

***ON THREE* Presents...**

**The Universal Sider**

**Drive For The Apple ///**

**User's Guide**



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## Apple /// Universal Sider Drive User's Guide

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## Apple /// Universal Sider Drive User's Guide

### Overview

The Sider is a compact hard disk drive for your Apple ///. It can hold over 20 million bytes of information, and you can store or retrieve this information at lightning fast speeds. It will allow you to consolidate the files you normally keep on floppy disks, and, if you are using one of the utilities such as Selector /// or Catalyst, it will allow you to store your programs on the hard disk drive.

The new Universal Sider driver also allows you to use the Sider in Apple //e emulation mode as a standard ProDOS hard disk. This means that with the addition of the Titan ///+//e boards, your Apple /// - Sider can be used as a regular Apple /// and as an Apple //e with a hard disk.

Throughout this guide, the term Apple /// will be used to describe both the Apple /// and the Apple /// plus.

#### **Special Note:**

While the Sider holds up to 20 million bytes of information, the Apple /// SOS can only handle disk drives up to 16 million bytes. Because of this, the Sider is partitioned into 2 drives. The first drive holds 16 million bytes and the second holds 2.4 million bytes.

These partitions are user selectable via the an easy to use partitioning program. If you have a desire to use Apple // DOS or Pascal programs, you can also change the partitions to accommodate these operating systems.

Please note that a small portion of the Sider is reserved for use in Apple // mode and can't be allocated for use to the Apple ///. 1,732 blocks are reserved for special utilities that are only accessible in Apple // emulation mode.

This guide will explain how to unpack, install, operate, and care for your Sider hard disk drive.

## Unpacking

Your Sider drive is packed in a cardboard shipping carton and is protected by thick foam material. The Sider drive is a delicate instrument. Be very careful when you remove it from the shipping carton. Extensive damage may result if the unit is accidentally jarred, bumped, dropped, or handled roughly.

These instructions are packed in a box labeled **'Open Me First'**. This box also contains the interface card, power cord and cable assemblies for the Sider drive and the diskette labeled **'Sider Universal Driver Disk'** which contains the device driver for the drive. This box also contains a set of disks and manual for use if you will be using the drive in Apple //e emulation mode.

If you are unsure about device drivers or 'emulation mode', don't worry, everything will be explained in the next few pages.

To remove the drive from the shipping box, notice that the drive package is protected on all six sides with thick foam insulation. Reach down into the box with both hands, grasp the drive by the thin sides, and carefully pull it straight upward and out of the carton. Move the drive unit to the area you will be using it and take off the protective anti-static bag.

The Sider does not have a built-in fan, so to insure sufficient ventilation you must observe the following notes:

- Do not place items such as papers on top of the Sider.
- Do not lay the Sider on its side.
- Do not place the Sider in direct sun light.

Save the shipping carton and packing materials in case you want to ship your drive. If your shipping carton becomes damaged or lost, request a new one from the place where you purchased the drive. Remember, if you attempt to transport the drive without proper packing, serious damage may result.

## Installation

Now that your Sider is unpacked, you are probably getting anxious to see how it works. First, however, you must do some simple tasks to prepare the drive for operation. If you have not already done so, move the drive to a convenient location, close to your Apple ///.

Before continuing, use the System Utilities program to make a copy of the diskette labeled '**Sider Universal Driver Disk**'. Label this freshly copied disk '**Sider Universal Driver Disk (Copy)**'. In the instructions on the next few pages use only the copy. If for some reason the copy becomes damaged, you can use the original to make a new copy.

To connect your Sider to your Apple ///, the Sider interface card will be plugged into one of the four expansion slots inside your Apple ///. This card will allow your Apple /// to communicate with the Sider so you can store programs and data on the Sider drive. Installation of the interface card is not hard to do but if you are uneasy about it, ask your local dealer for help.

To install the Sider interface card, perform the following steps:

- 1) Turn the power to your Apple /// off, and turn off the power to any other device that you have attached to your Apple ///.
- 2) Take your monitor (and any other device) off of your Apple ///.
- 3) The cover of your Apple /// is attached to the machine by two captive screws located on the underside of the left and right corners of the top of the computer. Using a short flat-head screwdriver, turn each of these screws 1/4 of a turn in either direction.

If your screwdriver isn't short enough, tilt the Apple /// slightly to either side and loosen the corresponding screw. The screws should become loose, however they won't fall out of the case because they are captive and can't fall out.

Carefully remove the cover by tilting it forward and lifting it straight up.

- 4) Now that you have removed the cover, look down into the rectangular well on the inside of the Apple ///. Notice that there are four identical connectors mounted on the main computer board. These connectors, often called "**slots**", are numbered, from 1 to 4, counting from the left to right. Their purpose is to hold Apple /// peripheral interface cards. One or more of your slots may be filled. You can install the Sider interface card in any of the empty slots in your machine. The examples below assume that you install your Sider interface card in slot 4, but this can be changed as outlined below.
- 5) With the computer facing you, hold the interface card with its gold plated connectors pointing down. The side of the interface card with the various components on it should be facing to the right.

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- 6) Locate the flat ribbon cable. Insert the 50 pin female end of the cable through the panel in the back of the rectangular well at slot 4 (or whatever slot you will be putting the interface card into).
- 7) Insert the 50 pin end of the flat ribbon cable into the end of the Sider interface card that holds the 50 pin male connectors. Note that the cable should be connected so that it goes directly out the back of the back panel on the component side of the interface card. There should be a red wire (or brown/red) at the top of the ribbon cable when it's inserted correctly into the interface card.

Note that if the cable wraps around the back side of the interface card it's probably installed incorrectly. Please contact **ON THREE** for assistance if you are unsure over which end of the cable should be up. Incorrect installation may damage your Sider and void your warranty.

- 8) Slide the card and cable assembly down until the gold connectors begin to enter the peripheral connector on the bottom. At this point, you will have to gently push the interface card down to fit the card completely into the slot.
- 9) Replace any other Apple /// interface cards that you disconnected while taking apart the machine. Replace the Apple ///'s cover so that the back of the cover is flush with the back of the computer and the holes on the underside of the front of the cover fit over the two captive screws. Tighten the captive screws using the same technique outlined above for removing them.
- 10) Replace any cables or attachments that you disconnected to install the interface card and place the monitor on top of the Apple /// again.
- 11) Attach one end of the grey round cable to the end of the flat ribbon cable and the other end to the top connector on the back of the Sider hard disk.
- 12) Attach the black cable plug to the bottom connector on the back of the Sider hard disk.
- 13) Attach the power cord to a properly grounded three-prong socket and connect it to the Sider hard disk, making sure that the power switch on the hard disk is off.

Your Sider hard disk drive is now completely connected and is ready to be turned on and checked out.

## Checking Out The Sider

Place the diskette labeled '**Sider Universal Driver Disk**' into the built-in drive and turn the power to your Apple /// on. At the same time turn the power to your Sider on. It may be easiest to use a power-strip to connect all your Apple /// equipment. When you want to start-up your Apple ///, simply turn the power-strip on. In any case...

Your Apple /// will load and execute the program on the disk in the built-in drive. It's a copy of the System Utilities program, and with it you will be able to verify that the drive is working correctly.

After a minute or so, the Utilities Program Main Menu will appear. If you have not installed the Sider interface card in slot 4, read the next section titled '**Changing The Slot Assignment**'. However, if you have installed the interface card in slot 4, skip over that section to the one titled '**Formatting And Verifying The Sider**'.

## Changing The Slot Assignment

This section will help you configure your disk for whatever slot you have installed the Sider interface card into.

- 1) Press '**S**' at the Main Menu to go to the System Configuration Program.
- 2) Press '**R**' to Read A Driver File and press RETURN.
- 3) Once the driver configuration is loaded, press ESCAPE and then '**C**' to Change System Parameters.
- 4) Move the highlight bar to item '2 - Peripheral Slot Assignments' and press RETURN.
- 5) Move the highlight bar to the item that says '**.PROFILE**' and press RETURN.
- 6) Type in the number corresponding to the slot your Sider interface card is in and press RETURN. This will normally be slot 4, but you can change it to the slot you are using.
- 7) Press ESCAPE two times to return to the Configuration Program Main Menu.
- 8) Press '**G**' to 'Generate A New System'.
- 9) When the prompt appears at the bottom of the screen, type in **.D1/SOS.DRIVER** and press RETURN.
- 10) The new configuration will now be saved to disk. Since a **SOS.DRIVER** file already exists, you will be asked if you want to delete the one already on the disk. Press '**Y**' for YES to replace the old driver with the new one.

You have now successfully configured the Utilities program to work with the Sider hard disk drive. Before continuing with the next section, reboot your Apple /// by pressing **CONTROL-RESET**. In a minute or so the System Utilities Program will have restarted and you will be able to continue.

## Formatting And Verifying The Sider

Before you can use the Sider, you must do something called format the disk. Formatting simply sets up the disk so that the Apple /// can communicate with it. This section will show you how to format and verify the Sider so you will be assured it is working correctly.

Note that the default device names in the Sider drivers are **.PROFILE** and **.PROFILE2**. The device **.PROFILE** refers to the 1st volume on the Sider and the device **.PROFILE2** refers to the 2nd volume on the Sider.

If you want to format and verify the 2nd disk drive in the examples below, use **.PROFILE2** in place of **.PROFILE**. Please be sure that you are using the correct device name when formatting disks.

There are two types of formatting used by the Sider. The first (and most important) erases everything on the hard disk. This is called a hard format and should only be performed if you want to change the partitions of the Sider. It is extremely important that you read and follow the instructions in the next section very carefully.

The second type of format is called a soft format and it simply erases the directory information on the disk. In the examples below you will be performing a soft format. If you want to change the sizes of the Sider disks go to the section titled '**Changing The Drive Sizes**'.

Note that if you are not going to be using the drive in emulation mode or if you're content with the default drive sizes of 16 megabytes and 2.4 megabytes, you should simply follow the directions on the next page and you do not need to change the partitions. The Sider is hard formatted at the factory and need not be hard formatted again except in a few unlikely circumstances.

To format and verify the main Sider volume, follow these steps:

- 1) At the Utilities Main Menu, type '**D**' for Device Handling commands.
- 2) Now type '**F**' to Format A Disk.
- 3) Type in '**.PROFILE**' and press RETURN.
- 4) A message will appear on the top of the screen asking you to make sure that you want to format your large disk. Place a blank disk into the disk drive. Now you will be asked for the volume name to be put on the disk. Type in the volume name you would like to give the disk and press RETURN.
- 5) A message may appear on the top of your screen asking you '**Is it okay to destroy all the contents of PRO? [Yes/No]**'. Since you want to format the disk, type '**Y**' for yes. The program will now format the disk. This process will take about 10 or 15 seconds. When it is finished, a message saying '**Formatting successful**' will appear on your screen.

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If you get an error message, there are a number of things that may be wrong. First, make sure that you have connected the cables from the Sider interface card to the disk drive correctly.

Make sure that you have followed the instructions for connecting the drive and then retry this section. Also check to make sure that you have the driver set-up for the correct slot. If you continue to have difficulties, call **ON THREE** for assistance.

- 6) Press the ESCAPE key once to get back to the Device Handling Commands menu.
- 7) Type '**V**' to Verify A Volume. Now that you have formatted the Sider, it is wise to verify it to make sure that the drive is operating correctly.
- 8) Type in **.PROFILE** and press RETURN. The program will put up the number of blocks on this disk, and you should press RETURN once again. The verifying process will take about 10 minutes. When it is finished, press ESCAPE twice to go back to the Utilities Main Menu.

If there are any problems with the disk, you will be notified with a '**Bad Block**' error message. If a list of bad blocks appears on your screen, you will have to perform a hard format of the Sider. In this instance go to the section titled '**Changing The Drive Sizes**'. After following those instructions return to step 1.

If you still have difficulties, contact **ON THREE** for assistance.

To format and verify the second Sider volume, follow the instructions in steps 1 through 8 above. In place of the device **.PROFILE**, use the 2nd disk's device name - **.PROFILE2**.

In the examples above note that the second Sider volume will format in about 5 seconds and the verify should be completed in about 30 seconds.

If you get any bad blocks while verifying the second Sider volume you must likewise perform a hard format using the instructions in the section titled '**Changing The Drive Sizes**'. After following those instructions, format and verify the first and second Sider disk volumes with the steps listed above.

You are now finished with testing your Sider hard disk drive to make sure it is working correctly. All you have to do now is follow the instructions in the next section and you will be able to use your new Sider hard disk drive with all of your Apple /// programs.

## Adapting Your Software

Before you can use your new disk drives with your other programs, you will have to add the device driver for the Sider to your other programs start-up (boot) disks. The device driver is a routine that the Apple /// uses to communicate with a particular device. When you add a new printer to your system you must add the printer driver to your start-up disks.

Likewise, when you add the Sider interface card and hard disk drive to your system, you will have to add the Sider driver to your start-up disks. This section will tell you how to adapt your software (add the correct driver) so you can use your new Sider.

Each time your Apple /// boots a diskette in its built-in drive, the device drivers are read from the diskette and loaded into memory. The device drivers are stored in a file on the disk called **SOS.DRIVER**. Once loaded, the drivers remain in your Apple ///'s memory until you turn off power or reboot the system.

The **SOS.DRIVER** file on a boot diskette usually contains drivers for the **.CONSOLE**, **.GRAPHICS**, **.AUDIO**, and other peripheral devices already connected to your Apple ///. However, it probably does not include a driver for the Sider disk drive. Instead, this driver is included on the '**Sider Universal Driver Disk**' that was supplied with this package. To add the new device driver to your other disks, use the following procedure:

If you have already started-up the '**Sider Universal Driver Disk**', and have successfully formatted and verified your disks you need not re-boot the disk, just skip down to part 2.

- 1) Place the diskette labeled '**Sider Universal Driver Disk**' into the built-in drive and turn the power to your Apple /// on. This diskette contains a copy of the Apple /// System Utilities Program.
- 2) In a minute or so the Utilities program Main Menu will appear. Type '**S**' to go to the System Configuration Program.
- 3) Type '**R**' to Read A Driver File.
- 4) Take the '**Sider Universal Driver Disk**' out of the built-in drive, insert the disk that you would like to add the new driver onto and press RETURN.
- 5) Once the driver configuration is loaded, remove the disk you are updating from the built-in drive. Replace the diskette labeled '**Sider Universal Driver Disk**' back into the built-in drive.
- 6) Type in '**.D1/SIDER.CODE**' and press RETURN. The Configuration Program will now read in the new device driver.
- 7) If you have not installed your Sider interface card in slot 4, you will need to do the following step, otherwise skip down to step 8.

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Press ESCAPE once to go to the Configuration Program menu, and type 'C' to Change System Parameters.

Move the highlight bar to item '2 - Peripheral Slot Assignments' and press RETURN.

Move the highlight bar to the item that says '**.PROFILE**' and press RETURN.

Type in the number corresponding to the slot your Sider interface card is in and press RETURN.

Press ESCAPE to go back to the Change System Parameters Menu.

- 8) Press ESCAPE once to go to the Configuration Program menu, and type 'G' to Generate A New System.
- 9) Remove the write-protect tab from the disk you want to update and insert it into the built-in drive.
- 10) Type in **.D1/SOS.DRIVER** and press RETURN. The new configuration will be saved to disk. Since a **SOS.DRIVER** file already exists on the disk you are updating, the Configuration Program will ask you if you want to delete the one already on disk. Type 'Y' for YES to replace the old driver with the new one.

After the program has finished saving the configuration on the disk you are updating, press ESCAPE to get back to the Configuration Program menu. Replace the '**Sider Universal Driver Disk**' back into the built-in drive and type 'Q' to leave the Configuration Program. In a minute or so you will be returned to the System Utilities Program Main Menu. For each other piece of software that you want to update, return to step 2.

## Using A Large Capacity Disk

After you have adapted your software to work with the Sider, using it to store and retrieve your programs and data is very easy. You have probably been using floppy disks to hold your information until now. When you use your various programs to hold information, you probably typed in a line such as:

**.D2/TEST.CALC**

This is an Apple /// pathname. A pathname contains both the name of the file to store or retrieve and the place to locate that file. In the example above **.D2** is the location of the file. In this case, on the diskette in drive #2, the name of the file is **TEST.CALC**.

To store or retrieve information on Sider is essentially the same. An example of a pathname for a Sider disk is below:

**.PROFILE/TEST.CALC**

As you can note, the only thing that has changed is the place to store the file. While the device name of the second disk drive is **.D2**, the device name of the Sider disk drive is **.PROFILE**. Thus, you will be telling your programs to place information on, or retrieve information from the device named **.PROFILE**.

You are probably used to putting files for each of your different programs on separate disks. This speeds the amount of time it takes to find any given file. If you are looking for a Visicalc file, you look on the disk labeled **VISICALC.FILES**. Likewise, if you are looking for an Apple Writer file, you probably look on a disk labeled **AW.FILES**.

You will probably want to store many of your various files on the Sider hard disk. If you put all of your files in one place it would take a long time to list the files on that disk to find the one you are looking for. However, you can split up a large disk like the Sider (or any other disk drive), into different sections. You could call one section **VISICALC.FILES** and store all of your Visicalc files in that section. Likewise, you could call another section **AW.FILES** and store all of your Apple Writer files in that section.

These different sections are called 'subdirectories'. For example, you could make a subdirectory with the name **AW.FILES** and store a file with the name **JULY.REPORT** in that section. When working in Apple Writer you would use the pathname:

**.PROFILE/AW.FILES/JULY.REPORT**

when loading or saving the file. Since all of your Apple Writer files will be stored in the subdirectory **AW.FILES**, when you do a file Catalog from the Apple Writer **SOS COMMANDS** menu, type **.PROFILE/AW.FILES/** and all of the files in the **AW.FILES** subdirectory will be listed.

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You can make a new subdirectory from a few places. In Basic you would type:

**CREATE .PROFILE/AW.FILES,CATALOG**

and press RETURN.

Using the System Utilities program you would type 'F' from the Main Menu to go to the File Handling Commands menu. There you would type 'M' to go to the 'Make a subdirectory' option. Now type:

**.PROFILE/AW.FILES**

and press RETURN. On some copies of the System Utilities Program (version 1.1 - not the copy you received on the Sider Universal Driver Disk) you would now type in the number of files you expect to store here and press RETURN. This can be from 1 to 32,767. This number really doesn't matter, if you try to store more files than you originally specify, it won't cause any problems, the Apple /// is smart enough to know what you are trying to do.

Subdirectories can be very useful in storing your files in logical groups on your large disk. They can also speed up the time of locating a particular file or group of files.

One of the other reasons you will find subdirectories useful is a limitation in the Apple ///. On each disk drive you can attach to your Apple ///, be it a regular 140K floppy disk, an 800K disk drive or even a Sider hard disk, the main directory can hold only 51 files. For example, if you had placed 51 files on **.PROFILE** and tried to save a new one to **.PROFILE/filename**, your programs would come back with an error message saying something to the effect **'DIRECTORY FULL'**.

Even though you may have plenty of space left on the disk, the main directory gets filled and you can't store any more information on that disk. When storing files in a subdirectory you can store up to 1663 files on the subdirectory. So right there is a very good reason to use subdirectories.

You can also make subdirectories on your subdirectories. For example, say that you are using Apple Writer to write memos and you want to separate them by the months the memos were written. You could create a group of subdirectories like this:

**.PROFILE/AW.FILES/MEMOS.JAN**  
**.PROFILE/AW.FILES/MEMOS.FEB**  
.  
.  
.  
**.PROFILE/AW.FILES/MEMOS.DEC**

Your files would then be stored with pathnames such as:

**.PROFILE/AW.FILES/MEMOS.JAN/TO.BOB**  
**.PROFILE/AW.FILES/MEMOS.JAN/TO.DAVE**

Most programs will also let you set something called 'The Prefix'. For example, in Apple Writer if you used the **SOS COMMANDS** menu to Set The Prefix to:

**.PROFILE/AW.FILES/MEMOS.JAN/**

the next time you loaded or saved a file you could just use the 'file' name. It would simply be a matter of loading or saving the file 'TO.BOB' or 'TO.DAVE', instead of typing '**.PROFILE/AW.FILES/MEMOS.JAN/TO.BOB**'.

At any time you could override the Prefix by typing the complete pathname of the file you want to load or save. For example, you can set the Prefix to:

**.PROFILE/AW.FILES/MEMOS.JAN/**

and still load or save a file with the pathname:

**.PROFILE/AW.FILES/BIG.REPORT**

Subdirectories can be very useful when working with a large capacity disk like the Sider. It is really up to you, however, to organize the information to your liking. The Apple /// lets you do it, so take advantage of one of the powerful features of the machine.

## How To Power Your Sider Up/Down

When you startup and shut down your Apple /// a certain procedure should be followed now that you have the Sider hard disk drive. The procedure is simple and once you get used to it it will not take up even one extra second in the startup or shutdown time.

When powering up your Apple /// & Sider, first switch the power to the Apple /// on and then immediately switch the power to the Sider on. It may be easiest to use a power-strip to connect all your Apple /// equipment. When you want to start-up your Apple ///, simply turn the power-strip on.

When powering down your system, turn the power to the Sider off first and then wait until the Sider has wound down and has stopped making noise. Then turn the Apple /// off. Never turn the Sider off while the drives in-use light is on. Doing this may cause a loss of information and/or damage the Sider.

Try to avoid turning on the Sider first and turning it off last. This will maximize the life of the Apple /// and your Sider hard disk drive.

## Working With Selector /// Or Catalyst

If you are using the Selector /// utility to place all of your programs and data on your large capacity disk, simply replace the Apple **.PROFILE** driver on your Selector Start-Up diskette with the Sider device driver as described above in the section titled '**Adapting Your Software**'. Next, install Selector /// as per the instructions in the Selector user guide.

If you are using the Catalyst program selector, you need to add the Sider driver as outlined in that section and you will need to make a change in the Device Configuration Block of the **.CATALYST** driver. This procedure is outlined below.

- 1) After booting up the disk labeled '**Sider Universal Driver Disk**', press '**S**' at the Utilities Program Main Menu to go to the System Configuration Program.
- 2) Press '**R**' to Read A Driver File.
- 3) Place your Catalyst disk into the built-in drive and press RETURN.
- 4) Once the driver configuration is loaded, press the ESCAPE key to return to the Configuration Program menu, put the '**Sider Universal Driver Disk**' back into the built-in drive and then type '**E**' to Edit A Driver.
- 5) Move the highlight bar over the driver named **.CATALYST** and press RETURN.
- 6) Now, move the highlight bar over the item named 'Configuration Block data' and press RETURN.
- 7) Use the information below to change the values in the DCB.

### .CATALYST Configuration For The Sider

Byte	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
0x	04	00	D1	01	33	33	00	8F	97	8A	91	93	23	17	17	F6
1x	00	B8														

If the Sider interface card is not installed in slot #4, then byte 00 should reflect the slot the interface card is in (01 - 04). If you aren't using the Quark Spooler, go directly to step 8.

If you are using the Quark Spooler, the DCB of the **.SPOOL** driver must also be changed to match certain parameters of the printer and disk drivers being used. Bytes 00 through 05 of the DCB of your **.SPOOL** driver should already contain the values associated with your printer driver.

The values to be changed in the DCB are as follow:

<u>Byte</u>	<u>Contents</u>
06	Slot assignment for the disk drive
07	Unit number of the disk driver
08	Device Type of the disk driver
09	Device Sub-Type of the disk driver
0A,0B	Disk drive manufacturer ID

In this case, the values in bytes 06 through 0B will be the same as the values in bytes 00 through 05 of the **.CATALYST** driver.

After configuring the **.CATALYST** driver, press ESCAPE twice to return to the list of drivers and move the highlight bar over the driver named **.SPOOL** and press RETURN.

Now, move the highlight bar over the item named 'Configuration Block data' and press RETURN. Use the information below to change the values in the DCB.

**.SPOOL Configuration for the Sider**

Byte	00	01	02	03	04	05	06	07	08	09	0A	0B
0x	xx	xx	xx	xx	xx	xx	0s	00	D1	01	33	33

**xx** refers to the current values in the **.SPOOL** driver. You must not change these. **0s** refers to the slot assignment. This value will normally be **04** unless you have placed the interface card into another slot.

The values after **0B** should not be changed.

- 8) After changing the values of the DCB to match those above, press ESCAPE three times to get back to the Configuration Program menu.
- 9) Type 'G' to Generate A New System.
- 10) Remove the write-protect tab from your Catalyst diskette and insert it into the built-in disk drive.
- 11) Type in **.D1/SOS.DRIVER** and press RETURN. The new configuration will be saved to disk. Since a **SOS.DRIVER** file already exists on the Catalyst disk, the Configuration Program will ask if you want to delete the one already on the disk. Press 'Y' for yes to replace the old driver file with the new one.

You have now successfully configured your Catalyst disk to work with the Sider hard disk. You may now install your programs and data files onto your large capacity disk as described in the Catalyst User's Manual. Throughout that manual, the term Profile will be used as the disk in question. Since you have adapted Catalyst to work with the Sider, simply remember that your disk has a device name **.PROFILE**.

**\*\* The Sider device driver does not support Catalyst directory buffering \*\***

## Using The Sider In Emulation Mode

One of the nicest features of the Sider drive is that it can be used in the Titan ///+//e emulation mode. This means that you can use your Sider with your applications on your Apple /// in native or Apple /// mode, and also use the Sider with all of your programs in the Apple //e emulation mode provided by the Titan ///+//e boards. This section will show you how to operate and use your Sider in ///+//e emulation mode.

## Changing The Sider Slot

The Sider was formatted at the factory to work in slot 4 of your Apple ///. If you have changed the slot from number 4, it will not work in emulation mode properly without modifying the emulation mode software to notice that it's in a different slot.

If you are using the Sider interface card in slot 4 skip to the section titled '**Using Your Apple II Sider**'. If you've placed the Sider interface card in a different slot, follow these instructions to enable your Apple II software to correctly use the Sider in emulation mode.

- 1) Power down your entire system.
- 2) Remove the Sider interface card from whatever slot it's in and place it in slot 4.
- 3) Power up your system and run the Apple II emulation mode program.
- 4) When at the Apple II screen, press RESET.
- 5) Type **PR#4** and press RETURN.
- 6) Select option **5** from the main menu to **RUN THE SUPPORT UTILITIES**.
- 7) Select option **7** from the support utilities menu to **CREATE NEW DOS BOOT TRACK**.
- 8) Enter the slot number where you would like to place the Sider interface card.
- 9) Power down your system.
- 10) Remove the Sider interface card from slot 4 and place it in the slot you want it in.

Everything is now setup so that when using the Sider in emulation mode you can boot directly into ProDOS by entering **PR#x**, where **x** is the slot you've placed the Sider interface card into.

## Changing The Drive Sizes

The Sider comes with two volumes. The default sizes are one 16 megabyte volume and one smaller 2.4 megabyte volume. You can change these partitions to anything you like. In particular, you can reserve space on your Sider for Pascal, DOS 3.3 or CP/M when running in emulation mode.

The Sider comes with the drive partitioned with the largest space reserved for the ProDOS/SOS two volumes. The other Apple II operating systems are setup to use the smallest space allowable.

To change these partitions you will have to do a hard format of your Sider. This means that anything that you have on your hard disk will be lost. Be absolutely sure that you want to do this before continuing. You should backup your Sider before going further.

When setting up your Sider to be partitioned differently you will use the Apple II software enclosed. These three disks are labeled: **Installation Utilities Side A, Support Utilities for Apple DOS 3.3 Side B, Backup/Restore Utility (Pascal 1.3 Based) Side A, Support Utilities for Apple ProDos Side B and Support Utilities for CP/M Side A, Support Utilities for Apple Pascal Side B.**

To partition the Sider into the sizes that you prefer you should follow the instructions in Chapter 4-1 of the First Class Peripherals User's Guide. This section of the manual explains how to use the Apple II partitioning software.

Follow use these instructions and you can setup the Sider to hold all the different operating systems supported on the Apple II and for the ProDOS/SOS volumes. Please note that when the manual refers to the ProDOS volumes, those same volumes can be used by the Apple ///'s SOS.

When partitioning the amount of space you want reserved for ProDOS/SOS, note that the installation utility doesn't correctly put the number of ProDOS/SOS blocks on the screen when detailing the ProDOS partition.

When setting up your ProDOS/SOS partition do not use the largest size for a ProDOS volume. This size (32768 blocks) is two blocks larger than the largest allowable for the Apple ///. Because of this make sure that the volume block sizes of the ProDOS partitions do not exceed this amount.

If you setup one of the volumes in the ProDOS partition this large it will work in emulation mode but the Apple /// Sider drivers will not recognize the volume. Please make absolutely sure that you don't exceed this size limit.

Note that the partitioning will take about an hour or so, so please be patient.

**You will not have to change or modify the Apple /// Sider drivers in order to recognize the new ProDOS/SOS volume sizes. The Apple /// Sider drivers automatically compute the ProDOS/SOS partition and the correct volume sizes at boot time.**

## Using Your Apple II Sider

Once everything is setup to your liking and the Sider hard disk is working properly in Apple /// native mode you can use it in emulation mode. Before using the Sider in Apple II emulation mode you may want to go over chapter 6-1 in the First Class Peripherals User's Guide. This section will give you some further information on setting up the Sider to use the various Apple II operating systems.

## Apple /// Universal Sider Drive User's Guide

After that you can simply use the Apple II programs to store and retrieve information on the Sider ProDOS/SOS volumes. Note that some Apple II programs require you to enter the slot and drive number of the disk you want to access. In the case of the Sider the slot will normally be #4. If you've changed the slot assignment of the Sider, simply use whatever slot number you've installed the Sider interface card in.

When referring to the drive #, the first ProDOS/SOS volume will be #1 and the second ProDOS/SOS volume will be #2.

Just as you can use a program selector like Selector /// or Catalyst in the Apple /// native mode, you can use most any program selector made for the Apple II on the Sider. This way you can store your Apple /// and Apple II programs on the Sider and switch between most any application with just a few keystrokes.

Some of the more popular program switchers on the Apple II are ProSEL, Catalyst and DeskTOP. Please contact your local Apple dealer or **ON THREE** for more information on Apple II program switching utilities.

When using the Sider for storing information, please note that you can access the same information from both the Apple II emulation mode and the Apple /// native mode. There is one catch however. To share the same information between the Apple II and Apple /// mode you must be using the ProDOS/SOS partition to store/retrieve the information.

Some Apple II emulation mode programs use DOS 3.3, Apple II Pascal or CP/M. If you store information on these partitions on the Sider, your Apple /// programs won't be able to access the information. To transfer information from one partition to another you must use that particular operating systems file transfer utility. Please contact **ON THREE** for further assistance in transferring information between operating systems.

## Technical Notes On The Sider

### Storage Characteristics

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Data Capacity (Formatted)	20 MegaBytes (20,054,016 bytes)
Data Surfaces	4
Heads Per Surface	1
Tracks Per Surface	612
Bytes Per Block	512
Blocks Per Track	16
Blocks Per Surface	9792
Total Number Of Blocks	39168

### Drive Characteristics

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Average Seek Time	85 Milliseconds
Data Transfer Rate	570KB/Second
Rotational Speed	3600 RPM
Rotational Start-Up Time	20 Seconds
Drive Ready To Operate	20 Seconds
Recording Format	MFM
Soft Bit Error Rate	1x10 <sup>10</sup> Bits Read
Hard Bit Error Rate	1x10 <sup>12</sup> Bits Read

### AC Power Requirements

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Source	100-126 VAC
Line Frequency	50/60 Hz (+/- 2%)
Power Consumption	40 W

### Environmental Characteristics

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Operating Temperature	10 C (50 F) To 40 C (104 F)
Storage Temperature	-40 C To 60 C
Operating Humidity	20% to 80% (Without Condensation)
Operating Altitude	-300 To 10,000 ft (-91 To 3048 m)
Non-Operating Altitude	-300 To 30,000 ft (-91 To 9144 m)
Operating Shock	5 g.
Non-Operating Shock	30 g.
Operating Vibration	2 g
Non-Operating Vibration	3 g.

### Physical Dimensions

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Height	7.5 in.
Width	3.375 in.
Depth	16.0 in.
Net Weight	11 lbs.