

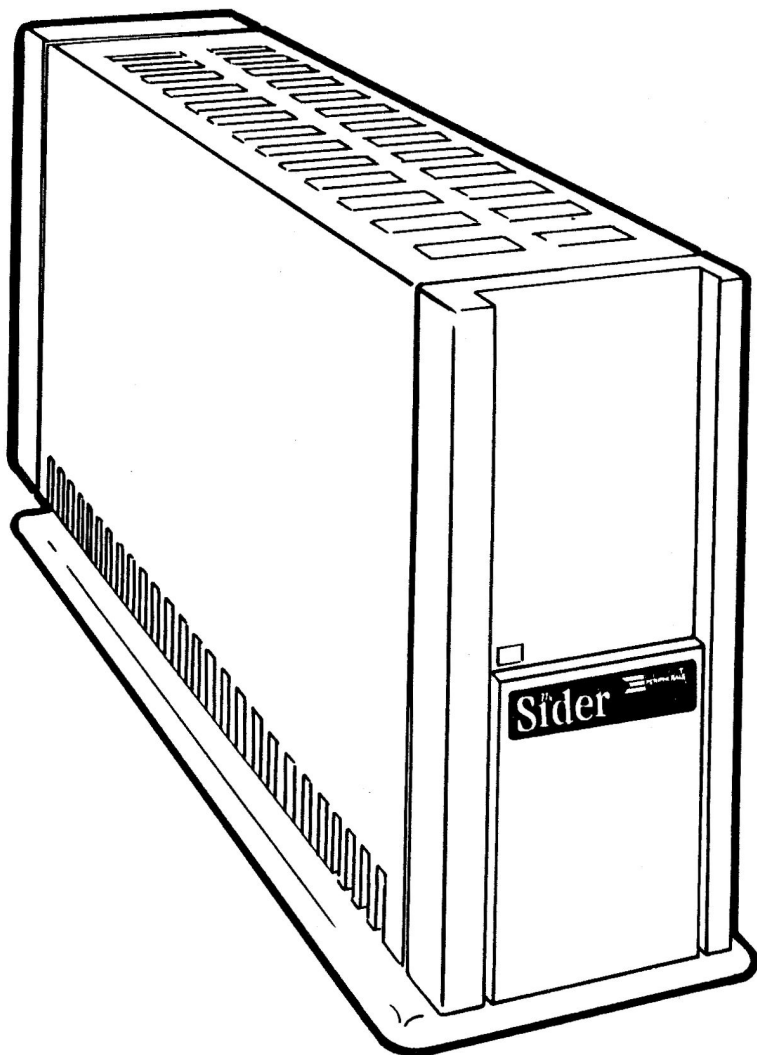
The Sider

User's Guide

FIRST CLASS PERIPHERALS SIDER FIXED DISK DRIVE SUBSYSTEM

* * * *

USER'S GUIDE



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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; you've also backed up your decision with the best warranty available and a toll-free hotline service.

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 commitment to you.

OUR BACKGROUND

Not too long ago, we looked around and 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 for Apple IIe and II 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 made available versions of the Sider for IBM PC users.

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

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:

- 100% satisfaction guarantee
- Full one-year manufacturer's warranty
- Toll-free 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. 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 IIe or II Plus computer and operate the SiderWare 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 IIe and II Plus computers. It adds approximately 10 megabytes — that is, 10 million characters — of high-performance, high-reliability disk storage to the Apple computer.

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:

Table 1. Sider Operating Systems

DOS	Apple DOS	3.3
	Diversi-DOS	4-C
Apple ProDOS		All versions
CP/M	Microsoft SoftCard	2.23 (60K)
	Microsoft SoftCard IIe	2.26B (64K)
	Microsoft Premium SoftCard	2.26B (64K)
	PCPI APPLI-CARD	1.5, 1.6 and 2.0
Apple Pascal		1.1 (64K)
		1.2 (64K and 128K)

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 two "floppy" diskettes, so named because they contain information on both sides rather than just one side, as is the case with standard "floppy" diskettes.

On side one of the first diskette are 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, as well as conversion files for ProDOS.

Likewise, sides one and two of the second diskette contain the SiderWare Support Utilities for CP/M and Apple Pascal. If you choose to use these operating systems on your Sider, the Support Utilities will help you install them.

The Installation Utilities also provide a physical format program for your Sider, to circumvent imperfections that may exist on, or to remove all data from the fixed disk.

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

1-800-537-4337 — TECHNICAL ASSISTANCE

1-800-538-1307 — SALES AND INQUIRIES

1-800-227-7792 — CANADA

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

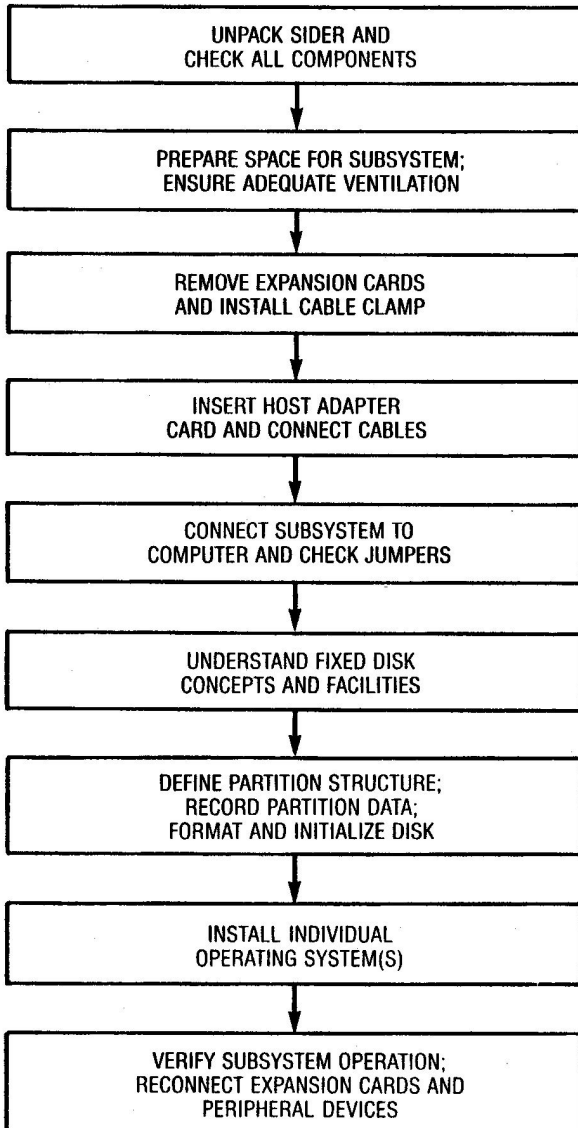


Fig. 1 Installation flowchart

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 IIe L-bracket, depicted in Figure 3.
- An Apple II Plus L-bracket, two long anchor screws and a cable clamp backplate, depicted in Figure 4.
- Two utilities diskettes.
- The input/output (I/O) cable, depicted in Figure 5.
- The power cord, depicted in Figure 6.
- The terminator plug, depicted in Figure 7.
- The Sider warranty card.

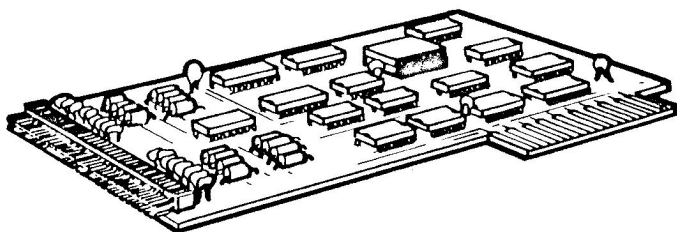


Fig. 2 Host adapter card

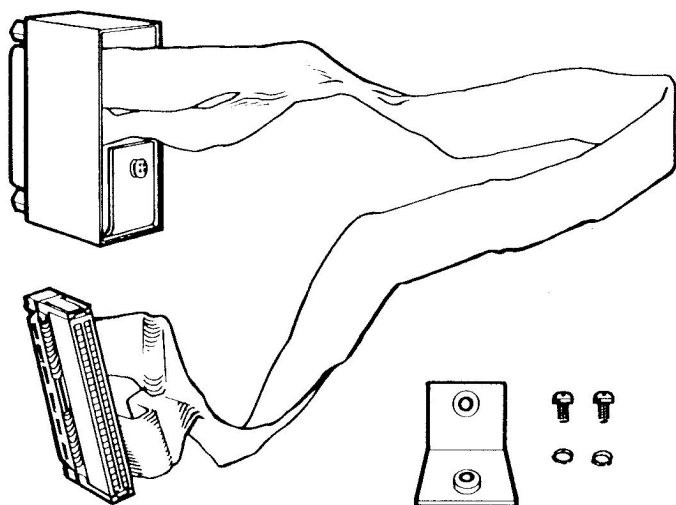


Fig. 3 Ribbon cable and IIE L-bracket

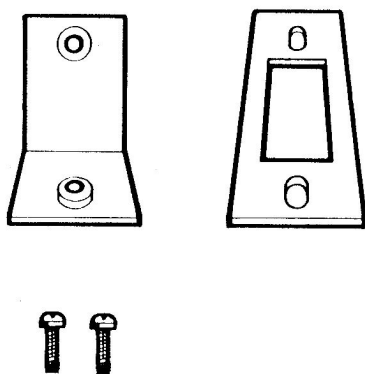


Fig. 4 II Plus L-bracket, screws and backplate

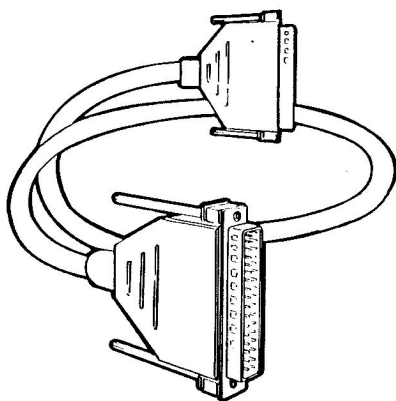


Fig. 5 Input/output cable

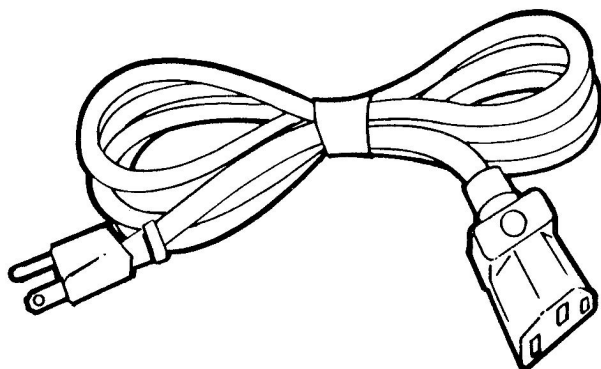


Fig. 6 Power cord

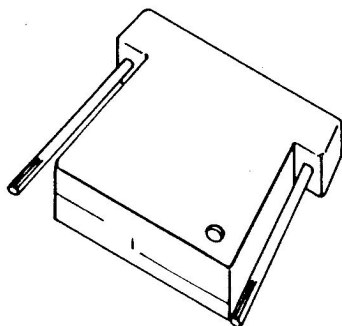


Fig. 7 Terminator plug

The Sider is inside the shipping carton, surrounded by a small cardboard box and blocks of foam padding. Open the top of the cardboard box and you'll find a second cardboard cover, under which is the Sider.

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 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.

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.

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. 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 a surge suppressor power strip, which you can obtain at computer stores and many hardware stores.
- 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.

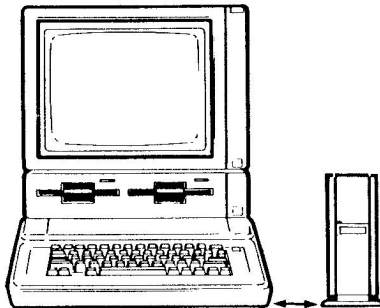


Fig. 8 Allow minimum of 2 inches on all sides for proper ventilation

Now you're ready to connect the host adapter card to your Apple computer. Because of the differences between the Apple IIe and II Plus computers, separate sections of this guide explain host adapter card installation for the two computers. Host adapter card installation instructions for the Apple IIe begin in the following section; installation instructions for the Apple II Plus follow the IIe instructions.

INSTALLING THE HOST ADAPTER CARD — IIe

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

For this operation, you'll need the following items from the accessories box: the host adapter card, ribbon cable, cable clamp and the Apple IIe 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 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.

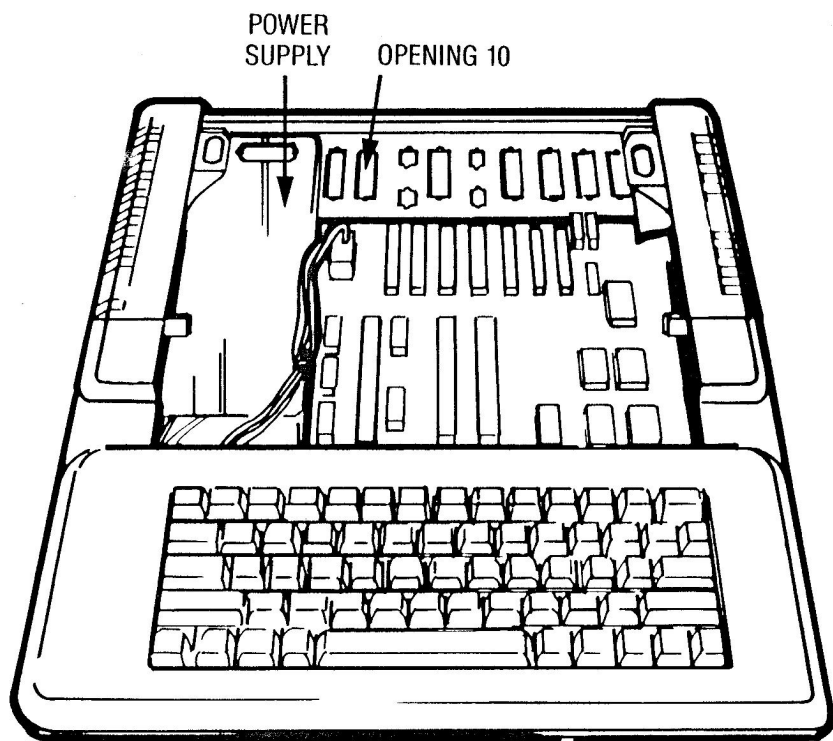


Fig. 9 Touch power supply and remove insert from opening 10

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

Attaching the Cable Clamp

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 IIe L-bracket, as depicted in Figure 10.

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

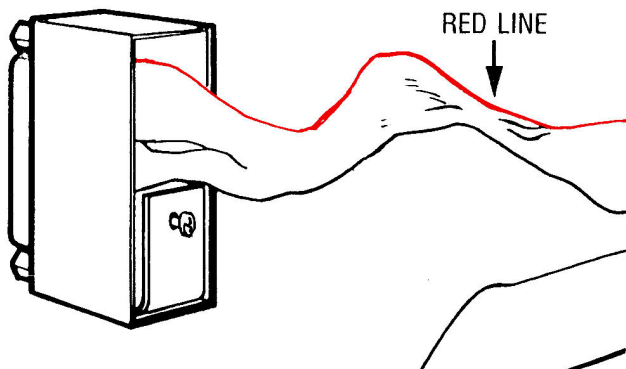


Fig. 10 Loosen L-bracket screw 2 complete turns

Set the cable clamp aside for a moment and retrieve the Apple IIe 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 IIe 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.

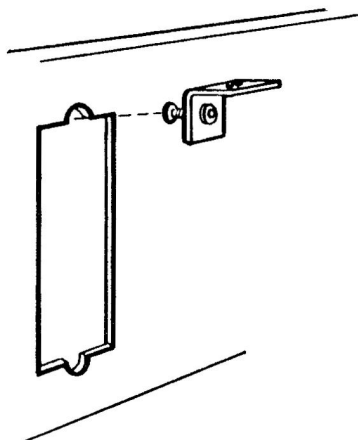


Fig. 11 Install L-bracket in top slot of opening 10

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.

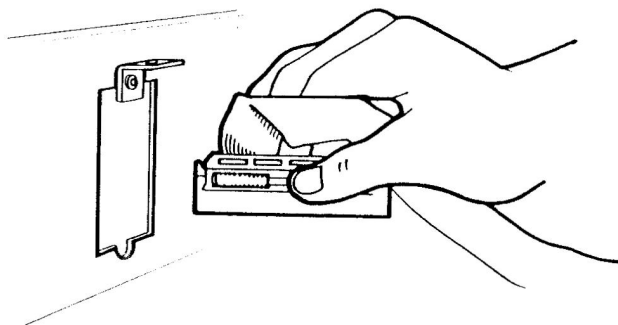


Fig. 12 Fold connector and insert through opening 10

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.

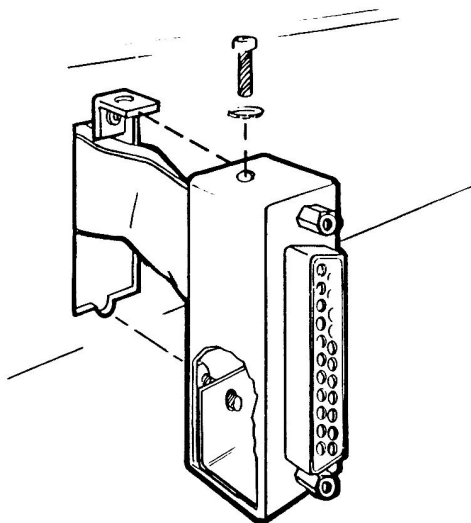


Fig. 13 Attach cable clamp to back panel and tighten screws

Connecting the Host Adapter Card

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, 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.

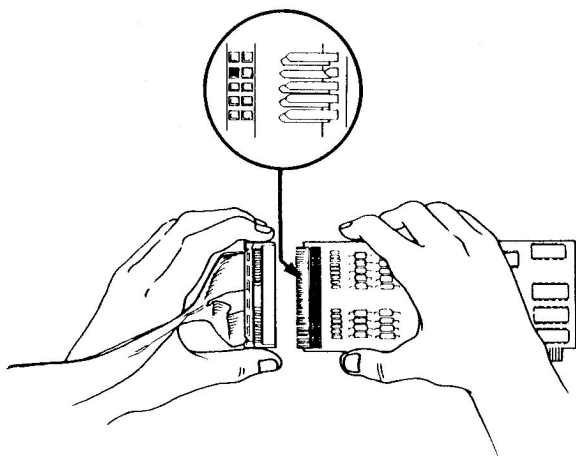


Fig. 14 Attach connector to host adapter card

If you bend a pin, carefully straighten it with your pliers. If you break one, call your customer service representative on the toll-free 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.

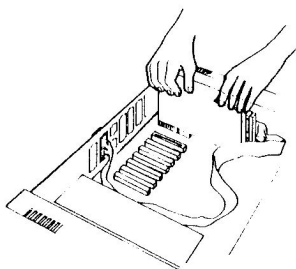


Fig. 15 Insert host adapter card into expansion slot

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, slot 7 is most convenient.

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

- Slot 1 — Printer Card
- Slot 2 — Open
- 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 — II Plus

Before going any further, make sure your Apple II 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 IIe and II 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 they 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.

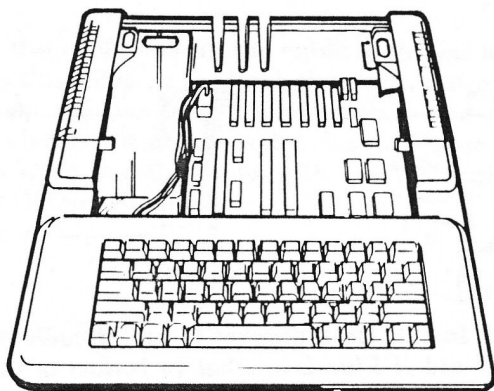


Fig. 16 Touch power supply to dissipate static electricity

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

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 IIe 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 IIe L-bracket.

Slide the long side of the Apple IIe 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.

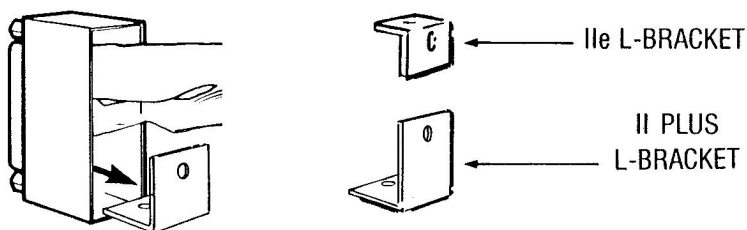


Fig. 17 Install IIe L-bracket in top of cable clamp and II Plus L-bracket in bottom of clamp

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 II 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.

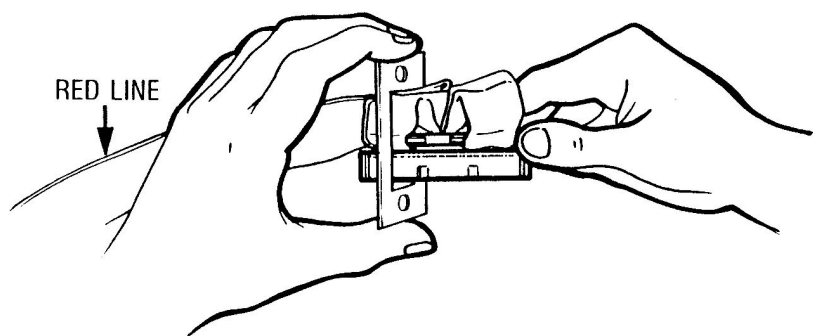


Fig. 18 Fold connector and insert through backplate; attach backplate to cable clamp, but do not tighten screws

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.

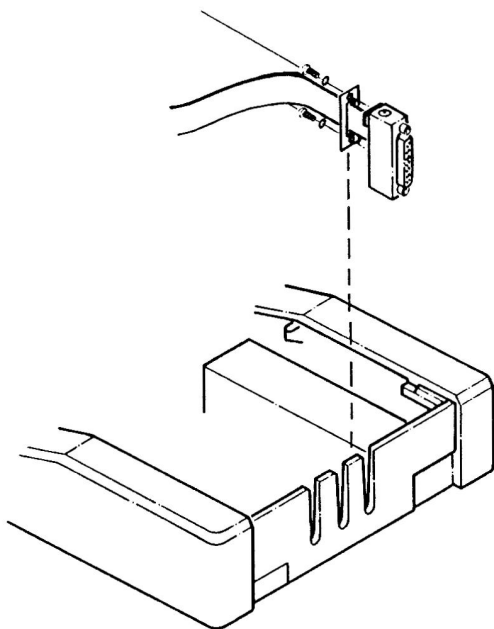


Fig. 19 Attach cable clamp to back panel and tighten screws

Connecting the Host Adapter Card

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 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 adapter card bend and break easily.

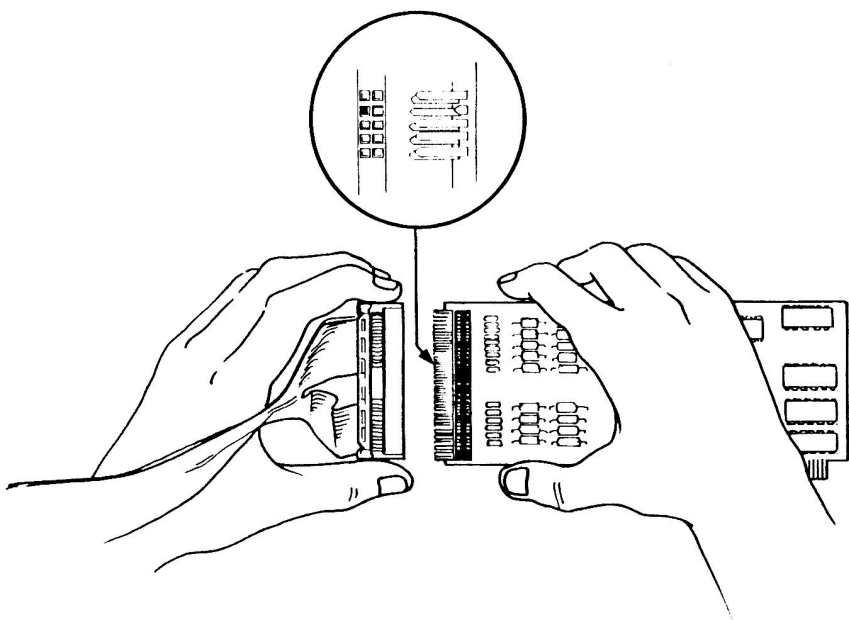


Fig. 20 Attach connector to host adapter card

If you bend a pin, carefully straighten it with your pliers. If you break one, call your customer service representative on the toll-free 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.

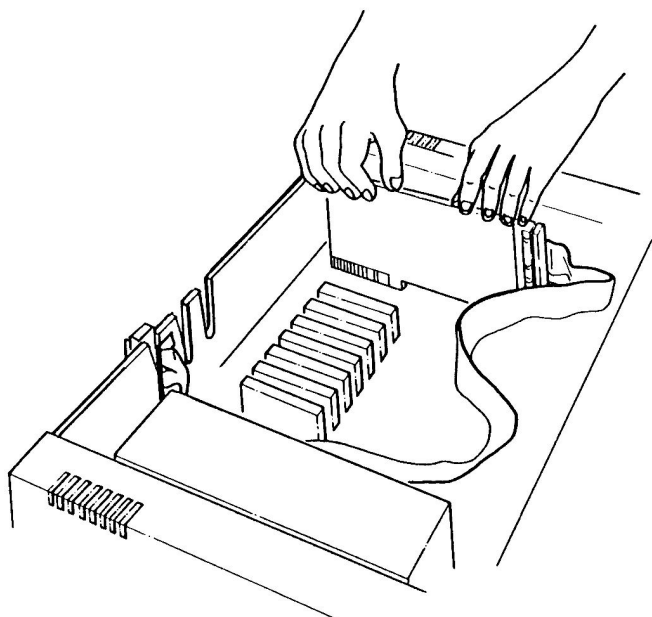


Fig. 21 Insert host adapter card into expansion slot

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 the Sider boot automatically when you apply power to your system, slot 7 is 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:

- Slot 0 — 16K RAM Card or Language Card
- Slot 1 — Printer Card
- Slot 2 — Open
- 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 on either 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.

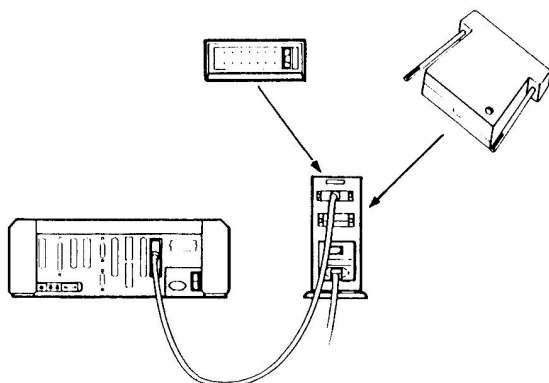


Fig. 22 Attach I/O cable and terminator plug; check jumper placement

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 fixed 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 subsystems, 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.

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.

Thus 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. 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.

Yet one of the most important features of the Sider is its reliability. The Sider contains highly advanced micro-circuitry, 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 parameters 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

An operating system is much like 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 system that several different manufacturers supply. The Sider supports CP/M operating systems from Microsoft, Applied Engineering 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.

These "factory formatted" features are known as "physical" attributes which, like a car's engine, must be in place for the mechanism to function. Combined, these attributes form the "physical volume," or "physical drive" — defined as the total amount of disk space available to the computer for data processing and storage.

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.

Note in Figure 23 that for example purposes only, equal space is allocated to all four operating systems. Note also that a small amount of disk space is always allocated for alternate tracks and boot data.

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.

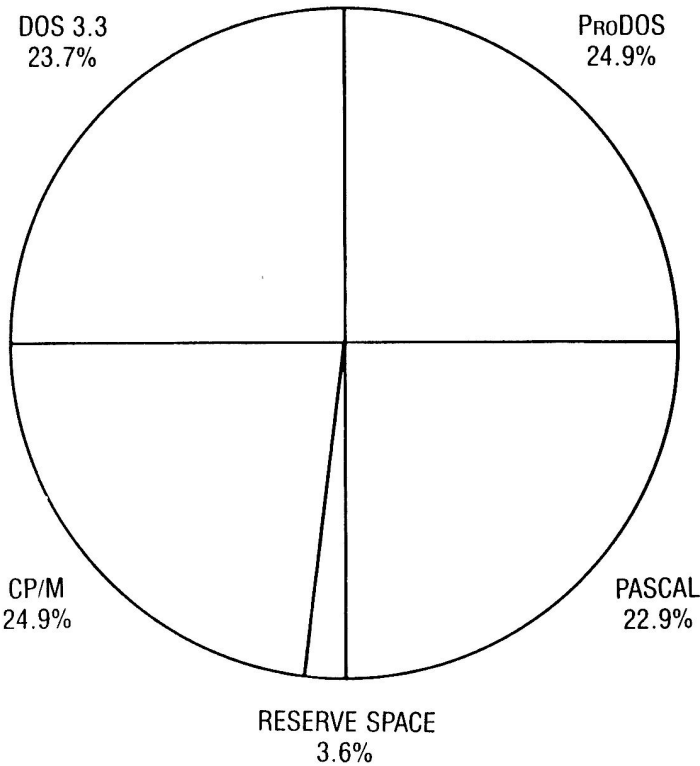


Fig. 23 The subsystem allows 4 partitions

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.

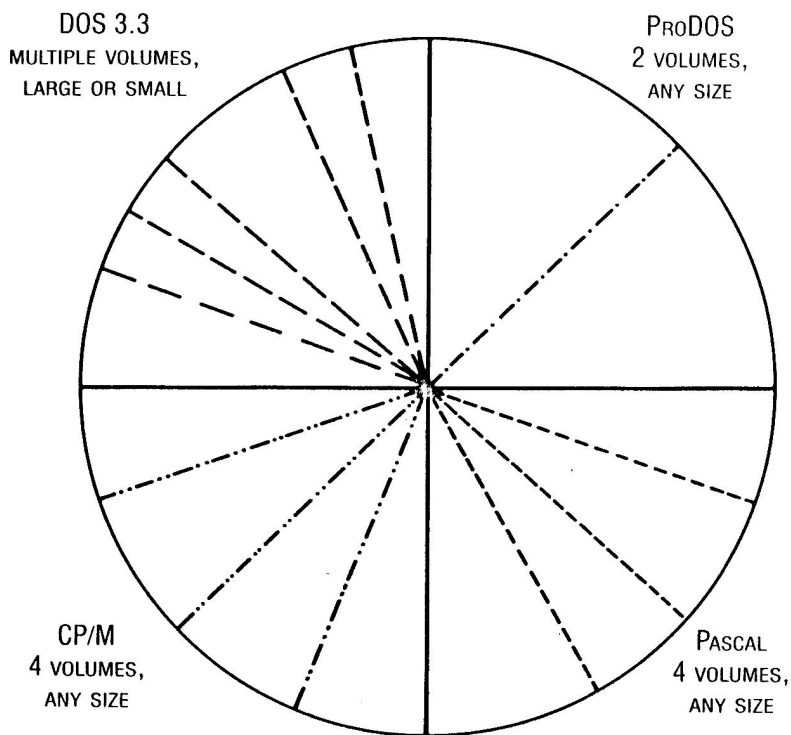


Fig. 24 Each partition has smaller storage areas, called volumes or units

Note that DOS 3.3 allows you to create as many 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, only 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.

Afterward, 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 Systems

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 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 Installation Utilities automatically transfer DOS 3.3 to 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 10 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 Files** — Allows you to back up Sider files to floppy diskettes for safekeeping, then allows you to restore those files 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 numbers 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”).
- **Run User Menu** — Allows you to boot your own startup menu for a given operating system or application program.
- **Format a Floppy** — Formats a DOS data diskette, and allows you to choose whether or not that diskette will be bootable.
- **Return to Main Menu** — Returns you to the Sider’s Main Menu screen.

The 10 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 that 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 (IIe and II Plus), or you can simply perform a three-key boot (IIe 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 things for a new fixed disk user to grasp is the sheer amount of storage space the Sider represents. This often poses 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. And 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 accounts 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.

This point is crucial because the way in which 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. small volumes that contain 140 kilobytes each, roughly the same size as a DOS data diskette; and large volumes that contain 400 kilobytes.

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. Note that both large and small volumes can support up to 105 files.

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.

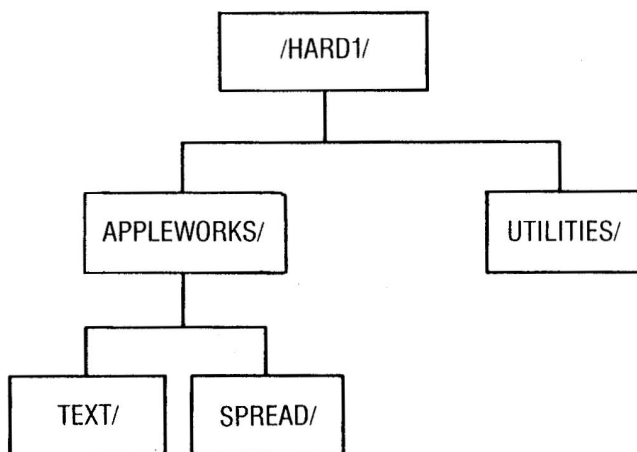


Fig. 25 ProDOS supports tree-structured directories for more efficient use of disk space

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 that you should not store application programs or data files in the ProDOS root directory. The root directory holds only a limited number of 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 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.

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.

The first time you apply power to your Sider, computer and 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 a boot track that doesn't yet exist on the Sider.

The result is that the Sider will "crash" into the monitor and the Applesoft prompt will appear at the top of your screen. The prompt will be followed by a series of numbers (0A06- A=4CX=00 Y=00 P=76 S=F9, for example), which in turn will be followed by an asterick (*) and the blinking cursor. This message will only appear the first time you apply power to your Sider.

The reason that this crash occurs is because the Sider has attempted to boot from a "virgin" format; that is, the correct boot data has not yet been installed on the new Sider.

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

C600G

and press RETURN to boot DOS 3.3. Note that the 6 is followed by two zeros (0). Now you're ready to set up for the Auto Installation sequence.

SETTING UP FOR INSTALLATION

Before installing the operating systems and applications programs, make working copies of your SiderWare Installation and Support Utilities master diskettes. Likewise, make working copies of your operating system master diskettes.

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

and press RETURN. Note that there is no space between COPY and A. The system will prompt you with instructions from then on.

Note that you must copy each side of the SiderWare Support Utilities floppy diskettes onto a separate standard diskette if you don't have blank floppies. 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 two 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

and press RETURN.

The First Class Peripherals Copyright screen and the message “Loading Integer Basic into memory” will appear on your screen momentarily. The system will prompt you to specify whether you’re using Sider 1 or 2. If your Sider is attached directly to your computer, press “1” and RETURN. If your Sider is attached to another Sider in a daisy-chain configuration, press “2” and RETURN.

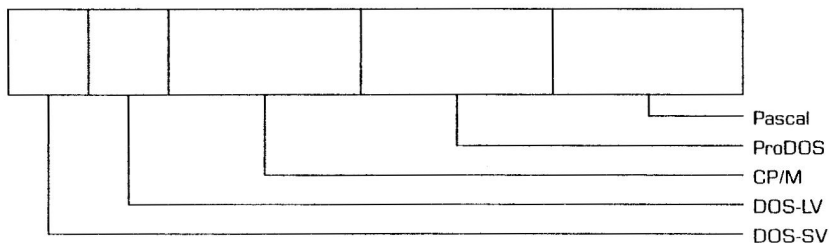
The system will also prompt you to specify whether your Sider is “10MB” or “20MB.” If your Sider has a 10 megabyte fixed disk, press “1” and RETURN. If your Sider has a 20 megabyte fixed disk, press “2” and RETURN.

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

Installation Utility Version 1.10
(c) 1985 First Class Peripherals

DOS-SV	=	1.09MB	=	8	Vols	=	11.4%
DOS-LV	=	1.17MB	=	3	Vols	=	12.3%
CP/M	=	2.37MB				=	24.9%
ProDOS	=	2.37MB	=	4864	Blks	=	24.9%
Pascal	=	2.17MB	=	4448	Blks	=	22.8%

RETURN = Next, L = Largest, S = Smallest
← and → to adjust partition
D = Detail, I = Install



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. 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 a partition to its maximum limit, and making the partition to its right smaller. Conversely, press "S" to move the right-hand 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 in 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 and “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) 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 that when you move the right-hand boundary of the DOS volumes, the numeric volume indicators at the top of the screen will increase accordingly.

Note also that 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 configured 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.

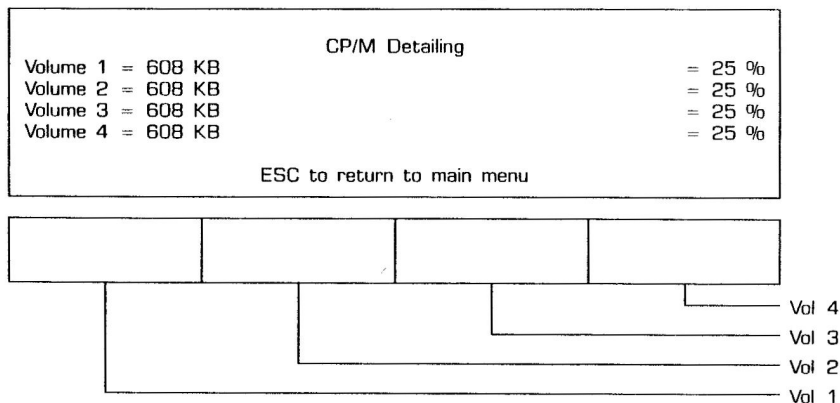
ProDOS, on the other hand, allows only two volumes, but they can be of any size. Note that most ProDOS application programs, such as BPI Accounting, can use only the first volume in the ProDOS partition. They also function best if you set them up in a large ProDOS volume: at least 2 megabytes in size.

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

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. These volumes contain larger allocation units, between 4 kilobytes and 8 kilobytes.

The Detailing screens allow you to adjust the 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.

Installation Utility Version 1.10
(c) 1985 First Class Peripherals



Note 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 are 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" and RETURN 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" and RETURN. 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 Peripheral 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 displaying 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 painstakingly 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.

If any information was unsuccessfully recorded on the Sider, the system will display a "91" or "98" error code. Both of these messages are informational, and require no action on your part. The system automatically takes care of the situation.

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 — indicating so on the screen — and then will proceed to the Sider’s Main Menu screen.

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 and RESET simultaneously. Then type

PR#X

and press 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.

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

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

and press 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.

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

and press RETURN. Again note that there are no spaces between the commas and the identifiers that follow them. In the sample command above, the "X"s — SX,DX,VX — represent expansion slot, drive and volume identifiers; each time you invoke a HELLO program, you'll provide actual numbers for those identifiers.

Also note that you must 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

RUN (PROGRAM NAME),S6,D1

and press 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.

Next, at the Applesoft prompt, type

UNLOCK QUIT (DOS & PRODOS),D1,V1

and press RETURN. When the Applesoft prompt reappears, type

RENAME QUIT (DOS & PRODOS),QUIT

and press RETURN. When the Applesoft prompt reappears, type

LOCK QUIT

and press RETURN. 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

and press 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 Side'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.

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.

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 "/USERS.DISK/= " 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/=

and press RETURN twice. 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

and press 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.

To simplify the exit procedure, you can convert the DOS 3.3 file "Quit (DOS & PRODOS)" to ProDOS. You'll find the file on the Support Utilities for DOS 3.3 diskette.

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, invoke the Applesoft prompt. Then type

CAT /HARD1/ (or /HARD2/)

and press RETURN.

To execute a given program in the ProDOS partition, type

`—(PREFIX)/(PROGRAM NAME)`

and press 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.

For example, to execute APPLEWORKS (if you've installed this application in the first ProDOS volume on your Sider), type

`—/HARD1/APPLEWORKS/APLWORKS.SYSTEM`

and press RETURN.

CP/M INSTALLATION

First Class Peripherals now supports any one of the following CP/M operating systems on the Sider: Microsoft's SoftCard Family; and PCPI, versions 1.0, 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/M 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.

Note that 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 for use with the Sider.

Note for SoftCard 2.23 Users

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

CPM60

at the "A>" prompt, and press 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 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.

Note for SoftCard 2.26B and 2.28B Users

If the copyright information includes “44K Ver. X.XX,” follow the same instructions as presented in the “Note for Softcard 2.23 Users” to update the diskette.

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

and press RETURN. The system will ask you to indicate which version of the SoftCard system you have: 2.23, 2.26B or 2.28B. Choose the appropriate version and the First Class Peripherals CP/M Installation Program screen will appear.

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.

However, note that 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. The system will then prompt you to enter a string that will be executed when the system is rebooted. Enter the string and press RETURN; the “A>” prompt will reappear.

Following are sample strings for 2.23 users:

- Enter "DIR *.COM" and press RETURN. The system will display all of the files on drive A: that have "COM" as a file extent.
- Enter "SUBMIT MYHELLO" and press RETURN. The system will execute a submit file named "MYHELLO.SUB."

Following is a sample string for 2.26 and 2.28 users:

- Enter "DIR *.COM:B:DIR *.COM:WS" and press RETURN. The system will display the directory of drive A:, log in to drive B:, display the directory of drive B: and execute WordStar on drive B:.

Next, with the SiderWare Support Utilities for CP/M diskette in floppy disk drive 1, insert the System Diskette into floppy drive 2. At the "A>" prompt, type

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

and press 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. Type

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

and press 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 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

MEXIT

and press 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[IV]

and press 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 PCPI APPLI-CARD

Note that 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.

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.

At the "A>" prompt, type

STAT

and press 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 ASM.COM

and press RETURN. The system will delete the file, and the "A>" prompt will reappear.

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]

and press RETURN. The system will copy the file, 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 entering "B:" and pressing RETURN. When the "B>" prompt appears, type

INSTALL

and press 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

and press 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

and press 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 driver number for "APL 16*35 FLPPY" (your floppy disk drive) and enter that number at the prompt.

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" and press RETURN. The system will record the change and return you to the Installation Menu screen.

If you're using a printer buffer on your computer, press "F" at the Installation Menu screen to "Move a driver." When prompted, enter the driver number for the printer buffer.

The system will indicate the current location of the driver and prompt you to enter a destination driver number. 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 at 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, 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

and press 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

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

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 to the first volume in the CP/M partition. At the "A>" prompt, type

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

and press 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]

and press 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

and press RETURN twice — the first time to enter the command, and the second time to begin the boot track creation process. Note that 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

and press 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]

and press 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.

APPLE PASCAL INSTALLATION

First Class Peripherals now supports Apple Pascal operating system, versions 1.1 (64K) and 1.2 (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 Support Utilities diskette and diskette Apple1:. Do not use the master diskettes, because the installation sequence will make permanent modifications to the programs.

Also, the installation sequence includes instructions for using both single and dual floppy disk drives. A single floppy disk drive will suffice, but a dual drive involves fewer steps in the sequence.

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 working 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 "6" at the Sider's Main Menu screen to boot Pascal. The Pascal Welcome screen and the Command prompt line will appear on your screen.

At the Command prompt line, press "F" to access the Filer prompt line. Then, at the Filer prompt line, press "T" to transfer the files from the Support Utilities for Apple Pascal diskette to diskette Apple1:.

When the system asks "Transfer what file?," type

FCP:=,APPLE1:\$

and press RETURN. As the system completes the transfer, a listing of the files from both diskettes appears, along with the Filer prompt line.

Additional Steps — Version 1.2

If you're using version 1.2 of Pascal, you need to change two file names on diskette Apple1: before transferring them to the Sider.

With diskette Apple1: in drive 1, press "R" at the Filer prompt line. When the system asks you which file you want to remove, type

SYSTEM.ATTACH

and press RETURN. The system will ask you if you want to update the directory. Press "Y" and the Filer prompt line will reappear.

Remove the file "ATTACH.DATA" by following the same steps as above. The Filer prompt line will reappear when you've completed this step.

At the Filer prompt line, press "C" to change the names of two files. When the system asks you which file to change, type

SYS.ATTACH.1.2

and press RETURN.

When the system asks you what you want to change the name to, type

SYSTEM.ATTACH

and press RETURN. The Filer prompt will reappear.

Follow the same steps to change ATTACH.DATA.1.2 to ATTACH.DATA and return to the Filer prompt line.

Note that you have now altered the working copy of diskette Apple1:. Do not use this copy for any purpose other than installing Pascal on the Sider; these alterations will prevent Pascal from functioning in any other than the Sider environment.

To distinguish the altered diskette from the unaltered diskette, attach a new label to it, designated as "Pascal Sider Boot diskette."

Completing Pascal Installation

Press “Q” to exit to the Command prompt line, and then press “H” to exit to the Sider’s Main Menu screen.

Entering an “H” from the command line will reboot the computer into the highest bootable expansion. If the Sider’s host adapter card is installed in slot 7, the Sider’s Main Menu screen will appear. But if the Sider’s host adapter card is installed in a slot number that’s lower than the controller card (floppy), then the computer will attempt to boot into slot 6, floppy disk drive 1.

The direct way to return to the Sider’s Main Menu screen is by executing the program named “QUIT.”

With Pascal Sider Boot diskette in floppy disk drive 1, press “G” at the Sider’s Main Menu screen. The system will load the diskette’s contents into memory. Then the Pascal Welcome screen and Command prompt line will appear.

You now need to transfer the files from the Pascal Sider Boot diskette to the first Pascal volume in the Sider’s Pascal partition. Press “F” to access the Filer prompt line, then press “T” to transfer the files.

When the system asks “Transfer what file?” type

```
APPLE1: = ,HARD1:$
```

and press RETURN.

As the system completes the transfer, a listing of the files from both diskettes appears, along with the Filer prompt line. Press “Q” to quit the Filer program and return to the Welcome screen. Then press “H” to exit to the Sider’s Main Menu screen.

Now you need to assign volume identifiers — Pascal refers to them as unit numbers — for the Sider’s four Pascal volumes and the floppy disk drives. Pascal requires that the first volume on the Sider be designated as unit #4 if it’s to be bootable.

Thus, if you’re installing Pascal on the Sider that’s attached directly to your computer, the first two volumes on that Sider must be designated as unit numbers 4 and 5.

The other two Sider Pascal volumes can either be designated as unit numbers 9 and 10 or units 11 and 12. Your floppy disk drives will receive the remaining two unit designation numbers.

If you're installing Pascal on both Siders in a daisy-chain configuration, see "Support Utilities" for instructions regarding unit number assignments.

At the Sider's Main Menu screen, press "5" to access the SiderWare Support Utilities screen. At the Support Utilities screen, press "5" again to "Change Pascal Unit Number" and the Pascal Partition screen will appear.

Note the highlight under volumes "1 & 2"; without changing its position, press "1" to assign unit numbers 4 and 5 to the first two volumes.

Next, press RETURN to move the highlighted line under volumes "3 & 4"; then press either "2" or "3," depending on whether you want to assign unit numbers 9 and 10 or 11 and 12 to the second two volumes. The remaining unit numbers will automatically appear under the floppy disk drive "squares" (graphic depiction of the drives) on the far left side of the screen.

To record the new unit numbers, press CONTROL and "R" simultaneously. Then press ESC to return to the Sider's Main Menu screen.

The Pascal operating system is now installed on the Sider. To access Pascal, simply press "1" at the Sider's Main Menu screen. To exit from the Pascal operating system back to the Sider's Main Menu screen, press "X" and when the system prompts you to enter a file name.

Then type

QUIT

and press RETURN. The Sider's Main Menu screen will reappear.

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 intend 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're 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 applications programs, and have begun using the Sider regularly, you'll discover that the subsystem is an unassuming 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 nine options. The following sections discuss these nine options.

SUPPORT UTILITIES MENU VERSION 2.10 (C) 1985 FIRST CLASS PERIPHERALS

SUPPORT UTILITIES MENU

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CHOOSE ONE OF THE ABOVE
PRESS ESC TO GO TO SIDER MAIN MENU

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 and the 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 boot 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.

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 then prompt you to identify your Sider as "Sider 1 or 2." If your Sider is attached directly to your computer, press "1" and RETURN; if your Sider is attached to another Sider in a daisy-chain configuration, press "2" and RETURN.

Within several seconds the system completes its diagnostics 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 exits 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.

DOS FILE UTILITIES

Emulating Apple's DOS 3.3 FID program, the DOS File Utilities offer you 11 file management functions:

- 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 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.

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.

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” and RETURN at the File Utilities screen. The Copy Files screen will appear, prompting you to identify the source slot. Enter the number of the slot in which your floppy disk controller card is inserted and press RETURN.

The system will prompt you to identify the source drive; press “1” and 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.

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 enter an equal sign (=) and press RETURN if you want to copy all files on the diskette.

If you use the wildcard equal sign, the system will ask you if you want prompting. Press “N” (no) if you want to copy all of the files on the floppy; or press “Y” (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 File Utilities screen.

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, "1" for the drive number and the number of the volume into which you want to copy the file.

Note that 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 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.

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.

Slot/Drive/Volume Indicator

Note at the bottom of the 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 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.

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 File Utilities screen provides you with a list of the files on a floppy diskette or the Sider’s DOS partition.

Before executing the Catalog utility, check the slot/drive/volume indicator at the bottom of the screen. If the coordinates aren’t satisfactory, reset the indicator before continuing.

Next, press “2” and RETURN at the File Utilities screen. The system will provide instructions for accessing the DOS directory of your choice.

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.

Choose option 3 and press RETURN at the File Utilities screen. The system will display the used and available space, then prompt you to press RETURN to exit to the File Utilities screen.

Unlock Files

This utility removes the “soft” write-protect lock that you can install on a given 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 and press RETURN at the 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.

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” (no) if you want all of the files in the volume unlocked; or press “Y” (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 File Utilities screen.

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

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.

Choose option 5 and press RETURN at the 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 File Utilities screen. See “Unlock Files” to gain subsequent access to the locked file.

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.

Choose option 6 and press RETURN at the 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 File Utilities screen.

Reset Slot & Drive

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

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

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.

Choose option 8 and press RETURN at the 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.

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 the utility, press "9" and RETURN at the 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.

Image Copy

This utility allows you to copy entire volumes from 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.

Before executing the Image Copy utility, check the slot/drive/volume indicator at the bottom of the screen. If the coordinates aren't satisfactory, reset the indicator before continuing.

Then choose option 10 and press RETURN at the Filer Utilities screen. As with previous copy utilities, Image Copy doesn't require a volume coordinate 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 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 File Utilities screen.

Quit

The eleventh option on the File Utilities screen returns you to the Sider's Main Menu screen. Simply press "11" and RETURN.

BACKUP/RESTORE FILES

The Backup/Restore Files utility is an integral part of Sider file management. With this utility you have the ability to create and maintain a dynamic, efficient library of your DOS, CP/M and Pascal files. Note that the Backup/Restore Files utility doesn't function under ProDOS; separate instructions for ProDOS backup and restore activities are presented at the end of this section.

There are two reasons for maintaining a backup library of your files and programs. First, with a backup library you can store infrequently used programs and files away from the Sider, thus making efficient use of available disk space.

Second, in the unlikely event of a hardware or software malfunction, in which you could potentially lose data from the Sider, a dynamically maintained library will contain the most recent copy of a given program or file. You can thus restore the program or file to the Sider with minimal disruption to your processing routine.

A library consists of a "directory diskette" and as many as 127 data diskettes. The directory diskette contains a list of the files that you back up onto the data diskettes.

You can create multiple libraries to keep orderly control of your programs and files. Optimally each library contains groups of similar programs and files; for example, one library might contain word processing files for a given subject while another library might contain accounts receivable files.

Each library, in turn, can contain files from different operating systems. However, you can only restore a file to the operating system from which it came.

Execute the Backup/Restore Files utility by pressing "4" at the Support Utilities Menu screen. The system will load the utility program and prompt you to enter the current date by month, day and year. The current date is crucial because the Backup Files utility records that date on each file that you back up so that you can identify it at a later time.

After you enter the final RETURN on the date screen, the Backup Utility screen will appear, as Sample Screen 4 illustrates. Note that from then on you can press ESC and the system will exit you from **whatever** screen you're in, then return you to the previous screen, **allowing** you to make changes at any time during a given **procedure**.

The Backup Utility screen offers you four options. The following sections describe those options.

Directory (Any Partition)

To execute the Directory utility, press "1" at the Backup Utility screen. The Directory screen will appear, offering you the option to review the directories of the Sider's DOS, CP/M and Pascal partitions, as well as the contents of a directory diskette or "backup volume."

FIRST CLASS PERIPHERALS BACKUP UTILITY
VERSION 1.1

(C) 1985

CURRENT DATE: 08/01/85

CHOOSE ONE OF THE FOLLOWING OPTIONS

- (1) DIRECTORY (ANY PARTITION)
- (2) BACKUP/RESTORE FILES
- (3) SET DATE
- (4) QUIT

SELECT ONE OF THE ABOVE →

Choose one of the options and the system will prompt you to specify which volume (unit). Choose a volume and press RETURN.

The system will then prompt you to enter a “search string.” A search string allows you to specify files of similar types; for example, at the search string prompt for DOS volume 1, type

HELLO*

and press RETURN.

The asterisk (*) serves as a wildcard character, designating a string of all files that begin with “HELLO.” So the following directory will appear:

DIRECTORY OF DOS VOLUME 1

```
A* 2 HELLO DOS
B  4 HELLO-M226B.OBJO
B  6 HELLO-M223.OBJO
B  4 HELLO CPM
B* 7 HELLO PASCAL
B  3 HELLO-M228B.OBJO
A* 6 HELLO DOS (DIVERSI DOS)
```

```
FREE SECTORS:  124 (  31.K)
USED SECTORS:  436
```

PRESS RETURN TO CONTINUE

To review the entire directory of a given volume, simply enter the asterisk “*” at the search string prompt and press RETURN.

To review the directories for the CP/M and Pascal volumes — the ProDOS directory is not available through this utility program — follow the same steps as with the DOS directory.

To review the contents of a directory diskette, press “4” at the Directory screen. The system will prompt you to put the directory diskette into slot 6, drive 1 and press RETURN. Then it will display the directory on your screen.

Backup/Restore Files

To access the Backup/Restore Files utility, press “2” and RETURN at the Backup Utility screen. The system will display the Backup/Restore screen, as Sample Screen 5 illustrates.

```

                                     BACKUP / RESTORE

LIBVOL = NONE                                DATE 08/01/85

CHOOSE ONE OF THE FOLLOWING

(1) CREATE NEW BACKUP LIBRARY
(2) BACKUP FILES
(3) RESTORE FILES
(4) LOAD DIRECTORY
(5) SAVE DIRECTORY
(6) VERIFY BACKUP MEDIA
(7) DIRECTORY OF ANY PARTITION

SELECT ONE OF THE ABOVE →
```

The following sections discuss the options on this screen.

Create New Backup Library

Before you can back up a file, you must define a library by creating a directory diskette. Press “1” and RETURN at the Backup/Restore screen and the system will provide directions for creating a new backup library. Remember that you can create as many libraries as you need to cover all of your major file groups.

Backup Files

The data diskettes that accompany your new directory diskette will contain the files that you back up from the Sider. To execute the Backup Files utility, press “2” and RETURN at the Backup/Restore screen.

The system will instruct you to place a directory disk in slot 6, drive 1, and to press RETURN to continue. The system will then load the contents of the directory diskette into memory and display the Specify Partition screen, depicted in Sample Screen 6.

Choose the partition from which you want to back up a file. For example, to back up a file from the DOS partition press "1" and RETURN. You can practice with the first volume of the DOS partition, because it contains the files that were transferred during the Auto Installation sequence.

BACKUP

LIBVOL = TEXT

DATE 08/15/85

BACKUP FILES FROM

- 1) DOS
- 2) CP/M
- 3) PASCAL

The system will prompt you to specify which DOS volume you want to back up. Press "1" and RETURN again. The system will then prompt you to enter a search string. For practice, type

HELLO*

and press RETURN.

The system will display the first "HELLO" file in the volume and ask you if you want to back it up; press "Y" and RETURN. The system will then inform you that additional data disks are required, because you haven't created any for the new directory diskette.

The system will provide directions for formatting and initializing a data diskette, and then prompt you through the backup process.

When you've completed the backup process, the system will ask you if you want to save the new directory; that is, the directory which now contains the names of the "HELLO" files that you backed up.

If you want to backup other files, press "N" and RETURN; the system will then take you back to the Backup/Restore screen for additional backup and restore activities. But if you don't want to back up other files, press "Y" and RETURN; the system will provide instructions for saving the directory and exiting to the Backup/Restore screen.

The Backup utility won't allow you to exit the program if you haven't updated the directory diskette. It's prudent to keep two copies of each directory diskette so that you never "overwrite" the current copy.

For example, if the system malfunctions during the overwriting process and you're using the only directory diskette, you might lose important data. But if you're overwriting a diskette that's one generation old, the worst thing you would have to do is recopy, from the current copy, the files you lost when the system malfunctioned.

Restore Files

To restore a file to the Sider, press "3" at the Backup/Restore screen. The system will instruct you to place a directory diskette in floppy disk drive 1. Insert the diskette that contains the names and locations of the files you want to restore and press RETURN. The system will load the directory into the computer's memory.

If you don't remember the name of the files you want to restore, press "7" at the Backup/Restore screen to review the contents of the directory diskette; the system will provide instructions for accessing the directory diskette.

Then return to the Backup/Restore screen and press "3" again to access the Restore utility. The system will display the name of the directory diskette in the top left corner of the screen, and prompt you to enter the name of the file you want to restore.

Again for practice purposes, restore one of the "HELLO" files. Type

HELLO DOS;0/D

and press RETURN. Be sure to include the suffix, ";0/D" as part of the file name: The zero (0) refers to the version of the file and "D" designates it as a DOS file. ("C" designates CP/M files and "P" designates Pascal files.)

The system will ask you if you want to restore "HELLO DOS;0/D"; press "Y" and RETURN. The system will then ask you which DOS drive or volume you want to restore the file to. For this example, press "2" and RETURN to restore the file to the second DOS partition on the Sider, rather than writing over the original file on the Sider's first DOS volume.

Next, the system will prompt you to insert the data diskette into floppy disk drive 1 and press RETURN to continue. Then the system will offer you the option of renaming the file. If you want to rename it, enter the new name and press RETURN; if you don't want to rename it, simply press RETURN.

The system will display a "DONE" message when it completes the restore function. Then it will prompt you to press RETURN to exit to the Backup/Restore screen, where you can back up or restore more files or exit to the Sider's Main Menu screen.

Load Directory

This utility allows you to load the contents of any directory diskette into the computer's main memory for the backup and restore sequence.

Save Directory

If you've chosen not to save the updated directory following a backup session because you wanted to copy other files, this utility allows you to save it before exiting back to the Sider's Main Menu screen.

Verify Backup Media

Another of the built-in Sider safeguards, this utility allows you to verify the integrity of the data on any backup diskette to ensure that the diskette has no defects and that the data you transfer to the Sider is viable.

Directory of Any Partition

So you don't have to exit to the Backup Utility screen to review a partition or library directory, this utility allows you to access those directories during a backup or restore session.

To exit from this utility to the Backup/Restore screen, press ESC.

Set Date

Option 3 on the Backup Utility screen allows you to change the current Backup/Restore date without exiting the Backup/Restore Files utility.

Simply press "3" and RETURN, and follow the system's instructions. When you've set the date, you'll return to the Backup Utility screen.

Quit

Option 4 on the Backup Utility screen provides an exit from the Backup/Restore Files utility to the Sider's Main Menu screen.

Press "4" and RETURN, and follow the system's instructions.

ProDOS Backup and Restore

At the Sider's Main Menu screen, choose option 4 to boot into the ProDOS partition on the Sider. Then, at the User's Disk menu, press "C" to access the Convert menu.

At the Convert menu, press "T" to transfer a file. Insert the Support Utilities for DOS 3.3 diskette into floppy disk drive 1. Then, at the file name prompt, type

BU (PRODOS)

and press RETURN. The system will convert the file to the Sider. When the system completes the conversion process, press ESC to return to the Convert menu. Then press "Q" to exit from the Convert utility to the Quit screen.

At the Quit screen, press RETURN to exit to the User's Disk menu, then press "B" to access Applesoft Basic. At the Applesoft prompt, type

RENAME BU..PRODOS.,BACKUP.SYSTEM

and press RETURN. The system will complete the name change, and the Applesoft prompt will reappear.

To execute the ProDOS Backup/Restore from the Applesoft prompt (whenever you're in the ProDOS partition), type

-BACKUP.SYSTEM

and press RETURN. Then follow standard ProDOS procedures for backing up and restoring files.

CHANGE PASCAL UNIT NUMBER

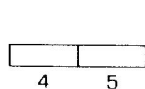
At the Support Utilities Menu screen, option 5 allows you to change the volume (unit) identifiers in the Pascal partition and to designate which volumes will be on-line in a daisy-chain configuration. Press "5" to execute the program and the Pascal Partition screen will appear, as depicted in Sample Screen 7.

Pascal Volume Utility Version 2.0
(c) 1985 First Class Peripherals

Change Pascal Volume

Quit;return to Sider Main Menu	CTRL Q
Record new volume number	CTRL R
Move to next volume	RETURN

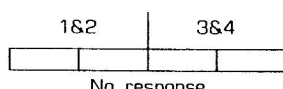
Turn volume OFF	0
Assign as volumes 4 and 5	1
Assign as volumes 9 and 10	2
Assign as volumes 11 and 12	3



FLOPPY



Sider #1



Sider #2

Note the highlight under volumes "1 & 2"; without changing its position, press "1" to assign unit numbers 4 and 5 to the first two volumes.

Next, press RETURN to move the highlight under volumes "3 & 4"; then press either "2" or "3," depending on whether you want to assign unit numbers 9 and 10 or 11 and 12 to the second two volumes. The remaining unit numbers will automatically appear under the floppy disk drive squares on the far left side of the screen.

If you install Pascal on both Siders in a daisy-chain configuration, you have as many as eight units 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 Pascal.

When you invoke the Change Pascal Unit Number utility, choose which four Sider units you want to be on-line, and assign units 4 and 5 to the first two of those four units.

Then assign units numbers 9 and 10 or 11 and 12 to the other two Sider units. The floppy drive units will automatically assume the remaining unit identifiers.

In a daisy-chain configuration in which you've installed Pascal on both Siders, turn the other four Sider units "OFF."

To record the new unit numbers, press CONTROL and "R" simultaneously. Then press ESC to return to the Sider's Main Menu screen.

MOUNT/DISMOUNT CP/M VOLUMES

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 and "Q" 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.

CREATE NEW 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 change, 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 and RESET simultaneously to get the Applesoft prompt. At the Applesoft prompt, type

PR#X

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

RUN USER MENU

To boot a DOS floppy diskette containing application software or video games, you often have to enter a lengthy series of commands. To circumvent these commands, many Apple computer users create their own boot program — often naming it “HELLO” — which automatically enters those commands.

The Run User Menu utility allows you to transfer your HELLO program to the Sider's DOS partition, so you can use it in the same manner as before. The following instructions will help you transfer your HELLO program to the Sider.

First, insert the floppy diskette containing your application software or video games into floppy disk drive 1. Then copy that diskette to any Sider DOS 3.3 volume except volume 1 — you don't want to risk erasing the utilities contained on volume 1.

Next, boot into the DOS partition from the Sider's Main Menu screen. At the Applesoft prompt, type

NEW

and press RETURN. When the Applesoft prompt reappears, type

10 PRINT CHR\$(4);“RUN HELLO,V6”

and press RETURN. Note that “HELLO” in this command can be replaced with any program name you choose.

When the Applesoft prompt reappears, type

SAVE USER MENU

and press RETURN. Your program is now installed.

To access this program, simply choose option 5 at the Sider's Main Menu screen to run the Support Utilities. At the Support Utilities screen, choose option 8 and the system will automatically boot into DOS and execute your HELLO program.

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 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.

ADDITIONAL DOS 3.3 UTILITIES

On the Support Utilities for DOS 3.3 diskette are two additional utilities. The following paragraphs describe LBLDSK and CHKDSK.

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

and press 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 popular ZARDAX word processor to volume on the Sider, enter a "5" and press RETURN. The system will then ask you for the volume's name. In this example, you would type

ZARDAX

and press 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

and press RETURN.

Next, type

BRUN CHKDSK

and press 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 percentage of the partition's disk space is currently in use.

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.

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 requires more time, as described in “Concepts and Facilities” and “Support Utilities.” Always store master diskettes of your software in a safe place and use only working copies when you transfer the programs 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 trouble-shooting 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 Sider power on; that is, do you hear the fixed disk spinning inside the subsystem?
- Is the Apple computer power on?
- 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** and **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 of 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

and press **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 always 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) _____

Software release date: _____

Sider Characteristics

Number of cylinders: _____

Number of heads: _____

Reduced write cylinder: _____

Pre-comp. cylinders: _____

Control byte: _____

Number of alternate tracks: _____

Interleave: _____

Partition Structure

DOS 3.3

Number of Small Volumes: _____

Number of Large Volumes: _____

Total DOS Volumes: _____

CP/M

CP/M Volume A

start: _____

size: _____

CP/M Volume B

start: _____

size: _____

CP/M Volume C

start: _____

size: _____

CP/M Volume D

start: _____

size: _____

ProDOS

Drive 1

start: _____

size: _____

Drive 2

start: _____

size: _____

Pascal

Pascal Unit #4

start: _____

size: _____

Pascal Unit #5

start: _____

size: _____

Pascal Unit #9

(or 11)

start: _____

size: _____

Pascal Unit #10

(or 12)

start: _____

size: _____

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: _____

DAISY-CHAINING SIDERS

Daisy-chaining, as its name implies, is attaching two Siders together to expand your system's storage 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.

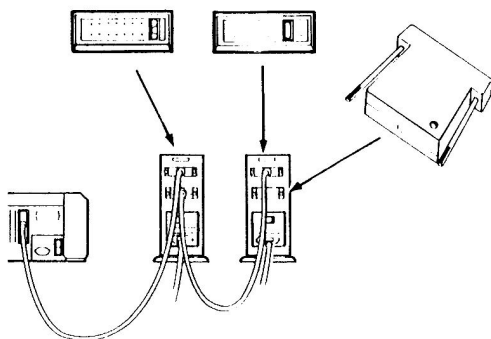


Fig. 26 Attach cables and terminator plug for daisy-chain configuration; change jumper placement on second subsystem

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-CHAIN

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 working 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 Sider 1 or 2?," press "2".

Next, set the partition structure of 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 systems 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 install ProDOS on a second Sider, boot into the ProDOS partition on the first Sider from the Sider's Main Menu screen. Invoke the "Convert" utility, and place the SiderWare Installation Utilities diskette in floppy disk drive 1.

Next, convert the "PHANTOM.SLOT" file from the floppy diskette to "/HARD1/" with the Convert utility. Then exit the utility.

At the Applesoft prompt, type

```
-PHANTOM.SLOT
```

and press 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. You can access them by booting into slot 7 (or whatever slot the Sider's host adapter card is inserted), drives 1 and 2, respectively.

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.

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.

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 this 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 customer must obtain a Returned Goods Authorization 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 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 specification 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.

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, enclosed in the accessories box, and mail it to the following address:

First Class Peripherals
3579 Highway 50 East
Carson City, NV 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	= 100-126 volts (factory configured)
Line Frequency	= 50/60 ($\pm 2\%$)
Power Consumption	= 40 watts

Subsystem Characteristics

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

Fixed Disk

Formatted Capacity	= 10 megabytes
Sectors per Track	= 32
Bytes per Sector	= 256
Cylinders	= 306
Heads	= 4
Average Access Time (includes settling)	= 85 milliseconds
Average Latency	= 8.33 milliseconds
Recording Format	= MFM
Automatic Data Error Detection and Correction	

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 for 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

Most applications that run under Apple DOS 3.3 (about 95 percent of them) 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, it won't run on the Sider.
- If the application doesn't support the volume option — that is, CATALOG S6,D1,V14 — it won't run on the Sider.
- If the application requires a special DOS — other than Diversi-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

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

APPLEWORKS/DATA

and press 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/=

and press RETURN. When the system prompts you to enter a "TO PATHNAME," type

APPLEWORKS/=

and press RETURN twice 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/=

and press RETURN.

At the "TO PATHNAME" prompt, type

```
APPLEWORKS/=
```

and press RETURN twice. 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/=
```

and press RETURN. When the "TO PATHNAME" prompt reappears, type

```
/APPLEWORKS/DATA/=
```

and press RETURN twice. 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 Applesoft BASIC. At the Applesoft prompt, type

and press RETURN. Then type

```
10 D$ = CHR$ (4)
```

and press RETURN. Then type

```
20 PRINT D$ "PREFIX APPLEWORKS"
```

and press RETURN.

Next, type

```
30 PRINT D$ "-APLWORKS.SYSTEM"
```

and press RETURN then save this program by typing

```
SAVE APLWKS
```

and pressing 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

and press 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 BPI/
```

and press RETURN. Then type

```
UNLOCK BPI
```

and press RETURN.

Then type

```
LOAD BPI
```

and press RETURN. And, finally, type

```
LIST 108
```

and press RETURN.

After the 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 :W=4 :RETURN
```

and press 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
```

and press RETURN. Then type

```
LOCK BPI
```

and press 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 any 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, 3.01C1, 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 floppy 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" and 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

and press RETURN.

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

CPM3.SYSTEM

and press 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

```
PREFIX CPM
```

and press RETURN. Then type

```
-CPM3.SYSTEM
```

and press RETURN. ALS CP/M will now boot.

To execute this boot sequence automatically, you can create a short boot program. At the Sider's Menu screen, choose option 4 to boot into ProDOS. Then choose option B at the ProDOS User's Disk main menu to run BASIC.

Next, type

```
10 D$ =, CHR$(4)
```

and press RETURN. Then type

```
20 PRINT D$ "PREFIX CPM"
```

and press RETURN.

Then type

```
30 PRINT D$ "-CPM3.SYSTEM"
```

and press RETURN. Then type

```
SAVE ALS
```

and press RETURN.

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

```
-ALS
```

and pressing 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 the "A>" prompt, type

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

and press 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 text 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)
```

and press 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 it in 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]
```

and press 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]
```

and press 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

DBASEII

and press 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 placed 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 new expansion card or 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 new expansion card you add, and once each time you move the Sider's host adapter card.

Additionally, if you're adding a new expansion card and moving the Sider's host adapter card, you must follow the same sequence as above: Add the new expansion card and run the Create New DOS Boot Track utility; then run the utility a second time to designate the new slot for the host adapter card and, finally, move the host adapter card to the designated slot.

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.

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

and press RETURN twice. Now you're ready for your next operation.

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 its 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.

CP/M60: A utility that expands the memory space of Microsoft CP/M operating system to 60 Kilobytes.

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 a 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 backslash 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 called 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 a 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.

TECHNICAL ADDENDA

The following sections discuss four recent Sider updates regarding operating systems, hardware and software modifications.

DIVERSI-DOS “4-C” INSTALLATION

Assumptions:

Sider is already installed.

You have a copy of Diversi-DOS version 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 enter the following commands:

```
JUNLOCK HELLO DOS,V1          <return>
JRENAME HELLO DOS,OLD HELLO DOS <return>
JLOAD HELLO DOS (DIVERSI-DOS)  <return>
JSAVE HELLO DOS                <return>
JLOCK 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.

Procedure:

- 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 SiderWare Support Utilities for DOS 3.3
- Enter the following command:

```
IRUN MAKE BOOT TRACK <return>
```

Note: The spaces are part of the file name.

- When asked for “which Sider”, enter a “1” <return>.
- When asked for “New Slot #”, enter current #.

Usage:

- Reboot, and you are done.

“DOS FILE UTILITY” PATCH FOR RAMDISKS (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).
- Enter the following commands:

```
JUNLOCK DOS FILE UTILITY,V1 <return>  
JBLOAD DOS FILE UTILITY <return>  
JCALL -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
```

```
*<cntrl-C>
```

```
JBSAVE DOS FILE UTILITY, A$4800,L$15A <return>  
JLOCK DOS FILE UTILITY <return>
```

Usage:

- Select option (5) on Support Utilities Menu.

CONNECTING AND DISCONNECTING THE SIDER FROM DOS 3.3

Assumptions:

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 current slot #}
    POKE 48384,132:      {restore STY      }
    POKE 48385,72:       {restore $48      }
    POKE 48386,133:      {restore STX      }
    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:   {"      "      }
    POKE 48387,0:       {restore BRK      }
    GOTO 2040
```

```
2030 PRINT "SIDER WAS NEVER INSTALLED":STOP
2040 PRINT "SIDER IS RECONNECTED":RETURN
```

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
\$BD03	49	00

*Where "x" is the current physical slot # of Sider.

Following is the code segment that is used to find the actual point:

```
GETDOS:  LDA    $3D9+1    ;Follow the RWTS page 3 vector
         STA    $2C
         LDA    $3D9+2
         STA    $2D
;
GETD0:   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. was SEI
        LDA    ($2C),Y
        CMP    #$78
        PHP                                ;Save result until after we reset
        INY                                ;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    GETD0                      ;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 relocated RWTS routine.

Buffer at \$BB00*
 Table at \$AA66*
 Table at \$B5D1*

*Relative to \$BD00 patch point

Below is the list of the 10 RAM locations in DOS that Sider uses, as well as a brief description of the usage.

\$2C	}	Pointer to tables for Parameters
\$2D		

- *\$478 + x — Sider Slot * 16
- *\$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

Note: If (*\$678 + x) EOR \$A5 does not equal (*\$578 + x), then the information for Sider #1 will be reloaded from Sider #1.

If (*\$6F8 + x) EOR \$A5 does not equal (*\$5F8 + x), then the information for Sider #1 will be reloaded from Sider #2.

*where "x" is the current physical slot # of Sider.

HOST ADAPTER ROM

The host adapter is designed to hold a 2K byte EPROM (2716 or 1/2 2732). The EPROM 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 1/4 bytes of the slot independent section is the same as the slot dependent section.

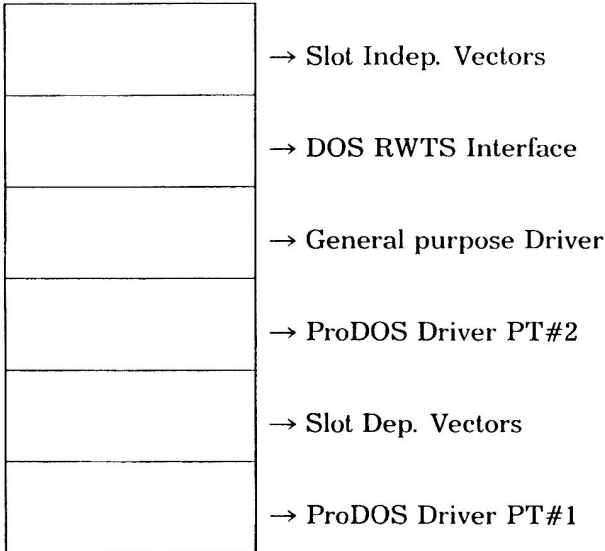
The slot dependent section of the ROM is mapped into the standard \$Cx00-\$CxFF (where "x" is the Sider slot #) address space.

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).

\$C800



The slot independent vectors are as follows...

\$C800	BENTRY:	JMP	BOOT	;Boot into DOS
\$C803	PENTRY:	JMP	PRWTS	;Jump to DOS RWTS Interface
\$C806	DENTRY:	JMP	DRIVER	;Jump to Gen. Purpose Driver
\$C824	EENTRY:	JMP	ERRCHK	;Do S1410 Request Sense Status
\$C827	CHKCDE:	JMP	ECHK	;Correct Data Error Check Rout.

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 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' ($\$4F8 + x = \text{slot} \& \$478 + x = \text{slot} * 16$). Below is an actual partial listing of the ROM.

```

;
; Boot entry
;

$Cx00      SBOOT:   LDA    #$20      ;So auto start ROM
                                   will
                                   ;find us.
                                   LDA    #$00
                                   LDA    #$03
                                   LDA    #$3C
                                   BIT     $CFFF      ;Turn ALL expansion
                                                         ROMs OFF
                                   JSR     SETSLT      ;Set up $7F8 + x and
                                                         $478 + x
                                   JMP     BENTRY      ;Jump to
                                                         Independent Vector

;
; RWTS Interface
;

$Cx11      SDOS:    BIT     $CFFF      ;Turn ALL expansion
                                                         ROMs OFF
                                   JSR     SETSLT      ;Set up $7F8 + x and
                                                         $478 + x
                                   JMP     PENTRY      ;Jump to
                                                         Independent Vector

;
; Drive Entry
;

```

\$CxlA	SDRIVER:	BIT	\$CFFF	;Turn ALL expansion ROMs OFF
		JSR	SETSLT	;Set up \$7F8 + x and \$478 + x
		JMP	DENTRY	;Jump to Independent Vector
				;
				; Check for Correctable Data Error
				;
\$Cx2l	CHKERR:	BIT	\$CFFF	;Turn ALL expansion ROMs OFF
		JSR	SETSLT	;Set up \$7F8 + x and \$478 + x
		JMP	EENTRY	;Jump to Independent Vector
				;
				; Do a request sense status call
				;

USING THE SLOT DEPENDENT VECTORS

This vector is used to reboot the Sider into DOS 3.3. Simply transfer control to Cx00. For example:

SDOS Vector:

This is the entry point into the ROM for the RWTS Interface. Do not use this vector directly. Use the Page 3 RWTS 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).

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 detail).

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:

```
; Hard disk I/O example (HDIO)
;
; Make a call to the PROM based driver to perform
; the operation described in the device control
; block (DCB) stored at DCB:
;
; Memory used: $2C, $2D, $2E, $2F
;
; DCB Format: <Example - read sector 1 of Sider 1>
;
```

```

;      DCB: DFB 8           ;8-Read, A-write
;      DFB 0               ;High address
;      DFB 0               ;Middle address
;      DFB 1               ;Low address
;      DFB 1               ;Blk count (always 1)
;      DFB STEP            ;Drive step option
;      DW  BUFFER          ;Pointer to data buffer
;
; Use slot dependent vector to driver
;
; Assume the host adapter is in slot #7
;
HDIO:  LDA  #<DCB           ;Point to DCB
        LDY  #>DCB
        JSR  $C71A          ;Call the driver
        BCC  EXIT           ;Branch if no error
;
; Error handler
;
        LDA  #<BUF          ;Point to 12 byte buffer
        LDX  #>BUF
        JSR  $C74D          ;Get sense bytes
        BCS  ERROR          ;Branch if error getting
                           ;sense status

        <process the error code>

;
EXIT:   RTS
;
ERROR:
;
; Get here when things are real bad... i.e., hard disk
; is turned off or not connected
;
        <do something>
;
        RTS

```

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 Mbyte)

Sector	0		→ Sider Boot Block
Sector	1		→ Parameter Block
Sector	2- 36		→ DOS Boot Image
Sector	37- 84		→ RAM Card IMAGE (DOS)
Sector	85- 135		→ CP/M Boot Image Pt#1
Sector	136- 255		→ RESERVED FOR FUTURE USE
Sector	256- 258		→ CP/M Boot Image Pt#2
Sector	259- 462		→ *FREE - Apps may use this!
Sector	463-1023		→ DOS volume \$FD (BU volume)
Sector	1024-????		→ User data area
Sector	????-????		→ **Alternate Tracks (1%)

* Please use from 462 inward, i.e., if you need two (2) sectors use 461 and 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 locations 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" (\$4E) → do NOT load RAM card

THE PARAMETER BLOCK

The parameter block is the map of the Sider. It describes how the Sider was formatted, where each partition is located, etc. Be VERY careful if you plan to read or write to this sector.

OFFSET	FUNCTION
0	Number of DOS small volumes
1	Offset '0' EOR #\$A5
3	Sector interleave used when Sider was formatted
4- 23	— Reserved for future use —
24	(Offset 32 + Offset 33) EOR #\$A5
25- 32	Sider Characteristics
33	Sider step option
34- 40	— Reserved for future use —
41- 55	CP/M logical Vol. 1 DPB (OFF,CKS,AL0,AL1,etc.)
56- 70	CP/M logical Vol. 2 DPB
71	0 → CP/M Vol. 1 is online
72	0 → CP/M Vol. 2 is online
73- 79	— Reserved for future use —
80	Pascal unit number (4,9,11)
81- 82	Pascal logical Vol. 1 start track
83- 84	Pascal logical Vol. 2 start track
85- 99	— Reserved for future use —

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 —
130-144	CP/M logical Vol. 3 DPB
145-159	CP/M logical Vol. 4 DPB
160	0 → CP/M Vol. 3 is online
161	0 → CP/M Vol. 4 is online
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 (4.9.11)
174-175	Pascal logical Vol. 3 start track
176-177	Pascal logical Vol. 4 start track
178-210	— Reserved for future use —
211-255	*FREE - Apps may use this!

* Please use from 255 inward, i.e., if you need two (2) bytes use 254 and 255.

