOS and GS/OS programming rules. Consequently, any third party, add-on software or firmware conforming to Apple's rules, should be compatible with the Sider and the GS/OS drivers for the Sider.

In order to provide support to the broadest possible number of Sider owners, First Class Peripherals has included 4 custom GS/OS drivers on the upgrade diskette. When the Installer program is run from the 3.5 inch SIDER.DRIVERS diskette, these 4 drivers will be listed on the installation menu.

With the appropriate GS/OS driver for the Sider installed, such third party software and firmware SHOULD work fine.

**NOTE:** First Class Peripherals cannot warranty the use of any third party software or firmware with any model Sider hard disk subsystem. Because of this, it is impossible to completely support the use of non-standard software and firmware. The inclusion of drivers for these third party firmware ROMS in the GS/OS drivers for the Sider is not an endorsement by First Class Peripherals of these products.

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## 8.2 FORMATTING INFORMATION

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The installation of the custom drivers is very similar to the procedures used to install the standard GS/OS drivers for the Sider. The installation process for the original 10MB Sider, the 20MB Sider ][, and the early Multi-OS 40MB Sider, involves reformatting the hard drive and setting the optimal interleave. Installation for a Sider D2 only requires the running the GS/OS Installer copy the proper version of the GS/OS drivers to the Sider (i.e skip sections 8.2 & 8.3, proceed to section 8.4).

Before you install the Sider GS/OS driver on a unit configured with a third party ROM (excluding the D2,) the Sider must first be reformatted. The initialization process will format the drive at its optimal interleave. After being formatted with the correct interleave and the GS/OS driver installed, your Sider can read data at a rate that is double the normal speed.

**IMPORTANT INFORMATION:** For optimal results, the Sider hard drive, like all hard drives, should be turned on and given at least 30 minutes to stabilize at operating temperature before a format is issued. This precaution helps insure maximum reliability when the drive is in operation.

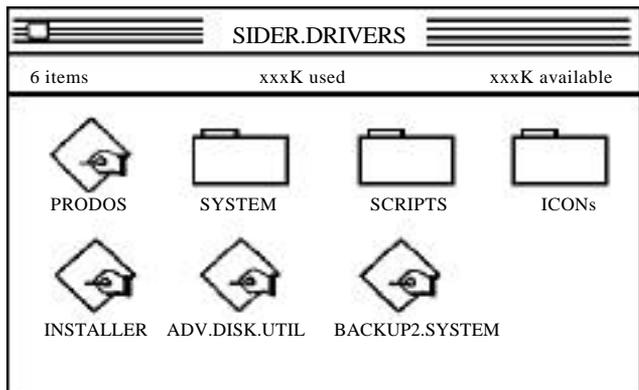
**WARNING:** Reformatting will erase, destroy, remove and delete ALL information and data from the Sider. It is important you back up the Sider before reformatting it. To aid you in this process, we have provided Apple's latest version of BACKUP II on the drivers diskette. Instructions for using it are found in Appendix C of this manual.

## 8.3 INSTALLATION PROCEDURE

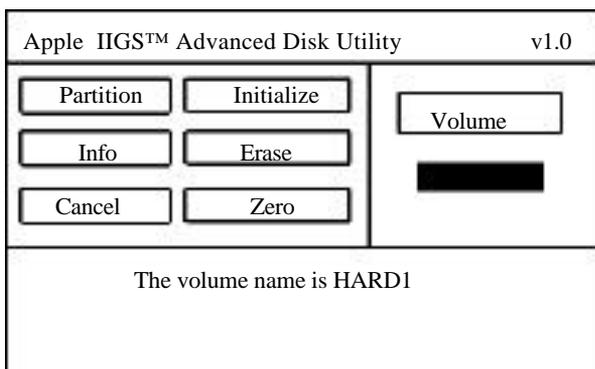
1. After letting the Sider warm-up, Place the 'GS/OS Drivers For Sider Hard Disk Drives' 3-1/2 inch diskette in your floppy drive and boot your Apple from it.

**NOTE:** It is mandatory to boot from the diskette In order to load the GS/OS drivers into memory.

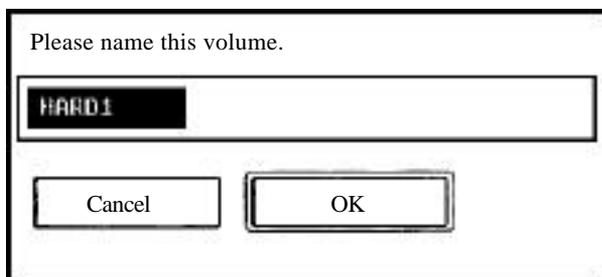
2. 'When the Finder Desk Top screen appears, double click on the Advanced Disk Utility icon.



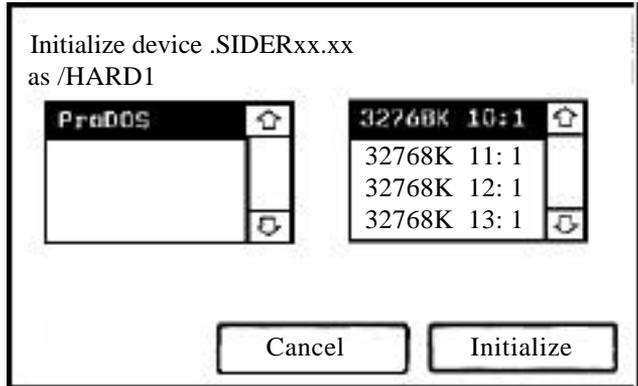
3. When loaded, Pull down the File Menu with your mouse and select the Initialize/Erase option. A menu with seven 'buttons' will display. The Partition button, which will be dimmed, can not be used at this time. SEE Appendix A: GS/OS Partitioning on the Sider.



4. Click on the Volume button until the first Sider volume, usually named: /HARD1, appears.



5. At this point, click on the Initialize button. You will be prompted for a volume name. Click on the OK button to keep the same name or type in a new one.
6. A menu of various interleave options will display next. The default interleave for optimum GS/OS performance on a Sider using any of the third party ROMs is 10:1. This value will be highlighted.



**NOTE:** A 10:1 interleave will give the best results for most applications. However, some applications may work better with a higher interleave. This can vary depending on whether the application is an 8-bit program or makes ProDOS-16 or GS/OS calls. Feel free to experiment with higher interleaves, such as 12:1, but remember you will have to reformat the drive each time you wish to change the interleave.

7. To initialize the Sider, click on the Initialize button. The screen will go blank, a stopwatch cursor will appear, and the initialization of the drive will begin. As the drive reformats, you may hear a series of tiny clicks. This is the Sider setting up the drive with the correct interleave, and is normal.

**NOTE:** During the initialization process, all data on the drive is erased.

8. If you are installing the Sider third party GS/OS driver on a forty megabyte drive, you must also erase the /HARD2 volume. (Does not apply to Sider 10's & 20's) To do this, click on the Volume button again to display /HARD2. Now click on the Erase button from the Advanced Disk Utility menu.
9. You will again be asked to name the volume. Click on the OK button to keep the same name or type in a new name.

A menu will be displayed showing the size of the volume in megabytes. Click on the Erase button to complete the initialization process.

**NOTE:** If the second volume is not erased, the Finder will not be able to locate the information GS/OS needs to use it and will display a message that the volume was initialized for some other operating system

Initializing the second volume does not erase the entire drive, just the /HARD2 volume.

10. When the Advanced Disk Utility Menu reappears, click on the Cancel button. Use the mouse to pull down the File Menu and select the Quit Option to exit back to the GS/OS Finder.

At this point you have completed the initialization process of the Sider and are ready to re-install the Apple IIGS operating system and restore the information you backed up.

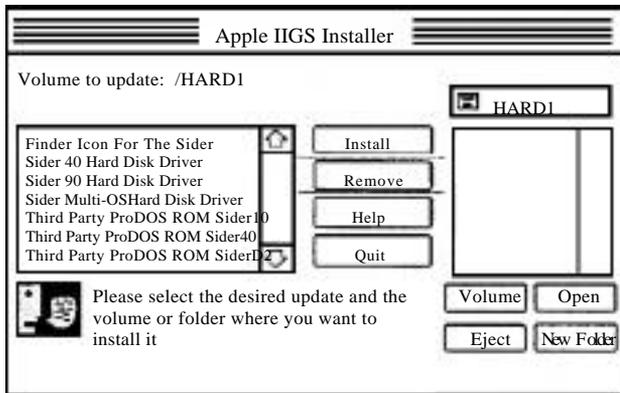
If you are installing GS/OS for the first time on the Sider, refer to Appendix B of this manual Installing GS/OS on the Sider. Also read Using the Installer in Chapter 1 of the Apple IIGS System Tools Manual, which you received with your GS/OS system diskettes from Apple.

If GS/OS was previously installed and you have backed up the entire contents of the /HARD1 volume with a backup utility then GS/OS will be restored when the files are rewritten to the Sider. Follow the proper restore procedures for whichever backup utility you have used.

## 8.4 INSTALLING THE GS/OS DEVICE DRIVERS

Whether you have just installed GS/OS or have just restored all your files (including GS/OS), the next step is to install the proper Sider GS/OS driver onto the Sider.

1. Re-start your IIGS booting from the GS/OS Drivers For The Sider Hard Disk Drive 35 inch diskette supplied with this manual. When the Finder appears, run the Installer program by either double-clicking on its' icon or by selecting and then opening it. The Installer menu, showing 8 options. will then appear on your screen.
2. To install a Sider third party GS/OS driver, select the destination volume by clicking on the Volume button until the correct volume is selected on the right portion of the window. This should be the first ProDOS volume on your Sider, i.e. /HARD1.
3. After selecting the volume, select, from the list of drivers, the correct driver for your particular configuration. Once the correct third party driver is highlighted, click on the Install button.



Sider 10mb = Third Party ProDOS ROM Sider 10  
Sider 40mb = Third Party ProDOS ROM Sider 40  
Sider D2 = Third Party ProDOS ROM Sider D2  
Sider][ 20mb = Third Party ProDOS ROM Sider][

4. A window displays the progress, as the driver is copied to the volume. When this process completes, click on the Quit button to exit to the GS/OS Finder
5. If you have a Sider D2 or Sider 40mb drive and have successfully install the third party drive, you are ready to boot the from your bard drive. If you are installing the drivers on your Sider 10 or Sider ][, continue with the next section.

If you want our custom Sider hard disk icon to appear rather than the default one, install the Finder Icon for the Sider. This is explained in the section Installing The Sider Icons.

If you installed the Sider icon file, when the startup process is complete and the Finder is displayed, you should see the Sider icons rather than the regular hard disk icons. If you do not see the new Sider icons, please redo the installation process.

## 8.5 ACTIVATING THE SIDER 10 AND SIDER][ DRIVERS

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If you are installing the Sider third party drivers on either a Sider 10mb or Sider][ 20mb, it is necessary to activate the GS/OS driver before it is usable.

1. To do this, from the GS/OS finder, use the mouse to double click on the Sider's hard drive icon to access the Sider on open the /HARD1 volume.
2. Double click on the SYSTEM folder to open its window.
3. Locate the DRIVERS folder and open it by double clicking the folder icon.
4. Using the mouse, highlight and click on the Sider GS/OS driver icon
5. Next use the mouse to pull down the FILE menu. Select the GET INFO option and then release the mouse button.

6. Information regarding the file will display. In the lower right -band area of the window is a box labeled 'Inactive', with a check in it. With the mouse, click on the 'Inactive' box to remove the check mark.

This will enable the GS/OS drive to become active. Exit back to the Finder desktop and reboot your system. Booting will cause the Sider GS/OS driver to be properly loaded and active.

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## 8.6 USING THE SIDER

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After installing the Sider driver you can use your Apple IIGS just as before. However, the Sider now works about twice as fast! All your applications and data files can be used with no changes.

### 8.6.1 Using More Than One Sider

If you have more than one Sider connected to your Apple IIGS, the driver will correctly recognize all of them. You can have one Sider per slot, except for slot 3, for a total of six drives.

<p><b>NOTE:</b> For the Sider driver to recognize the Sider, the slot containing its interface card must be switched into the 'Your card' position in the Apple Control Panel desk accessory.</p>
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## 8.7 3.3.2 DAISY-CHAINING THE SIDER

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When using many of the third party ROMs, daisy chaining of one additional Sider is possible. In most cases, you **MUST** daisy chain two identical Sider models (i.e. two 10's or two 20's)

On some third part ROMs for the forty megabyte Siders, it is our understanding you can not daisy chain any other drive.

For more information, please contact the vender you purchased your ROM from.

## **NOTES**

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# 9. APPENDIX A- GS/OS PARTITIONS

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## 9.1 GS/OS PARTITIONING ON THE SIDER

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The Sider uses a technique of partitioning the physical hard drive into volumes or partitions different from that used by Apple Computer's own Apple II SCSI card. The primary reason for partitioning is to enable THE use of the full formatted capacity of a hard disk drive.

When using the GS/OS Advanced Disk Utility with an Apple II SCSI card, the Partition button on the utility's menu is used to define up to seven different partitions on hard drives connected to the Apple II SCSI card. When using the Advanced Disk Utility with the Sider, however, the Partition button is unavailable and, therefore, is dimmed. All other advanced disk utility functions can be used with the Sider.

How the GS/OS partitions on the Sider are defined varies depending on the Sider model. Any Sider using the Multi-OS EPROM (PN# 103684C) on the Sider Host Adapter card supports two partitions per drive. A second Sider can be daisy-chained to the first to add another two volumes. With the Multi-OS Sider, the sizes of the two volumes are defined when the drive is initially formatted and installed. The volume sizes can be adjusted to your preference with the Siderware diskette labeled Installation Utilities. Sider models using this partitioning technique are the original 10MB Sider, the Sider][, and the newer Sider D2.

Higher capacity, all-ProD OS Siders use a different technique to define the partitions for GS/OS. These drives have fixed volume sizes embedded in the firmware EPROM on the Sider's Apple Host Adapter card. With this EPROM, 40MB Siders, such as the Sider D4, D4A, and D4T, are divided into two equal volumes. The EPROM in 90MB Siders, such as the Sider D9 and C96, creates the first two partitions as 32MB volumes and the third one as a 23MB volume to use the drive's remaining storage. This

is fully accomplished by the fixed partitions on the all-ProDOS Siders' Host Adapter card.

The BIG advantage in using the Sider with its Host Adapter, as opposed to hard drive with the Apple II SCSI card, is that the Sider Host Adapter card is twice as fast and twice as efficient as the Apple card. It is this significantly greater speed of the Sider Host Adapter that helps enable the GS/OS drivers for the Sider to read data so much faster than ANY hard drive using the Apple II SCSI card.

Consequently, under the GS/OS operating system, whatever flexibility the Sider loses in partitioning is more than made up by its two-to-one edge in performance.

# 10. APPENDIX B -INSTALLING GS/OS

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## 10.1 INSTALLING GS/OS ON THE SIDER

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In general, the procedures to install GS/OS on the Sider hard disk drive are similar to those described in your Apple IIGS System Tools manual. The exact steps, however, depend on the Sider model.

Installing GS/OS on a Multi-OS Sider requires an additional step in the beginning of the installation process. Once this is completed, the installation procedures are the same for all Sider models. We will begin by discussing this first procedure. Users of any all-ProDOS Sider model, such as the Sider D4A, D4T, D9, C96 (or Sider product using a fully compatible third party ProDOS only BIOS ROM in the host adapter), can skip this section and proceed to the next section titled “Adding GS/OS to the Sider”.

<p><b>NOTE:</b> If you have re-installed your Sider using a third party ProDOS ROM, proceed to section 10.3</p>
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## 10.2 INSTALLING GS/OS ON A MULTI-OS SIDER

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For GS/OS to properly recognize your ProDOS volumes on a Multi-OS Sider, you must first update your Apple IIGS System Disk with the Sider Multi-OS Hard Disk Driver. Make a working copy of this diskette. Do NOT attempt to modify the master diskette that came with your Apple IIGS system.

To do this, first boot up your Apple IIGS with the supplied GS/OS Driven For The Sider Hard Disk Drives 3.5 inch diskette. At the Sider’s Main Menu, showing the standard 7 options, take option 3 to go into DOS. At the DOS 3.3 prompt, type:

]PR#5 <RETURN>to boot the diskette

After a short while, the standard Finder screen will come up. If your Sider is attached to your Apple fiGS and is on, the Sider icons will be displayed on the Finder screen.

Once the Finder is up and running, ma the Installer application by either double-clicking on its icon, or by selecting and then opening it. The Installer menu, with 4 different installation options, will appear on your screen.

If you have a single 3.5 inch diskette drive, eject the GS/OS Drivers For The Sider Hard Disk Drives diskette and replace it with your copy of the IIGS System Disk. Select the /SYSTEM.DISK volume by clicking on the Volume button until this volume is displayed on the lower tight portion of the window.

After selecting the correct volume, select the correct driver to install on the left side of the screen. Click on the item labeled Sider Multi-OS Hard Disk Driver. Once this option is highlighted, click on the Install button to install the driver.

As the driver is copied over to the /SYSTEM.DISK, a window displays the progress of the installation. If you only have a single 3.5 inch floppy drive, you will have to swap the /SIDER.DRIVERS and /SYSTEM.DISK floppy diskettes a couple of times.

**NOTE:** If you have two 3.5 inch floppy disk drives, you can avoid all of the diskette swapping that occurs with only a single floppy disk drive. In this case, place the /SIDER.DRIVERS diskette in the first floppy drive and the /SYSTEM.DISK in the second.

If you want the Sider hard disk icon to appear rather than the default hard disk icon, install the Finder Icon for the Sider (see Installing The Sider Icons).

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## 10.3 ADDING GS/OS TO THE SIDER

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The following procedures describe how you to install GS/OS on any Sider model.

If you are using a Multi-OS Sider, boot your IIGS computer from the IIGS System Disk that was updated with the Sider Multi-OS Hard Disk Driver in the preceding instructions.

If you are using an all-ProDOS Sider, such as the D4A, D4T, D9, or C96, (or compatible third party host adapter ROMS) boot your IIGS computer from a standard copy of your IIGS System Disk. A Sider driver need not be installed on this 3.5 inch floppy diskette.

After a short time, the Finder screen will appear. When this happens, eject the IIGS System Disk and replace it with the Apple IIGS System Tools Diskette. When the /SYSTEM.TOOLS Icon appears, use the mouse to point to and double click on this icon to open it up.

**NOTE:** If you have two 3.5 inch floppy disk drives, leave the System Disk in the first floppy drive and place the System Tools diskette in the second. This eliminates diskette swapping.

Use the mouse to double click on the icon for the Installer utility. You will be prompted to swap the System Disk and the System Tools Diskette as the Installer loads. When the Installer menu appears, you will see a variety of options to install.

As a first step, make sure the correct destination volume for GS/OS is specified. Use the mouse to click on the Volume button in the lower right hand corner of the screen until the first ProDOS volume on the Sider is shown. The name of this volume is usually/HARD1.

Now select which option appearing on the menu on the left side of the screen you want to install. You may do this in one of two ways. You could install the system in a piecemeal fashion by first taking the option to Install System Files. Once these files are installed, install whatever other options you need to support on your system.

A simpler method is to take the option to Install Everything Possible. Although more time-consuming, it assures that everything is installed in a single pass.

Be prepared to swap between the System Disk and the System Tools diskettes no matter which option(s) you take. With the Install Everything Possible option, this means swapping the diskettes 15 times.

**NOTE:**

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The SCSI Hard Disk Driver on the Apple System Tools diskette is not required for any Sider to function properly. Therefore, if you take the option from the System Tools Installer to Install Everything Possible, you should then take the option to remove the SCSI Hard Disk Driver from HARD1. To do this, click on the SCSI Hard Disk option near the bottom of the list on the left side to highlight it. Then click on the Remove button to remove this driver from the Sider.

Once the Installer is finished, click on the Quit button to exit back to the Finder screen. Then double click on the SYS. TEM.DISK icon to open it up. Use the mouse to point to and double click on the BASIC.SYSTEM icon. This will take you into Applesoft BASIC, and you will have a standard BASIC prompt: 1 “ on the screen. At the prompt, type:

PR#n <RETURN>

where ‘n’ is the slot number in which the Sider is installed. This causes the Sider to boot. An all-ProDOS model Sider will immediately boot up GS/OS. For a Multi-OS Sider, take option 4 on the Sider’s Main Menu to boot into GS/OS.

Now return to the section of this manual describing the installation of your Sider model. Continue with the next step of installing the Sider’s Hard Disk driver onto your drive.

# 11. APPENDIX C . BACKUP II

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## 11. INTRODUCTION

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The Backup II program was developed by Apple Computer to provide an efficient means of backing up ProDOS files on the Apple ProFile hard disk drive to floppy diskettes. With this program, files can be saved on either 5.25-inch or 3.5-inch diskettes. Backup II offers one important advantage over standard “filing” utilities from Apple, such as the Filer or the System Utilities. With it, files too large to fit on one floppy can be successfully copied so that they span more than one diskette. This is important since on a ProDOS hard disk volume, files can be up to 16MB.

The one disadvantage inherent to Backup II (and most backup programs) is that the files created on the backup diskettes are in a special archive format. Therefore, they are unreadable to any standard utilities or applications. The Appleworks program, for example, would not be able to directly read any Appleworks files backed up onto floppies with Backup II. The files would first have to be restored before they could be used. Backup II can both back up and restore to ANY ProDOS compatible disk storage. It can restore files to not only any ProDOS compatible hard drive, but also to another floppy drive.

### 11.1.1 Required Hardware

To use the Backup II program, you need the following:

- An Apple He with at least 64k of memory or an Apple IIGS
- At least one Apple brand floppy drive (either 5.25 or 3.5 inch)
- Your Sider hard disk subsystem
- An adequate supply of blank floppy disks

## 11.2 AN OVERVIEW OF BACKUP II

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The Backup II program can be a very important tool in safeguarding ProDOS files on your Sider. The strategy you implement for backup depends on how heavily you use your Sider and how crucial the data on it is. You can back up either the entire contents of a ProDOS volume or the files in a selected directory structure (pathname). The files backed up are stored in a File-by-File format. This type of backup is much more efficient than an Image (also referred to as Mirror Image) Backup which backs up unused space on the hard disk volume. Consequently, a backup done with Backup II takes much less time and uses far fewer diskettes than an Image type backup.

The main Sider Backup/Restore utility on the Sider Support Utilities Menu does a true Image backup. It can back up the entire drive, an individual operating system partition, or a single volume within an operating system. It requires you to restore the contents of the ProDOS volume to a volume of nearly equal size.

Consequently, Backup II, which is more efficient and offers greater flexibility, is usually preferred for backing up ProDOS files on the Sider to floppies. Since files are being both backed up and restored on a File-by-File basis, Backup II allows you to restore the files to a different size volume. This allows you to restore to another hard drive with a different volume size. In addition, you can reformat and change the ProDOS volume sizes on your Sider and still restore the files to these new volumes. Files can even be restored to another 5.25 or 3.5 inch floppy disk drive.

Backup II also supports what is known as incremental backups. When the Backup II program is run, it sets an archive flag in the ProDOS directory for each file it backs up. This archive bit is used by the Backup II program to determine if a file has been backed up previously. If a file on your hard disk is written to after a backup, the ProDOS directory information then flags the file as being “modified”.

Incremental backups are given a pathname much like a regular backup.

The key difference is that when the incremental option is taken, this ProDOS directory information is checked for each file specified in the backup pathname. If a file has not been modified since the last backup, it is skipped and not backed up again. However, if it is flagged as modified, the file is backed up. By taking the incremental option for backup, you greatly reduce the number of files and the amount of time needed to back up your data.

Your strategy for backing up your Sider's ProDOS volumes can consist of several options:

A full volume backup by pathname can be specified by simply typing in `/HARD 1/=` at the source prompt. Under this options, ail files within all subdirectories on the volume `/HARD1` are backed up. The wildcard `"="` following the `/` directs the system to back up all files in the pathname.

Alternatively, you may specify only files that are within or below a specific directory to be backed up. For example, say that you have a directory on volume `/HARD1` named `LETTERS/` and that this directory has two further subdirectories named `PERSONAL/` and `BUSINESS/`. If you then wanted to backup all of your files in the `LETTERS/` directory and its subdirectories, you would enter a pathname of `/HARD1/LETTERS/=` as the source path-name. All files in the directories `PERSONAL/` and `BUSINESS/` would also be included in the backup. If you want only to back up business letters, enter `/HARD/LETTERS/BUSINESS/=`.

Finally, you may use the incremental option to back up only the files modified since your last backup. Use the pathnames exactly as you would in the other backup methods. With this option, however, only those files modified since the last backup are copied.

Using a combination of the above options can provide an efficient and effective plan for backing up your data. The exact strategy you use depends on how you use your Sider and how frequently files are updated. For some applications, a monthly full backup with weekly incremental backups may be sufficient. If large amounts of data are entered daily, then at a minimum, daily incremental backups and a weekly full backup are recommended. If important files are in selective subdirectories on the

Sider, you may want to specify the pathnames to these directories and do separate backups for each pathname, rather than backing up the entire volume. This reduces backing up unimportant, non-crucial files.

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## 11.3 BACKUP II FUNCTION KEYS

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The following command keys can be used throughout Backup II:

At any prompt, you can backtrack to the previous prompt or menu by pressing the <ESC> key.

**IMPORTANT NOTE:** Regarding Subdirectory Levels: Backup II only supports 15 LEVELS of ProDOS subdirectories, although It can handle any number of directories.

As a practical rule, to avoid lengthy, i.e. difficult to type, pathnames, try to keep the number of levels of subdirectories even lower. Keeping the directory levels under 10 is a practical rule when organizing your subdirectories (referred to as Folders under GS/OS). Also, keep all subdirectory (Folder) names as short and as simple as possible to prevent long, cumbersome pathnames.

If you have created any subdirectories to a greater level than 15 on your Sider, you **MUST** reorganize your directories and files so that this limit is not exceeded. Otherwise, Backup II will not function properly.

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## 11.4 RUNNING BACKUP II

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The Backup U program should already be installed in a Multi-OS Sider if you have the entire Revision D Siderware on the drive. If not, or if you are using a Sider that did not come with the Backup II program, you will need to copy it onto your Sider. When using GS/OS, you need to drag the icon named Backup2.System from the supplied 3.5 inch diskette labeled GS/OS Drivers For The Sider Hard Disk Drive into an appropriate folder on your Sider.

You can run the Backup U program from either a menu utility such as ProSel or by simply double clicking on its icon when in the GS/OS Finder.

At this point, the program's main menu will appear. It presents three options:

**B - BACKUP FILES**

**R - RESTORE FILES**

**Q - QUIT**

#### 11.4.1 BackIng Up the Sider

To proceed with a backup, insert a formatted, blank diskette into the floppy drive.

<p><b>NOTE:</b> Backup II will format the diskette for you automatically if it is not already formatted, although this increases time required to backup your files.</p>
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To back up, take option B from the Main Menu to backup.

The following menu will appear:

**M - BACKUP MODIFIED FILES**

**P - BACKUP BY PATHNAME**

Type P if you want to back up all files on the volume or all files within a subdirectory.

Type M if you want to back up only the files that have been modified since the last time you ran Backup H.

Backup II will now prompt you for a pathname to back up. If you took option P and then typed the volume name, i.e. /HARD1/=, then all files on the volume will be backed up. Instead, if you chose option M in the previous step, only modified files in the volume will be backed up.

To backup files within a subdirectory, type the full PRODOS path-name to that directory. For example, type /HARD1/APPLEWORKS/= to backup files within the subdirectory named

APPLE WORKS, and files within any subdirectories lower in the ProDOS tree structure. When prompted for a pathname to backup from or restore to, you may instead type the letter “S”. This will change the input screen so that you can alternatively input the ProDOS slot and drive designations.

NOTE: Use “S” only if the backup is to operate on the complete volume.

**NOTE:** The wildcard “=” can also be combined with partial file names to backup selected files beginning with the same characters. In the above example, if you enter a pathname of /HARD1/APPLEWORKS/WP= , only the files starting with the letters “WP” are backed up.

Next, Backup II will prompt you for the slot and drive number for the destination floppy disk drive where data will be saved. For example, type a 6 and then a 1 to specify your first 5.25 inch floppy disk drive as the backup media. Type in a 5 and then a 1 to specify your first 3.5 inch floppy drive.

On the first backup diskette, the program constructs a volume table of contents which contains a list of all files being backed up. Once this is created, the program backs up the actual files to the diskettes. Backup II automatically names each backup diskette with the name /BACKUP.VOLUMEn, where n is the volume number (e.g. 1, 2, 3).

As additional diskettes are needed to continue the backup, you will be prompted to insert new floppies. The volume name will be displayed at this time. Be sure to label each diskette with the proper backup volume name. This will help you keep the diskettes in order and will facilitate the restore process. When Backup II has completed its task, the following message will be displayed:

**OPERATION COMPLETE**

**PRESS SPACE TO CONTINUE**

Remove the final backup volume from the floppy drive. Press SPACE BAR to return to the backup files menu. Type <ESC> to return to the Backup II Main Menu.

## 11.4.2 Restoring a Complete Volume

Before attempting a full volume restore, you may want to reformat your Sider to insure that no bad blocks exist. Just boot the Sider's Installation Utility Diskette and go through the entire install process as if you were setting up the drive for the first time. Then mn Backup II and restore.

**CAUTION:** If you are using the Sider, Sider II, or Sider D2, you may have other operating systems installed on the drive. In this case, reformatting the drive may not be desirable. Instead, using either of Apple's ProDOS utilities: the Filer program which is provided on the Apple User's Diskette or the newer System Utilities Diskette, do a "verily scan" to check for bad blocks on the Sider destination volume. If no bad blocks are found, you may use the "format a disk" option from the Apple utilities to only re-initialize the volume before proceeding with the full volume restore.

Apple IIGS owners can both verify and re-initialize their volumes directly from the IIGS Finder's menus. Click on and highlight the icon for the Sider hard disk volume you wish to verify. Then use the mouse to pull down the Special menu and select the option: Verify Volume. If no bad blocks are found, use the mouse to pull down the Special menu and take the option Erase Volume. You will be warned that you are about to erase all data on the volume, and may cancel the procedure. To complete the initialization process click on the Erase button.

If bad blocks are ever discovered during the verify, reformatting the Sider's mandatory to eliminate them. Follow the appropriate procedure for the model Sider you own.

**WARNING:** Be absolutely sure before you reinitialize any ProDOS volume that all Important data on the volume is backed up!!! Copy these files off the Sider before continuing with the re-initialization.

Once you are confident that the Sider volume has no errors in it, proceed with the full volume restore. Follow these steps:

Insert the first backup diskette, /BACKUP.VOLUME1, in your floppy disk drive.

Run the Backup II program. From the Main Menu, take option R to Restore Files. The following menu will appear

**V - RESTORE VOLUME**

**P -RESTORE BY PATHNAME**

**L - LIST FILES**

From the menu, take option V to restore the entire volume.

Backup II issues a warning that you will be deleting all files currently on the Sider's destination volume. It will ask if you want to continue the restore process. Type Y to proceed.

Backup II then asks you for the slot and drive that have the files you want restored. Type the appropriate numbers for your floppy drive.

Typically, this will be slot 5, drive 1 for a 3.5 inch floppy drive or slot 6, drive I for a 5.25 inch floppy drive. The program will then ask for the destination device. You may type either the pathname for the volume, such as /HARD1, or the letter "S." Entering "S" changes the input screen so that you alternatively input the ProDOS slot and drive designations. Use "S" only if the backup is to operate on a full volume.

Finally, you will be prompted if you want the file listing to be displayed on the screen only or on both the screen and printer. Type "S" for screen only or "P" for screen and printer. The restore process will then begin and each file will be listed as it is restored. You will be prompted to insert additional diskettes as needed during the backup set.



When the restore is completed, Backup II will display the following message:

**OPERATION COMPLETE**

**PRESS SPACE TO CONTINUE, TOEXIT**

Press the space bar to return to the Restore screen. Press the <ESC> key to return to the Backup II Main Menu.

<p><b>NOTE:</b> If you have made any incremental backups since a full volume backup, be sure to restore each of these in chronological order.</p>
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## 11.5 RESTORING FILES By PATHNAME

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You may use the restore by pathname option to restore specific files and directories to your Sider. You must use this restore option if you have not done a complete backup. The key advantage the restore by pathname option offers over the volume restore is that it will not overwrite all files on the destination volume. When restoring files to the original path on the hard disk volume, files with the same names as those being restored will be overwritten. When restoring files to a different path on the hard disk, NO files on the Sider will be overwritten.

### 11.5.1 To Restore by Pathname, follow these steps:

Insert the first back up diskette, /BACKUP.VOLUME1, in your floppy disk drive.

Load the Backup II program. From the Main Menu, take option R to Restore Files. From the Restore Files menu, take Option P to Restore by Pathname. Backup II will then ask you for the slot and drive containing the data being restored. Type the appropriate numbers for your floppy drive. The pathname for the back up diskette: /BACKUP.VOLUME1 will then display. You may either press the RETURN key to restore all files or you may extend the pathname to a subdirectory. For example, if you added to the pathname so that it read: /BACKUP.VOLUME1/APPLEWORKS/= , Backup II would only restore files from the directory APPLEWORKS (along with any

files in any subdirectories that exist below APPLEWORKS) to your Sider.

The wildcard “=” can be combined with partial file names to restore selected files beginning with the same characters. In the above example, if you had entered a pathname of /BACKUP.VOLUME1/APPLEWORKS/WP=, only files beginning with the letters “WP” would be restored.

**NOTE:** If your specified From (source) pathname does not match any of the files on the backup volumes, the screen displays the message:

**NO FILE FOUND**

Try re-entering the command, checking format and spelling.

Backup II then asks for the destination device. Type the complete ProDOS pathname or the directory to which you wish to restore files to. For example, type /HARD1/DATA to restore files to the subdirectory named DATA. Alternatively, you can type the letter “S.” Entering “S” changes the input screen so that you alternately input the ProDOS slot and drive destination. Use “S” only if the back up is to operate on the full volume.

**NOTE:** Be very careful of this” Slot” option. It restores files to the main (root) directory of the destination volume. Since ProDOS operating system limits the root directory of any volume to a maximum of 51 files, you may inadvertently fill your root directory space.

Backup II then prompts you for the output for the file listing. If you want screen only, press the RETURN key to select option S. If you want output to the screen and printer, type P.

As Backup II transfers files, it creates the necessary subdirectories to contain the files. It will continue to prompt you for each backup diskette, as needed.

After the last volume has been restored, the following message appears:

**OPERATION COMPLETE  
PRESS SPACE TO CONTINUE, <ESC> TO EXIT**

Press the SPACE BAR to return to the Restore Files Menu.  
Press the <ESC> key to return to the Backup II Main Menu.

### **11.5.2 List Files**

Files copied by Backup II cannot be read through standard ProDOS utilities. Consequently, you must use the Backup II program to get a directory listing of files stored in the back up volumes.

To find out what files are in a set of back up diskettes, insert the first floppy: /BACKUP.VOLUME1 into your floppy drive. With Backup II already loaded, take option R from the Main Menu to go to the Restore Files menu.

From the Restore Files Menu, take option L to list files.

Backup II will now prompt you for the slot and drive number of the floppy disk drive containing the first back up volume. Enter the appropriate numbers. If you press the RETURN key, the Apple's screen displays the file listing. If you type the letter P, the listing will be both displayed and sent to your printer.

If the listing is too long to fit on a single screen, use the SPACE BAR key to page through the additional screens. After viewing the last screen, press <ESC> to then return to the Restore Files menu.