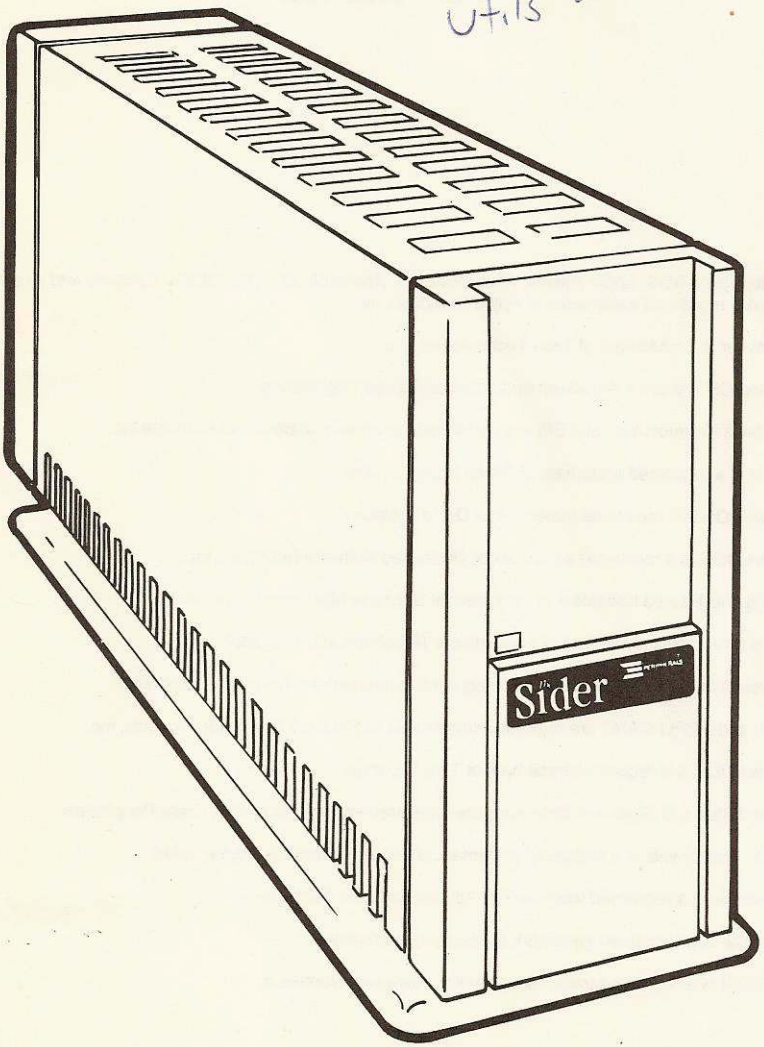
#3

FIRST CLASS PERIPHERALS
SIDER FIXED DISK DRIVE SUBSYSTEM

* * * *

USER'S GUIDE

Utils on V180



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First Class Peripherals
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1-800-5338-1307

ABOUT FIRST CLASS PERIPHERALS

You've made a First-Class decision by choosing the First Class Peripherals Sider. You have not only chosen the best-performing lowest-priced fixed disk drive subsystem on the market today, but also backed up your decision with the best warranty and technical support available.

We're glad you chose First Class Peripherals to meet your processing needs, and we'd like to tell you a little about our company — our background, our business philosophy and our committment to you.

OUR BACKGROUND

Not too long ago, we realized there were a lot of you out there - personal computer owners who didn't need a computer store salesman to tell you what to buy when you were ready to purchase peripherals. You'd done your homework and knew what you needed: high quality, easy-to-install equipment with a hassle-free guarantee, a sensible low price and expert after-sale service.

Problem was, nobody was around to offer you a deal like that. So in 1984 we established First Class Peripherals to give you the opportunity to purchase personal computer peripherals directly by mail at the lowest price available anywhere.

Being a young company doesn't mean we lack experience in the industry. Quite the contrary, in fact. First Class Peripherals is backed by Xebec, a major manufacturer of Winchester disk drives and disk drive controller boards. You may not have heard of Xebec, but you can bet IBM has. So have such manufacturers as ITT and Texas Instruments. That's because Xebec is the premier supplier of microcomputer components such as the S1410A controller board — the same board you'll find in our Siders, and the one used by other subsystem manufacturers for its reliability and durability.

We may be a new company, but as a subsidiary of Xebec we're backed by years of experience and rock-solid reliability. As our customer, you reap the benefits of that background.

WHAT WE OFFER

When we organized First Class Peripherals, we made a pledge that we would never offer any product unless it was equal or superior in quality to the best on the market. Our first product, a 10 megabyte fixed disk subsystem (hard disk) for Apple //e and] [Plus computers, has more than fulfilled that commitment.

The Sider has garnered rave reviews from both the media and consumers for its trouble-free operation, rugged construction, ease of installation and low cost. More recently, First Class Peripherals has released the B-Sider, a streaming tape subsytem.

For the future, we'll continue our search for the best in peripherals to offer our customers at the lowest possible prices.

WHAT YOU CAN EXPECT

By now, you have probably unpacked your new Sider and noted the attractive exterior and solid construction we've been talking about. You're anxious to install it and be off and running. That's primarily what this guide is designed to help you do. First, however, let's take just a moment to review what you can expect from First Class Peripherals now that you're our customer:

* 15 day free trial
* Full one-year manufacturer's limited warranty
* Hotline for technical assistance

As the pioneer in direct-mail peripheral sales, we're committed to keeping our quality high and our costs low. Most of all, we're committed to our customers.

OUR FIRST CLASS COMMITMENT

Our FIRST CLASS COMMITMENT means committment to quality — quality in the products you buy, service you recieve, and the technical support you need.

Our FIRST CLASS COMMITMENT means selling only the best-preforming, lowest-priced hard disk drive and tape backup subsystems on the market today.

Our FIRST CLASS COMMITMENT means designing products with the features you want. Over the years, your ideas and suggestions have been incorporated to provide better products and service.

Our FIRST CLASS COMMITMENT means building products which are defect-free. You can expect that your product will work the very first time and provide years of trouble-free service. Our first class manufacturer XEBEC is committed to that very goal with its "Xero Defect" philosophy.

Our FIRST CLASS COMMITMENT means providing first class service. A toll-free telephone hotline assures you that your experience with our products is both enjoyable and productive. Technical personnel are especially trained to answer questions if your need help.

Our FIRST CLASS COMMITMENT means guaranteeing what you buy. Your purchase is backed by the best warranty available — one full year. Your 15-day free-trial period is an industry first. Your satisfaction is our primary concern.

Our FIRST CLASS COMMITMENT means being committed to you — the customer. Over the years, you have made FIRST CLASS PERIPHERALS one of the most respected companies in the industry. Your support and suggestions have helped generate the best products for your computer. And that is wy we are committed to you.

So let us hear from you if you need us, and thanks again for making the decision to go "First Class."

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INTRODUCTION

This guide accompanies the First Class Peripherals Sider fixed disk drive subsystem. It provides concise instructions that will help you install the Sider on your Apple //e or] [Plus computer and operate the Sider-ware utilities.

Unpacking and installing the subsystem isn't difficult. However, you should take time to read the entire "Installation" section of this guide before you begin setting up the subsystem. With an overview understanding of the installation process, you'll know what's going to happen ahead of time, minimizing the risk of omitted or erroneous steps.

SIDER OVERVIEW

The Sider is designed for use with Apple //e and] [Plus computers. The Sider adds approximately 10 megabytes — that is, 10 million characters — the Sider] [adds approximately 20 megabytes of high-performance, high-reliability disk storage to the Apple computer.

The term fixed disk, subsystem, hard disk and Sider may be used interchangably. They generally refer to a large capacity data storage device that allows very rapid retrieval.

The Sider supports as many as four different operating systems concurrently, maximizing the efficiency and capabilities of your fixed disk. The subsystem supports the following operating systems:

DOS	**Apple DOS**	**3.3**
	Diversi-DOS	**4-C**
	David-DOS	**II.2**
	Pronto-DOS	
Apple ProDOS		**All Versions**
CP/M	**Microsoft SoftCard**	**2.23 (60K)**
	Microsoft SoftCard II	**2.28B**
	Microsoft Premium SoftCard	**2.26B**
	PCPI APPLI-CARD	**1.5, 1.6 and 2.0**
	Applied Engineering Z-Card	**5.0**
Apple Pascal		**1.1 (64K)**
		1.2 (64K and 128K)
		1.3 (64K and 128K)

Table 1. Sider Operating Systems

The Sider also supports a facility called "daisy-chaining." Daisy-chaining is a process in which you attach two Siders to an Apple computer for further system expansion and additional processing power.

UTILITY PROGRAM OVERVIEW

In the accessories box from which you removed this guide are three "flippy" diskettes, so named because they contain information on both sides rather than just one side, as is the case with standard "floppy" diskettes.

Disk 1

Side one of the first diskette contain the Siderware Installation Utilities, which will help you prepare the fixed disk to accept data. Side two of the same diskette contains the Siderware Support Utilities for Apple DOS 3.3.

Disk 2

Side one contain the Siderware Support Utilities for CP/M. Side two contain the Siderware Support Utilities for Pascal. If you choose to use these operating systems on your Sider, the Support Utilities will help you install them.

Disk 3

Side one contain the Backup/Restore Utility. Side two contain the Siderware Support Utilities for ProDOS.

If you have any questions about, or need technical assistance with the Sider, please call your First Class Peripherals customer service representative at the following toll-free hotline number:

1-800-538-1307 - SALES AND INQUIRIES
8AM to 5PM (M-F)

1-800-53-SIDER - TECHNICAL SUPPORT
8AM to 5PM (M-F)

The toll-free number for Technical Support, is provided only for customers who have purchased Sider products, directly from First Class Peripherals. Please have the exact persons name or Company name as it appears in the 'Bill To:' section of the First Class Peripherals packing list or invoice available when calling for technical assistance. Owners that may call this line, that have obtained a Sider product through a third party will not qualify for free technical assistance. We are sorry for any inconvenience this may cause. Please note the 800 lines are a free service as part of your order and unauthorized use only causes a response delay for customers in need of our help.

The following flowchart depicts the key steps of hardware and software installation in this guide.

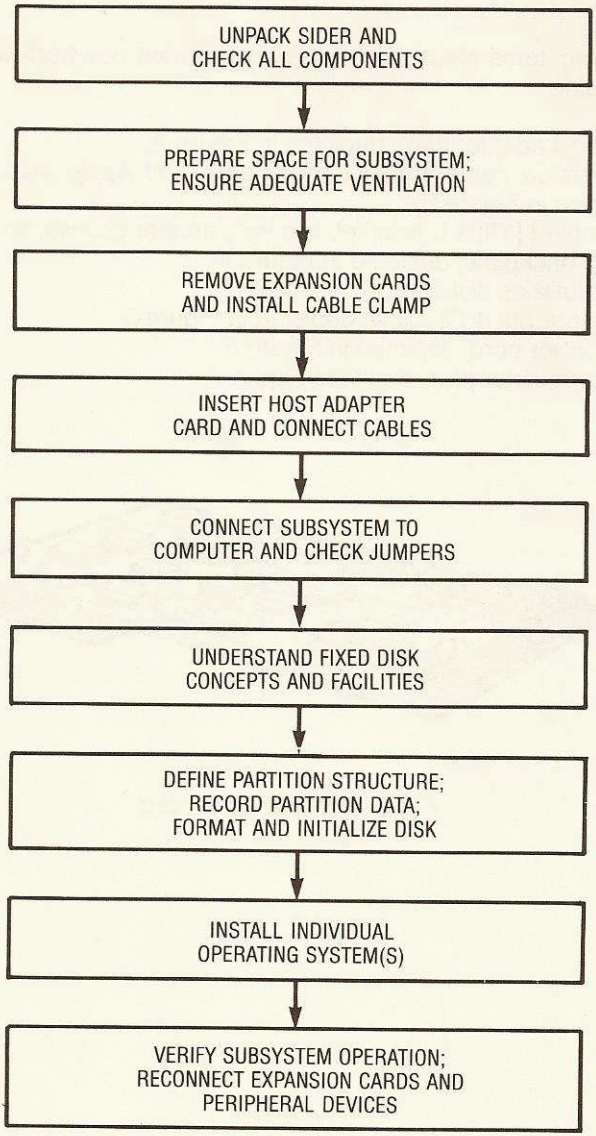

Fig. 1 Installation Flowchart

UNPACKING THE SIDER

Before setting up your Sider subsystem, take a moment to inspect the shipping carton and its contents. You'll want to make sure that all of the parts you need to install the subsystem are in the carton and in good condition.

The following items should be in the accessories box from which you took this guide:

* The host adapter card, depicted in Figure 2.
* The ribbon cable, metal cable clamp and Apple //e L-bracket, depicted in Figure 3.
* An Apple] [Plus L-bracket, two long anchor screws, and a cable clamp backplate, depicted in Figure 4.
* Three utilities diskettes.
* The input/out (I/O) cable, depicted in Figure 5.
* The power cord, depicted in Figure 6.
* The terminator plug, depicted Figure 7.

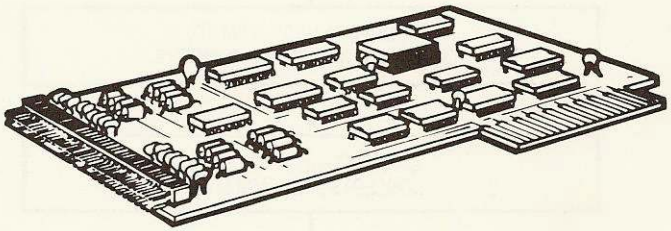

Fig. 2 Host adapter card

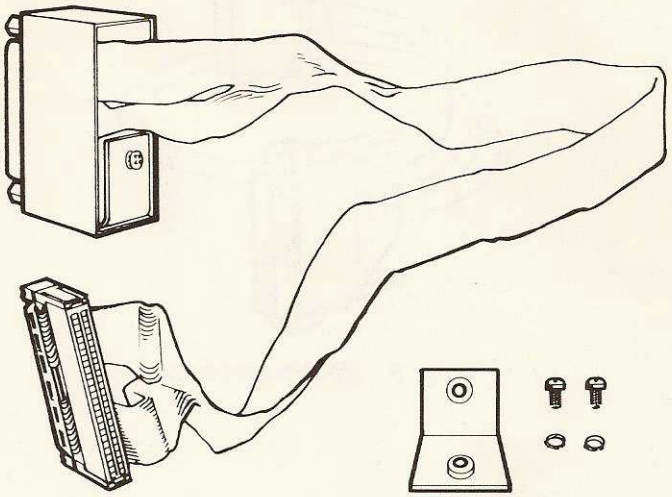

Fig. 3 Ribbon cable and //e L-bracket

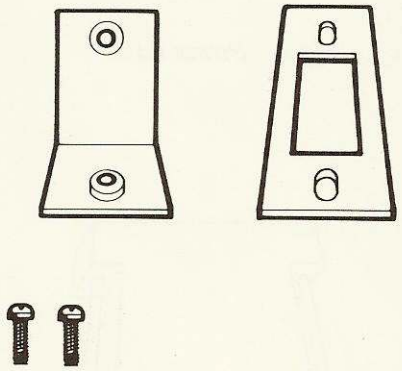

Fig. 4] [Plus L-bracket, screws and backplate

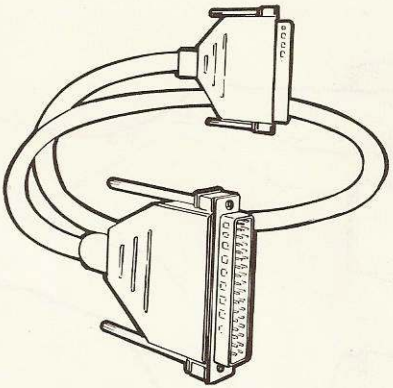

Fig. 5 Input/output cable

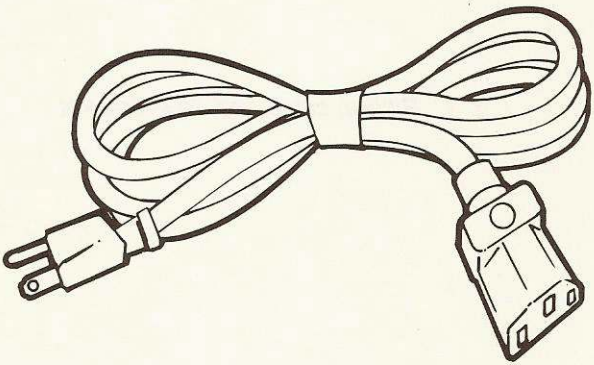

Fig. 6 Power cord

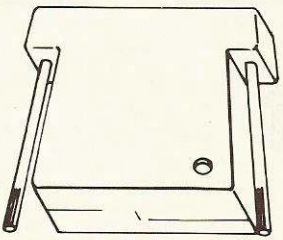

Fig. 7 Terminator plug

Select a solid, flat surface on which to set the subsystem, keeping in mind that it weighs 11 pounds. Now lift the Sider from the carton and place in on the flat surface.

Be sure to save the packing materials in case you need to move the subsystem or ship it First Class Peripherals for service.

Carefully look at the subsystem and all of its parts, checking them for damage. If anything is missing or has been damaged in transit, call your First Class Peripherals customer service representative on the toll-free hotline.

When you've examined all of the parts and found them to be satisfactory, return them to the accessories box. Now you're ready to install the Sider.

NOTES:

NOTES:

HARDWARE INSTALLATION

To install your new subsystem, you'll need the following:

* A quarter-inch, Phillips-head screwdriver and a pair of needle nose pliers.

* A 110-volt electrical outlet. If you currently have your Apple Computer on a surge suppressor power strip, then you should connect the Sider the same power strip.

* A solid, flat surface near your Apple computer. The Sider's I/O cable is 32 inches long.

* A reasonably controlled operating environment. The Sider operates trouble-free in temperatures ranging from 10 to 40 degrees Centigrade (50 to 104 degrees Fahrenheit); relative humidity of 20 to 80 percent; and altitudes ranging from 300 feet below to 10,000 feet above sea level. However, if the subsystem isn't being used, it will withstand temperatures ranging from -40 to 60 degrees Centigrade (-40 to 122 degrees Fahrenheit) and a maximum altitude of 30,000 feet above sea level.

* **Proper ventilation for your Sider, as depicted in Figure 8. The Sider doesn't have a cooling fan; it maintains its operating temperature by convection cooling. Allow a minimum of two inches on each side of the subsystem, and never place anything on top of it. Improper ventilation can cause damage to the subsystem, rendering it inoperable.**

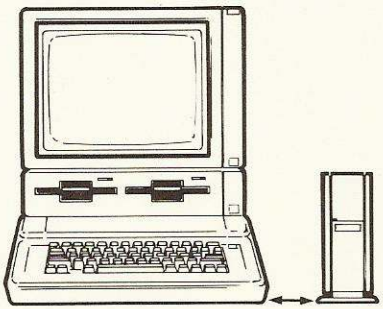

Fig. 8 Allow minimum of 2 inches on all sides for proper ventilation.

Now you're ready to connect the host adapter card (see Fig. 2) to your Apple computer. Because of the differences between the Apple //e and] [Plus computers, separate sections of this guide explain host adapter card installation for the two computers. Host adapter card installation instructions for the Apple //e begin in the following section; installation instructions for the Apple] [Plus follow the //e instructions.

INSTALLING THE HOST ADAPTER CARD — //e

Before going any further, make sure your Apple //e computer and its peripheral devices are turned off.

For this operation, you'll need the following items from the accessories box: the host adapter card, ribbon cable, cable clamp and the Apple //e L-bracket. You'll also need your Phillips-head screwdriver.

If your monitor is on top of the computer, unplug it and set it aside. Likewise, set aside your floppy disk drive.

Remove the computer cover by reaching behind the computer and pulling up on the back corners of the cover until they pop loose. Pull the cover away from the computer and set it aside.

Now, stand in front of your computer and locate the power supply, depicted in Figure 9. Touch the power supply box to discharge any static electricity from your body or clothes. This precaution will lessen the chances of damaging the integrated circuit components inside your computer or on the host adapter card.

Remove all expansion cards from the computer and carefully set them aside. Until the Sider is up and running, you won't need all of these cards. After the Sider is installed, you'll add the cards back in one at a time to ensure their proper operation.

Remove the plastic insert from opening 10 in the back panel of the computer, as depicted in Figure 9. Opening 10 is identified on the outside of the back panel. The plastic insert simply pops out when you apply pressure to its tabs.

Next, orient your Apple computer so the back of the computer is facing you (see Fig. 11).

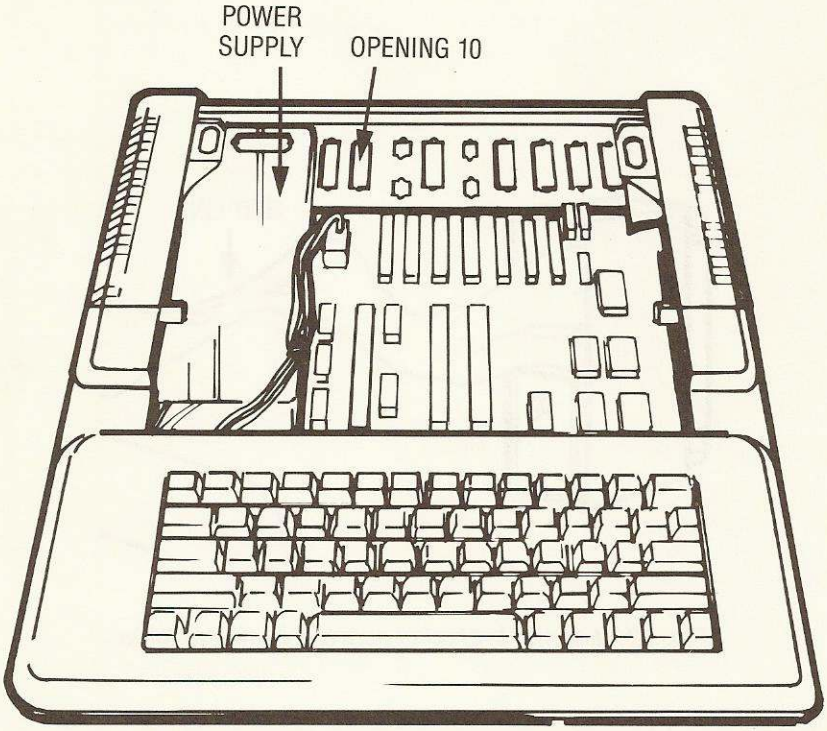

Fig. 9 Touch power supply and remove insert from opening 10

The following sections describe how to connect the cable clamp, cable and host adapter card.

ATTACHING THE CABLE CLAMP — //e

Retrieve the cable clamp and ribbon cable from your accessories box. Note that the top edge of the cable is identified with a red line: it should always face upward.

Examine the end of the cable on which the metal cable clamp is attached. Inside the top half of the clamp there is space to attach the Apple //e L-bracket, as depicted in Figure 10.

Inside the bottom half of the cable clamp is a factory installed L-bracket. With you Phillips-head screwdriver, loosen this bracket's anchor screw two complete turns, as depicted in Figure 10.

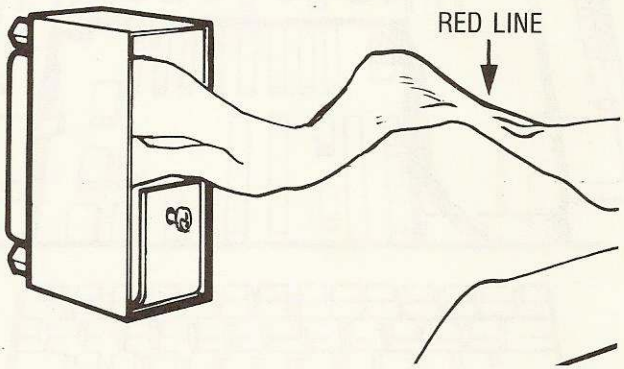

Fig. 10 Loosen L-bracket screw 2 complete turns

Set the cable clamp aside for a moment and retrieve the Apple //e L-bracket. Remove the screw from the long side of the bracket, and loosen the screw on the short side two complete turns.

Next, slide the loosened screw on the Apple //e L-bracket into the top mounting slot of opening 10 on your computer, as depicted in Figure 11, and firmly tighten it. Note that the long side of the bracket extends out from the computer's back panel so that later you can insert it in the cable clamp.

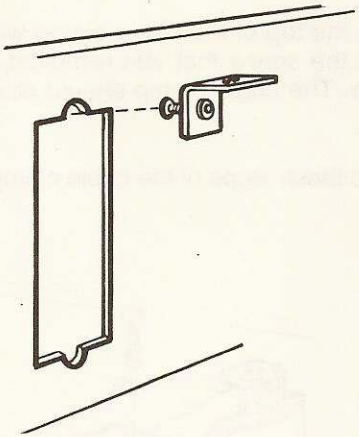

Fig. 11 Install L-bracket in top slot of opening 10

Insert the ribbon cable into the computer through opening 10 by folding the plastic pin connector at a 45-degree angle against the cable, as depicted in Figure 12. Then feed it carefully through opening 10 from the back side of the computer. Make sure that the red top edge of the cable faces upward.

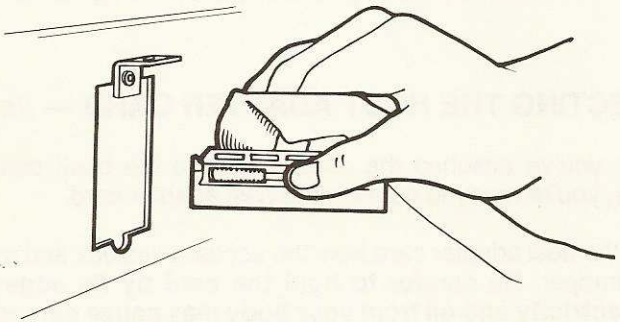

Fig. 12 Fold connector and insert through opening 10

Next, insert the long side of the small L-bracket — the L-bracket that's attached to the back panel of the computer — inside the top half of the cable clamp. At the same time, slide the loosened anchor screw on the factory installed L-bracket into the bottom mounting slot of opening 10 and firmly tighten the screw as depicted in Figure 13.

Align the hole in the top of the cable clamp with the hole in the small L-bracket, insert the screw that you removed earlier; and then firmly tighten the screw. The cable clamp should now be solidly attached to opening 10.

Figure 13 depicts these steps of the cable clamp installation.

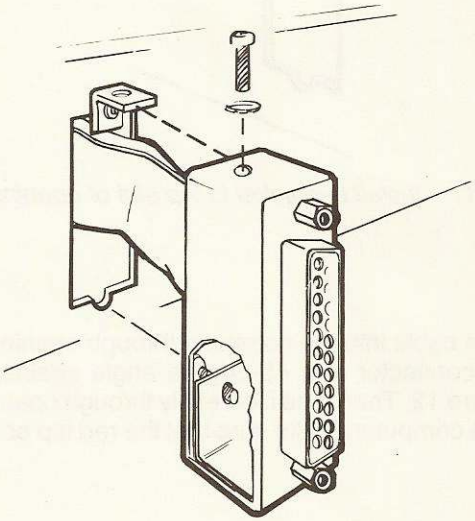

Fig. 13 Attach cable clamp to back panel and tighten screws.

CONNECTING THE HOST ADAPTER CARD — //e

Now that you've attached the cable clamp to the back panel of the computer, you're ready to connect the host adapter card.

Retrieve the host adapter card from the accessories box and remove its plastic wrapper. **Be careful to hold the card by its edges — the static electricity and oil from your body may cause damage to the card if you touch its components or the gold fingers on the bottom edge of the card.**

Carefully attach the plastic pin connector on the end of the ribbon cable to the pins on the edge of adapter card, as depicted in Figure 14. Note that the keyed slot in the center of the pin connector corresponds with the missing pin on the host adapter card. Apply steady pressure to the pin connector during this process - the pins on the host adapter card bend and break easily.

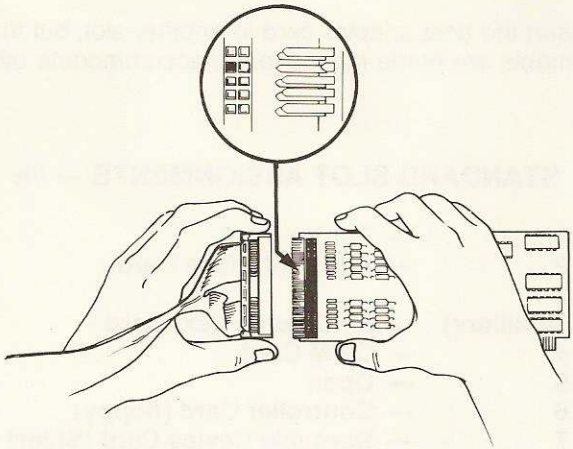

Fig. 14 Attach connector to host adapter card

If you bend a pin, carefully straighten it with your needle nose pliers. If you break one, call your customer representative on the hotline for assistance.

Next, using Figure 15 as a guide, carefully insert the host adapter card into an expansion slot on the Apple computer's mother board. The slots are clearly numbered on the mother board.

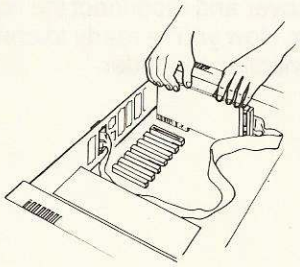

Fig. 15 Insert host adapter card into expansion slot

First Class Peripherals recommends slot 7 for the host adapter card because it's the only slot from which the Sider will boot automatically.

Apple computers begin searching for a bootable device at the highest slot number. Therefore, to make the Sider boot automatically when you apply power to your system, using slot 7 is essential to automatic booting.

You can insert the host adapter card in another slot, but the following slot assignments are made most often to accommodate other expansion cards:

STANDARD SLOT ASSIGNMENTS — //e

*	**Slot 1**	**— Printer Card**
*	**Slot 2**	**— Serial Interface Card**
*	**Slot 3 (and Auxiliary)**	**— 80-Column Text Card**
*	**Slot 4**	**— CP/M Card**
*	**Slot 5**	**— Open**
*	**Slot 6**	**— Controller Card (floppy)**
*	**Slot 7**	**— Bootable Device Card (Sider)**

Note: That if you have an expansion card in the auxiliary slot, do not use slot 3 for the Sider host adapter card. The two slots share the same memory locations, and the Sider host adapter card will not function in conjunction with another expansion card in the auxiliary expansion slot.

When the host adapter card is securely in its expansion slot, reinsert the controller card (floppy) in its appropriate slot. For the time being, leave out the other expansion cards that you removed earlier in the installation process.

Replace the computer cover and reconnect the floppy disk drive and the Apple computer monitor. Now you're ready to connect the Sider to your computer. Turn to "Connecting the Sider."

INSTALLING THE HOST ADAPTER CARD —] [PLUS

Before going any further, make sure your Apple] [Plus computer and its peripherals devices are turned off and unplugged.

For this operation, you'll need the following items from the accessories box: the host adapter card, the ribbon cable, the cable clamp, the Apple //e and] [Plus L-brackets and the flat metal backplate. You'll also need your phillips-head screwdriver.

If your monitor is on top of the computer, unplug it and set it aside. Likewise, set aside your floppy disk drive.

Remove the computer cover by reaching behind the computer and pulling up on the back corners of the cover until the pop loose. Pull the cover away from the computer and set it aside. Stand in front of your computer and locate the power supply, as depicted in Figure 16. Touch the power supply box to discharge any static electricity from your body or clothes. This procedure will lessen the chances of damaging the integrated circuit components inside your computer or on the host adapter card.

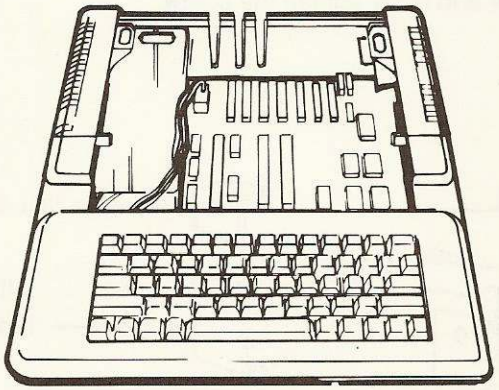

Fig. 16 Touch power supply to dissipate static electricity

Remove all expansion cards from the Apple computer — except for the 16K RAM card or language card in expansion slot 0 — and set them aside. Until the Sider is successfully up and running, you won't need these cards. After the Sider is installed, you'll add the cards back in one at a time to ensure their proper operation.

The following sections describe how to connect the cable clamp, cable and host adapter card.

ATTACHING THE CABLE CLAMP —] [PLUS

Retrieve the metal cable clamp and ribbon cable from your accessories box. Note that the top edge of the cable is identified with a red line: it should always face upward. Also retrieve the Apple //e L-bracket and using your phillips head screwdriver, remove both screws from the bracket.

Examine the end of the cable on which the metal cable clamp is attached. Inside the top half of the clamp there is space to attach the Apple //e L-bracket.

Slide the long side of the Apple //e L-bracket inside the top of the cable clamp, as depicted in Figure 17. Then align the hole in the top of the cable clamp with the hole in the L-bracket, insert the screw that you removed earlier and firmly tighten the screw.

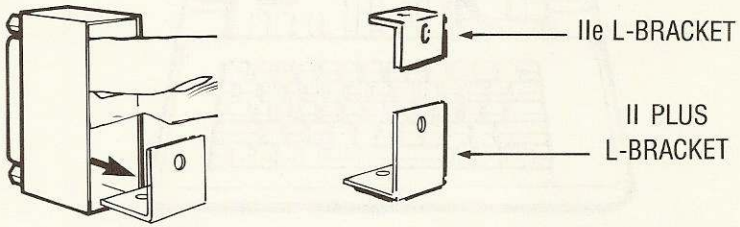

Fig. 17 Install //e L-bracket in top of cable clamp and] [Plus L-bracket in bottom of clamp

Inside the bottom of the cable clamp is a factory installed L-bracket. With your phillips-head screwdriver, remove the bracket from the cable clamp, and save one of the screws for the next step.

Next, retrieve the Apple] [Plus L-bracket with the long anchor screws from the accessories box. Remove the anchor screws and set them aside for a moment. Then insert the long side of the L-bracket inside the bottom half of the cable clamp and secure it with the shorter screw that you saved in the previous step.

Retrieve the flat metal backplate from the accessories box. On the other end of the ribbon cable is a plastic pin connector; fold it against the cable at a 45-degree angle and insert it through the slot in the metal backplate, as depicted in Figure 18.

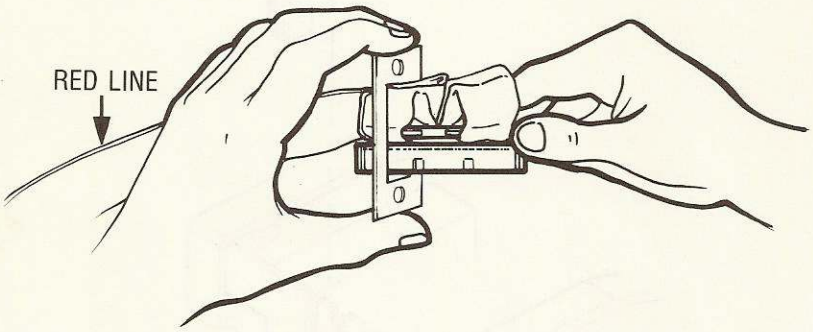

Fig. 18 Fold connector and insert through backplate; attach backplate to cable clamp, but do not tighten screws

Carefully slide the backplate up the cable to the back of the cable clamp. Line up the holes on the backplate with those on the cable clamp and insert the two long anchor screws that you removed earlier from the large L-bracket, as depicted in Figure 18. However, just start the screws into the holes with two turns of your screwdriver - don't tighten them yet.

Now, look at the back panel of the computer and note the vertical peripheral openings. Slide the cable clamp down into the opening closest to the computer's power supply, as depicted in Figure 19. Be sure to slide it down far enough for the computer cover to fit correctly.

Make sure that the red, top edge of the ribbon cable faces upward and that the back panel of the computer comes between the cable clamp and backplate. When the cable clamp is firmly in place, tighten the two long anchor screws to securely fasten the cable clamp to the back panel.

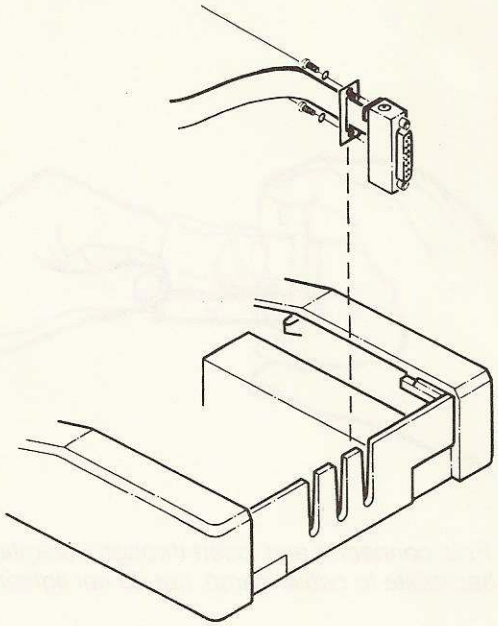

Fig. 19 Attach cable clamp to back panel and tighten screws

CONNECTING THE HOST ADAPTER CARD —] [PLUS

Now that you've attached the cable clamp to the back panel of the computer, you're ready to connect the host adapter card.

Retrieve the host adapter card from the accessories box and remove its plastic wrapper. **Be careful to hold the card by its edges — the static electricity and oil from your body may cause damage to the card if you touch its components or the gold fingers on the bottom edge of the card.**

Carefully attach the plastic pin connector on the end of the ribbon cable to the pins on the edge of the adapter card, depicted in Figure 20.

Note: The keyed slot in the center of the pin connector corresponds with the missing pin on the host adapter card. Apply steady pressure to the pin connector during this process — the pins on the adapter card ben and break easily.

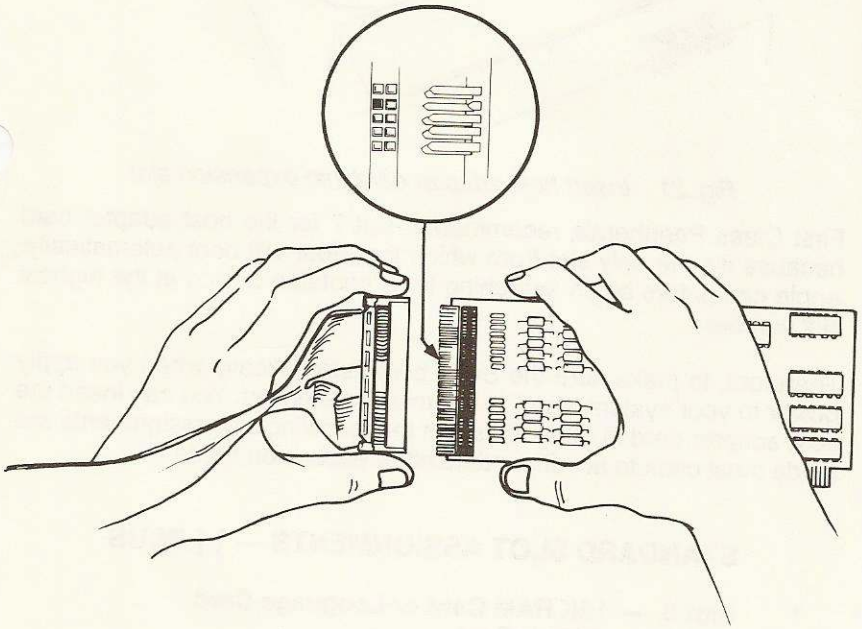

Fig. 20 Attach connector to host adapter card

If you bend a pin, carefully straighten it with needle nose pliers. If you break one, call your customer service representative on the hotline for assistance.

Next, using Figure 21 as a guide, carefully insert the host adapter card into an expansion slot on the Apple computer's mother board. The slots are clearly numbered on the mother board.

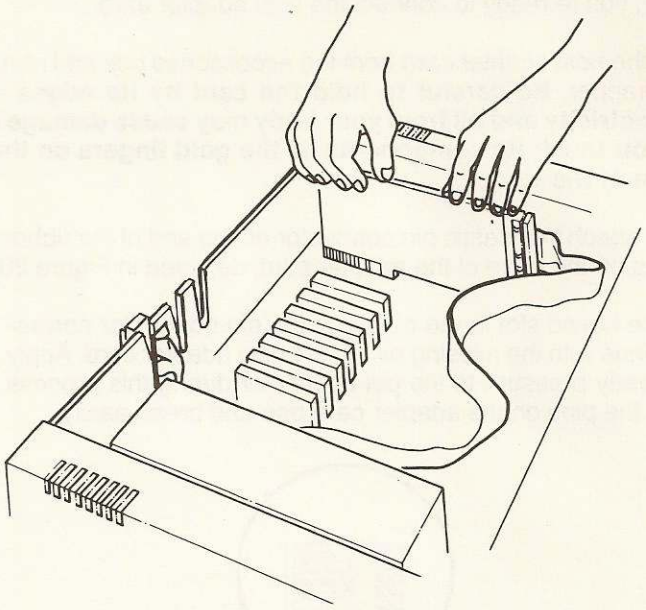

Fig. 21 Insert host adapter card into expansion slot

First Class Peripherals recommends slot 7 for the host adapter card because it's the only slot from which the Sider will boot automatically. Apple computers begin searching for a bootable device at the highest slot number.

Therefore, to make sure the Sider boot automatically when you apply power to your system, slot 7 is the most convenient. You can insert the host adapter card in other slots, but the following slot assignments are made most often to accommodate other expansion cards.

STANDARD SLOT ASSIGNMENTS —] [PLUS

* **Slot 0 — 16K RAM Card or Language Card**
* **Slot 1 — Printer Card**
* **Slot 2 — Serial Interface Card**
* **Slot 3 — 80-column Text Card**
* **Slot 4 — CP/M Card**
* **Slot 5 — Open**
* **Slot 6 — Controller Card (floppy)**
* **Slot 7 — Bootable Device Card (Sider)**

When the host adapter card is secure in its expansion slot, reinsert the controller card (floppy) in its appropriate slot. for the time being, leave out the other expansion cards that you removed earlier in the installation process.

Replace the computer's cover and reconnect the floppy disk drive and the Apple computer monitor. Now you're ready to connect the Sider to your computer.

CONNECTING THE SIDER

Place the Sider to the side of your computer and retrieve the subsystem's I/O cable, terminator plug and power cord from the accessories box.

Attach one end of the I/O cable to the cable clamp you just installed on the back of your computer. Attach the other end of the cable to the upper pin connector on the back of the Sider. Hand-tighten the thumbscrews on the connectors.

Next, attach the terminator plug to the lower pin connector on the back of the subsystem. Again, hand-tighten the thumbscrews. Then attach the power cord to the three-pronged plug on the back of the subsystem. Make sure that the ON/OFF switch above the plug is in the "OFF" position ("-" is ON and "O" is OFF).

Figure 22 depicts correct placement of the I/O cable and terminator plug.

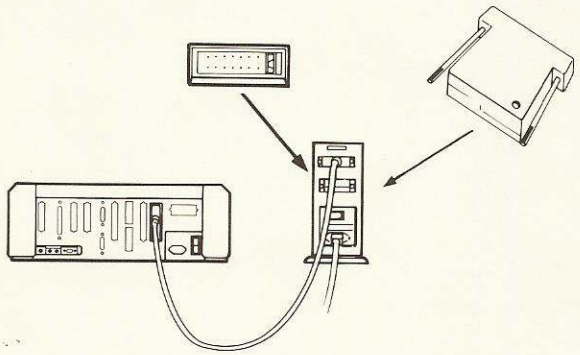

Fig. 22 Attach I/O cable and terminator plug; check jumper placement

Now, check the external jumper block on the top of the Sider's rear panel to confirm its proper configuration. If this Sider is attached directly to your computer, the two circuit leads on the far right side, position 1, should be connected with a jumper, also depicted in Figure 22.

In the final step of the hardware installation, attach the power cords from your computer, Sider and monitor to your power strip. Until the Sider is successfully up and running, with the operating systems and application programs installed, do not connect any other peripheral devices to your computer.

Now you've completed the hardware installation sequence and are ready to move on to the "Auto Installation" chapter of this guide.

If this is your first experience with a hard disk subsystem, read the "Concepts and Facilities" chapter before you continue. A clear understanding of fixed disks and their capabilities will help you use the Sider with confidence and ease.

If you are experienced with fixed disk systems, the "Concepts and Facilities" chapter may provide a brief refresher. But if you're comfortable in the fixed disk environment, proceed to the "Auto Installation" chapter for the next step of the installation sequence.

NOTES:

CONCEPTS AND FACILITIES

Computers and software are often surrounded by technical smoke screens that are confusing and frustrating to users. It's difficult to get maximum performance from a product you can't comprehend.

This section of the Sider User's Guide answers many commonly asked questions about the Sider, operating systems and mass storage.

THE SIDER

The Sider is a space saver and an attractive companion to your Apple computer. Its operational simplicity intentionally complements its appearance.

The outside of your Sider features only one moving part, the ON/OFF switch. It has three receptacles on the back panel for plugs and connectors, which you insert during the hardware installation sequence, and a red indicator light on the front panel. This light comes on each time the computer communicates with the Sider.

This simplistic hardware design, coupled with Siderware support software, allows you to concentrate on the three most important features of the Sider: mass storage of information, fast access to that information and long-term reliability.

The Sider has the capacity to store 10 million characters of information, roughly equivalent to the capacity of 65 floppy diskettes. The Sider] [has the capacity to store 20 million characters of information. This massive amount of disk storage space lets you spend much more time processing data and much less time changing and maintaining floppy diskettes.

Additionally, fixed disk technology offers much faster access to the information you store on the Sider. Your computer can perform most processing operations three to four times faster on the Sider than it can on floppy disk drives.

Finally, one of the most important features of the Sider is its reliability. The Sider contains highly advanced microcircuitry, which guarantees long life, and the fixed disk, which is substantially more durable than floppy diskette or tape storage media.

Despite the complexity of the hardware and software that make it possible, mass storage is an easily defined concept. The basic piece of information in the microcomputer environment is the "bit." Eight bits create a "byte," the equivalent of one data character, such as a letter, number or symbol.

When you operate a computer with a fixed disk storage medium, the computer transfers bytes to and from the magnetic surfaces of the fixed disk — so named because it's hermetically sealed in a drive casing and is generally not accessible or removable (although several "removable" fixed disks are now available).

The recording surface of the fixed disk contains "tracks," which are concentric circles that serve much the same purpose as grooves on a record. These tracks, in turn, are divided into "sectors," which resemble slices of a pie and make the massive amount of disk storage space more manageable.

Within these sectors on the fixed disk, your computer stores and retrieves data. The parameters are in place to make the most economic use of your computer's resources and to provide the fastest access time possible.

The following section describes the link between the Sider and your computer — the operating systems.

OPERATING SYSTEMS

Using an operating system is much like using an automobile: You can use it without knowing the nitty-gritty details of how it works. The messages and prompts of an operating system serve the same purpose as the gauges and controls of your car.

When you check your car's gas gauge and speedometer, or press its accelerator and brake pedals, you don't generally think about how they work; all you care about is having enough gas to get home, not getting a speeding ticket, or getting onto the freeway without hitting the car in front of you.

Similarly, when you enter a command or request into your computer, all that's important is the result. Generally the only time you care about the function of an operating system is when it sends you an error message or it simply doesn't work.

An operating system is the link between the hardware and software in your computer system. Comprising a group of computer programs, the operating system responds to your commands and requests by reaching out to the computer's various components and prompting action from them.

For example, if you're using a word processing program and you enter the command to retrieve a document from storage, the word processing software makes the request to the operating system. The operating system, in turn, translates the request into the computer's language and coordinates the various components of the computer system that will respond to the request.

During this process, you generally notice a pause in the information displayed on your computer monitor accompanied by various sounds from the computer, and then the document appears on screen. What you can't see are the thousands of lightning-fast operations that the computer carries out during that pause, all coordinated by the operating system.

Later in this User's Guide, you'll have the opportunity to choose between four types of operating systems that the Sider and your Apple computer support: Apple DOS 3.3, Apple ProDOS, Apple Pascal and CP/M.

While the first three types are supplied exclusively by Apple Computer, Inc., CP/M is a type of operating systems that several different manufacturers supply. The Sider supports CP/M operating systems from Microsoft, AE and PCPI.

The different operating systems support different application programs and processing capabilities. Apple computer users typically use two or more of these operating systems to meet their day-to-day processing requirements.

Accordingly, First Class Peripherals allots disk space on the Sider for all four operating systems, offering you the opportunity to use whichever ones you need.

THE SIDER ENVIRONMENT

Now that you have a better understanding of the Sider's hardware and software components, it's time for a little more detail on how those components function.

THE FORMATTED DISK

Continuing the automobile analogy for a moment, when you order a new car, you know that it will come with four tires, at least two seats and an engine; these are standard items defined by the auto maker. You then get the opportunity to choose wheel covers, the color of the seat coverings and the engine size, as well as any of the other options that the manufacturer offers.

Similarly, when you order a Sider it's outfitted with certain standard features, including the fixed disk, micro-circuitry and mechanical components.

Just as the Sider has physical attributes, it also has "logical" attributes that you can define with Siderware Support Utilities to make more efficient use of the Sider's physical volume. You define these logical attributes much the way that you choose options for your car.

For example, the Sider Features "partitions." In general, partitions serve two purposes: to divide the total volume of the fixed disk into smaller units, decreasing the amount of time your computer must spend looking for specific data; and to allow you to use more than one operating system on a single fixed disk.

Each partition, in turn, can be divided into even smaller areas called "volumes" or "units," depending upon the terminology employed by the individual operating system which uses that partition.

In the "Auto Installation" chapter of this guide, you'll have the opportunity to create a partition structure on your Sider. The partition structure includes the number of active partitions and their sizes. Figure 23 depicts this process, called "partitioning," in the form of a pie chart.

If the Sider's analytical circuitry discovers a defective area on a given track, it will automatically reassign the information on that track to an alternate area of the fixed disk, thus circumventing potential error conditions.

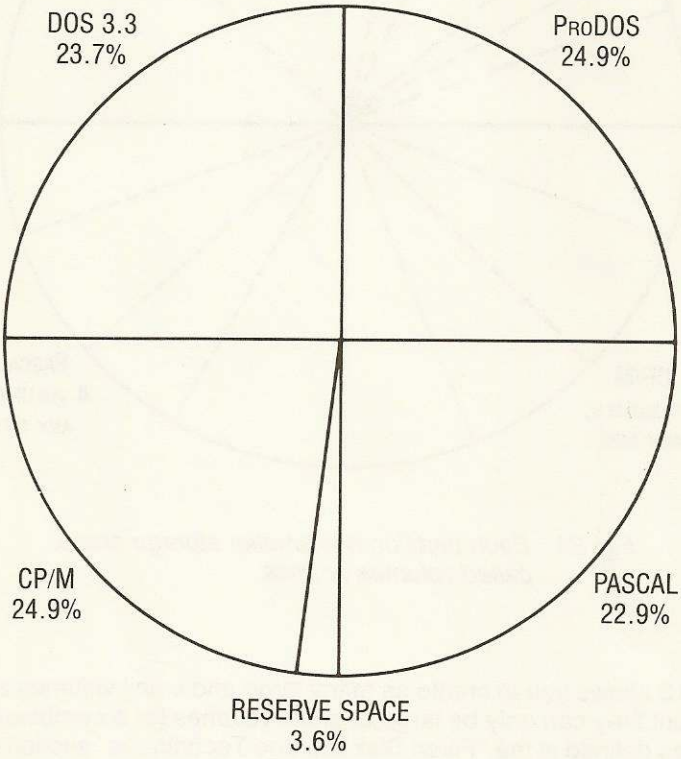

Fig. 23 The subsystem allows 4 partitions

You'll also have the opportunity later to define the amount of disk space that the volumes or units will occupy within each of the active partitions. Figure 24 depicts this process, called "detailing," again in the form of a pie chart.

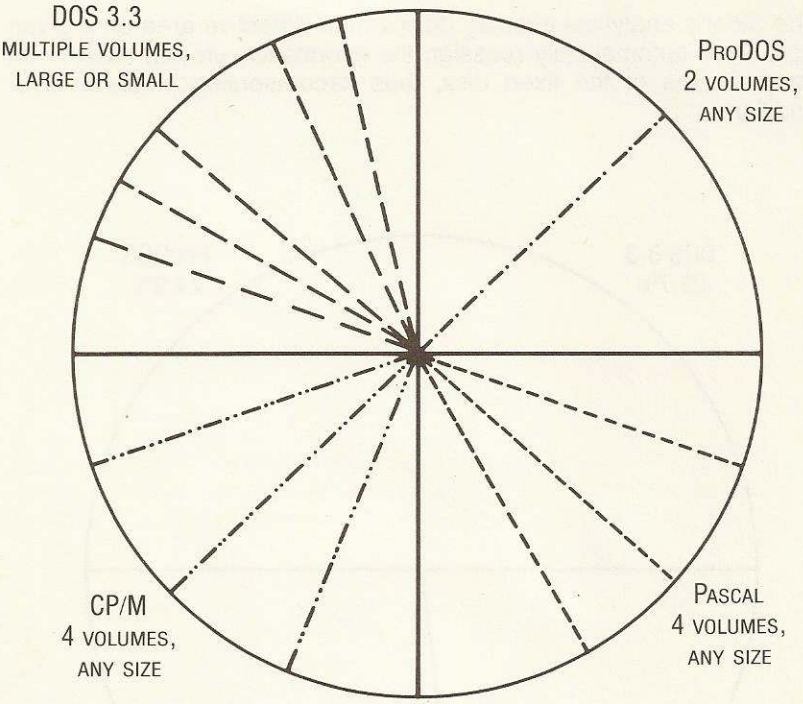

Fig. 24 Each partition has smaller storage areas, called volumes or units.

DOS 3.3 allows you to create as many large and small volumes as you want, but they can only be large or small volumes (or a combination of both), as defined in the "Fixed Disk Storage Techniques" section of this chapter.

ProDOS, on the other hand, allows two volumes within its partition, but they can be of any size. Similarly, CP/M and Pascal each allow four partitions of any size.

Once you've defined the partition structure, the system will perform a diagnostics sequence to verify the proper operation of the Sider's components.

After the partitioning activity, the system will perform a "physical format" of the Sider, during which the partition structure is recorded onto the fixed disk. Then the system will "initialize" the directories with identification codes that allow your computer to quickly read the contents of a specific partition, volume or unit.

Upon completion of the Auto Installation sequence, you'll be ready to install the operating systems of your choice — that is, you'll transfer the operating systems from floppy diskettes to the designated partitions on the Sider.

THE OPERATING SYSTEM

Depending upon your day-to-day processing requirements, you may need only one operating system — or you may need more than one. Depending upon your experience with Apple computers, you may already have a preference for the features and functions of a given operating system.

First Class Peripherals accommodates each of these situations with the partition structure of the Sider, which allow you to install any of four types of operating systems.

Installing Apple DOS on the Sider is simple: The Siderware Support Utilities for DOS 3.3 diskette provided with the Sider contains DOS 3.3 programs. During the final steps of the Auto Installation sequence, the Siderware Installation Utilities automatically transfer DOS 3.3 as well as the Siderware Support Utilities for DOS 3.3 to the first volume in the DOS partition on the Sider.

Apple ProDOS, CP/M and Apple Pascal operating systems have slightly more complex installation procedures, but can be installed in a relatively short period of time. Again, First Class Peripherals provides Support Utilities to guide you through the installation process.

When you've completed installation of the operating systems, you'll have the opportunity to install application programs that run under those operating systems. "Appendix II, Application Installation" provides instructions for installing several popular applications that run under each operating system.

Following installation of the application programs, you'll be ready to use the Sider. The following section provides an overview of the Sider's main functions.

SIDER OPERATIONS

The Sider's Main Menu screen, which appears each time you apply power to your computer system, offers you seven options:

* **Boot into Pascal**
* **Boot into CP/M**
* **Boot into DOS**
* **Boot into ProDOS**
* **Run Support Utilities**
* **Boot into Slot 6**
* **Quit and Park Heads**

The first four options allow you to invoke the designated operating systems, if you've chosen to install them on the Sider. When the operating system "boots," it executes a series of programs — beginning with a very small program that's stored in the computer's read only memory (ROM) — and progressively executes larger programs stored in random access memory (RAM) until the system is fully operational. Booting is a slang term for "pulling itself up by its bootstraps."

When you boot an operating system, its respective prompt will appear on your screen. For example, the Applesoft prompt "]" appears when you invoke DOS 3.3.

Option **[5]** takes you to Siderware Support Utilities Menu screen, which features 9 options.

* **Fixed Disk DOS Directory** — Provides a catalog of DOS volumes on the Sider.

* **Diagnostics** — Tests the Sider's ROM, host adapter card and other components for proper operation.

* **DOS File Utilities** — Emulates Apple's "FID" program, providing you with 10 programs that allow you to manage the files on the Sider.

* **Backup/Restore Image** — Allows you to back up Sider images to 140K floppies, 800K floppies or to the B-Sider tape subsystem for safekeeping, then allowing you to restore them later.

* **Change Pascal Unit Number** — Changes unit identifiers within the Pascal partition, particularly for use in a daisy-chain configuration.

* **Mount/Dismount CP/M Volumes** — Changes the volume assignments within the CP/M partition, particularly for use in a daisy-chain configuration.

* **Make New DOS Boot Track** — Changes slot assignments (see the "Adding New Cards or Changing Host Slots" section of "Appendix II, Application Installation").

* **Format a Floppy** — Formats a DOS diskette, and allows you to choose whether or not that diskette will be bootable.

* **Initialize Any Sider Volume** — Allows you to 'zero' or clean any volume on the Sider.

The 9 Support Utilities are described in greater detail in the "Support Utilities" chapter of this guide.

With option **[6]** on the Main Menu screen, you can boot diskettes in your floppy disk drive for programs that cannot be transferred to the Sider, or for files that you don't want to store on the Sider.

Note: When you boot into slot 6, you effectively disconnect the Sider; the floppy disk drive then becomes the primary operating drive. To reboot the Sider, you can invoke the Applesoft prompt and enter a **[PR#x]** command (//e and] [Plus), or you can simply perform a three-key boot (//e only). The "x" in the command represents the expansion slot into which you inserted the Sider's host adapter card.

Option **[7]** at the Sider's Main Menu screen is important to the long-term operation of the Sider. The Quit and Park Heads function prepares the Sider for powering down by exiting from the utility program and "parking" the Sider's read/write heads off of the fixed disk's recording surfaces. The read/write heads are part of the mechanical arm that hovers over the surface of the fixed disk, recording information to or retrieving information from the disk's surface.

Because repeated parking of the heads on the recording surfaces can cause premature deterioration of the fixed disk, you should invoke this option each time you turn off your computer system. Also, if you must move the Sider, particularly long distances, parking the heads will help prevent damage to the fixed disk.

These Sider functions are the foundation of your daily processing routines. Like any new programs, they require repeated use for you to become comfortable with them. Take time during the startup and installation process to familiarize yourself with the Sider's capabilities. You'll save time and effort if you do this now rather than later.

A WORD ABOUT FILES, DIRECTORIES AND SUBDIRECTORIES

One of the most difficult concepts for a new fixed disk user to grasp is the sheer amount of storage space the Sider represents, often posing a problem because it's easier to continue using floppy diskette storage techniques than it is to learn the new parameters within which the fixed disk and its user interact best.

This section addresses, in overview terms, some of the differences between floppy diskette and fixed disk use, particularly regarding their file structures. With this information, you can begin exploring the Sider's features and functions with a greater level of confidence.

FLOPPY STORAGE TECHNIQUES

Because of the limited amount of storage space on a floppy diskette, users typically store only a one or two large files, or several smaller files on a single diskette. Generally those files are of similar content; for example, one diskette may contain word processing files, while another contains accounts receivable files, and yet another contains account payable files.

The limited storage space on a diskette means that you'll almost always run out of file space before you fill the diskette's directory. The directory is the small area of the diskette that contains the names of the files on the diskette.

The point is crucial because the way you group similar files, (and thus diskettes in your diskette library) is dictated by the number of files a diskette can hold.

FIXED DISK STORAGE TECHNIQUES

Each operating system that you use on the Sider offers a format for making most efficient use of the Sider's storage space. For example, DOS 3.3 allows you to create multiple volumes of two different sizes: 1) small volumes that contain 140 kilobytes each, roughly the same size as a DOS data diskette; 2) and large volumes that contain 400 kilobytes. For example, you could partition the DOS environment into 8 floppy size volumes (small volumes) and 3 large volumes (each about 3 times the size of small volumes).

Small volumes serve the same purpose as your floppy diskettes: They offer you quick access to smaller files and application programs. Large volumes, on the other hand, offer a format for multiple files of the same type or larger application programs.

ProDOS offers a more elaborate file structure. Although ProDOS only supports two volumes within its partition, you can dictate the size of those volumes.

Additionally, ProDOS supports "tree-structured" directories, in which your "root directory" contains "subdirectories," resembling a family tree. Figure 25 depicts such a structure.

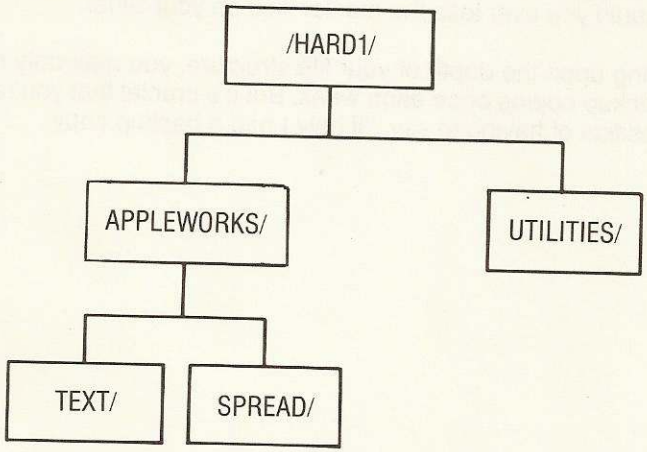

Fig. 25 ProDOS supports tree-structured directories for more efficient use of disk space

In this manner, you can subdivide your fixed disk into smaller, more manageable segments and access them with a simple series of ProDOS commands. These commands are presented in greater detail in the "Operating System Installation" chapter.

Note: You should not store application programs or data files in the ProDOS root directory. The root directory holds only a limited number of files — 51 files — so all application programs and data files should be stored in subdirectories.

CP/M and Pascal operating systems function on the Sider in much the same way that they function on floppy diskettes. Both operating systems offer four volumes within their partitions. You can dictate the sizes of the volumes to make the most efficient use of your files and application programs.

Regardless of how you structure your directories and files, remember that even a fixed disk is a volatile medium. Although it's more reliable and durable than other storage devices, it can still lose data — sometimes through hardware malfunctions, but more often through user errors.

To minimize the effects of data loss, the Sider features a backup and restore utility, which allows you to make backup copies of the Sider's files on floppy diskettes or the tape cassettes and to restore those files intact should you ever lose the master files on your Sider.

Depending upon the depth of your file structure, you may only need to make backup copies once each week. But it's crucial that you're never in the position of having to say, "If only I had a backup copy . . ."

SUMMARY

The Sider is a very useful tool in your day-to-day processing activities. It allows you to process more information in less time than your floppy disk drive ever could.

But it's important that the Sider not be a source of confusion or frustration. Keep in mind that the Sider has very few moving parts. It performs most functions through integrated circuitry that's amazingly efficient and reliable.

Likewise, the utility programs and operating systems that coordinate the functions of the hardware are designed with you in mind: They feature easy-to-read, easy-to-understand functions that allow you to be most productive when you're at the keyboard.

With these thoughts in mind, it's time to turn to the "Auto Installation" chapter of this guide to begin using your Sider.

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AUTO INSTALLATION

Now that you've completed the hardware installation procedure and understand more about the concept of a fixed disk, it's time to apply power to your system.

Turn on your Sider, the Apple computer and the monitor. Two things will occur: First, you'll hear the Sider's fixed disk reach operating speed, emitting a humming sound.

Second, assuming your controller card for the floppy disk drive is in expansion Slot 6, and the Sider's host adapter card is in Slot 7, the computer will try to execute the boot track that doesn't yet exist on the Sider.

The result is that the Apple will attempt to execute the currently non-existed boot tracks. So the Apple may . . .

1) **Hang,**
2) **Crash into the Monitor, or**
3) **Display the Applesoft prompt (]).**

In any case, simply do a **[control] [reset]**. Now you should obtain a Applesoft prompt (]).

At this point, insert a copy of your DOS 3.3 system diskette into floppy disk drive 1. Then type

PR#6 [return]

After the diskette boots, the AppleSoft prompt will appear.

SETTING UP FOR INSTALLATION

Before installing the operating systems and applications programs, locate the 3 diskettes from the accessory box. Make working copies of these and of your operating system master diskettes. Be sure to copy both sides of the Siderware diskettes — 6 sides.

The operating system installation process will alter some of these programs, so it's crucial that you use working copies rather than the master diskettes.

However, don't "write-protect" the working copies: At the completion of the Auto Installation sequence and, in several cases, during the installation of an operating system, the Sider will record important data onto the working copies.

With the DOS 3.3 system diskette in floppy disk drive 1, type

RUN COPYA [return]

Note: You must copy each side of the Siderware Support Utilities flippy diskettes onto a separate standard diskette if you don't have blank flippies. Also note that you must make copies of your CP/M and Pascal diskettes with the DOS 3.3 copy utility.

When you've made all of the working copies, label them and set them aside for a moment. Then store the master diskettes in a safe place.

PARTITIONING THE SIDER

To perform the next steps in this guide, allow yourself a couple of hours of uninterrupted time to read this section of the guide and to complete the installation sequence.

Execute the "Auto Installation" program by inserting the working copy of the Siderware Installation Utilities diskette into floppy disk drive 1. Type

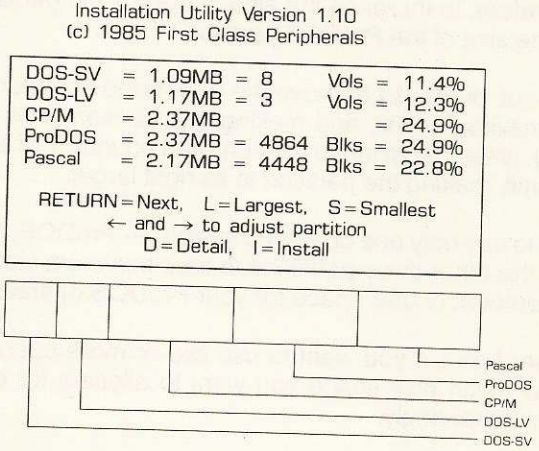
PR#6 [return]

This will boot the installation diskette.

The First Class Peripherals Copyright screen and the message "Loading Integer Basic into memory" will appear on your screen momentarily. After some introduction remarks, press **[return] twice** and the system will prompt you to specify whether you're using Subsystem 1 or 2. If your Sider is attached directly to your computer, press **[1] [return]**. If your Sider is attached to another Sider in a daisy-chain configuration, press **[2] [return]**.

The system will also prompt you to specify whether your Sider is "10MB" or "20MB." If your Sider has a 10 megabyte fixed disk, press **[1] [return]**. If your Sider has a 20 megabyte fixed disk, press **[2] [return]**.

The Partitioning screen will then appear, as depicted in Sample Screen 1.



Regardless of how many operating systems you plan to use, the Sider is preconfigured to accept four (see "Concepts and Facilities"). Using the Partitioning screen, you can choose how much of the Sider's disk space you want to allocate for each of the four partitions.

It's important to decide what your operating system needs are going to be over an extended period of time.

Note: If you change the partition structure of your Sider — which you can do at any time by repeating this phase of the installation sequence — you'll erase all data on the Sider.

Use the RETURN key to move the highlight to the operating system that you want to partition. Then use your arrow keys to increase or decrease the size of the partition. As you define the partitions, the numeric information at the top of the screen, as well as the graphic representation of the partitions at the bottom of the screen will reflect your changes.

It's also important to understand the "Right-Hand Rule" of partitioning when you define the Sider's partition structure: Only the right-hand boundary of each partition moves when you adjust the partition's size.

For example, if you expand the CP/M partition, notice how its right-hand boundary moves to the right, diminishing the size of the ProDOS partition.

This rule applies to every partition except Pascal. Because the right-hand boundary of the Pascal partition is at the end of the disk, it doesn't move. Therefore, to increase the size of the Pascal partition, you must decrease the size of the ProDOS partition.

As a short-cut, press **[L]** to move the right-hand boundary of the partition to its maximum limit, and making the partition to its right smaller. Conversely, press **[S]** to move the right-had boundary of a partition to its minimum limit, making the partition to its right larger.

If you want to use only one operating system — ProDOS, for example — you adjust the other three partitions to their minimum size, allowing the maximum amount of disk space for your ProDOS operating system.

On the other hand, if you want to use two or more operating systems, decide how much disk space you want to allocate for each one, and adjust them accordingly.

The following instructions represent a sample partitioning sequence. In this case, you'll adjust the partition boundaries to maximize disk space for the ProDOS operating system.

* Highlight DOS-SV and press **[S]** for minimum disk space.
* Highlight DOS-LV and press **[S]** for minimum disk space.
* Highlight CP/M and press **[S]** for minimum disk space.
* Highlight ProDOS and press **[L]** for maximum disk space.

Note: The sample partitioning sequence that the Pascal partition automatically assumes its minimum size when you assign maximum disk space to ProDOS, in keeping with the Right-Hand Rule.

Also note that after practicing with the partitioning screen, you can reset the original partition structure — approximately 25 percent of the available disk space for each partition — in the following manner: Press **[control] [R]** simultaneously, and the system will return you to the Sider Selection screen.

If you plan to use only the DOS partition — that is, you plan to use only the DOS 3.3 operating system — notice that the Partitioning screen allows you to detail the DOS volume structure.

Apple DOS 3.3 offers a small volume (560 sectors, 17.5 tracks and 140 kilobytes), i.e. floppy size, and a large volume (1,600 sectors, 50 tracks and 400 kilobytes). You can't alter the size of these volumes, but you can choose how many volumes of each size will be in the partition.

Note: If you install Sierra On-Line's General Manager application under DOS 3.3, the application won't function in a DOS large volume. You must allow enough DOS small volumes to meet your requirements with this application.

When you've manipulated the partition structure to your satisfaction, it's time to move on to the next step of the installation sequence. If you've elected to use only the DOS 3.3 operating system, proceed to the "Formatting and Initializing the Sider" section of this guide.

If you've elected to use CP/M, ProDOS or Pascal, proceed to "Detailing the Partitions."

DETAILING THE PARTITIONS

Detailing is the process by which you determine the size of the volumes in each of the operating system partitions. The DOS partition allows multiple volumes of two required sizes; you detailed these at the Partitioning screen.

ProDOS, on the other hand, allows only two volumes, but they can be of any size. Note that most ProDOS application programs, such as BPI Accounting, can use only the first volume in the ProDOS partition. They also function best if you set them up in a large ProDOS volume: at least 2 megabytes in size.

Similarly, CP/M and Pascal allow four volumes each, again of any size. You can conserve disk space by placing all of your CP/M files — that is, command files — in Sider volumes of 2 megabytes or less, which contain smaller allocation units: 2 kilobytes. Allocation unit is the minimum block size (page).

You can also conserve disk space by placing your CP/M data bases in the larger Sider volumes — that is, those over 2 megabytes in size. CP/M volumes between 2 and 4 Mbytes in size will have a 4K allocation unit. Volumes over 4 Mbytes will have an 8K allocation unit.

The Detailing screens allow you to adjust each partition's volume structure individually. For example, to execute the CP/M Detailing screen, highlight "CP/M" on the Partitioning screen and press **[D]**. The CP/M Detailing screen will appear on your monitor, as depicted in Sample Screen 2.

The similarity between this screen and the Partitioning screen. The volumes are preconfigured to equal sizes. If you want to change the volume structure, use the **[return]** key to highlight the volume of your choice, and use the arrow keys to adjust its size. Then move on to the next volume. Note that again the Right-Hand Rule is in effect here.

When you've detailed the CP/M volume structure, press **[esc]** to return to the Partitioning screen. Then follow the same procedures for detailing the volume structures of Pascal and ProDOS, if you're using these partitions.

In the ProDOS partition, however, there only two volumes. Therefore, the second volume is passive; to increase or decrease its size, you must increase or decrease the size of the first volume, in much the same manner as you adjusted the Pascal partition at the Partitioning screen.

FORMATTING AND INITIALIZING THE SIDER

When the partition and volume structures are satisfactory, return to the Partitioning screen and press **[I]**. The Format and Initialize screen will appear and ask you, "Do you wish to continue (Y/N)?"

This prompt is your final checkpoint: If you have any last minute changes, press **[N] [return]** — for NO — to exit to the Partitioning screen, where you can make additional changes to the partition structure of your Sider.

If you're ready to proceed, press **[Y] [return]** — for YES. After a moment, the Auto Installation program will lead you through a series of informational screens that list fixed disk structure data.

It's imperative that you record this information in the "Owner's Log" section of "Maintenance and Trouble-Shooting." If you ever have a problem with your Sider and call First Class Peripherals on the hotline, the customer service representative will need this information to help you.

When you've recorded the information from the final screen in this sequence, press **[return]**. After a moment, a message will appear instructing you to "Insert First Class Peripherals DOS 3.3 Support Utility diskette into drive 1; type **[GO]** and press **[return]** when ready."

If you don't follow this procedure, the system will display the following error message: "Could not find install PT#4." Until you insert the Support Utilities for DOS 3.3 diskette, the computer will continue displayed the error message.

After you type **[GO]** and press **[return]**, the "Diagnostics" screen will appear. The Auto Installation program will automatically perform a series of diagnostics tests to verify the integrity of your Sider.

If any error messages appear, review the "Maintenance and Trouble-Shooting" chapter of this guide. If the trouble-shooting instructions don't help you produce a successful diagnostics series, call your customer service representative on the hotline.

Upon successful completion of the diagnostics sequence, the formatting sequence will begin and will take two and a half minutes for each 10 megabytes.

During the formatting sequence, the Auto Installation program searches for and circumvents any defects in the fixed disk's surface — a procedure called "sparing" — and then records the partition and volume structure that you created earlier. The system will indicate completion of the formatting sequence.

Next, the system automatically moves on to the verification sequence. Requiring 17 minutes for each 10 megabytes, the Auto Installation program reviews its work and verifies the successful formatting of the Sider. During this sequence, three and three-quarter rows of dots will appear on your screen for each 10 megabytes, indicating the progress of the verification sequence.

However, if any other error message appears, record the message in the "Maintenance and Trouble-Shooting" chapter of this guide. If the trouble-shooting tips don't help you eliminate the error message, call your customer service representative on the hotline.

Upon successful completion of the verification process, the system will automatically copy the Support Utilities for DOS 3.3 onto the Sider. Then you will be prompted to insert a copy of the Backup/Restore Utility diskette into drive 1. Do so, then type **[GO]** and press **[return]**. Now the program will copy the utility to the Sider as well. Upon completion, the system will reboot into the Sider. Displaying the soon to be familiar Main Menu.

SUMMARY

At this point, you've completed the Auto Installation sequence and are ready to move on to the instructions for installing your operating systems.

So far, you've defined the partition structure of your Sider, which will allow you to support one or more operating systems and their application programs. You've also detailed the volumes within those partitions to maximize the available disk space.

If you plan to use only Apple DOS 3.3, the Auto Installation program has already installed the operating system for you; you're now ready to begin transferring your applications software and data files to the Sider. Instructions for use of the DOS partition are included in the first section of the "Operating System Installation" chapter.

After you've installed the operating systems on your Sider, apply power to your system in the normal manner — either apply power to all components of your system at once or individually. With the Sider's host adapter card in Slot 7, the system will boot directly to your Sider and display the Sider's Main Menu screen.

If you've inserted your controller card (floppy) into a higher slot number than the Sider's host adapter card, however, the system will boot to your floppy disk drive. To invoke the Sider's Main Menu screen, press **[control] [reset]** simultaneously. Then type

PR#x [return]

The "x" is the expansion slot in which you've inserted the Sider's host adapter card. The command will instruct the computer to boot the Sider from that slot, and the Sider's Main Menu screen will appear.

Instructions for installing popular DOS applications are included in the "Appendix II, Application Installation." However, take a moment to read the "Summary" section of the next chapter for instructions regarding your other expansion cards and peripheral devices.

If you plan to use CP/M, ProDOS or Pascal, the following chapters offer instructions for installing these operating systems.

NOTES:

NOTES:

OPERATING SYSTEM INSTALLATION

The operating systems that you use with the Sider links you to the computer hardware and the application software. The Sider supports most versions of the four most popular operating systems: Apple DOS, Apple ProDOS, CP/M and Apple Pascal.

DOS 3.3 is already installed on the Sider, a function of the Auto Installation sequence you just completed. The following sections provide operation instructions for DOS 3.3 and installation instructions for the other three operating systems.

When you've completed installation of the operating systems, take a moment to read the "Summary" section of this chapter. It provides instructions regarding your other expansion cards and peripheral devices.

DOS 3.3 OPERATION

Booting DOS 3.3

To boot into DOS on the Sider, choose the default option **[3]** at the Sider's Main Menu screen. While in the DOS partition, you can view the contents of any DOS volume by invoking the catalog function and designating the volume number. For example, type

CATALOG,V3 [return]

Note that there is no space between the comma and volume identifier. This command will invoke the directory for volume 3 and display the contents of that volume for you.

Executing Application Programs in DOS 3.3

Additionally, to execute an application stored in another Sider DOS volume (or in a daisy-chain configuration, on the second Sider), type

RUN (HELLO PROGRAM),Sx,Dx,Vx [return]

Again note that there are no spaces between the commas and the identifiers that follow them. In the sample command above, the "x" — Sx,Dx,Vx — represent expansion slot, drive and volume identifiers; each time you invoke HELLO program, you'll provide actual numbers for those identifiers.

Also note that you can invoke programs that are written in machine language, rather than in BASIC, with a "BRUN" command rather than the standard "RUN" command.

To execute an application program from your floppy disk drive, type

BRUN (PROGRAM NAME),S6,D1 [return]

"S6" refers to expansion slot 6, in which your controller card (floppy) should be inserted; and "D1" refers to the first floppy disk drive.

Now, when you're ready to exit from the DOS 3.3 partition to the Sider's Main Menu screen, simply type

RUN QUIT Sx,D1,V1 [return]

The "Sx,D1,V1" identifiers are particularly important if you're in any Sider DOS volume other than volume 1, which is where the QUIT program is stored. The identifiers tell the computer which expansion slot you've inserted the Sider's host adapter card into (you have to fill in the "x"), and to search drive 1, volume 1 to look for and execute the QUIT program.

PRODOS INSTALLATION

First Class Peripherals now supports all versions of Apple ProDOS operating system and virtually all of the popular application programs that run under ProDOS. Although First Class Peripherals provides instructions to help you install this operating system on your Sider, you'll need to supply the operating system software.

The following paragraphs describe the installation of ProDOS on a single Sider. For instructions on how to install ProDOS on a daisy-chained Sider, refer to "Daisy-Chaining Siders." Likewise, for instructions on installing popular ProDOS applications programs, refer to "Appendix II, Application Installation."

Apply power to your computer and Sider and the Sider's Main Menu screen will appear. Insert a working copy of the ProDOS User's Disk into floppy disk drive 1 and press **[6]** at the Sider's Main Menu screen. This command will load the operating system into your computer's memory and bring up the ProDOS User's Disk menu screen.

Note: For experienced ProDOS users, simply copy all files from the /USERS.DISK/ to /HARD1/ using the "Copy Files" option from the ProDOS Filer utility. When you've completed this operation, ProDOS is installed on your Sider; however, take a moment to read the end of this section for further notes on accessing the ProDOS partition.

Copying ProDOS Operating System to the Sider

When the User's Disk menu is displayed, press **[F]** to access the ProDOS Filer utility — the Filer screen will appear. At the Filer screen, press **[F]** again to access the File Commands screen. At the File Commands screen, press **[C]** to access the Copy Files screen. You are now ready to copy the ProDOS files to the Sider.

At the Copy Files screen, the system will prompt you to enter a "PATHNAME" for the source files — that is, the files that you're copying from the floppy diskette to the Sider.

Enter **[=]** as the path name and press **[return].** The equal sign serves as a "wild card," allowing you to copy all of the ProDOS files to the Sider simultaneously.

The system will then prompt you to enter a "TO PATHNAME," which in this case refers to the ProDOS partition on the Sider. At the TO PATHNAME prompt, type

/HARD1/ [return] [return]

The system will copy the files from the floppy diskette to your Sider. When the copying is complete, press **[esc] TWICE** to return to the Filer screen. ProDOS is now installed on your Sider.

If you're installing only the ProDOS operating system on your Sider, and you want to begin transferring application programs and data files to the Sider, you're now ready. "Appendix II, Application Installation" offers installation instructions for several popular ProDOS application programs.

If you plan to use other operating systems on your sider, press **[Q]** to bring up the "Quit" screen. Then press **[return]** to exit to the ProDOS User's Disk screen. At this screen, press **[B]** to access Applesoft BASIC, type

PR#x [return]

to exit to the Sider's Main Menu screen. "x" refers to the slot in which you inserted the Sider's host adapter card. For example "PR#7".

Copying ProDOS Utilities to the Sider

The first step is to boot the Sider into ProDOS by pressing **[4].** Once the ProDOS main menu is displayed, press **[F]** — to enter the FILER, press **[F]** — for FILE commands, and finally press **[C]** — to COPY files.

Now insert the Siderware Support Utilities for ProDOS diskette into drive 1. Now copy all the files from that diskette [/SIDER/=] to [/HARD1/=]. Enter the following . . .

Pathname: /SIDER/= [return]

To Pathname: /HARD1/= [return] [return]

Booting ProDOS Applications

To boot into ProDOS from now on, simply return to the Sider's Main Menu screen and choose option **[4]**. When you transfer files to and from the ProDOS partition, you'll refer to the two ProDOS volumes as /HARD1/ and /HARD2/.

To review the contents of either ProDOS volume on the Sider, press **[B]** from the ProDOS main menu — Applesoft. Then type

CAT /HARD1/ [return]

or

CAT /HARD2/ [return]

Running a ProDOS Program

To execute a program in the ProDOS partition, type

-(PREFIX)/(PROGRAM NAME) [return]

The hyphen (-) and slash mark (/) are imperative for proper syntax. There must be no space between the hyphen and the program's prefix, nor between the prefix, slash mark or program name.

Try this one. CAT-alog /HARD1 and see if the program "HYPNOSIS" is listed. If so, type

-/HARD1/HYPNOSIS [return]

The program should load immediately. To terminate "HYPNOSIS," press **[esc].**

CP/M INSTALLATION

First Class Peripherals now supports any one of the following CP/M operating systems on the Sider: Microsoft's SoftCard Family; Applied Engineering CP/AM 5.0 and PCPI, versions 1.5, 1.6 and 2.0. Numerous applications programs that run under these versions of CP/M also run on the Sider.

Although First Class Peripherals provides Support Utilities to help you install these operating systems on your Sider, you must supply the actual copy of the operating system software.

The following sections describe the installation of Microsoft SoftCard CP/M family, AE CP/AM and PCPI CP/M operating systems. When you've completed the installation, take a moment to read the "Summary" section of this chapter. It provides instructions regarding your other expansion cards and peripheral devices.

INSTALLING MICROSOFT SOFTCARD

To install Microsoft's SoftCard, SoftCard II or Premium Card, turn off the power to your computer and Sider. Install the Microsoft SoftCard in expansion slot 4 inside your computer, following the directions provided with your SoftCard.

Although First Class Peripherals recommends use of expansion slot 4 for the SoftCard, it is not mandatory. Other expansion slots can be used.

When you've completed installation of the SoftCard, apply power again to your system. The Sider's Main Menu screen will appear on your screen.

Next, insert a working copy of the SoftCard System Diskette into floppy disk drive 1. Press **[6]** at the Sider's Main Menu screen to load the operating system into your computer's memory. The Microsoft CP/M copyright information and the system's "A>" prompt will appear.

The Sider doesn't support SoftCard version 2.20. If the copyright information includes this version number, you must update your SoftCard system before you can use the Sider.

Note for SoftCard 2.23 Users

If the copyright information includes "44K Ver. 2.23", type

CPM60 [return]

New copyright information and a message will appear as follows:

SoftCard CP/M
60K CP/M Disk update program
(C) 1982 Microsoft

Insert 16 sector disk into drive A:
Press RETURN to begin

Leave the working copy of the System Diskette in the floppy disk drive 1 and press **[return]**. The following message will appear:

Diskette has been updated to 60K

Press RETURN to re-boot system

Press **[return]** and the updated copyright information and the "A>" prompt will appear.

Installing Microsoft System on the Sider

Next, replace the System Diskette in floppy disk drive 1 with your working copy of the Siderware Support Utilities for CP/M diskette. At the "A>" prompt, type

MPATCH [return]

This screen presents three options:

* **Install with hard disk as A:, B:, C:, D:.**
* **Install with hard disk as C:, D:, E:, F:.**
* **Quit with no modifications made.**

If you want to boot CP/M from the first volume of the Sider's CP/M each time you invoke the operating system choose option **[1]**.

Conversely, if you use an application that requires you to boot from a floppy diskette each time you invoke the operating system, choose option 2. Option 2 assigns the volume A identifier to floppy disk drive 1.

Note: If you choose option 2, you must insert a CP/M boot diskette into floppy disk drive 1 each time you invoke the operating system from the Sider; otherwise, the system will be unable to locate the boot track.

Choose option 1 or 2 and press **[return]**; the "A>" prompt will reappear.

Note: The advanced CP/M user, refer to technical section of this manual for details on 'autorun' capabilities.

Installing Siderware Support Utilities on the Sider

Next, with the Siderware Support Utilities for CP/M diskette in floppy disk drive 1, insert the Microsoft System Diskette into floppy drive 2. Note: if you have chosen to install the Sider as A:, B:, C:, & D:, your floppy drive 1 is now CP/M volume E: & floppy drive 2 is now CP/M volume F:. At the "A>" prompt, type

F:PIP A:=F:*.* [V] [return]

to copy the System Diskette files to the CP/M partition on the Sider. When the files have been copied, the "A>" prompt will reappear.

You now need to transfer a file named "MEXIT.COM" from the Support Utilities for CP/M diskette to the Sider. "MEXIT" is a program that easily allows you to exit from CP/M. Type

PIP A:=E:MEXIT.COM[V] [return]

to transfer the file to the Sider. When the file has been copied, the "A>" prompt will reappear.

When you've completed this sequence, Microsoft's CP/M operating system is installed on your Sider. To access CP/M, then, press **[2]** at the Sider's Main Menu screen whenever you apply power to your system.

The "A>" prompt will appear each time you invoke the operating system. To move from one volume to another within the CP/M partition, simply enter the **[volume]** identifier and a **[colon]**, and press **[return]**.

When you want to return to the Sider's Main Menu screen from the CP/M partition, type

MEXIT [return]

The MEXIT program automatically exits you from CP/M and returns you to the Sider's Main Menu screen.

If however, you want a different name for the exit program — QUIT, for example — you can rename MEXIT. At the "A>" prompt, type

REN QUIT.COM=MEXIT.COM[V] [return]

The system will change the file name and the "A>" prompt will reappear. Note that the file names in this command must include the ".COM" suffix.

INSTALLING AE Z-CARD

To install Applied Engineering Z-Card, turn off the power to your computer and Sider. Install the Z-Card in expansion slot 4 inside your computer, following the directions provided with your Z-Card.

Note that although First Class Peripherals recommends use of expansion slot 4 for the Z-Card, it is not mandatory. Other expansion slots can be used.

When you've completed installation of the Z-Card, apply power again to your system. The Sider's Main Menu screen will appear on your screen.

Next, insert a working copy of the CP/AM 5.0 System Diskette into floppy disk drive 1. Press **[6]** at the Sider's Main Menu screen to load the operating system into your computer's memory. The AE CP/AM copyright information and the system's "A>" prompt will appear.

Installing Applied Engineering CP/AM System

Next, replace the System Diskette in floppy disk drive 1 with your working copy of the Siderware Support Utilities for CP/AM diskette. At the "A>" prompt, type

APATCH [return]

This screen presents three options:

* **Install with hard disk as A:, B:, C:, D:.**
* **Install with hard disk as C:, D:, E:, F:.**
* **Quit with no modifications made.**

If you want to boot CP/AM from the first volume of the Sider's CP/M partition each time you invoke the operating system choose option **[1]**.

Conversely, if you use an application that requires you to boot from a floppy diskette each time you invoke the operating system, choose option 2. Option 2 assigns the volume A identifier to floppy disk drive 1.

Note: However, note that if you choose option 2, you must insert a CP/AM boot diskette into floppy disk drive 1 each time you invoke the operating system from the Sider; otherwise, the system will be unable to locate the boot track.

Choose option 1 or 2 and press **[return]**; the "A>" prompt will reappear.

Note: The advanced CP/AM user, refer to technical section of this manual for details on 'autorun' capabilities.

Installing Siderware Support Utilities on the Sider

Next, with the Siderware Support Utilities for CP/M diskette in floppy disk drive 1, insert the System Diskette into floppy drive 2. Note: if you have chosen to install the Sider as A:, B:, C:, & D:, your floppy drive 1 is now CP/M volume E: & floppy drive 2 is now CP/M volume F:. At the "A>" prompt, type

F:PIP A:=F:*.* [V] [return]

to copy the System Diskette files to the CP/M partition on the Sider. When the files have been copied, the "A>" prompt will reappear.

You now need to transfer a file named "AEXIT.COM" from the Support Utilities for CP/M diskette to the Sider. Type

PIP A:=E:AEXIT.COM[V] [return]

to transfer the file to the Sider. When the file has been copied, the "A>" prompt will reappear.

When you've completed this sequence, Applied Engineering CP/AM operating system is installed on your Sider. To access CP/AM, then, press **[2]** at the Sider's Main Menu screen whenever you apply power to your system.

The "A>" prompt will appear each time you invoke the operating system. To move from one volume to another within the CP/AM partition, simply type the volume identifier and a colon (:), and press **[return]**.

When you want to return to the Sider's Main Menu screen from the CP/M partition, type

AEXIT [return]

The AEXIT program automatically exits you from CP/AM and returns you to the Sider's Main Menu screen.

If however, you want a different name for the exit program — QUIT, for example — you can rename AEXIT. At the "A>" prompt, type

REN QUIT.COM=AEXIT.COM[V] [return]

The system will change the file name and the "A>" prompt will reappear. The file names in this command must include the ".COM" suffix.

INSTALLING PCPI APPLI-CARD

PCPI installation requires the use of two floppy disk drives for file-copying because CP/M produces "write-protect errors" when you open a drive door to replace a diskette. If your computer only has one floppy disk drive, you must get a second one to install PCPI on the Sider.

Also note that APPLI-CARD has two diskettes: the APPLI-CARD System Diskette and the PCPI Utilities Disk. You'll use working copies of both of these diskettes during the installation sequence. Label them clearly so they aren't mixed up with each other or with the Siderware Support Utilities for CP/M diskette.

Turn off the power to your computer and Sider. Install the PCPI APPLI-CARD in expansion slot 4 inside your computer, following the directions provided with your APPLI-CARD.

When you've completed installation of the APPLI-CARD, apply power again to your system. The Sider's Main Menu screen will appear.

Installing PCPI Appli-Card on the Sider

Next, insert a working copy of the APPLI-CARD System Diskette into floppy disk drive 1 and a working copy of the Siderware Support Utilities for CP/M diskette in floppy drive 2.

Press **[6]** at the Sider's Main Menu screen to load the operating system into your computer's memory. The APPLI-CARD CP/M copyright information and the system's "A>" prompt will appear.

You need to copy a file from the Support Utilities for CP/M diskette to the APPLI-CARD System Diskette. But the System Diskette must have enough disk space to accept the file. Be sure you make a working copy of the Appli-Card system diskette.

At the "A>" prompt, type

STAT [return]

The system will display the amount of "read/write" space remaining on the diskette. There must be at least 17 kilobytes (17K) remaining for the file from the Support Utilities for CP/M diskette to fit.

If the system diskette contains less than 17 kilobytes of free space, you must delete a file. At the "A>" prompt, type

ERA ADOSXFER.COM [return]

The system will delete the file, and the "A>" prompt will reappear. The file you just erased can be replaced after the installation procedure is completed.

Next, copy the HARDISK.DVR file from the Support Utilities for CP/M diskette to the System Diskette. Type

PIP A:=B:HARDISK.DVR[V] [return]

The system will copy the file to the Appli-Card system disk, and the "A>" prompt will reappear.

PCPI software contains "device drivers" that allow CP/M to communicate with peripheral devices. For PCPI's CP/M operating system to communicate with the Sider, you must modify these device drivers.

Replace the Siderware Support Utilities for CP/M diskette in floppy disk drive 2 with the PCPI Utilities Disk. Change drives by type **[B] [:]** and pressing **[return]**. When the "B>" prompt appears, type

INSTALL [return]

The "Installation Menu" screen will appear.

Press **[A]** to "Get a driver file." The system will prompt you to "Enter file name." At the prompt, type

A:DRIVERS [return]

The system will read the file from the System Diskette in drive 1 into its main memory and return you to the Installation Menu screen.

Press **[A]** again. At the "Enter file name" prompt, type

A:HARDISK.DVR [return]

The system will read the file from the System Diskette in drive 1 into its main memory and return you to the Installation Menu screen.

Next, press **[G]** to "Change a device number." The system will prompt you to "Enter a driver number." In the table above the prompt, locate the "DVR NUM" for "APL 16*35 FLPPY" (your floppy disk drive) and enter **[that number] [return]**.

The system will then indicate the "current device number" for the floppy driver — it should be a zero (0) — and prompt you to enter the new device number. Enter a **[4] [return]**. The system will record the change and return you to the Installation Menu screen.

If you wish to use a printer buffer on your computer, press **[F]** at the Installation Menu screen to "Move a driver." Locate the "DVR NUM" for the printer buffer and enter **[that number] [return]**.

The system will indicate the current location (usually 3) of the driver and prompt you to enter a destination driver number (usually 4). Enter the **[last driver number]** from the list in the table above the prompts and press **[return]**. The system will relocate the printer buffer driver to the end of the list and return you to the Installation Menu screen.

Next, select option **[B]** from the Installation Menu screen to "Save DRIVERS file and write CP/M." The system will prompt you to enter a drive identifier. Press **[A]** and the system will record the data.

If everything went well go to the next section entitled "Installing PCPI System on the Sider."

If, however, the system indicates that it "Could not find DLDRIVER.-COM," try the following alternate steps. First, at the "Enter filename" prompt, type

B:DLDRIVER.COM [return]

If the file is on the PCPI Utilities Disk, the system will read it and give you a message to "Press any key to continue," returning you to the Installation Menu screen.

If the system indicates that it "Could not find STARCPM.COM," type

B:PCPICPM [return]

The system will read the file, prompt you to press any key to continue, and return you to the Installation Menu screen.

Installing PCPI System on the Sider

At the Installation Menu screen, press **[X]** to exit to CP/M. Then reset your computer by turning it and the Sider off and then reapplying power a moment later. The Sider's Main Menu screen will appear.

Next, press **[6]** at the Sider's Main Menu screen to boot the System Diskette in floppy disk drive 1. Then copy the files from the System Diskette (in drive 1 or E:) to the first volume in the CP/M partition. At the "A>" prompt, type

E:PIP A:=E:*.*[V] [return]

The system will list the files as it copies them, and then the "A>" prompt will reappear.

Now, replace the PCPI Utilities Disk in floppy disk drive 2 with the Siderware Support Utilities for CP/M diskette. At the "A>" prompt, type

PIP A:=F:P*.*[V] [return]

The system will copy two files from the Support Utilities for CP/M diskette: PBOOT and PEXIT.

In the last step of the installation, you'll create a boot track for the CP/M operating system. At the "A>" prompt, type

PBOOT [return] [return]

If you strike any other key than **[return]** the second time, the operation will cancel and you'll have to invoke PBOOT again.

When the system completes the boot track creation process, the "A>" prompt will reappear. PEXIT is a program that allows you to exit CP/M directly to the Sider's Main Menu screen. To execute PEXIT, type

PEXIT [return]

If, however, you want a different name for the exit program — QUIT, for example — you can rename PEXIT. At the "A>" prompt, type

REN QUIT.COM=PEXIT.COM[V] [return]

The system will change the file name and the "A " prompt will reappear. Note that the file names in this command must include the ".COM" suffix.

PCPI CP/M operating system is now installed. To access CP/M from the Sider's Main Menu screen, simply press **[2]**. To exit from the CP/M operating system to the Sider's Main Menu screen, enter the **[PEXIT]** command or whatever command you've chosen as a replacement for PEXIT.

The four volumes in the Sider's CP/M partition will be identified as volumes A, B, C and D, and the floppy disk drives will be E and F. To change volumes, simply enter the new volume identifier and a colon (:) at the prompt, and that volume prompt will appear.

Note: The advanced CP/M user, refer to technical section of this manual for details on 'autorun' capabilities.

APPLE PASCAL INSTALLATION

First Class Peripherals now supports Apple Pascal operating system, versions 1.1 (64K), 1.2 (64K and 128K) and 1.3 (64k and 128K), as well as application programs for those operating systems. Although First Class Peripherals provides Support Utilities to help you install Pascal on your Sider, you must supply the actual copy of the operating system software.

Use working copies of the Siderware Support Utilities diskette and diskette Apple1:. Do not use the master diskettes.

When you've completed the installation sequence, take a moment to read the "Summary" section of this chapter. It provides instructions regarding your other expansion cards and peripheral devices.

Apply power to your computer and Sider. The Sider's Main Menu screen will appear. Insert a work copy of diskette Apple1: into floppy disk drive 1. If you have a dual disk drive system, insert a working copy of the Siderware Support Utilities for Apple Pascal diskette into floppy drive 2.

Press **[1]** at the Sider's Main Menu screen to boot Pascal. Then when prompted for 'WHICH VOLUME TO BOOT INTO' enter a **[4]** and press **[return]**. The Pascal Welcome screen and the Command prompt line will appear on your screen.

At the Command prompt line, press **[F]** to enter the Filer.

At the Filer prompt line, press **[T]** to Transfer files.

At the "Transfer?" prompt, type

APPLE1:=,HARD1:$ [return]

Upon completion, press **[T]** again to Transfer more files.

At the "Transfer?" prompt, type

FCP:=,HARD1:$ [return]

Upon completion, press **[Q]** to Quit the Filer.

At the Command prompt line, press **[X]** to eXecute a file.

At the "Execute what File?" prompt, type

HARD1:QUIT [return]

Pascal is now ready to be used. Simply press **[1]** from the Sider's Main Menu. When prompted for 'WHICH VOLUME TO BOOT INTO' enter a **[9] [return]** to boot into the first volume of the Sider. Then when ready to leave the Pascal environment, eXecute 'QUIT' from the Command line prompt.

SUMMARY

Now that you've installed your operating systems, you're probably anxious to start using the Sider. Before you start attaching your other peripheral devices to the computer, however, take time to complete two more operations.

First, install any application programs that you intent to use. "Appendix II, Application Installation" provides instructions for installing popular programs.

Second, when the application programs are installed, take time to check out the Sider's functionality. Run through several standard operating system and application program functions with which you are familiar, to become comfortable with the Sider.

Also, practice with the Sider's Support Utilities, as described in the next chapter of this guide. Again, this practice will help you become familiar with the Sider before you start using it for your everyday processing tasks.

When you're comfortable with the Sider's standard functions, start adding your other expansion cards and peripheral devices to your computer, one by one.

Reconnecting the expansion cards and peripheral devices one at a time is crucial, because it allows you to check out each card and device individually. If you reconnect all cards and devices at the same time and have any difficulties with your Sider, you won't know which of them is the cause.

If you do have difficulty connecting a card or device, go back to its individual installation instructions and make sure you've followed them precisely. Then refer to "Trouble-Shooting Tips."

If these steps fail and the problem still exists, call your customer service representative on the hotline.

SUPPORT UTILITIES

Once you've installed your operating systems and application programs, and have begun using the Sider regularly, you'll discover that the subsystem is an assistant in your daily processing activities.

Generally speaking, your primary contact with the Sider is through its Main Menu screen, which appears each time you apply power to the entire computer system. Through this screen, you'll boot the operating systems that you've installed on the Sider, access the floppy disk drives and park the read/write heads each time you turn off the system.

Through the Sider's Main Menu screen, you'll also access the Support Utilities, which open up a whole new area of support for your processing routines. Option **[5]** on the Sider's Main Menu screen accesses the Support Utilities Menu screen, depicted in sample screen 3, which provides you with eight options. The following sections discuss these eight options.

A. HARD DISK DOS DIRECTORY

Option 1 on the Support Utilities Menu screen provides a listing of all files in the DOS partition directory. These files include Siderware Support Utilities for DOS 3.3 system files that were transferred to the Sider during the Auto Installation sequence.

Likewise, any files that you transfer to, or create in the DOS partition will appear in this listing. To access the DOS directory, press **[1]** at the Support Utilities Menu screen. The system will automatically display the directory of the first DOS volume.

To page forward into the list, press **[return]**. When you reach the end of the list, you have three options: Press **[Q]** and the system will exit you into the DOS volume currently displayed, presenting the Applesoft prompt; press **[return]** and the system will display the directory of the next DOS volume; and press **[esc]** to exit to the Sider's Main Menu screen.

B. DIAGNOSTICS

The Diagnostics utility performs a systematic review of the host adapter card and the subsystem's integrated circuitry, searching for malfunctioning components or other sources of erroneous data.

To execute the Diagnostics utility, press **[2]** at the Support Utilities Menu screen. The system will present a brief message and the prompt you to identify your Sider as "Subsystem 1 or 2." If your Sider is attached directly to your computer, press **[1] [return]**; if your Sider is attached to another Sider in a daisy-chain configuration, press **[2] [return]**.

Within several seconds the system completes its diagnostic routine, displaying the following message:

Testing ROM
Testing Host Adapter
Testing Controller

Diagnostics successfully completed
Press ESC to go to Sider Main Menu

When you press **[esc]**, the system automatically exists to the Sider's Main Menu screen.

You should perform diagnostics if the Sider repeatedly displays error messages or continually provides faulty data. Refer to "Trouble-Shooting Tips" if you encounter either problem. If you continue to receive the error messages, record them in the "Owner's Log" and call your customer service representative on the hotline.

C. DOS FILE UTILITIES

Emulating Apple's DOS 3.3 FID program, the DOS file Utilities offer you 11 file management functions. These functions work only on DOS 3.3 files, and not on CP/M, ProDOS or Pascal files.

* **Copy Files**
* **Catalog**
* **Space on Disk**
* **Unlock Files**
* **Lock Files**
* **Delete Files**
* **Reset Slot & Drive**
* **Verify Files**
* **Swap Source and Destination**
* **Image Copy**
* **Quit**

The following sections offer details on each of the utilities.

Note: You can press **[esc]** at any screen discussed in the following sections and the system will back up one screen, allowing you to make changes at any point in a given procedure.

1) Copy Files

With the Copy Files utility you can copy files from floppy diskette to floppy diskette, from floppy diskette to the Sider or from volume to volume on the Sider.

a) Floppy to Floppy

To copy a file from floppy diskette to floppy diskette, first make sure you have a formatted diskette onto which you'll copy the file. See "Format a Floppy" later in this chapter for instructions on formatting diskettes from the Sider.

Next, insert the "source" diskette into floppy disk drive 1. The source diskette contains the file that you want to copy. If you have two floppy disk drives, insert the "destination" diskette into drive 2. You'll copy the file onto this diskette.

Press **[1] [return]** at the File Utilities screen. The Copy Files screen will appear, prompting you to identify the source slot. Enter the **[slot number]** of your floppy disk controller card and press **[return]**.

The system will prompt you to identify the source drive; press **[1] [return]**. The system will then prompt you to identify the source volume; enter a three-character identifier and press **[return]**, or just press **[return]** to designate the default volume name.

Note: That if you enter the wrong volume number, you'll get the following error message: ERROR READING VTOC., if you don't know the correct volume number for your diskettes, simply press **[return]**.

Next, the system will prompt you to identify the destination slot, drive and volume. Enter the appropriate **[slot]** and **[drive]** coordinates and a three-character **[volume]** identifier, pressing **[return]** after each entry.

Copying a Single File

The system will then prompt you to enter the name of the file you want to copy. Type the file name and press **[return]**, or press an equal sign **[] [return]** if you want to copy all files on the diskette.

Copying the Entire Disk

If you use the wildcard equal sign, the system will ask you if you want prompting. Press **[N]** — for NO — if you want to copy all of the files on the floppy; or press **[Y]** — for YES — if you want to select designated files to be copied.

The system will instruct you to insert the disks and press any key to begin the copying process. When it completes the process, it will display a "Done" message. Then press **[return]** to exit to the DOS File Utilities screen.

b) Floppy to Sider

To copy a file from a floppy diskette to the DOS partition on the Sider, follow the same steps as copying from floppy to floppy. At the destination slot/drive/volume prompts, however, press **[7]** for the slot number, — if the Sider is located in slot #7 — **[1]** for the drive number and the **[volume number]** into which you want to copy the file.

If the Sider is installed in another expansion slot, simply enter that number. Also, if you have two Siders daisy-chained, you'll need to enter the appropriate drive number.

The system will instruct you to insert disks and press any key to continue. Likewise, it will indicate when the copy process is completed.

Note: You should copy files to any volume other than the DOS volume 1. Because that volume contains Siderware DOS 3.3 Utilities, you should take precautions against damaging or erasing those files.

c) Volume to Volume on the Sider

To copy a file from Sider DOS volume to Sider DOS volume, follow the same steps as copying from floppy to floppy. Note again that you should copy files to any volume other than the DOS volume 1. Because that volume contains Siderware DOS 3.3 Utilities, you should take precautions against damaging or erasing those files.

d) Slot/Drive/Volume Indicator

Note at the bottom of the DOS File Utilities screen the following message:

S0,D0,V0 S0,D0,V0

The first S0,D0,V0 reflects the source file information that you specify when you perform any copy function, or use any of the other Support Utilities described later in this section. The second S0,D0,V0 reflects the destination file information.

For example, after you copy a file from floppy to floppy on a dual floppy disk drive, the message would appear as follows when you return to the DOS File Utilities screen:

S6,D1,V0 S6,D2,V0

Until you reset the slot and drive numbers (see "Reset Slot & Drive") later in this section), these numbers will stay the same. Thus, the next time you copy a file from floppy to floppy you'll only have to provide the file name — the computer has stored the source and destination information.

2) Catalog

At the Support Utilities Menu screen, the Hard Disk DOS Directory utility provides you with a list of files in the Sider's DOS partition, volume by volume.

Similarly, the Catalog utility at the DOS File Utilities screen provides you with a list of the files on a floppy diskette or the Sider's DOS partition.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing **[7]**.

Next press **[2] [return]** at the DOS File Utilities Screen. The system will provide instructions for accessing the DOS volume directory of your choice.

3) Space on Disk

This option, as its name indicates, lets you see how much space on a designated floppy diskette or Sider DOS volume is used and how much is available.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing **[7]**.

Choose option **[3] [return]** at the DOS File Utilities screen. The system will display the used and available space, then prompt you to press **[return]** to return to the DOS File Utilities screen.

4) Unlock Files

Unlocking a Single File

This utility removes the "soft" write-protect lock that you can install on a give file (see "Lock Files"). Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing. Choose option **[4 [return]** at the DOS File Utilities screen. The system will prompt you to enter a **[file name]**; enter the name of the file you want unlocked and press **[return]**.

Unlocking an Entire Volume

Again, at the "Enter filename" prompt, you have the option to use the wild card equal sign **[]**. If you choose to use the wild card, the system will ask you if you want prompting. Press **[N]** — for NO — if you want all of the files in the volume unlocked; or press **[Y]** — for YES — if you want to unlock only selected files.

The system will indicate when it has completed the task and prompt you to press **[return]** to exit to the DOS File Utilities screen.

This function is useful when you want to gain access to a locked file for changes or deletions. If you make changes to a file, however, be sure to lock it again when you've completed the changes.

5) Lock Files

The Lock Files utility is particularly useful for programs or data files that you store on the Sider. It allows you to install a "soft" write-protect lock on a designated file, preventing inadvertent changes to or deletion of the file.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing **[7]**.

Choose option **[5] [return]** at the DOS File Utilities screen. The system will provide instructions for locking the designated file and indicate when it has completed the task. Then it will prompt you to press **[return]** to exit to the DOS File Utilities screen. See "Unlock Files" to gain subsequent access to the locked file.

6) Delete Files

As its name implies, this utility allows you to delete selected files on a floppy diskette or in the Sider's DOS volumes.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing **[7]**.

Choose option **[6 [return]** at the DOS File Utilities screen. Note that the system will warn you if the file you want to delete is locked, and will refuse to proceed. If this occurs, unlock the file first (see "Unlock Files"), then delete it.

The system will indicate when it has completed the task and prompt you to press **[return]** to exit to the DOS File Utilities screen.

7) Reset Slot & Drive

The Reset Slot and Drive utility clears the slot/drive/volume indicator on the DOS File Utilities screen, allowing you to assign new data for a file utility function.

To execute this utility, simply press **[7] [return]** at the DOS File Utilities screen. The screen will flask briefly and the slot/drive/volume indicator will return to its original state, listing zeros (0) for each item.

8) Verify Files

This utility reviews the contents of a designated file or an entire volume, verifying the integrity of the data. Data verification is useful any time you copy, move, backup or restore files, simply as a safeguard against data errors.

Before executing the utility, check the source slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing by pressing **[7]**.

Choose option **[8] [return]** at the DOS File Utilities screen. The system will indicate when it has completed the task and, unless it finds a data error, will automatically return you to the File Utilities screen.

9) Swap Source and Destination

Another short-cut function, this utility exchanges source and destination coordinates on the slot/drive/volume indicator. It's useful if you make changes to files or are simply moving them.

To execute this utility, press **[9] [return]** at the DOS File Utilities screen. The source and destination coordinates will automatically change on the slot/drive/volume indicator. You can then proceed to your next operation.

10) Image Copy — Copying entire volumes

This utility allows you to copy entire volumes for a DOS 3.3 floppy diskette to another DOS 3.3 floppy diskette; from a DOS 3.3 floppy diskette to the Sider's DOS volumes, from the Sider's DOS volumes to a DOS 3.3 floppy diskette or from a Sider DOS volume to another Sider DOS volume.

However, note that you must copy "like" images — that is, you can only copy a small volume to another small volume, or a large volume to another large volume. Therefore, you cannot image copy a large volume from the Sider to a floppy diskette, which is considered a small volume. Additionally, do not image copy any volumes to the first DOS 3.3 volume on the Sider (unless you're copying the Siderware Support Utilities for DOS 3.3). Any other image will delete Support Utilities from the first DOS 3.3 volume, disrupting normal Sider functions.

The choose option **[10] [return]** at the DOS File Utilities screen. As with previous copy utilities, Image Copy doesn't require a volume co-ordinate for a floppy diskette — the default **[return]** is sufficient. The utility does, however, require a volume coordinate for the Sider.

The system will begin copying the files, displaying dots — one dot per track — on the screen to measure its progress. Then the system will indicate when it has completed the task and prompt you to press **[return]** to exit to the DOS File Utilities screen.

D. Backup/Restore Images

Oly's Rule:

If you can't afford to loose it ...
you better BACK IT UP!!!

The backup utility and its counterpart the restore utility, is a very important accessory of the Sider. Since the Sider is a fixed disk subsystem, your normal day to day activities need to include daily backups of your most important data.

Should your Sider require service, (whether in or out of warranty) it is nearly impossible for us to recover your data. As a safety precaution, we recommend your backup your entire disk at least once a week for general files, and daily for those ones you just can't be without.

First Class Peripherals developed a Backup/Restore Image application which will allow you to place an image of a volume, partition, or everything onto a variety of media. Currently the application supports both the Apple floppy products — Disk] [(140K) and the UniDisk 3.5 floppy (800K) — and the latest of products from First Class Peripherals, the B-Sider, a fast tape backup system.

The Backup/Restore Images program has eight management functions.

* **Set Backup/Restore Parameters**
* **Initialize Backup Media**
* **Backup data**
* **Restore data**
* **List Backup Directory**
* **Set Date and Time**
* **Miscellaneous**
* **Quit**

The following sections offer details on each of the functions. Note that you can press **[esc]** at any screen discussed in the following sections and the system will back up one screen, allowing you to make changes at any point in a given procedure.

Before you can backup your files to the B-Sider, you must install it properly in the "daisy-chain" fashion as outlined in the B-Sider User's Manual. Make sure that the terminator plug is fastened to the lower connector on the back of the B-Sider. The following steps will guide you through the actual backup process.

1) Set Backup/Restore Parameter

In this sub-menu, you can specific the type of parameters that the Back-up/Restore utility will use. They are ...

1) Hard Disk Slot ——————> 7
2) Hard Disk Drive # ——————> 1

3) Floppy Disk Slot ——————> 6
4) Floppy Disk Drive # ——————> 1

5) Tape Drive Slot —————— 7

6) Backup Media ——————> B-Sider

7) Backup Banks used ——————> 1
8) Restore Banks used ——————> 1

9) Exit

To change an entry, simply press the **[number]** at the beginning of the line. For example, to change from the first Sider to the second Sider — daisychained Siders —, enter the number **[2]** and you will notice that the "Hard Disk Drive #" now indicates "2." Press **[2]** again, and it will toggle back to "1."

Functions "7" and "8," refer to the number of extra 64K banks of memory used during the backup or restore processes. For example if you have 512K RAM card in your auxilary card slot, you will have as a default of 8 extra banks to be used in the restoration process. Both the functions can be changed from zero to the max. number of banks you have in your Apple.

Note: First Class Peripherals recommends that care is taken in using something other that the default for backup. The more banks of memory you use for backup, the more tape is required to store the same amount of data. Floppy type backup medium, the program will automatically choose, max. memory for you. So, for the most part the program will select the most efficient configuration.

2) Initialize Backup Media

(B-Sider Only)

Before data can be written to the B-Sider, the data cassette must be prepared. So, prior to backing-up your data, you will need to create a tape header, consisting of 1) tape header, 2) your 39 character comment, and 3) date/time (if specific) and so forth. This process takes about 1 minute.

Note: When a tape is initialized, all data on the tape is lost! So, be sure that the tape in the B-Sider is the one which you want to prepare.

3) Backup Data

To backup an image from the Sider, you must specify the type of image which you wish to backup, i.e. 1) total image, 2) a particular operating or 3) a single volume. This is done by using the arrow keys to select the various volumes contained on the Sider to be imaged. Notice the box in the upper right hand corner of the screen. It should reflect the destination (floppy or B-Sider) you chose when setting the parameters. You have the option of selecting all files on the Sider. DOS files, CP/M files etc. Once a 'connection' is make, press **[return]**. At this point, you select the volume(s) that are to be backed up.

Entering File Name

Next, we need to **[name]** this image. For example, if you are backing up CP/M volume 'B', which contains by WordStar files, you could name this backup image "MEMOS." Once the name is entered, press **[return]**.

Since this 'name' can only be 11 characters in length, you may specify an additional 39 characters to be more descriptive. For example as a comment, "THESE ARE MY MEMOS WRITTEN IN JANUARY." But, if the name of the image is descriptive enough, simply press **[return]** for none.

Backing up to a Floppy

Once you have supplied the comment, press **[return]**. Now the application will do a few calculations based on the type of backup medium you are using. If you are going to use floppies, then the application will determine the quantity of floppies required to complete the task, and request that you gather them. Next, the application will format and place a soft label on each.

So, upon completion you will be prompted to place the first diskette back into the drive, so the end-of-file flag can be written.

If the standard Apple floppies are to be used as a backup medium, then your data storage on the Sider must be carefully laid out. Because an image backup of a 10 Mbyte hard disk would take in excess of 70 floppies. Try to organize the data on the hard disk such that the most used data files are on a few volumes. Or place all of your spreadsheet files on CP/M "C" and your applications — which you currently have on floppies somewhere — on CP/M "B." Then you only have to backup just volume "C."

If only a couple of files have changed and they will fit on a single floppy, it is best that you simply use the native operating system file transfer utility to copy the file from the hard disk to a floppy.

As a side note, if you are backing-up a Sider, 10 Mbyte hard disk, and using 800K floppies, it would take 13 diskettes and 90 minutes of user interaction. But with a streaming tape, B-Sider, it would take only half a cassette and 9 minutes without any user interaction.

Backing up to a B-Sider

If the backup medium was the B-Sider, then simply press **[return]** and follow the on screen directions.

For the next few minutes, data will be read into memory then written to the backup medium. Once complete, the application will write a soft end-of-file to signify that the backup was successful. If for some reason the end-of-file was not written, then the data which was backed up is not complete — user aborted, power failure, etc. Upon completion, the mark is written directly on the tape, then the tape will rewind to the clear leader sections.

Image Backup — Once a month and stored offsite, i.e. safe deposit box, a friend's house. Data diskettes/cassettes need to be stored in a cool, dark and dry place.

Image Backup — Once a week and stored on-site.

Partition/Volume Backup — Every day. If your data is structured such that all of your "changed" data are on a volume, then backup just the volume. But if your day to day usage changes files within the entire partition, then backup the entire partition.

A final note, remember to label the data cassette and its case. This will aid you in locating them. And last but not least, remove the write enable tab. These cassettes can be reused, by placing a diskette write protect sticker over the write protect hole.

4) Restore Data

To restore an image back to the Sider, you must locate either the backup floppy set or a data cassette and place it into the floppy drive or B-Sider respectively. If a floppy type medium is to be used, place the first diskette in the set into the driive. If the B-Sider is to be used, the drive will search the tape until it finds an soft end-of-tape mark. This mark is located after the last image file place on that tape. This process could take about 3 minutes, depending of the amount of data already on the tape. Once the correct floppy or after the tape directory is constructed, a list of previously backed up images are listed for you to choose from. If the floppy type medium was selected, then the choose is made for you, due to the fact that only one image is allowed per backup set.

For example, suppose you chose an image which was a image of the entire DOS operating system. But, you only wish to restore just DOS volume 3. So, pick the restore option to restore a single DOS volume. After doing so, you will be given the opportunity to determine where on the Sider you would like this volume to go. If the volume was a large volume, then you will only be given the large volume on the Sider as the chooses. After picking the destination volume, press **[return]**. The application will locate that particular image, or sub-image in this case, and place it onto the Sider.

Note: You can not restore a volume which is larger that the destination volume on the Sider. Due to the fact volume sizes on the Sider, once formatted, are fixed in size. So, you might try restoring to a larger volume in that particular operating system, or run the "FILES" utility in each operating system to restore that volume by file-by-file. The "FILES" utilities will be discussed later on.

The program will adjust the destination volume within constraits of the directory structure of the particular operating system.

DOS 3.3 — the only restriction is that the volume sizes are equal. DOS small volume to small volume and large volume to large volume.

ProDOS — the only restriction is that the Sider volume must have the same 'bit map sector' size. This sector size changes in multiples of 2
Mbytes or 4096 Blocks (512 bytes ea.) So, if the Sider has a larger 'bit map sector' size, then you will have to execute the "FILES" utility to restore to this larger volume.

CP/M — the only restriction is that the allocation unit (page) size must be of the same type, i.e. both 2K, both 4K or both 8K. So, if the Sider has a larger allocation unit size, then you will have to execute the "FILES" utility to restore to this larger volume.

Pascal — no restrictions at all, due to the flexablity of the Pascal directory.

It's very important also to note that when an image is restored to the Sider, that it 'REPLACES' all the data on the Sider. For example, you wish to restore the Pascal Volume 1 from the B-Sider to the Sider. Upon completion of the restoration process, all the data which was on the Pascal Volume 1 has been over-written with the data from the data cassette.

5) List Backup Directory

This function will allow you to list to the screen the important data regarding your backed-up data. If you backup medium was floppies, simply place the floppy into the selected disk drive and press **[return]**. The screen will display the backup set name, date/time created (if specified by backup time), image name, your comments, etc. But, if the backup medium was the B-Sider, it will list all the images which are on the tape. A single data cassette can contain up to 12 images or 20 Mbytes of data which ever comes first.

Upon completion, press **[return]** to exit to the main backup/restore menu.

6) Set Date and Time

This function allows enabling/disenabling of a ThunderClock compatible clock card as well as to set the correct year. If this type of card is found to be in the Apple, the card is quiried and the program will stamp the images written to the backup medium. But, if a card is not found, then you can enter your own 'time string'. This string can consist of any set of characters you wish.

7) Miscellaneous

(B-Sider Only)

This function displays another sub-menu which allows you two (2) chooses 1) Rewind, and 2) Prewind. When you choose the rewind option the data cassette to the clear leader section — beginning. The data cassette should be prewind when 1) the tape is first used, and 2) when a data cassette was stored outside of its operatable range. See the B-Sider User's Manual for maintenance of data cassettes.

E. CHANGE PASCAL UNIT NUMBER

(Daisy-chaining Utility)

At the Support Utilities Menu screen, option 5 allows you to change the volume (unit) identifiers in the Pascal partition and to designate which volumes will be on-line in a daisy-chain configuration. Press **[5]** to execute the program and the Pascal Partition screen will appear.

This utility allows you to assign Pascal unit numbers to all the Pascal volumes on all Siders. In a daisy-chain configuration, you could have the eight (8) volumes accessable.

To select which volume you wish to change, simply press **[return]**. To select a volume assignment, simply use the **[arrow keys]**.

To record the new unit numbers, press **[control]** simultaneously. Then press **[esc]** to return to the Sider's Main Menu Screen.

First Class Peripherals recommends that you leave the floppy drives as Pascal units #4:, & #5:. If the floppies are as such, the formatter program will function properly on these devices.

Note: This utility will allow the Sider Pascal volumes to reside about Pascal unit 12. This could be useful, if you need to have more than 2 "other" volumes. For example, you wish to have 2 ea. 140K floppy disks, 1 ea. RAM disk and the 4 ea. Sider Pascal volumes. Simply execute this utility and change the Pascal unit assignments for the Sider volumes to 17, 18, 19 & 20. So now your floppies can be 4 & 5, and the RAM disk could be 9.

If you will be using the UniDisk 3.5 in Pascal, you will need Apple Pascal 1.3. This disk could reside as Pascal volume 9 or 10 as well.

F. MOUNT/DISMOUNT CP/M VOLUMES

(Daisy-chaining Utility)

If you install CP/M on both Siders, you have as many as eight volumes available for use: four volumes on each Sider. But because only four of those eight volumes can be on-line at any given time, you must designate which four will be "ON" and which will be "OFF" each time you access CP/M.

To accomplish this, return to the Sider's Main Menu screen. Choose option **[5]** and the Support Utilities Menu screen will appear. Next, choose option **[6]**, Mount/Dismount CP/M Volumes.

At the CP/M Partition screen, press **[return]** to move the cursor from one volume to another. At each volume, decide whether it will be "ON" or "OFF" and press **[0]** or **[1]** accordingly.

When you've made your changes, press **[control]** simultaneously to return to the Sider's Main Menu screen.

From that point forward you can change the volume identifiers simply by invoking the Mount/Dismount CP/M Volumes utility.

G. CREATE DOS BOOT TRACK

If you move the host adapter card to another expansion slot after the initial installation of your Sider, you must make adjustments to the Sider so it will boot accordingly (see "Adding New Cards or Changing Host Slots" in "Appendix II, Application Installation"). The Create New DOS Boot Track utility performs this task for the DOS partition on your Sider.

To execute the program, choose option **[7]** at the Support Utilities Menu screen. The Create DOS Boot Track Utility screen will appear. The system will ask you to enter a new expansion slot number. Enter the appropriate number and press **[return]**. The system will indicate when it completes the change, and instruct you to power down the system.

At this point, make the appropriate slot changes, and then apply power to your system again. If you've chosen a slot that's higher than the one in which your controller card is inserted, the Sider will boot when you apply power.

If you've chosen a slot that's lower than the one in which your controller card (floppy) is inserted, the floppy disk drive will boot and you'll have to manually boot the Sider. To manually boot the Sider, press **[control] [reset]** simultaneously to get the Applesoft prompt. At the Applesoft prompt, type

PR#x [return]

The slot number in which you've inserted the host adapter card immediately follows the pound sign (#).

I. FORMAT A FLOPPY

The final option on the Support Utilities Menu screen allows you to format a DOS data diskette from the Sider.

Choose option **[9] [return]** and the system will provide you with instructions for formatting a floppy diskette. When you finish formatting, you'll return to the Sider's Main Menu screen.

J. INITIALIZE ANY SIDER VOLUME

This utility will allow the user to initialize any volume on the Sider. It's a very useful, but due to its nature, can be very distructive. This program has a menu which allows you to choose which type of volume you are interested in initializing. The options are ...

1) **FORMAT A DOS VOLUME**
2) **FORMAT A CP/M VOLUME**
3) **FORMAT A PRODOS VOLUME**
4) **FORMAT A PASCAL VOLUME**
5) **QUIT**

Once you have specified the volume type, you will be prompted for the volume number. For example, you need to initialize the second CP/M volume (B:) on the Sider. Press a **[2] [return]**. Then press a **[2]** again and press **[return]**. Since this program is destructive — reformating a volume — you will be given one last opportunity to abort. If you wish to proceed, then type **[GO]** and press **[return]**. Upon completion you will be returned to the program entry menu.

ADDITIONAL DOS 3.3 UTILITIES

On the Support Utilities for DOS 3.3 diskette are three additional utilities. The following paragraphs describe LBLDSK, CHKDSK and READ PARAMETER.

LBLDSK

From the Sider's Main Menu, choose option **[3]** to boot into DOS 3.3. The LBLDSK program allows you to assign a "label" or volume name to each of the DOS volumes on the fixed disk.

To run the program, type

BRUN LBLDSK — 80 COL. ONLY,V1 [return]

The program will then prompt you for the volume number that you want to label.

For example, if you had earlier used DOS file Utilities to transfer the ZARDAX word processor to volume 5 on the Sider and press **[return]**. The system will then ask you for the volume's name. In this example, you would type

ZARDAX [return]

Follow the same steps to label each of your other DOS 3.3 volumes on the Sider. To exit the program, simply press **[return]** the next time the system prompts you to enter a volume number.

CHKDSK

CHKDSK offers you a quick, overview look at your DOS 3.3 disk storage allocation. It also allows you to quickly identify which of your DOS volumes are being used at any given time.

CHKDSK makes use of the labels you assigned to your DOS 3.3 volumes on the Sider. CHKDSK requires that your video monitor be in 80 column mode. If the monitor is currently set in 40 column mode, type

PR#3 [return]

Next type

BRUN CHKDSK — 80 COL. ONLY,V1 [return]

to execute the program. A report that lists all of the DOS 3.3 volumes will appear on your screen. The report lists each volume's number, label, disk space used and disk space available.

At the end of the report, totals for the entire DOS partition will appear, and the system will list what percentages of the partition's disk space is currently in use.

READ PARAMETERS

READ PARAMETERS offers the user the ability to display on the screen the details on the partition structure of the Sider. This program will aid technical support staff at First Class to answer questions regarding your Sider. To execute this program, type

RUN READ PARAMETERS [return]

SUMMARY

Support Utilities are an integral part of your daily operations with the Sider. Becoming familiar with them quickly will save you time and effort in the long term. Likewise, using them regularly to maintain your Sider file structure and your backup library will significantly increase your productivity.

Additionally, you can use this chapter of the User's Guide to refresh your memory about those Support Utilities that you use less frequently, so that when you do need them, you can make them function efficiently and effectively.

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MAINTENANCE AND TROUBLE-SHOOTING

As described in the "Concepts and Facilities" chapter of this guide, the Sider has relatively few moving parts, only one of which you have access to — the ON/OFF switch. Accordingly, mechanical maintenance of the Sider is very simple: dust it off periodically; park the read/write heads each time you power down; and make sure you allow a minimum of two inches of air space on each side and above it.

Maintenance of your operating systems and library files require more time, as described in "Concepts and Facilities" and "Support Utilities." Always store master diskettes on your software in a safe place and use only working copies when you transfer the program to your Sider.

Likewise, maintain a consistent and thorough library of your important files. The time required to back up a file from the Sider to your library data diskettes is minor compared to the time it takes you to recreate the same file from scratch.

Because the Sider requires so little ongoing maintenance, this chapter focuses primarily on trouble-shooting; that is, what you should do if the Sider doesn't function properly. The Sider contains the most reliable mass storage medium available today. Yet human error and natural mechanical deterioration can result in an inoperable subsystem.

To offset such complications, the "Trouble-Shooting Tips" section provides instructions that will help you identify and solve commonly experienced problems. Should the troubleshooting tips fail to help you, subsequent sections in this Chapter contain space for information you will need when you call the toll-free hotline — information that will allow your customer service representative to offer a quick, efficient solution to your problem.

TROUBLE-SHOOTING TIPS

Most complications that users experience with the Sider stem from easily identifiable sources: loose connections, bad commands, faulty diskettes and common operating system and application software "bugs," to name a few.

If you receive an inexplicable error message during installation or normal operation (especially during installation), or worse, the Sider simply doesn't work, follow these steps in the order that they are presented.

Step 1

If you've received an error message, jot down on a sheet of paper your actions leading up to the error message and the contents of the message, before you do anything else to the system.

Make sure your Owner's Log is completed, particularly if you've already partitioned your Sider. Make sure the partition structures are recorded in the appropriate areas of the Owner's Log.

Step 2

Check each of the following items to confirm the proper installation of your Sider.

Host Adapter Card

* Does the keyed slot in the center of the ribbon cable's pin connector correspond with the missing pin on the host adapter card?

* Is the host adapter card inserted into an expansion slot on the Apple computer's mother board? (First Class Peripherals recommends slot 7).

* Was the ribbon cable damaged during installation; that is, is the cable cut or scarred, possibly causing an electrical short?

* Is the cable clamp securely fastened to the back of the computer?

I/O Cable

* Is one end of the I/O cable attached to the cable clamp pin connector on the back of your computer, and the other end attached to the upper pin connector on the back of the Sider?

* Are all of the thumbscrews securely tightened?

* Is the I/O cable damaged in any way; that is, is it cut or scarred, possibly causing an electrical short?

Terminator Plug

* Is the terminator plug securely attached to the lower pin connector on the back of the subsystem?

* If you're daisy-chaining subsystems, is the terminator plug attached to the lower pin connector on the last subsystem in the daisy-chain configuration?

Jumper

* Are the two circuit leads on the far right side of the jumper block connected with a jumper? (See "Connecting the Sider" in the "Hardware Installation" chapter.)

* On the second Sider in a daisy-chain configuration, are the circuit leads second from the right on the jumper block connected with a jumper? (See "Daisy-Chaining Siders.")

Step 3

If hardware installation isn't the problem, check each of the following operational items.

Power

Is the power cord plugged into a 110-Volt electrical outlet?

* Is the Apple computer power on?

* Is the Sider power on; that is, do you hear the fixed disk spinning inside the subsystem?

* If you've completed the Auto Installation sequence, does the Sider's Main Menu screen appear when you apply power to the system?

* Are the monitor's video cable and power cord securely attached?

Software

Were the diskettes placed in the appropriate drives and were the drive doors closed?

* Did you specify the correct drive to access the software?

* Did you try to transfer a copy-protected program to the Sider? The Sider cannot support such programs.

* If you're having a problem installing an operating system or application program, did you carefully read the installation sections of this manual and the software manual?

Step 4

If you checked each item in the previous sections and you still receive an error message, bring up the Sider's Main Menu screen — either by powering down the Sider and then reapplying power, or by pressing **[control] [reset]** simultaneously — and choose option **[5]**. The Support Utilities Menu screen will appear.

Choose option **[2]** at this screen to execute the Diagnostics utility. Record the results on the diagnostics sequence in the "Diagnostics Results" section, which follow this section, then call your customer service representative.

If you checked each item in the previous sections and your Sider simply doesn't function — that is, you can't even invoke the Sider's Main Menu screen — boot your DOS 3.3 floppy diskette in floppy disk drive 1.

Then replace DOS 3.3 diskette in drive 1 with a working copy of the Siderware Support Utilities for DOS 3.3 diskette. Type

RUN DIAGNOSTICS,S6,D1 [return]

The system will perform the diagnostics routine. Record any error messages in the following section, and call your customer service representative.

DIAGNOSTICS RESULTS

Testing Host Adapter Card
Error Message or Number:_____

Testing ROM
Error Message or Number:_____

Testing Controller
Error Message or Number:_____

Formatting
Error Message or Number:_____

OWNER'S LOG

If you experience a problem with your Sider, you'll be anxious to get fast, effective advice from your customer service representative. Please record the following information and have it ready before you call the hotline: your customer service representative will ask for this information, so if you have it ready you'll receive prompt assistance.

Sider model no. : _____
(stamped on the bottom of the subsystem)

Sider serial no. : _____
(stamped on the bottom of the subsystem)

Date manufactured: _____
(stamped on the bottom of the subsystem)

Type of personal computer and revision number:

_____

_____

Type of operating systems installed:
(list version numbers and release dates)

DOS _____

CP/M _____

Pascal _____

ProDOS _____

Peripheral Devices:

(1) _____

(2) _____

(3) _____

Sider Characteristics

Siderware release date : 1 / 20 / 86

Number of cylinders : 612

Number of heads : 4

Reduced write cylinder : 612

Pre-comp. cylinders : 612

Control byte : 7

Alternate tracks : 24

Interleave : 16

Partition Structure

DOS 3.3

Number of Small Volumes: 102

Number of Large Volumes: 6

Total DOS Volumes: 108

CP/M

CP/M Volume A start: 2120

size: 2

CP/M Volume B start: 2123

size: 2

CP/M Volume C start: 2126

size: 2

CP/M Volume D start: 2129

size: 2

ProDOS

Drive 1 start: 2133

size: 2208

Drive 2 start: 2271

size: 2208

Pascal

Pascal Unit #9 start: 2411

size: 48

Pascal Unit #10 start: 2414

size: 48

Pascal Unit #11 start: 2417

size: 48

Pascal Unit #12 start: 2420

size: 48

Hardware Configuration

Slot 0 — Card/Function:_____

Manufacturer:_____

Slot 1 — Card/Function:_____

Manufacturer:_____

Slot 2 — Card/Function:_____

Manufacturer:_____

Slot 3 — Card/Function:_____

Manufacturer:_____

Slot 4 — Card/Function:_____

Manufacturer:_____

Slot 5 — Card/Function:_____

Manufacturer:_____

Slot 6 — Card/Function:_____

Manufacturer:_____

Slot 7 — Card/Function:_____

Manufacturer:_____

NOTES:

DAISY-CHAINING SIDERS

Daisy-chaining, as its name implies, is attaching two Siders together to expand your system's storrage capabilities and processing power. The Sider's hardware and utilities make installation and operation of a daisy-chain configuration both simple and efficient.

This chapter supplements the installation and operation sections of this guide, providing you with the information you need to successfully daisy-chain your Siders.

DAISY-CHAIN INSTALLATION

To create a daisy-chain configuration, attach your first Sider to your computer, as described in the "Hardware Installation" chapter of this guide. The only modification to that procedure involves the terminator plug: Attach the terminator plug to the second Sider instead of the first one.

Attach the second Sider's I/O cable to the lower pin connector on the rear panel of the first Sider. Then attach the other end of the I/O cable to the upper pin connector on the rear panel of the second Sider.

Attach the terminator plug to the lower pin connector on the second Sider. Firmly tighten the thumbscrews on each of the three connectors.

Now look at the back of the two Siders. Each subsystem has a jumper block at the top of its rear panel. Make sure that the two circuit leads on the far right side of the first Sider — the one attached directly to your computer — are connected with a jumper.

The circuit leads second from the right on the second Sider should also be connected with a jumper. Figure 26 depicts proper installation of daisy-chained Siders.

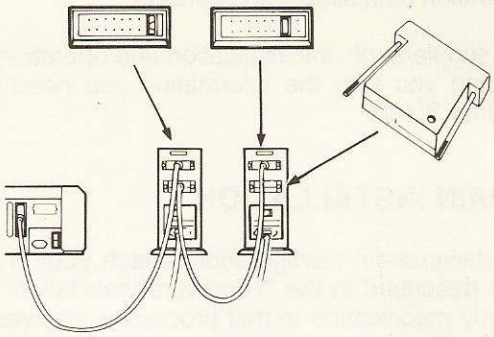

Fig. 26 Attach cables and terminator plug for daisy-chain configuration; change jumper placement on second subsystem

Attach the power cords to both Siders and plug them into your surge suppressor power strip. Your daisy-chained Siders are now installed.

AUTO INSTALLATION FOR DAISY-CHAINING

When you've completed the Auto Installation procedure on your first Sider, it's time to perform the same routine on your second Sider.

Apply power to your computer and the two Siders; the Sider's Main Menu screen will appear. Insert a work copy of the Siderware Installation Utilities diskette into floppy disk drive 1 and press **[6]** to boot that diskette.

Proceed as you did when you ran the utilities on the first Sider, except this time when the system asks you "Is this Subsystem 1 or 2?," press **[2]**.

Next, set the partition structure on your second Sider, keeping in mind the structure of your first Sider. In a daisy-chain configuration, you have ample disk space to "spread out" your operating systems and files between the two subsystems.

Consider which operating system and application programs you'll use most often, and allot space accordingly. Then proceed through the format and initialization sequences to record the partition structure on your second Sider.

DAISY-CHAIN OPERATING SYSTEMS

When you've completed the Auto Installation sequence, it's time to install your operating systems. Follow the instructions in the "Operating System Installation" chapter, with the modifications discussed in the following paragraphs.

ProDOS

To inform ProDOS of the second Sider, boot into the ProDOS partition on the first Sider from the Sider's Main Menu screen. Then exit the utility.

At the Applesoft prompt, type

-/HARD1/P.SLOT [return]

The system will prompt you to enter an expansion slot number. At the prompt, enter an empty slot number — that is, a slot that isn't occupied by an expansion card.

ProDOS is now able to access the second Sider in your daisy-chain configuration. To access the four available ProDOS volumes on the two Siders, use "/HARD1/" through "HARD4" designations. The /HARD1/ and /HARD2/ volumes are on the Sider that's attached directly to your computer.

The /HARD3/ and /HARD4/ volumes are on the second Sider. You can access them by executing phantom slot (whichever empty slot you've designated), drives 1 and 2 respectively.

Note: Do not phantom slot into Slot 3!

CP/M

If you install CP/M on both Siders in a daisy-chain configuration, you have as many as eight volumes available for use: four volumes on each Sider. But because only four of those eight volumes can be on line at any given time, you must designate which four will be "ON" and which will be "OFF" each time you access the operating system.

Refer to the "Mount/Dismount CP/M Volumes" section of "Support Utilities" for instructions regarding the status of the eight available CP/M volumes in a daisy-chain configuration.

Pascal

Pascal also features eight available volumes in a daisy-chain configuration. For instructions regarding use of the Pascal operating system in that environment, refer to the "Change Pascal Unit Numbers" section of "Support Utilities."

SUMMARY

Daisy-chaining is an effective way to increase your system's storage capacity and processing power. But, as with a single Sider configuration, you must take time up front to determine how it will work best for you.

If you have any questions about daisy-chaining, call your customer service representative.

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APPENDIX I

TECHNICAL INFORMATION

The following sections describe First Class Peripherals' compliance with the Federal Communication Commission (FCC); its limited warranty; its warranty repair procedures; and technical specifications for the Sider.

FCC Compliance

First Class Peripherals provides a shielded interface cable and host adapter card that comply with FCC Class B computing regulations. USE OF A NON-SHIELDED CABLE may result in RF radiation exceeding FCC Class B limits.

It is possible, when not following these explicit instructions, to install the Sider so that it isn't in compliance with FCC Class B computing regulations.

First Class Peripherals takes no responsibility for such configurations. Liability for such actions rest solely with the users.

Information to Users

This equipment generates and uses radio frequency energy and if not installed and used properly — that is, in strict accordance with the manufacturer's instructions — may cause interference to radio and television receptions.

It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

Instructions

If this equipment does cause interference to radio or television reception — which can be determined by turning the equipment on and off and noting the effect of the power surge on the radio or television — you are encouraged to try to correct the interference by one or more of the following measures:

* Reorient the receiving antenna.
* Move the computer away from the receiver.
* Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, you should consult with First Class Peripherals or an experienced radio/television technician for additional suggestions. You may find the following booklet prepared by the FCC helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20403, Stock No. 004-000-00345.4.

LIMITED WARRANTY

First Class Peripherals warrants all of its products, including spare parts sold by First Class Peripherals, to be free from defects in material and workmanship for a period of one year from the date of delivery.

This warranty is made to original purchasers only, and only original purchasers may make any claim under the warranty. No other party shall have any rights under this warranty. The sole remedy for any breach of this warranty shall be the repair or replacement of the defective product, as described herein.

First Class Peripherals disclaims all other representations and warranties, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose. First Class Peripherals shall not be liable for any special, indirect, incidental or consequential damages, lost profits, costs or expenses, except as set forth in this policy, which may be modified or amended only by written contract.

In-Warranty Repair

First Class Peripherals will repair at its factory or repair center, any product that within the warranty period is returned to First Class Peripherals and found to be defective in proper usage.

Warranty action is initiated by customer notification to First Class Peripherals of a product failure within the warranty period. The customer must notify a customer service representative for in-warranty repairs. First Class Peripherals will honor the warranty if notification of product failure is provided within the one-year warranty period.

The original customer must obtain a Returned Goods Authorization (RGA) from First Class Peripherals and return the defective product to the designated factory or repair center. One-way transportation charges are at the customer's expense. First Class Peripherals will return repaired or replaced product by UPS Ground service at the expense of First Class Peripherals.

First Class Peripherals reserves the right to reject any warranty claim on any products that have been the subject of abuse, misuse, unauthorized repair, alteration, accident, improper return handling or causes external to the product but not limited to: improper power application, improper environmental exposure or other improper use of the product.

First Class Peripherals, at its option, may replace the returned product with a new or refurbished unit of the same type and model as defined by the applicable specifications or published data sheet.

First Class Peripherals includes in its Limited Warranty policy, provisions for updating in accordance with any field change order which First Class Peripherals determines is mandatory for reasons of product safety. All other field changes, revisions or updates not deemed mandatory by First Class Peripherals may be implemented at the discretion of First Class Peripherals or as required by contract.

Out-of-Warranty Repair

First Class Peripherals will provide repair or replacement services for all products manufactured by or for First Class Peripherals and sold by First Class Peripherals for a reasonable active product support period extending beyond last date of standard manufacture and sale. This period will normally be for a term of three years from First Class Peripherals' standard product list, but such period may be decreased at First Class Peripherals' sole option.

Out-of-Warranty products and customer-related damage of in-warranty products will be repaired or replaced in accordance with First Class Peripherals' then-current active product repair price schedule. The customer is obligated for freight and handling charges both ways.

Below are the prices for Out-of-Warranty products manufactured or sold by First Class Peripherals. The prices are effective March 1, 1986 and are subject to change without notice. All price schedules in Revision A (November 84) and Revision B (September 85) of the Sider User Guide are void as of March 1, 1986.

Sider Sider] [B-Sider
250.00 plus 15.00
Shipping Handling & Processing Charges.
Our flat rate includes all parts and labor.

Repair Warranty

First Class Peripherals warrants any product repaired in its factory or repair center to be free from defects in material and workmanship for a period of three months from the date of return delivery or the end of the original warranty period, whichever is greater.

Warranty Registration

Please take a moment to fill out the Warranty Registration card, at the end of this manual, and mail it to the following address:

First Class Peripherals
3579 Highway 50 East
Carson City, Nevada 89701

Attn: Customer Service

SIDER SPECIFICATIONS

This section contains specifications for the Sider, including dimensions, subsystem requirements and fixed disk characteristics.

Dimensions and Requirements

Following are the physical dimensions and power requirements of the Sider.

Height	= 7.5 inches
Width	= 3.4 inches
Depth	= 16.0 inches
Weight	= 11.0 pounds
Source	= 110-126 volts (factory configured)
Line Frequency	= 50/60 (+/- 2%)
Power Consumption	= 40 watts

Subsystem Characteristics

The following section provides additional specification for the Sider fixed disk subsystem.

	Sider	Sider] [
Formatted Capacity	10	20 Mbytes
Sectors per track	32	32
Bytes per Sector	256	256
Cylinders	306	612
Heads	4	4
Average Access Time	85	85 msecs.
Average Latency	8.33	8.33 msecs.
Recording Format	MFM	MFM

NOTES:

APPENDIX II

APPLICATION INSTALLATION

To help you get started using the Sider, this chapter offers information regarding installation of selected application programs that run under the operating systems you've installed on your Sider.

Additionally, the final section of this chapter offers instructions of adding new expansion cards or changing the expansion slots in which you placed existing expansion cards, including the Sider's host adapter card.

DOS 3.3 Applications

A large number of applications that run under Apple DOS 3.3 are copy protected. As such, then cannot be transferred to the Sider. **The Sider doesn't support copy-protected software.**

Following are a few tests that you can perform to determine if the Sider will support your application. Keep in mind, however, that even if the application won't run on the Sider, you can still run it on your Apple computer by choosing option **[6]** at the Sider's Main Menu screen, "Boot into Slot 6."

* If the Apple utility, "COPYA," doesn't copy the application diskette, the application won't run on the Sider.

* If the application is "hard-coded" for only slot 6, drives 1 and 2 won't run on the Sider.

* If the application doesn't support the volume option — that is, CATALOG S7,D1,V14 — it won't run on the Sider.

* If the application requires a special DOS — other than Diversi-DOS, David DOS, or Pronto-DOS which the Sider does support —it won't run on the Sider.

If your DOS 3.3 applications don't run on the Sider, there is yet another option. The manufacturers of most popular DOS 3.3 applications have written, or are writing, versions for the ProDOS operating system. Most of these applications are not copy-protected, so you can use them in the Sider's ProDOS partition.

ProDOS Appleworks

Bring up the Sider's Main Menu screen. then press [4] to boot into the ProDOS partition.

At the ProDOS User's Disk menu, press **[F]** to access the Filer screen. Then press **[F]** again to access the File Commands screen.

Now press, **[M]** to access the "Make Directory" screen. When the system prompts you to enter a "PATHNAME," type

APPLEWORKS [return]

The system will indicate when it has completed the task. Then type

APPLEWORKS/DATA [return]

When the system completes the task, press **[esc]** to return to the File Commands screen.

Insert a working copy of the APPLEWORKS STARTUP diskette in floppy disk drive 1, and press **[C]** at the File Commands screen.

The system will prompt you to enter a source file "PATHNAME." Type

/APPLEWORKS/= [return]

When the system prompts you to enter a "TO PATHNAME," type

APPLEWORKS/= [return] [return]

to copy the files to your Sider.

Now, replace the APPLEWORKS STARTUP diskette in floppy disk drive 1 with the APPLEWORKS PROGRAM diskette.

The cursor will automatically return to the source file "PATHNAME" prompt. Type

/APPLEWORKS/= [return]

At the "TO PATHNAME" prompt, type

APPLEWORKS/= [return] [return]

When the system indicates that it has completed the task, it will return to the "TO PATHNAME" prompt. Insert the APPLEWORKS Sample Data diskette in drive 1. Then type

/SAMPLE.DATA/= [return]

When the "TO PATHNAME" prompt reappears, type

APPLEWORKS/DATA/= [return] [return]

Then press **[esc] TWICE** to return to the ProDOS System Utilities screen. Press [Q] to access the Quit screen and then press **[return]** to exit to the ProDOS User's Disk screen.

This sequence of commands has created an APPLEWORKS directory on the Sider and has copied the program files to that directory. The following sequence of commands will attach a name by which you can easily access the APPLEWORKS program.

From the ProDOS User's Disk screen, press [B] to access Applesort BASIC. At the Applesoft prompt, type

```
] NEW                                          [return]
] 10 D$ = CHR$ (4)                             [return]
] 20 PRINT D$; "PREFIX APPLEWORKS"             [return]
] 30 PRINT D$; "-APLWORKS.SYSTEM"              [return]

] SAVE /HARD1/APLWKS                           [return]
```

To access APPLEWORKS from then on, boot into ProDOS from the Sider's Main Menu screen. Then press **[B]** at the ProDOS User's Disk screen, type

-APLWKS [return]

The system will run APPLEWORKS.

Note that you can attach any name you want to the APPLEWORKS file; "-APLWKS" isn't mandatory. However, you must make sure that the name you choose doesn't already exist under BASIC on the Sider. You'll "write over" any file of the same name when you enter this program.

To set up an orderly and efficient set of APPLEWORKS files on your Sider, refer to the chapter in your ProDOS User's manual covering file names, directories and path names. This chapter provides an excellent explanation of disk space utilization.

Also refer to the APPLEWORKS Reference manual, "Appendix A", for more information regarding use of this applications with a fixed disk.

BPI Accounting

If you plan to use BPI Accounting software on the Sider, it must be the ProDOS version; the earlier DOS 3.3 versions aren't compatible with the Sider.

To install the BPI software on the Sider, simply follow BPI's "HARD DISK" installation instructions for the ProFile fixed disk drive. Wherever the ProFile path name — /PROFILE — is mentioned substitute the Sider Path name, /HARD1.

After you've copied all of the BPI files from a working copy of the BPI master diskette, return to the Sider's Main Menu screen. Press **[4]** to boot into ProDOS, and then press **[B]** on the User's Disk screen to access Applesoft BASIC.

At the Applesoft prompt, type

```
] PREFIX HARD1/BPI                [return]
] UNLOCK BPI                      [return]
] LOAD BPI                        [return]
] LIST 108                        [return]
```

After this last **[return]**, the system will present the following message: "108 NEXT K0:RETURN." If this message appears with a "108." proceed to the next set of instructions; if "108" doesn't appear, call your First Class Peripherals customer service representative on the toll-free hotline.

To change the "108" message line, type

108 NEXT K0 :W4 :RETURN [return]

Note that "K0" is a "K" and a zero (0); the letter "O" will not work in the command line. When the Applesoft prompt reappears, type

```
] SAVE BPI                        [return]
] LOCK BPI                        [return]
```

The BPI Accounting program is now installed on the Sider. To access it, simply follow the "DAILY START-UP" instructions in the BPI manual, again substituting /HARD1 for /PROFILE whenever the path name is required.

To set up an orderly and efficient set of BPI Accounting files on your Sider, refer to the chapter in your ProDOS User's Manual covering file names, directories and path names. This chapter provides an excellent explanation of disk space utilization.

ALS CP/M, VERSION 3.01C

CP/M 3.01C is Advanced Logic System's latest release of the CP/M Plus operating system for the ALS CP/M Card. This operating system runs under the ProDOS operating system, which means that both ProDOS and CP/M reside in the computer's memory.

The advantage of this design is that CP/M can use an ProDOS compatible storage device. However, to use CP/M 3.01C on the Sider, you must partition the fixed disk for the ProDOS operating system.

The ALS software is designed to look only at the first ProDOS volume on the fixed disk, so you should maximize the amount of storage allocated to the first ProDOS volume on the Sider.

The current ALS release, 3.01C2, requires a minimum allocation of 2 megabytes on volume 1. The previous release 3.01C, required a minimum of 5 megabytes. If you have version 3.01C1, contact ALS for an upgrade to the system.

Note that if you purchased your CP/M Card prior to 1984, you should verify with ALS that your card doesn't require a hardware upgrade to run with the new 3.01C release.

With the current 3.01C2 release, the Sider's host adapter card can be installed in any expansion slot. First Class Peripherals recommends slot 7 so that you can automatically boot the Sider when you apply power to your system.

If you have release 3.01C1, you must insert the Sider's host adapter card in slot 5.

After you've formatted the Sider and have installed ProDOS in /HARD1, make working copies of your ALS /BOOT diskette and the /CPMBOOT disk, which is on the opposite side of the flippy diskette from /BOOT. Then insert the working copy of the /BOOT diskette in floppy disk drive 1 and choose option **[6]** at the Sider's Main Menu screen. The system will boot the /BOOT diskette.

The system will inform you that CP/M has not been installed, and will ask you if you would like to install CP/M at this time. Press **[Y] [return]**.

The system will then prompt you to insert the install diskette. Insert the working copy of the /CPMBOOT disk in floppy disk drive 1 and press **[return]**.

The system will create a directory in the root directory of /HARD1, the first ProDOS volume on the Sider. Next, the system will ask you to specify a path name to your CP/M directory so it can copy files from /CPMBOOT disk to the directory.

At the "TO PATHNAME" prompt, type

/HARD1/CPM [return]

The system will then ask you for the name of the file that you want to run. Type

CPM3.SYSTEM [return]

This program will boot the CP/M operating system into memory. After several seconds, the ALS HELLO program will execute and the operating system will be installed and running.

To boot ALS CP/M from the Sider, choose option **[4]** from the Sider's Main Menu screen — the system will load the ProDOS operating system.

At the ProDOS User's Disk Main Menu, choose option **[B]** to go into BASIC. Now you must change the ProDOS path name to the CP/M subdirectory. Type

```
] NEW                                    [return]

] 10 D$ CHR$(4)                          [return]
] 20 PRINT D$;"PREFIX /HARD1/CPM"        [return]
] 30 PRINT D$;"-CPM3.SYSTEM"             [return]

] SAVE /HARD1/ALS                        [return]
```

When you've completed this program, you can boot ALS CP/M by entering the ProDOS partition, entering BASIC and running this basic program. Type

] -ALS [return]

CP/M WORDSTAR

Insert a working copy of the Wordstar master diskette into floppy drive 1. At the Sider's Main Menu screen, choose option **[2]** to boot into the CP/M partition on the Sider. At "A " prompt, type

PIP A:=E:WS*.*[V] [return]

This command will copy the WordStar files from the floppy diskette to the first CP/M volume on the Sider.

Use the second CP/M volume for your WordStar test files. From then on, when you want to invoke WordStar, "log into" CP/M volume B: and at the "B>" prompt, type

A:WS (FILENAME.TXT) [return]

Note that "(FILENAME.TXT)" in this instance represents the specific file that you want to pull from storage. This command executes WordStar and the designated text file.

When you've finished working on the text file, you'll save in the CP/M volume B again.

CP/M DBASE II

Insert a working copy of the DBase II diskette into floppy disk drive 1. At the Sider's Main Menu screen, press **[2]** to boot into the CP/M partition on the Sider. At the "A>" prompt, type

PIP B:=E:*.*[V] [return]

This command will copy the DBase II files from the floppy diskette to the second CP/M volume on the Sider.

Conserve disk space by placing all of your small files — that is, command files — in Sider Volumes of 2 megabytes or less, which contain smaller allocation units: 2 kilobytes.

Next, replace the DBase II diskette in floppy disk drive 1 with your data base diskette. Type

PIP C:=E:*.*[V] [return]

This command copies your data base volume from the floppy diskette to the third CP/M volume on the Sider.

Also, conserve disk space by placing your data base files in larger Sider volumes — that is, those over 2 megabytes in size. These volumes contain larger allocation units, between 4 kilobytes and 8 kilobytes.

To invoke DBase II, log into volume "B:" of the CP/M partition. Then type

DBASE [return]

ADDING NEW CARDS OR CHANGING HOST SLOTS

When you change the configuration of your system by adding an expansion card or changing the expansion slot in which you've place the Sider's host adapter card, you must also recreate the DOS 3.3 and CP/M boot tracks on the Sider to reflect the new configuration. ProDOS and Pascal don't require the changes.

The following sections offer instructions for changing the boot tracks on your Sider. Note that these sections are presented in the sequence that you must follow to properly reconfigure your system; if you have installed CP/M on your Sider, you must change the DOS 3.3 boot track before changing the CP/M boot track.

DOS 3.3

There are two scenarios in which you must create a new DOS 3.3 boot track: when you add a new expansion card to the existing configuration; and when you move the Sider's host adapter card to a new expansion slot.

If you're adding a new expansion card, turn off the power to your system and insert the new expansion card according to the instructions provided with it. Then reapply power to your system and follow the instructions below for accessing the Create New DOS Boot Track utility.

If you're moving the Sider's host adapter card to another expansion slot, first follow the instructions below for accessing the Create New DOS Boot Track utility. Then power down the system and move the host adapter card to the designated expansion slot.

To access the Create New DOS Boot Track utility, bring up the Sider's Main Menu screen. Press **[5]** to access the Support Utilities screen, then press **[7]**. Enter the number of the expansion **[slot]** in which you've placed the Sider's host adapter card and press **[return]**. Now you're ready to begin your next operation.

Note that you must run the Create New DOS Boot Track utility once for each expansion card you add, and **BEFORE** you move the Sider's host adapter card.

Microsoft SoftCard CP/M Family

After you've changed the DOS boot track, place a working copy of the SoftCard System Diskette in floppy disk drive 1.

At the Sider's Main Menu screen, press **[6]** to boot onto the System Diskette. After the system boots, replace the System Diskette with a working copy of the Siderware Support Utilities for CP/M diskette.

Next, refer to the "Installing Microsoft SoftCard" section of this guide's "Operating System Installation" chapter. Follow the instructions presented in that section, as if you were installing the SoftCard for the first time. When you complete those instructions, you're ready for your next operation.

Applied Engineering CP/AM 5.0

After you've changed the DOS boot track, place a working copy of the AE CP/AM System Diskette in floppy disk drive 1.

At the Sider's Main Menu screen, press **[6]** to boot onto the System Diskette. After the system boots, replace the System Diskette with a working copy of the Siderware Support Utilities for CP/M diskette.

Next, refer to the "Installing Applied Engineering Z-Card" section of this guide's "Operating System Installation" chapter. Follow the instructions presented in that section, as if you were installing the Z-Card for the first time. When you complete those instructions, you're ready for your next operation.

PCPI CP/M

After you've changed the DOS boot track, insert the modified copy of the PCPI System Diskette into floppy disk drive 1. (During the original installation of PCPI's APPLI-CARD, you altered a working copy of the System Diskette. This is the diskette that you need for this operation.)

From the Sider's Main Menu screen, press **[6]** to boot the diskette. After the system boots, replace the System Diskette with the Siderware Support Utilities for CP/M diskette.

At the "A>" prompt, type

PBOOT [return] [return]

Now you're ready for your next operation.

NOTES:

NOTES:

GLOSSARY OF TECHNICAL TERMS

Alternate Track: A Track or area of the fixed disk used for reassigning information from a defective track.

APPLI-CARD: An expansion card that supports the CP/M operating system, produced by Personal Computer Products, Inc. (PCPI)

Application Software: Computer programs that perform problem-solving tasks such as accounting or word processing.

Back-up: A copy of a primary data file or program to a secondary medium for safe storage.

Bit: The smallest unit of information a computer can store, represented by the digits 0 and 1.

Boot: Beginning with a permanently stored program in read only memory (ROM), the progressive loading of computer programs that perform self-diagnostics and search for other utility, operating system and application programs during start-up. With these programs, the computer "pulls itself up by the bootstraps" each time you apply power to it, or reset it while its operating.

Byte: A basic unit of information within a computer's memory, comprising eight bits and any value from 0 to 255. A byte represents a single character, such as a letter, number or punctuation mark.

Catalog: See "Directory."

Configuration: The combination of computer hardware devices and software programs that compose a computer system, including computer, monitor, disk drives, printer and other peripheral devices.

Copy: To reproduce a program or data from one storage medium to another medium without altering the original information.

CP/M: Acronym for Control Program for Microcomputers. A commonly used disk operating system.

Cursor: A character, usually a blinking line or box on a computer screen, that indicates where the next character will be entered, replaced or deleted.

Cylinder: Data on a fixed disk are recorded in circular patterns called tracks, which are divided into sectors. Usually several tracks — from two to eight, depending on drive type, for example — are in effect "stacked" one above the other. Such a "stack of tracks" is termed a cylinder.

Daisy-Chain: Two Siders connected in a series to a computer, doubling the system's total fixed disk storage capacity.

Default: A predetermined value or option used by the computer system when no other information has been specified.

Destination Slot: The expansion slot inside a computer containing the expansion card to which or through which data is copied, transferred or altered.

Detailing: The process of adjusting the size of the volumes in an operating system partition.

Device Drivers: A device or complete set of instructions that controls communication between an operating system and peripheral device.

Diagnostics: A program that identifies and diagnoses errors and defects in the computer's micro-circuitry or on the fixed disk.

Directory: A file that lists the name of each file and information the computer uses to trace the file's physical location on the diskette and its current status. Called a catalog in DOS.

Disk Controller Card: A printed circuit card that connects one or two disk drives to a computer and controls their operation.

Disk Drive: A device that writes information onto, and reads information from the surface of magnetic disk storage media.

Diskette: A flexible, plastic disk coated with a magnetic substance on both sides. Data is stored magnetically on the disk's surface. The flexibility of the disk accounts for its name, "floppy disk."

DOS: Acronym for Disk Operating System. The program that controls communication between the computer and one or more disk drives for data entry, storage and retrieval.

Expansion Card: A printed circuit card that enhances the computer's capabilities through added memory, communication to a peripheral device, storage of a designated computer program, or all of the above.

Expansion Slot: A numbered slot inside the computer in which an expansion card is installed to enhance the capabilities of the computer.

File: A collection of information recorded as a unit on a storage medium.

File Name: A name under which a file is stored.

Fixed Disk: In the microcomputer world, this term is synonymous with "Winchester disk drive" or "hard disk drive." It refers to a physical drive whose medium is not removable. Because the medium is not removable, it must be backed up periodically to another medium which is removable, such as floppy diskette.

Flippy Diskette: A two-sided diskette that must be removed from the disk drive and "flipped" so the computer can read the opposite side.

Format: The manner in which data is arranged on a disk storage medium. The format process erases all data stored on the medium during this process and prepares the medium to receive new data.

Host Adapter Card: First Class Peripherals' expansion card that interfaces between the computer and the Sider.

I/O: Acronym for Input/Output. The transfer of information into and out of a computer.

I/O Cable: The communication link between a computer system and peripheral device.

Initialize: Following the physical format of a disk storage medium, the computer initializes, or records, the directory, partition and volume parameters at strategic points on the medium.

K: Acronym for kilobyte, 1,024 bytes.

Logical Drive: Characteristics created with software that make more efficient use of the physical drive. The computer, in effect, communicates with multiple fixed disks rather than just one.

Medium: A material and an associated technique for recording information. The most common media are floppy disks, fixed disks and tape in various forms.

Megabyte: 1,048,576 bytes.

Memory: The area of the computer that stores data.

Operating System: A group of computer programs that direct the operations of a computer system, particularly relating to disk drives, data storage and peripheral devices.

Partition: A set of cylinders on a physical drive, usually a fixed disk drive. The cylinder set defines a physical region on the fixed disk drive that may contain one logical drive.

Pascal: A high-level disk operating system produced by Apple Computer, Inc.

Path Name: The list of names leading from a root directory to a subdirectory, or from a source file to a destination file.

Peripheral Device: Equipment externally connected to a computer system; e.g., the Sider.

Physical Drive: The mechanical device that contains rotating disks with a magnetic recording medium; a fixed disk drive is a physical drive, sometimes referred to as a "spindle." One or more logical drives may reside on one physical drive.

Program: A sequence of commands that instruct a computer or its peripheral devices to perform a task.

Prompt: A character or set of characters, produced by an operating system or application program, signifying the space in which a command must be entered, so the computer can perform a specific task.

Root Directory: The ProDOS data structure on a logical drive in which the names and attributes of files and subdirectories one level down from the root are recorded. The name of the root directory itself is the back slash symbol (/). The root directory data structure is recorded on the logical drive and allows the operating system to locate files.

Screen: The illuminated viewing surface of a monitor; or the visual representation of data on that viewing surface.

Sector: A section of a track on a disk storage device that divides the data storage area into smaller, more manageable units: 256 bytes.

Sparing: The search for and circumvention of defects on a fixed disk's surface during the format sequence.

Subdirectory: A secondary ProDOS file that contains a list of additional subdirectories or file names and their attributes. A major component of ProDOS' tree-structured file system.

Terminator Plug: The device that terminates the communication stream from the computer to the Sider. It is always attached to the last sider in a daisy-chain configuration.

Track: Circular pattern on a fixed disk or floppy diskette, on which data is magnetically recorded and retrieved, equaling 32 sectors.

Tree-Structured Directory: In ProDOS, an efficient file storage method. Graphically resembling a "family tree," the tree-structure begins with a root directory that contains a listing of subdirectory titles. The subdirectories, in turn, contain listings of other subdirectories or file names. The commands that lead the computer from the root directory through the subdirectories to a specific file are call path names.

Unit: The term by which the Pascal operating system identifies floppy disk drives and the volumes within the Pascal partition on the Sider.

Utility: A utility is a computer program that supports operating systems and application programs, helping communicate with or control a given device in the configuration.

Volume: Volume represents two concepts: A physical drive's total available disk space is referred to as volume; also, subdivided areas of a logical drive, or partition, are referred to as volumes (except under Pascal, which calls them "units").

Wildcard: A character represented by the equal sign (), that specifies file names with identical prefixes. During the copy function, that wildcard designates that all files with the specific prefix in a given volume will be copied.

NOTES:

TECHNICAL ADDENDA

The following sections discuss recent Sider updates regarding operating systems, hardware and software modifications.

ADVANCED DOS TURN-KEY INFORMATION

Assumption:

Sider is already installed.

Procedure:

The Siderware utilities allow the user merge the existing — floppy based — "HELLO" program to the Sider's. The simplist method is to copy this "HELLO" program with it's support programs to one of the Sider's DOS volume — other than Volume 1. Then type

```
] NEW                                                    [return]

] 100 REM — DOS HELLO FILE                               [return]
] 110 REM                                                [return]
] 120 INPUT "WHICH SIDER VOLUME? ";VOL                   [return]
] 130 PRINT CHR$(4);"RUN HELLO,V";VOL                    [return]
] 140 END                                                [return]

] SAVE HELLO DOS,Sx,D1,V1                                [return]
] LOCK HELLO DOS                                         [return]
```

Where 'x' is the current Sider slot number.

ADVANCED PRODOS TURN-KEY INFORMATION

Assumption:

Sider is already installed.

Discussion:

On the rear of the "BACKUP/RESTORE UTILITY" diskette is a program named "SHELL.SYSTEM." This program presents to the user a menu approach to executing programs. Thus removing the burden of remembering the paths to varies applications.

Installation:

Using the FILER utility, copy from the Siderware Support Utilities for ProDOS (/SIDER) to the first ProDOS volume on the Sider (/HARD1) the file "SHELL.SYSTEM."

Usage:

To invoke this utility simply type . . .

] —SHELL.SYSTEM [return]

To choose one of the "cells," simply enter it's **[number] [return]** or use the arrow keys to highlight the program and then press **[return]**. You can edit any of the cells, by pressing **[E]**, then enter the cell number.

If you need help, we provide two (2) forms, 1) is by example — actual predefined cells, 2) a on-line list of commands, by simply pressing **[H]** or **[?]**.

To have ProDOS invoke the "SHELL.SYSTEM" at boot time simply place this system file as the first system file in the root directory. Because ProDOS will invoke the first system type file in the root. Normally, the first system file is "BASIC.SYSTEM." So to accomplish this, delete "/HARD1/BASIC.SYSTEM,", then copy "SHELL.SYSTEM" from the Siderware Support Utilities for ProDOS to the Sider. Then recopy "BASIC.SYSTEM" from your "User.Disk" back to the Sider.

ADVANCED CP/M TURN-KEY INFORMATION

The Siderware provides a method of 'telling' CP/M to execute and hello program/string at boot time. The implementation and flexibility varies between CP/M vendors and versions. Ranging from always executing a single CP/M program, to a list commands to be executed at boot time.

The simpliest implementation is found in the PCPI environment. Here, the CP/M program "AUTOST.COM" will be executed from the Sider volume which has been labeled "A:."

Under Microsoft 2.23, you can supply during the "MPATCH" process, a program name, i.e. WS or DBASE (".COM" files) or a transit command, i.e. DIR or STAT.

The most advanced implementation is found under Microsoft 2.26B, 2.28B and Applied Engineering CP/AM 5.0. Here, you can supply a series of commands/programs to be executed at boot time. Here's a few sample command string . . .

DIR | B: | DIR | DIR C:*.COM | A: | [return]

This will display all the files on boot volume, the log into CP/M volume B:, display all of those files, then display all the ".COM" files on CP/M volume C:, then finally log into CP/M volume A:

Note: Notice the " | " at the end of the command string. If you do not supply this character, then the last command in this string will be just displayed, and not executed. Waiting for a carriage return from the user.

B: | DIR *.TXT | WS [space] [return]

This would be a typical Wordstar user type command string. Basically, it would log into CP/M volume B:, display all the files ending with "*.TXT," then finally print "WS " awaiting the user to supply a file name or just **[return]** to invoke Wordstar.

CAT | [return]

This will execute a CP/M program "CAT.COM" from the boot volume.

ADVANCED PASCAL TURN-KEY INFORMATION

Assumption:

Sider is already installed.
Have at least Rev "C" Siderware.
(Release Date: 03/15/86 or later)

Procedure:

The Siderware Utilities provide to the user the ability to boot into any of four Sider Pascal volumes. Thus you could have different versions of Pascal on each and/or have different "SYSTEM.STARTUP" files on each.

This can be accomplished either by pressing a "1" at the Sider's Main Menu and supply the correct Pascal Unit number, or by creating a short AppleSoft program. Below is a listing of a sample AppleSoft program which will boot into Sider Pascal Unit #10.

```
100 REM — BOOT INTO HARD2: —
110 REM
120 PRINT CHR$(4);"BLOAD HELLO PASCAL"
130 POKE 16390,10: REM UNIT NUMBER
140 CALL 4096 * 4
150 END
```

Line 120 loads into memory the Pascal boot module. Line 130 pokes into address H'4006 the Sider Pascal Unit number which you want to boot into. Line 140 passes control to address H'4000 — to boot.

So, if Sider Pascal volume "HARD2:" was dedicated to a word-processor application, you could save this AppleSoft program as "WORD PROCESSOR" and customize the Sider's Main Menu to reflect this new option.

DIVERSI-DOS "4C" INSTALLATION

Assumptions:

Sider is already installed.
You have a copy of Diversi-Dos 4-C (note version, VERY important).

Procedure:

Copy the following two files from the Diversi-DOS diskette to the first volume of the Sider, using "DOS FILE UTILITIES" copy files option: DDMOVER and PATCH.

Then type the following commands

] DELETE HELLO DOS,V1 **[return]**
] RENAME HELLO DOS (DIVERSI DOS),HELLO DOS **[return]**

Usage:

Choose the "BOOT INTO DOS" option (3) from the Sider's MAIN MENU, then pick the appropriate DOS option. This is preferable because a few DOS programs which require STANDARD Apple DOS 3.3.

Warning:

Do not use the 40 track option! By doing so, you will destroy data on the adjacent Sider DOS volume.

PRONTO-DOS INSTALLATION

Assumptions:

Sider is already installed.

Procedure:

Copy the following two files from the Pronto-DOS diskette to the first volume of the Sider, using "DOS FILE UTILITIES" copy files option: "HELLO PRONTO-DOS" and "DOS-UP."

Then type the following commands

] DELETE HELLO DOS,V1 **[return]**
] RENAME HELLO DOS (PRONTO-DOS),HELLO DOS **[return]**

Usage:

Choose the "BOOT INTO DOS" option (3) from the Sider's MAIN MENU, then pick the appropriate DOS option. This is preferable because a few DOS programs which require STANDARD Apple DOS 3.3.

NO INTEGER BASIC INSTALLATION

Assumptions:

Sider is already installed.
Copy of Apple DOS 3.3.

Procedures:

* On the copy of Apple DOS 3.3, delete the "HELLO" file. This will keep INTBASIC from being loaded.

* Boot from this modified copy of Apple DOS 3.3. Disregard the error message "FILE NOT FOUND."

* Now replace the diskette in Drive 1 with a copy of the Siderware Support Utilities for DOS 3.3.

* Type the following command:

] RUN MAKE BOOT TRACK [return]

Note: The spaces are part of the file name.

* When asked for "which system," enter a **[1] [return]**

* When asked for "New Slot #," enter current #.

Usage:

* Reboot, and you are done.

"DOS FILE UTILITY" PATCH FOR RAM DISKS
(DEFEAT SLOT CHECKING)

Assumptions:

Sider is already installed.
Have at least Rev "B" Siderware.
(Release Date: 08/30/85 or later)

Procedure:

* Boot from the Sider's Main Menu into DOS (option 3).

* Type the following commands

] UNLOCK DOS FILE UTILITY,V1 **[return]**
] BLOAD DOS FILE UTILITY **[return]**
] CALL -151 **[return]**

*** 4812: EA EA EA** **[return]**

*** aa60 aa61** **[return]**
AA60 - A6 (low byte of L$ of BSAVE)
AA61 - 15 (hi byte of L$ of BSAVE)

*** [control] [C]**

] BSAVE DOS FILE UTILITY, A$4800,L$15A6 **[return]**
] LOCK DOS FILE UTILITY **[return]**

Usage:

* Select option **[5]** on Main Menu.

* Select option **[3]** on Support Utilities Menu.

CONNECTING AND DISCONNECTING THE SIDER FROM DOS 3.3

Assumption:

Sider is already installed.

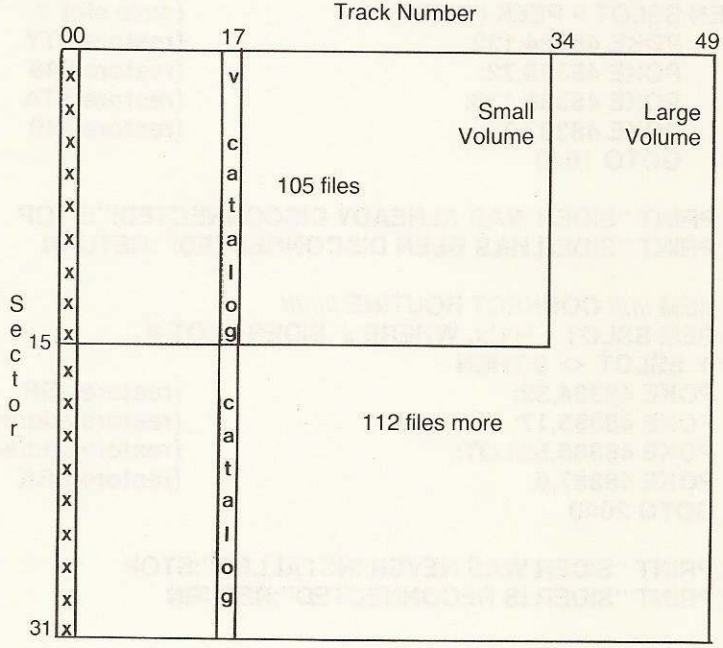
Procedure:

The following two routines can be used to "connect" and "disconnect" the Sider (from the software point of view) from STANDARD Apple DOS 3.3.

```
1000 REM ////// DISCONNECT ROUTINE ////////
1010 SSLOT = 0: REM TEMP VAR FOR SIDER SLOT #.
1020 IF (PEEK (48384) = 32 AND (PEEK (48385) = 17)
  THEN SSLOT = PEEK (48386):                    (save slot #      )
       POKE 48384,132:                          (restore STY      )
       POKE 48385,72:                           (restore $48      )
       POKE 48386,133:                          (restore STA      )
       POKE 48387,73:                           (restore $49      )
       GOTO 1040

1030 PRINT "SIDER WAS ALREADY DISCONNECTED!":STOP
1040 PRINT "SIDER HAS BEEN DISCONNECTED!":RETURN

2000 REM ////// CONNECT ROUTINE ////////
2010 REM SSLOT = H'Cx, WHERE x  SIDER SLOT #
2020 IF SSLOT <> 0 THEN
       POKE 48384,32:                           (restore JSR      )
       POKE 48385,17:                           (restore address)
       POKE 48386,SSLOT:                        (restore address)
       POKE 48387,0:                            (restore BRK      )
       GOTO 2040

2030 PRINT "SIDER WAS NEVER INSTALLED":STOP
2040 PRINT "SIDER IS RECONNECTED":RETURN
```

SIDER DOS VOLUME DISCUSSION

The small Sider DOS volume is indentical to a data DOS diskette — a formatted diskette without DOS installed on tracks 1 & 2. The Volume Table of Contents (VTOC) and the Catalog sectors are located exactly in the same location as they are on a diskette. Now a large volume on the other hand, has twice the number of sectors per track and a few more tracks. See the following diagram for details. The standard VTOC allows up to 50 tracks per volume without any changes to DOS itself. Here too, the VTOC and the Catalog sectors are located as shown. Note that the number of Catalog sectors has increased from 15 (H'0E) to 31 (H'1F). This allows the storage of 112 more files, bringing the total possible of files on a single large Sider DOS volume to 217 files — (7 * 15) × (7 * 16) = 217. Impling that the first Catalog sector to be used on a large Sider volume is 31 (H'1F). This should not create a problem if you follow the rules in locating the first Catalog sector — VTOC bytes 1 & 2 point to the first Catalog sector.



X - DOS can't use
V - Volume Table of Contents (VTOC)
SV has 16 sector tracks
LV has 32 sector tracks
SV = (35 tracks * 16) - 2 tracks = 528 sectors
LV = (50 tracks * 32) - 2 tracks = 1538 sectors
SV can contain up to 105 files
LV can contain up to 217 files

UPGRADING THE ROM ON THE HOST ADAPTER

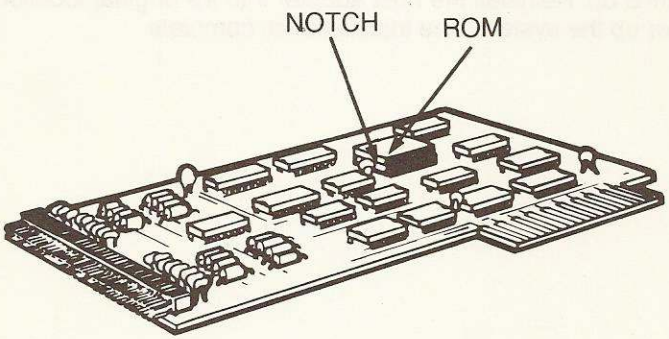
Required Equipment:

* Chip puller, or a small standard screw-driver.

Procedure:

Park the Sider's heads (option 7 from Main Menu), Power down all the equipment, i.e. Apple, Sider(s), printers, etc. Touch the computer's power supply, to discharge any static charge you may may have. Remove the Sider's host adapter from the Apple. Carefully unplug the internal cable from host adapter. Take extreme care not to bend the pins to badly. If by chance you do bend a pin, carefully use a pair of needle-nosed pliers to straighten it.

Now locate the ROM. The ROM is the only integrated circuit (IC) on the host adapter which is mounted on a socket. See figure below for details.



Host Adapter

Very carefully place a screw-driver between the ROM and the socket as shown in figure 1. Gently raise the ROM. Now slide the screw-driver further under the ROM. Gently twist the screw-driver, clock-wise, then counter-clockwise. The ROM should be free.

Locate the new ROM. Note that the new ROM is already on a socket. This is done to add strength to the delicate pins on the ROM. Place the ROM with socket on the host adapter.

SPECIAL NOTE:

> The NOTCH on the new ROM must be positioned such that the notch is on the left hand side of the ROM. See figure 1 for details. Failure to observe this procedure will result in destroying the ROM!

Press the new ROM in place. Using even pressure on the ROM surface.

Reconnect the internal cable to the host adapter. Remember RED STRIPE up. Reinstall the host adapter into it's original location. Now power up the system. The installation is complete.

HOW DOS IS PATCHED

The Sider's drivers are attached to DOS by patching four bytes into the Apple's memory. On standard DOS 3.3, this patch is located at the front end of the RWTS routine, $BD00-$BD03.

	BEFORE	AFTER
$BD00	84	20
$BD01	48	11
$BD02	85	*Cx
$BDO3	49	00

* Where "x" is the current physical slot # of the Sider.

Following is the code segment that is used to find the actual point:

```
GETDOS:  LDA   $3D9=1    ;Follow the RWTS page 3
         STA   $2C       ;vector
         LDA   $3D9=2
         STA   $2D
;
GETDO:   LDY   #1        ;Skip first byte
GETD1:   LDA   ($2C),Y
         CMP   #$20      ;Find a JSR yet?
         BEQ   GETD2     ;Br if yes
         INY             ;Point to next byte
         BNE   GETD1     ;and keep looking
         BRK             ;Something is really wrong!
;
GETD2:   DEY             ;See if previous instr.
         LDA   ($2C),Y   ;was an SEI
         CMP   #$78
         PHP             ;Save result until after
         INY             ;we reset the pointer
         INY
         LDA   ($2C),Y   ;Get address of subroutine
         TAX
         INY
         LDA   ($2C),Y
         STA   $2D
         STX   $2C
         PLP             ;Get result of SEI test
         BNE   GETDO     ;Keep looking if not SEI
;
;$2C now points to patch point.
```

SPECIAL DOS LOCATIONS

The PROM RWTS interface accesses the following tables and buffers within DOS. To maintain compatibility with non-standard versions of DOS, we do NOT use "hard-wired" addresses. These needed addresses are calculated "on the fly" using the patch address as the relocation factor. Thus if your DOS moves the RWTS routine, then the following tables and buffers MUST be moved relative to the relocate RWTS routine.

Buffer at $BB00*
Table at $AA66*
Table at $B5D1*

*Relative to $BD00 patch point

Below is the list of the 11 RAM locations in DOS that Sider uses, as well as a brief description of the usage.

$2C
Pointer to tables for Parameters
$2D

$4F8+x — Last Sider Volume number used
$578+x — **Number of small volumes on Sider #1**
$5F8+x — **Number of small volumes on Sider #2**
$678+x — **'Check byte' (*$578=x) EOR $A5**
$6F8+x — **'Check byte' (*$5F8=x) EOR $A5**
$778+x — **Last DOS volume on Sider #1**
$7F8+x — **Last DOS volume on Sider #2**
$7F8 — **H'C0 ORed with Sider Slot**
$778 — **Sider Slot * 16**

where 'x' is current physical Sider slot number.

HOST ADAPTER ROM

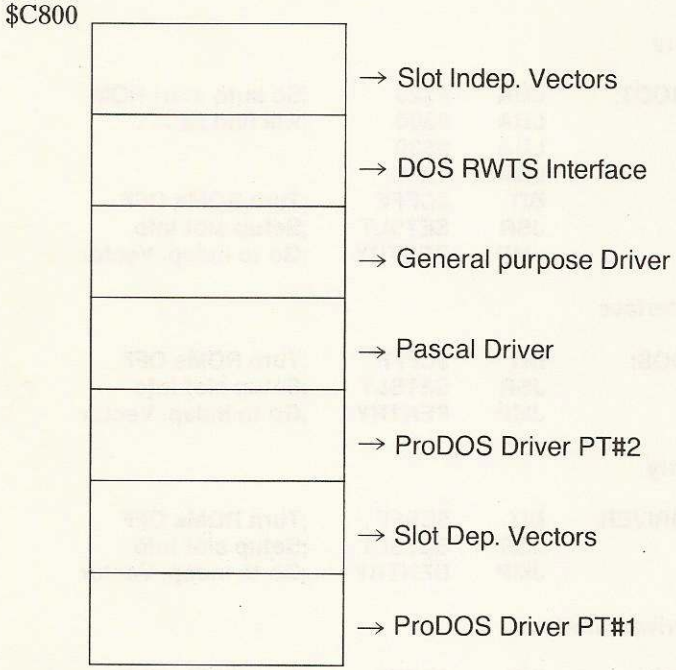
The host adapter is designed to hold a 2K byte ROM (2716 or 1/2 2732). The ROM address map is divided into two sections: a slot independent section containing 2K bytes and a slot dependent section containing 1/4K bytes. Note that the last 1/4K bytes of the slot independent section is the same as the slot dependent section.

The slot dependent section of the ROM is mapped into the standard $Cx00-$CxFF (where 'x' is the Sider slot #) address space.

The slot independent section of the ROM is mapped into the standard peripheral ROM space, $C800-$CFFF. Note that the information on the $CF00-$CFFF is the same as the information in the slot dependent ROM space. To enable the slot independent ROM, access location $CFFF to turn OFF all other peripherals card expansion ROMs then access any location in the slot dependent address space. To disable the slot independent ROM (and any other currently selected peripheral card expansion ROMs) access location $CFFF.

HOST INTERNALS

The host adapter ROM is divided into seven sections (see figure below).



The slot independent vectors are as follows . . .

```
$C800 BENTRY: JMP BOOT    ;Boot into DOS
$C803 PENTRY: JMP PRWTS   ;DOS RWTS Interface
$C806 DENTRY: JMP DRIVER  ;General Purpose Driver
$C809 PASENT: JMP PASDRV  ;Pascal Driver Interface
$C824 EENTRY: JMP ERRCHK  ;S1410 Request Sense Status
$C827 CHKCDE: JMP ECHK    ;Corr. Data Error Routines
```

We recommend that you USE ONLY the slot dependent vectors. This is based on the same logic that you should use only the Page 3 vector ($3D9) and not $BD00 for all the Read/Write commands to the floppies. The closer you get to the hardware level, the more complex the application software must be.

SLOT DEPENDENT VECTORS

The slot dependent vectors are, for the most part, equivalent to the slot independent vectors except slot information is automatically fetched by a call to a subroutine SETSLT. Below is an actual partial listing of the ROM.

```
    ;
    ; Boot entry
    ;
$Cx00     SBOOT:    LDA    #$20      ;So auto start ROM
                    LDA    #$00      ;will find us . . .
                    LDA    #$30
                    LDA    #$3C
                    BIT    $CFFF     ;Turn ROMs OFF
                    JSR    SETSLT    ;Setup slot info
                    JMP    BENTRY    ;Go to Indep. Vector
    ;
    ; RWTS Interface
    ;
$Cx11     SDOS:     BIT    $CFFF     ;Turn ROMs OFF
                    JSR    SETSLT    ;Setup slot info
                    JMP    PENTRY    ;Go to Indep. Vector
    ;
    ; Drive Entry
    ;
$Cx1A     SDRIVER:  BIT    $CFFF     ;Turn ROMs OFF
                    JSR    SETSLT    ;Setup slot info
                    JMP    DENTRY    ;Go to Indep. Vector
    ;
    ; Pascal Driver Interface
    ;
$Cx23     PDRV      BIT    $CFFF     ;Turn ROMs OFF
                    JSR    SETSLT    ;Setup slot info
                    JMP    PASENT    ;Go to Indep. Vector
    ;
    ; Check for Correctable Data Error
    ;
$Cx2C     CHKERR:   BIT    $CFFF     ;Turn ROMs OFF
                    JSR    SETSLT    ;Setup slot info
                    JMP    EENTRY    ;Go to Indep. Vector
    ;
    ; Do a request sense status call
    ;
$Cx4D     EECHK:    JMP    ECHK      ;Go to Indep. Vector
```

USING THE SLOT DEPENDENT VECTORS

SBOOT Vector:

This vector is used to reboot the Sider into DOS 3.3. Simply transfer control to Cx00. For example:

```
JMP C700                    ;If the Sider is in slot '7'
```

SDOS Vector:

This is the entry point into the ROM for the RWTS Interface. Do not use this vector directly. Use the Page 3 vector, $3D9. When using the Page 3 vector, be sure to set the correct slot, drive and **VOLUME** numbers in the IOB.

SDRIVER Vector:

This is the entry point into the ROM for the general purpose driver. The format for a command is defined as a Xebec S1410 DCB (refer to Xebec S1410 Owners Manual for details). The address of the DCB must be passed to the driver in A,Y (A = most significant byte).

PDRV Vector:

All of the Pascal level I/O commands are supported. Commands like READ, WRITE, BLOCKREAD, BLOCKWRITE, UNITREAD, UNITWRITE, UNITCLEAR & UNITSTATUS. When calling this vector, please have the CPU registers and Stack set up with accordance with the Apple Pascal Technical Note #11 — Attach-BIOS document. This document is available at most Apple User Group or from Apple Computer directly.

CHKERR Vector:

This is the entry point into the ROM to perform a Request Sense Status, i.e. for error handling. You must pass the address of a 12 byte buffer in A,X (A = most significant byte). The routine returns in Buffer+8 to Buffer+11 the four (4) status bytes (see Xebec S1410 Owners Manual for details).

EECHK Vector:

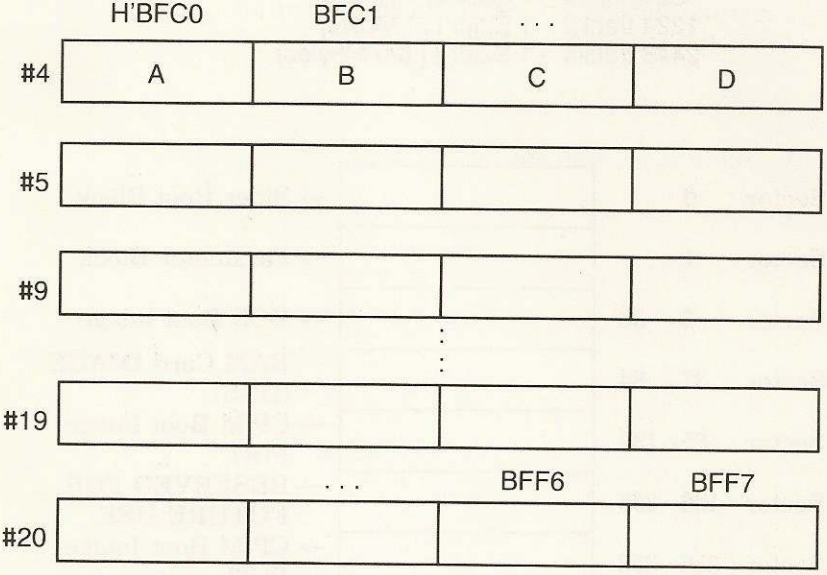
This is a special purpose entry point into the ROM. Its purpose is to do a Request Sense Status (as CHKERR Vector) and to see if the error was a correctable data error.

Example:

```
;  Sider I/O example (SIO)
;
;  Make a call to the ROM based driver to preform
;  the operation described in the device control
;  block (DCB) stored at DCB:
;
;  Memory used: $2C, $2D, $2E, $2F
;
;  DCB Format: [read sector 1 of Sider 1]
;  the Sider # is 'ORed' into bit 5
;  of byte 1 (Zero Rel.)
;
   DCB:    DFB     8          ;8-Read, A-Write
           DFB     0          ;High Address, Sider #
           DFB     0          ;Middle Address
           DFB     1          ;Low Address
           DFB     1          ;Blk count
           DFB     STEP       ;Sider Step Option
;
;  Use slot dependent vector to driver
;
;  Assume the Sider is in Slot #7
;
   SIO:    LDA     #<DCB      ;Point to DCB
           LDY     #>DCB
           JSR     $C71A      ;Call driver
           BCC     EXIT       ;Branch if no error
;
;  Error handler
;
           LDA     #<BUF      ;12 byte buffer
           LDX     #>BUF
           JSR     $C74D      ;Get sense bytes
           BCS     ERROR      ;Branch if error
                              ;getting sense status
    [process the error]
;
    EXIT:  RTS
;
    ERROR:
;
;  Get here when things are real bad... i.e.,
;  hard disk is turned off or not connected
;
    [do something]
;
           RTS
```

SPECIAL PASCAL UNIT TABLE

Below is a description of the table which Pascal defines which block structured devices correspond to which Pascal unit numbers as well as the size of each.



The next eight (8) bytes is where the IOB is stored, (H'BFFB-BFFF).

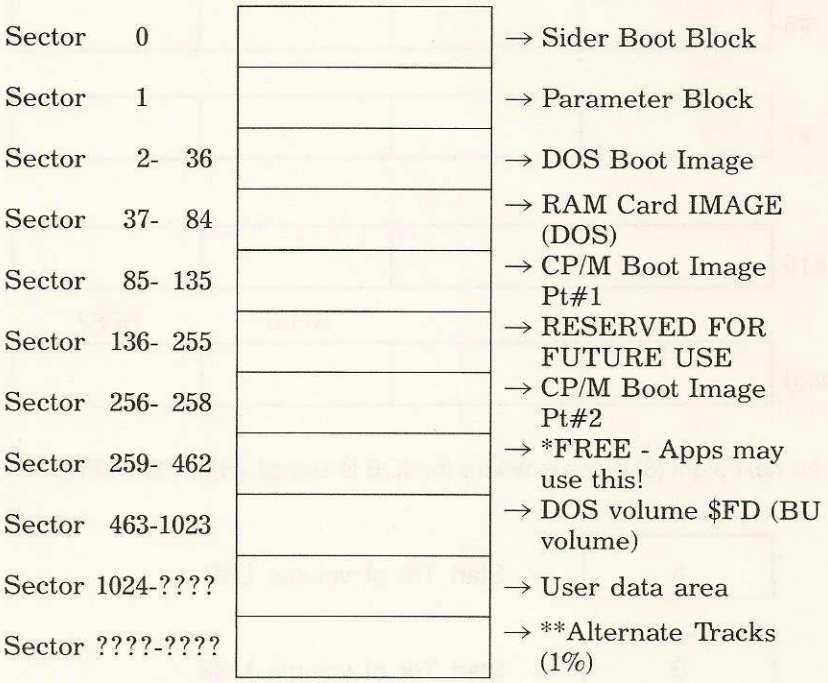
A	—	Start Trk of volume LSB
B	—	Start Trk of volume MSB
C	—	Size (Trks) of volume LSB
D	—	Size (Trks) of volume MSB

Bits 6 & 7 of 'D' must be set to ZERO! The Sider subsystem number is ORed into bit 5 of 'D'. The lower 5 bits are the MSB of the size of the volume.

SIDER LOGICAL STRUCTURE

The Sider can be thought of as a large array of 256 byte sectors.

256 bytes = 1 sector
32 sectors = 1 track or 8Kbytes
1224 tracks = 1 Sider (10 Mbyte)
2448 tracks = 1 Sider] [(20 Mbytes)



* Please use from 462 inward, i.e. if you need two (2) sections use 461 or 462.

** A Sider has 12 alternate tracks and a Sider][has 24 Alternate tracks.

THE BOOT BLOCK

At boot time, the ROM loads sector 0 into memory at address $800 and jumps to it. This boot strap program will;

* Clear the screen and print the boot message.
* Load sectors 2-36 into memory, $9D00-$BFFF.
* Fill the RAM card with sectors 37-84.
* Re-patch DOS
* Cold start DOS

At boot time, the following locates are special:

$8FA	0-turn RAM card ON, before cold starting DOS
$8FB-$8FC	Pointer to DOS patch point
$8FD-$8FE	Pointer to DOS cold start routine
$8FF	ASCII "N"($CE) - DO NOT load RAM card

THE PARAMETER BLOCK

The parameter block is the map of the Sider. It described how the Sider was formatted, where each partition is located, etc. Be VERY careful if you plan to read or write to this section.

OFFSET	FUNCTION
0	Number of DOS small volumes
1	Offset '0' EOR #$A5
2	Sector interleave
3	*-Reserved for future use by FCP-*
4	Total DOS volumes (Bounds)
5-23	*-Reserved for future use by FCP-*
24	(Offset 32 × Offset 33) EOR #$A5
25-32	Sider Characteristics
33	Sider step option
34-40	*-Reserved for future use by FCP-*
41-55	CP/M logical Vol. 1 DPB (OFF,CKS,ALO,AL1, etc.)
56-70	CP/M logical Vol. 2 DPB
71	CP/M Vol. 1 in on line
72	CP/M Vol. 2 in on line
73-79	*-Reserved for future use by FCP-*

OFFSET	FUNCTION
80	Pascal unit number (4,9,...,19)
81- 82	Pascal logical Vol. 1 start track
83- 84	Pascal logical Vol. 2 start track
85- 99	*-Reserved for future use by FCP-*
100-107	Installation release date when formatted
108-115	Structure Last Modified Date (utilities like "MAKE BOOT TRACK" will fill in 01/01/01)
116-123	Date of last backup (not implemented yet)
124-129	*-Reserved for future use by FCP-*
130-144	CP/M logical Vol. 3 DPB
145-159	CP/M logical Vol. 4 DPB
160	CP/M Vol. 3 is on line
161	CP/M Vol. 4 is on line
163-164	ProDOS Vol. 1 start track
165-166	ProDOS Vol. 1 size
167	ProDOS Vol. 1 status (not implemented yet)
168-169	ProDOS Vol. 2 start track
170-171	ProDOS Vol. 2 size
172	ProDOS Vol. 2 status (not implemented yet)
173	Pascal unit number (4,9,..,19)
174-175	Pascal logical Vol. 3 track
176-177	Pascal logical Vol. 4 track
178-210	*-Reserved for future use by FCP-*
211-254	FREE - Applications may us this!
255	Number of Alternate Tracks Available

Application Note:

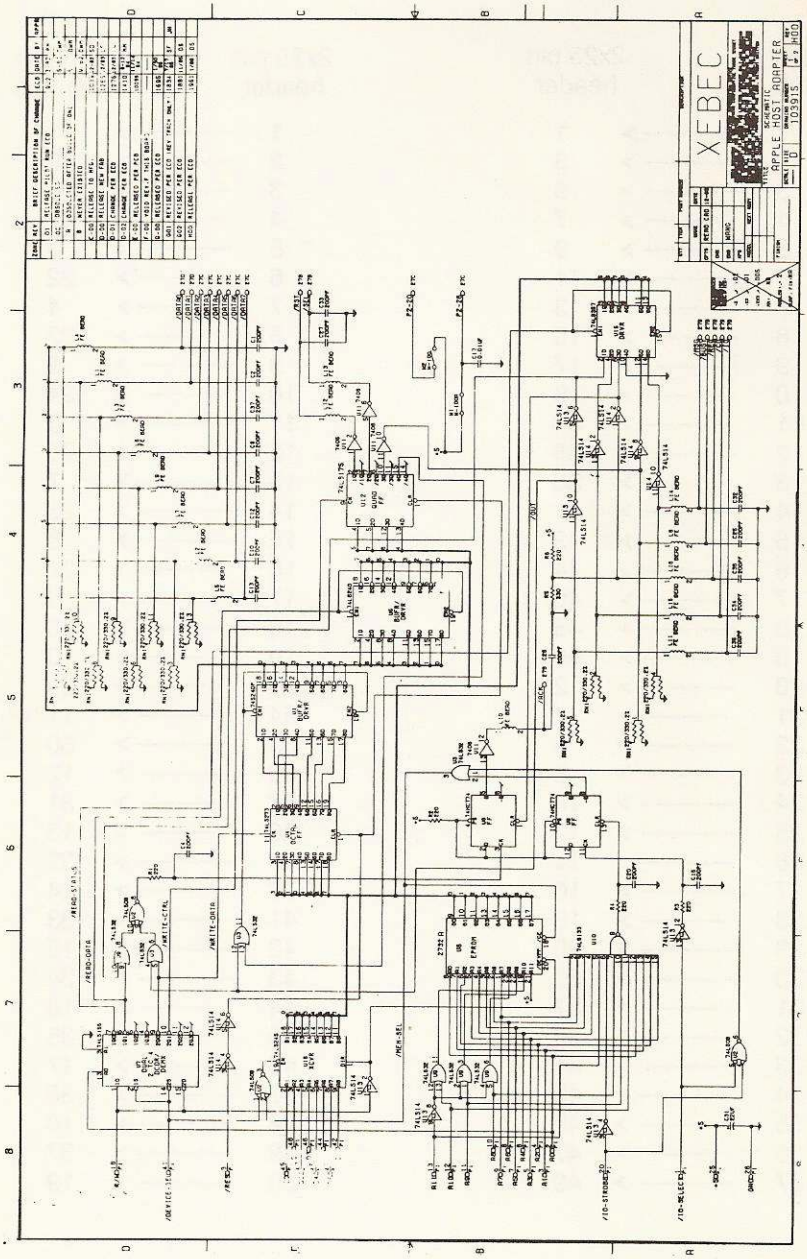
Please use from 254 inward, i.e. if you need two (2) bytes use 253 and 254.

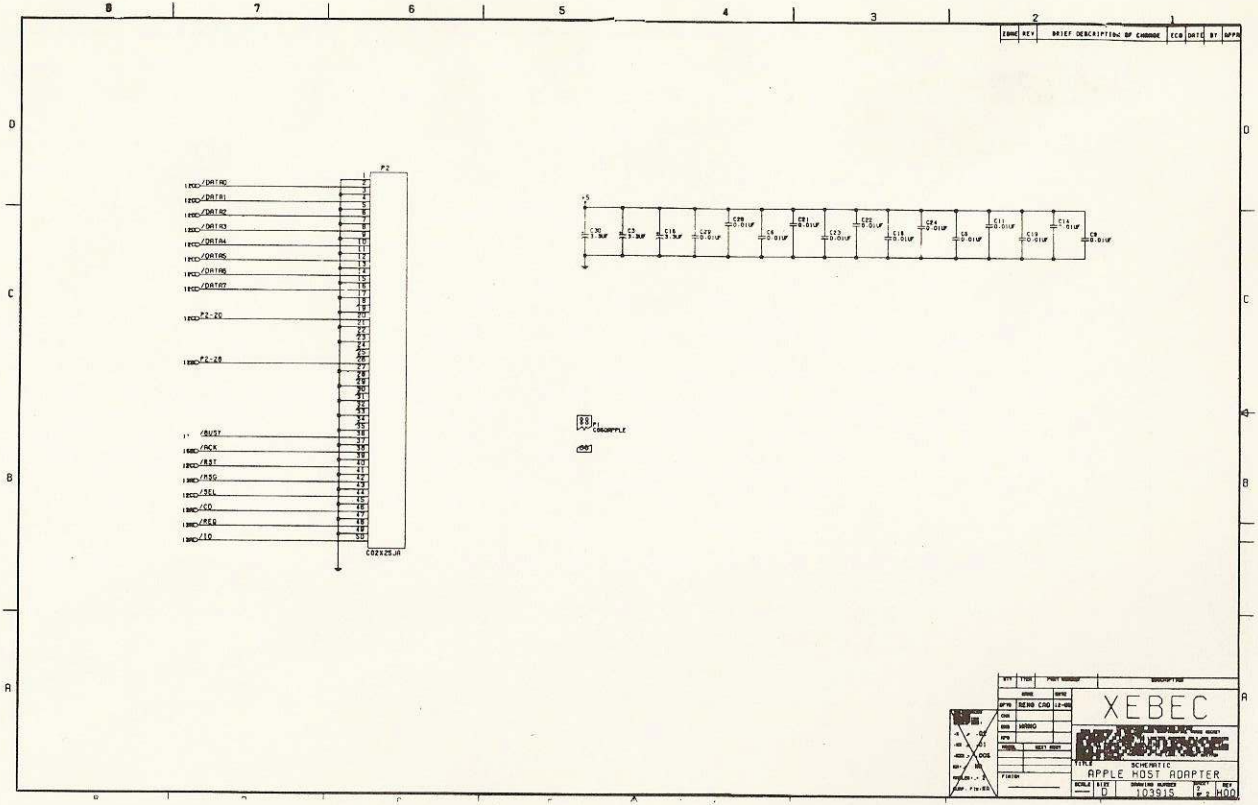
I/O Cable Pin-out

37 pin D-sub		2x25 pin header
1	——>	1
2	——>	3
3	——>	5
4	——>	7
5	——>	9
6	——>	11
7	——>	13
8	——>	15
9	——>	17
10	——>	19
11	——>	34
12	——>	36
13	——>	38
14	——>	40
15	——>	42
16	——>	44
17	——>	46
18	——>	48
19	——>	50
20	——>	2
21	——>	4
22	——>	6
23	——>	8
24	——>	10
25	——>	12
26	——>	14
27	——>	16
28	——>	18
29	——>	20
30	——>	35
31	——>	37
32	——>	39
33	——>	41
34	——>	43
35	——>	45
36	——>	47
37	——>	49

2x25 pin header		37 pin D-sub
1	——>	1
2	——>	20
3	——>	2
4	——>	21
5	——>	3
6	——>	22
7	——>	4
8	——>	23
9	——>	5
10	——>	24
11	——>	6
12	——>	25
13	——>	7
14	——>	26
15	——>	8
16	——>	27
17	——>	9
18	——>	28
19	——>	10
20	——>	29
34	——>	11
35	——>	30
36	——>	12
37	——>	31
38	——>	13
39	——>	32
40	——>	14
41	——>	33
42	——>	15
43	——>	34
44	——>	16
45	——>	35
46	——>	17
47	——>	36
48	——>	18
49	——>	37
50	——>	19

Host Adapter Schematic




XEBEC
APPLE HOST ADAPTER
103915

NOTES:

INDEX

WE'RE LISTENING . . .

At First Class Peripherals, we listen when you tell us what features you want in your computer products:

* **MORE STORAGE MEMORY.** The Sider provides you with 10 Megabytes of added storage memory while the Sider] [delivers 20 Megabytes.

* **TAPE BACKUP SYSTEM.** The B-Sider is designed to efficiently backup your Sider hard disk — and offers several different backup formats.

* **AFFORDABLE PRICES.** The Siders are the best-preforming, lowest-priced hard disk drive systems and tape backup subsystems on the market today.

* **OPERATING SYSTEM SUPPORT.** The Siders are designed to support the four primary operating systems in the Apple environment.

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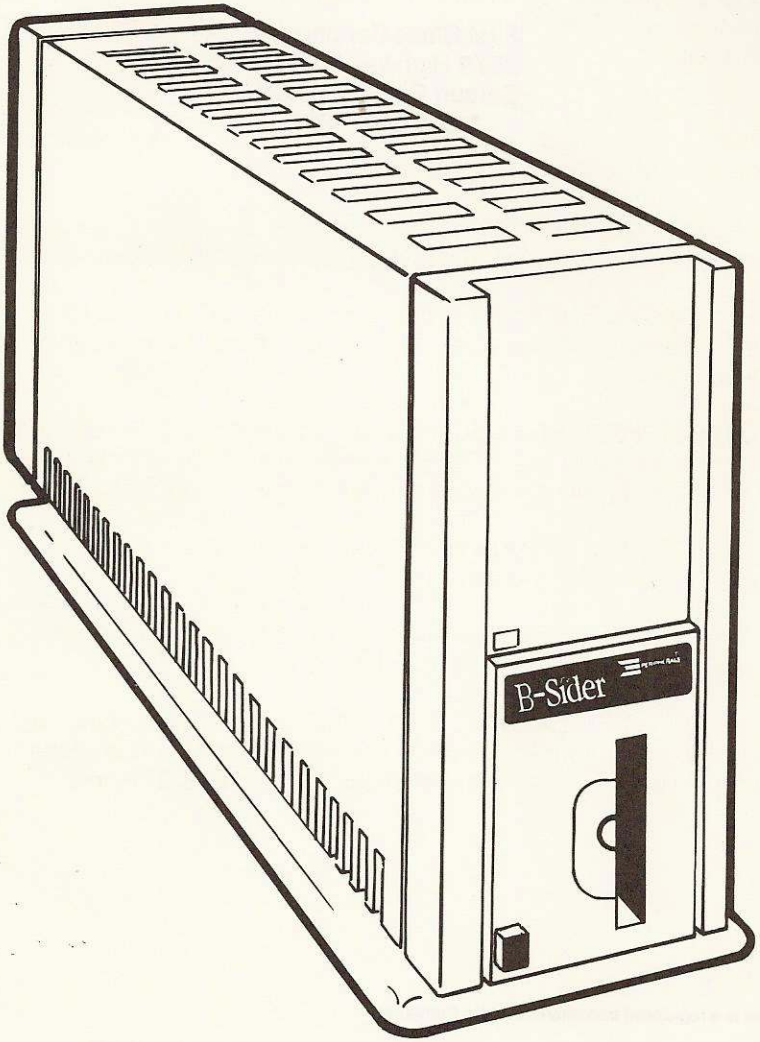
FIRST CLASS PERIPHERALS
B-SIDER STREAMING TAPE SUBSYSTEM

* * * *

USER'S GUIDE



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LIST OF FIGURES AND CHARTS

INTRODUCTION

This guide accompanies the First Class Peripherals' streaming tape subsystem, B-Sider. It provides concise instructions that will help you install the B-Sider on your Apple computer and operate Siderware utilities.

B-Sider Overview

The B-Sider is designed for use with the Apple computer in conjunction with Sider hard disk subsystem product line. It expands the ease of use and the flexibility of your Apple computer.

To use the B-Sider, you must have previously purchased a Sider. The B-Sider is not recommended for nor supported by, First Class on any hard disk other than those sold by First Class. B-Sider has been especially designed not to require any additional expansion slots. It shares the same host adapter and slot as the Sider.

Unpacking the B-Sider

Before setting up our B-Sider tape subsystem, take a moment to inspect the shipping carton and its contents. You'll want to make sure that all of the parts you need to install the subsystem are in the carton and in good condition.

The following items should in the accessories box from which you took this guide:

* The input/output (I/O) cable.
* The power cord.
* Two data cassettes.
* Data cassette labels.
* Cleaning Starter Kit.

Select a solid, flat surface on which to set the subsystem, keeping in mind that it weighs 10 pounds. Now lift the B-Sider from the carton and place it on the flat surface.

Be sure to save the packing materials in case you need to move the subsystem or ship it to First Class Peripherals for service.

Carefully look at the subsystem and all of its parts, checking them for damage. If anything is missing or has been damaged in transit, call your First Class Peripherals customer service representative on the toll-free hotline — (800)538-1307.

When you've examined all the parts and found them to be satisfactory, return them to the accessories box. Now you're ready to install the B-Sider.

NOTES:

HARDWARE INSTALLATION

To install your new tape subsystem, you'll need the following:

* A 110-volt electrical outlet. Although a standard three-wire outlet will suffice, local electrical power conditions may make it desirable to connect your Apple computer and its peripheral devices to surge suppressor power strip, which you can obtain at computer stores and many hardware stores.

* A solid, flat surface near your current Sider subsystem. The B-Sider's I/O Cable is 32 inches long.

* A reasonably controlled operating environment. The B-Sider operates trouble-free in temperatures ranging from 10 to 45 degrees Centigrade (50 to 113 degrees Fahrenheit); and relative humidity of 20 to 80 percent. However, if the subsystem isn't being used, it will withstand temperatures ranging from 4 to 50 degrees Centigrade (39 to 122 degrees Fahrenheit).

* **Proper ventilation for your B-Sider, as depicted in Figure 1. The B-Sider doesn't have a cooling fan; it maintains its operating temperature by convection cooling. Allow a minimum of two inches on each side of the subsystem, and never place anything on top of it. Improper ventilation can cause damage to the subsystem, rendering it inoperable.**

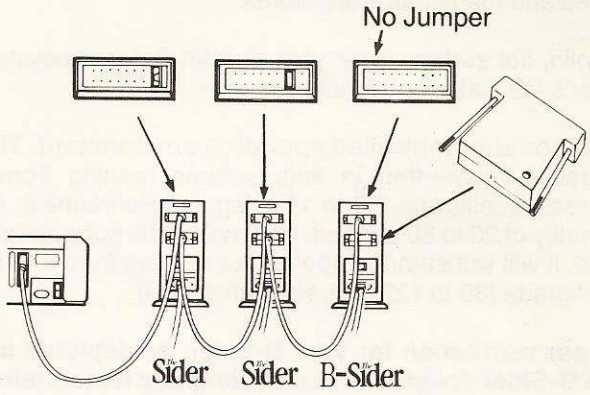
Now you are ready to connect the B-Sider to your already existing Sider and/or Sider] [. The B-Sider uses a technique called "daisy-chaining." Daisy-chaining allows the expansion of your apple without requiring any additional expansion slots.

Place the B-Sider "beside" your current Sider hard disk subsystem. Take special note that a minimum of two inches between the two units is needed for ventilation.

Now retrieve the I/O cable and the power cord for the accessory box.

Remove the terminator plug from the rear of the Sider.

Attach one end of the B-Sider's I/O cable to the connector from which you previously removed the terminator. Now the other to the upper 37 pin connector on the B-Sider itself. Hand-tighten the thumbscrews. Install the terminator plug on the lower 37 pin connector on the rear of the B-Sider. Figure 1 depicts the correct placement of the I/O cable.



Daisy-chaining
Figure 1

Make sure that the ON/OFF switch above the plug is in the "OFF" position ("-" is ON and "O" is OFF). Then attach the power cord to the three-pronged plug on the back of the subsystem.

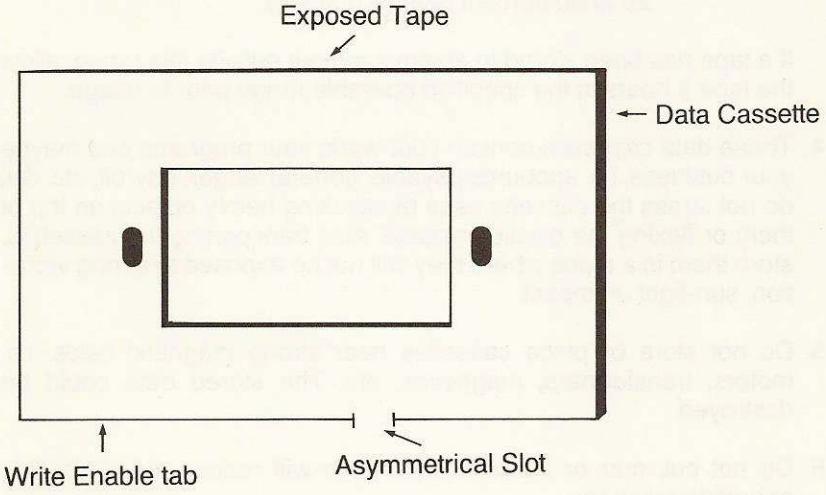
Now you've completed the hardware installation sequence.

B-SIDER CARE & FEEDING

Unlike previous First Class Peripherals products, the B-Sider requires periodical maintenance. Since the medium of data storage is removable, contaminants are introduced in the B-Sider mechanics. Periodic cleaning and proper cassette handling will greatly reduce the chances of loosing data on your valuable backups.

Cassettes

Data cassettes by nature have two sides; Side A and Side B, which can be distinguished by an asymmetrical slot. Figure 2 depicts the details. This slot prevents the cassette from being placed into the B-Sider upside down.



Cassette Details
Figure 2

Located on either side of the slot are two write enable tabs. Only the write protect tab furthest from the slot is used. See Figure 2 for details. When this tab is removed, thus creating a hole, data can not be written to the cassette.

Cassette — Do's and Don'ts

Below is a list of seven (7) items which should be followed when handling the cassettes:

1. When a cassette is not in use, you should place the cassette in its protective plastic case. This will lessen the amount of dust, lint, etc. entering the cassette.

2. Always rewind the cassette, before removing it from the B-Sider. By doing so, the clear leader section will be exposed. If the cassette has not been rewound, the magnetic surface will be exposed. Avoid touching this surface with your fingers or any other object, due to the fact that the magnetic surface can be damaged, causing possible data errors, etc.

3. Do not use or store these data cassettes in a dusty environment or in ambient environment conditions outside the ranges below:

   10 to 45 degrees Centigrade (operating)
   5 to 50 degrees Centigrade (storage)
   20 to 80 percent relative humidity.

   If a tape has been stored in an environment outside this range, allow the tape 8 hours in the specified operable range prior to usage.

4. These data cassettes contain your work, your programs and maybe your business, i.e. accounts payable, general ledger, payroll, etc. So, do not stress the cassette case by stacking heavy objects on top of them or flexing the plastic cassette. Also transporting the cassettes, store them in a place where they will not be exposed to strong vibration, sun-light or impact.

5. Do not store or place cassettes near strong magnetic fields, i.e. motors, transformers, magnetics, etc. The stored data could be destroyed.

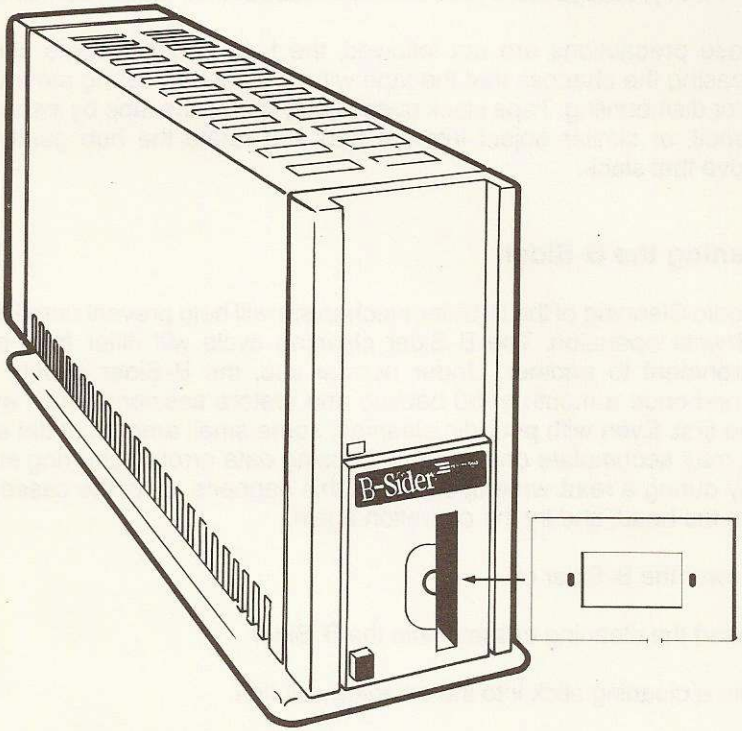
6. Do not cut, mar or splice a tape. This will reduce the cassette's operating reliability.

7. Prewind. When using a cassette which has been stored a while, or one that has experienced environmental changes, or even a new tape, you should prewind the cassette prior to usage. This operation will promote stable tape movement.

Following these recommendations will aid in the proper functionality of the B-Sider.

INSERTING CASSETTES

Hold cassette such that the clear leader is up and the asymmetrical slot is positioned to your right. Insert the cassette into the B-Sider (as shown below). Hold the cassette straight and level and push it into the vertical opening in the front of the B-Sider. When the entire cassette is inserted, the mechanism will pull the cassette into the correct position.



Tape Mounting
Figure 3

REMOVING CASSETTES

To remove a data cassette, you should first rewind the cassette, to insure that the magnetic strip is NOT exposed. Then press EJECT button firmly, and the cassette will be ejected from the B-Sider. First Class Peripherals recommends that you remove the write enable tab from the cassette when you store it to insure that the data will not be accidentally written over. See figure 1 for location of write enable tab.

Besides the list of 'Do's and Don'ts' described early in this section, there are a few additional precautions which can increase the data integrity of your backup.

* Do not press the Eject button while the B-Sider is moving the tape.
* Do not turn the power off the B-Sider while the tape is moving.
* Finally, always store your data cassettes in their plastic containers.

If these precautions are not followed, the tape could become slack, increasing the chances that the tape will be damaged during mounting and/or dismounting. Tape slack does occur, tighten the tape by inserting a pencil, or similar object into the hub and rotate the hub gently to remove that slack.

Cleaning the B-Sider

Periodic Cleaning of the B-Sider mechanism will help prevent unreliable read/write operation. The B-Sider cleaning cycle will differ from one environment to another. Under normal use, the B-Sider should be cleaned once a month or 50 backup and restore sessions which ever come first. Even with periodic cleaning, some small amount of dirt and dust may accumulate on the head, causing data errors occurring suddenly during a read/write operation. If this happens, eject the cassette, clean the head, and try the operation again.

* Power the B-Sider off.
* Insert the cleaning cassette into the B-Sider.
* Dip a cleaning stick into the cleaning solution.
* Insert the cleaning stick into the cleaning cassette such that the blue side of the cleaning stick is up. Gently push the stick to its fullest extent — approx. 3 inches.
* Remove the cleaning stick.
* Repeat this process — with the blue side up — ten times.
* Now, turn the cleaning stick over — white side up — and insert it into the clean cassette. In and out, 10 more times.
* Eject the cassette, and let the heads dry about 1 minute before loading a data cassette.

HAVING TROUBLE ???

First, you should try to write down the steps which lead you to this section. Then try to duplicate it. Try to log all actions which you took. Examine the following possibilities.

Step 1

* Is the I/O cable securely fastened to the back of the B-Sider? Thumbscrews should be hand tight.

* Is the power cord connected to both the B-Sider and a 110-volt electrical outlet?

* Is the B-Sider power on?

* Do your day to day activities with the Sider/Sider] [work properly? Boot, load programs, etc.

* Did you add/move any cards in your computer? If so, check to make sure that the host adapter is seated correctly, and that the 50 pin cable is also seated correctly.

Most of the above conditions can be resolved by getting power to the B-Sider and/or by securely connecting the I/O cable between your Sider/Sider] [to the rear of the B-Sider.

Step 2

Did the Backup/Restore program load?

* Is a cassette loaded? If so, eject it, check cassette for physical damage, then reload it.

* Will the tape REWIND?

* Have you tried a different cassette?

Step 3

Once you have completed this check list, attempted to duplicate the error condition, then call your customer service representative.

NOTES:

TECHNICAL INFORMATION

The following sections describe First Class Peripherals' compliance with the Federal Communication Commission (FCC); its limited warranty; its warranty repair procedures; and technical specifications for the Sider.

FCC Compliance

First Class Peripherals provides a shielded interface cable and host adapter card that comply with FCC Class B computing regulations. USE OF A NON-SHIELDED CABLE may result in RF radiation exceeding FCC Class B limits.

It is possible, when not following these explicit instructions, to install the Sider so that it isn't in compliance with FCC Class B computing regulations.

First Class Peripherals takes no responsibility for such configurations. Liability for such actions rest solely with the users.

Information to Users

This equipment generates and uses radio frequency energy and if not installed and used properly — that is, in strict accordance with the manufacturer's instructions — may cause interference to radio and television receptions.

It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

Instructions

If this equipment does cause interference to radio or television reception — which can be determined by turning the equipment on and off and noting the effect of the power surge on the radio or television — you are encouraged to try to correct the interference by one or more of the following measures:

* Reorient the receiving antenna.
* Move the computer away from the receiver.
* Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, you should consult with First Class Peripherals or an experienced radio/television technician for additional suggestions. You may find the following booklet prepared by the FCC helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20403, Stock No. 004-000-00345.4.

LIMITED WARRANTY

First Class Peripherals warrants all of its products, including spare parts sold by First Class Peripherals, to be free from defects in material and workmanship for a period of one year from the date of delivery.

This warranty is made to original purchasers only, and only original purchasers may make any claim under the warranty. No other party shall have any rights under this warranty. The sole remedy for any breach of this warranty shall be the repair or replacement of the defective product, as described herein.

First Class Peripherals disclaims all other representations and warranties, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose. First Class Peripherals shall not be liable for any special, indirect, incidental or consequential damages, lost profits, costs or expenses, except as set forth in this policy, which may be modified or amended only by written contract.

In-Warranty Repair

First Class Peripherals will repair at its factory or repair center, any product that within the warranty period is returned to First Class Peripherals and found to be defective in proper usage.

Warranty action is initiated by customer notification to First Class Peripherals of a product failure within the warranty period. The customer must notify a customer service representative for in-warranty repairs. First Class Peripherals will honor the warranty if notification of product failure is provided within the one-year warranty period.

The original customer must obtain a Returned Goods Authorization (RGA) from First Class Peripherals and return the defective product to the designated factory or repair center. One-way transportation charges are at the customer's expense. First Class Peripherals will return repaired or replaced product by UPS Ground service at the expense of First Class Peripherals.

First Class Peripherals reserves the right to reject any warranty claim on any products that have been the subject of abuse, misuse, unauthorized repair, alteration, accident, improper return handling or causes external to the product but not limited to: improper power application, improper environmental exposure or other improper use of the product.

First Class Peripherals, at its option, may replace the returned product with a new or refurbished unit of the same type and model as defined by the applicable specifications or published data sheet.

First Class Peripherals includes in its Limited Warranty policy, provisions for updating in accordance with any field change order which First Class Peripherals determines is mandatory for reasons of product safety. All other field changes, revisions or updates not deemed mandatory by First Class Peripherals may be implemented at the discretion of First Class Peripherals or as required by contract.

Out-of-Warranty Repair

First Class Peripherals will provide repair or replacement services for all products manufactured by or for First Class Peripherals and sold by First Class Peripherals for a reasonable active product support period extending beyond last date of standard manufacture and sale. This period will normally be for a term of three years from First Class Peripherals' standard product list, but such period may be decreased at First Class Peripherals' sole option.

Out-of-Warranty products and customer-related damage of in-warranty products will be repaired or replaced in accordance with First Class Peripherals' then-current active product repair price schedule. The customer is obligated for freight and handling charges both ways.

Below are the prices for Out-of-Warranty products manufactured or sold by First Class Peripherals. The prices are effective March 1, 1986 and are subject to change without notice. All price schedules in Revision A (November 84) and Revision B (September 85) of the Sider User Guide are void as of March 1, 1986.

Sider Sider] [B-Sider
250.00 plus 15.00
Shipping Handling & Processing Charges.
Our flat rate includes all parts and labor.

Repair Warranty

First Class Peripherals warrants any product repaired in its factory or repair center to be free from defects in material and workmanship for a period of three months from the date of return delivery or the end of the original warranty period, whichever is greater.

Warranty Registration

Please take a moment to fill out the Warranty Registration card, at the end of this manual, and mail it to the following address:

First Class Peripherals
3579 Highway 50 East
Carson City, Nevada 89701

Attn: Customer Service

B-SIDER SPECIFICATIONS

This section contains specifications for the B-Sider, including dimensions, subsystem requirements and tape characteristics.

Dimensions and Requirements

Following are the physical dimensions and power requirements of the B-Sider.

Height	= 7.5 inches
Width	= 3.4 inches
Depth	= 16.0 inches
Weight	= 10.0 pounds
Source	= 100-126 volts (factory configured)
Line Frequency	= 50/60 hertz (×/- 2%)
Power Consump.	= 30 watts

Tape Cassette Sources

Below is a list of suitable cassette tapes which can be used in the B-Sider.

Maxcell	CS-500
Maxcell	CS-600 — Sider] [Requirements
Teac	CT-500

Subsystem Characteristics

The following section provides additional specifications for the B-Sider streaming tape subsystem.

Recording Method:	GCR
Recording Format:	Single track, serpentine mode
Recording Density:	8,000 BPI
Formated Capacity:	20.7 Mbytes
Interface:I	SCSI
Tracks:	4
Tape Speed:	90 ips
Data Transfer Rate:	86.3 Kbytes/sec.
Repositioning Rate:	1.5 sec.
LSV:	+/- 4%
ISV:	+/- 4%
Error Rate:	Soft Error - 10 eighth Hard Error - 10 tenth
MTBF:	8,000 P.O.H.
MTTR:	0.5 hour
Tape Drive System:	DC motor direct reel drive system
Temperature:	Operating 10-40 deg. C Nonoperating -25-60 deg. C
Relative Humidity:	Operating 20-80% (noncondensing) Nonoperating 10-90% (noncondensing)
Vibration:	Operating 0.2G (5-50Hz) Nonoperating 2G (5-50Hz)
Shock:	Operating 5G (10msec or less) Nonoperating 40G (10msec or less)

GLOSSARY

Block — referring to the 'chunk' size of data which is passed to/from the tape subsystem — 512 bytes.

Byte — the basic unit of information within the computer's memory, comprising eight bits and any value from 0 to 255. Sometimes called a character.

BPI — bits per inch.

Cassette — the medium which the B-Sider uses to store data. Sometimes called a tape. Same physical size as ordinary auto cassette, BUT the media is quite different.

Convection — the ability to maintain adequate ambient Cooling temperature based on the raising of warmer air causing cooler air to be pulled into the unit.

Daisy-Chaining — Multiple devises sharing the same host adapter. Maximum of two Siders and one B-Sider on this bus.

GCR — Group-coded Recording.

Host Adapter — the means which external devices — Siders — can be attached to your computer.

Image — The total set of tracks on the Sider. Meaning boot tracks, all partitions and spares (if used).

ISV — Instantaneous Speed Variation.

Mbytes — short for Megabytes — 1,048,576 bytes.

MTBF — mean time between failures.

MTTR — mean time to repair.

Partitioning — is an area on the Sider which was defined by the user for a particular need, i.e. operating system.

P.O.H. — power on hours.

NOTES:

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WE'RE LISTENING ...

At First Class Peripherals, we listen when you tell us what features you want in your computer products:

* **MORE STORAGE MEMORY.** The Sider provides you with 10 Megabytes of added storage memory while the Sider] [delivers 20 Megabytes.

* **TAPE BACKUP SYSTEM.** The B-Sider is designed to efficiently backup your Sider hard disk — and offers several different backup formats.

* **AFFORDABLE PRICES.** The Siders are the best-preforming, lowest-priced hard disk drive systems and tape backup subsystems on the market today.

* **OPERATING SYSTEM SUPPORT.** The Siders are designed to support the four primary operating systems in the Apple environment.

* **TECHNICAL SUPPORT.** Your Sider gives your access to our toll-free 800-telephone number hotline and trained technical support staff.

* **DEFECT-FREE PRODUCTS.** Your Sider is manufactured by a first class manufacturer — XEBEC whose "Xero-Defect" policy assures you that your Sider will work the first time and for years to come.

* **FREE-TRIAL PERIOD.** Your Sider comes with a 15-day free-trial period — a first in the industry.

* **A REASONABLE WARRANTY.** Your Sider is backed by the best warranty in industry — one full year.

So when FIRST CLASS PERIPHERALS says we're listening, we are. Over the years, your suggestions have helped design one of the most respected product lines in the marketplace — The SIDER line.

SIDER WARRANTY CARD

Name: _____

Address: _____

City _____ State _____ Zip _____

Phone: _____ (Days) _____ (Home)

Manufacturer's Serial Number: _____

☐ Sider ☐ Sider] [☐ B-Sider

1. My Apple is primarily for: ☐ Personal Use ☐ Business ☐ Education

2. My occupation is: ☐ Student ☐ Own my own business ☐ Employee

3. I use the following programs in my Apple (check all that apply):

☐ Apple Works
☐ PFS File
☐ Bank Street Writer
☐ Mastertype
☐ PFS Report
☐ PFS Write
☐ Apple Writer
☐ Dollars & Sense
☐ Multiplan
☐ General Accouting; BPI
☐ Write my own

4. I have the following for use with my Apple:

☐ Printer ☐ Modem ☐ Drive
☐ Monitor ☐ Other: _____

5. I would like First Class Peripherals to offer the following computer products at an affordable price: _____

_____

_____

6. Comments:

Please return to: FIRST CLASS PERIPHERALS
3579 HIGHWAY 50 EAST
CARSON CITY, NEVADA 89701

TAB PLACEMENT

Below is a set of directions which will aid you in getting the "tabs" into the proper location within the User's Guide. Note that the User's Guide consists of two (2) seperate guides — 1) Sider Fixed Disk Subsystem Guide, & 2) B-Sider Streaming Tape Subsystem Guide. Place all blue tabs in the Sider Guide and the red tabs in the B-Sider Guide.

Blue Tabs Insertation

Insert the blue tab **"Introduction"** just in front of the section called **Introduction**. Pg. 1-1

Insert the blue tab **"Hardware Installation"** just in front of the section called **Hardware**. Pg. 2-1

Insert the blue tab **"Concepts & Facilities"** just in front of the section called **Concepts**. Pg. 3-1

Insert the blue tab **"Auto Installation"** just in front of the section called **Installation**. Pg. 4-1

Insert the blue tab **"Operating System Installation"** just in front of the section called **Operating System Installation**. Pg. 5-1

Insert the blue tab **"Support Utilities"** just in front of the section called **Support Utilities**. Pg. 6-1

Insert the blue tab **"Main & Trouble-Shooting"** just in front of the section called **Maintenance**. Pg. 7-1

Insert the blue tab **"Daisy-Chaining"** just in front of the section called **Daisy-Chaining**. Pg. 8-1

Insert the blue tab **"Appendix I - Technical Information"** just in front of the section called **Appendix I**. Pg. 9-1

Insert the blue tab **"Appendix II - Application Installation"** just in front of the section called **Appendix II**. Pg. 10-1

Insert the blue tab **"Glossary of Technical Terms"** just in front of the section called **Glossary**. Pg. 11-1

Insert the blue tab **"Technical Addenda"** just in front of the section called **Technical Addenda**. Pg. 12-1

Insert **Index** Pgs. 13-1 thru 13-5 after **Technical Addenda. Note:** there is no tab for this Index.

Red Tabs Insertation

Insert the red tab **"B-Sider User Guide"** just in front of the title page of the **B-Sider User Guide**.

Insert the red tab **"Introduction"** just in front of the section called **Introduction**. Pg. 1-1

Insert the red tab **"Hardware Installation"** just in front of the section called **Hardware Installation**. Pg. 2-1

Insert the red tab **"Care & Feeding"** just in front of the section called **Care & Feeding**. Pg. 3-1

Insert the red tab **"Having Trouble???"** just in front of the section called **Index**. Pg. 4-1

Insert the red tab **"Technical Information"** just in front of the section called **Technical Information**. Pg. 5-1

Insert the red tab **"Glossary"** just in front of the section called **Glossary**. Pg. 6-1

Insert the red tab **"Index"** just in front of the section called **Index**. Pg. 7-1