



Apple III

Backup III

User's Manual

Apple III

Backup III

User's Manual

Customer Satisfaction

If you discover physical defects in the manuals distributed with an Apple product or in the media on which a software product is distributed, Apple will replace the documentation or media at no charge to you during the 90-day period after you purchased the product.

In addition, if Apple releases a corrective update to a software product during the 90-day period after you purchased the software, Apple will replace the applicable diskettes and documentation with the revised version at no charge to you during the six months after the date of purchase.

In some countries the replacement period may be different; check with your authorized Apple dealer. Return any item to be replaced with proof of purchase to Apple or an authorized Apple dealer.

Limitation on Warranties and Liability

Even though Apple has tested the software described in this manual and reviewed its contents, neither Apple nor its software suppliers make any warranty or representation, either express or implied, with respect to this manual or to the software described in this manual, their quality, performance, merchantability, or fitness for any particular purpose. As a result, this software and manual are sold "as is", and you the purchaser are assuming the entire risk as to their quality and performance. In no event will Apple or its software suppliers be liable for direct, indirect, incidental, or consequential damages resulting from any defect in the software or manual, even if they have been advised of the possibility of such damages. In particular, they shall have no liability for any programs or data stored in or used with Apple products, including the costs of recovering or reproducing these programs or data. Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Copyright

This manual and the software (computer programs) described in it are copyrighted by Apple or by Apple's software suppliers, with all rights reserved. Under the copyright laws, this manual or the programs may not be copied, in whole or part, without the written consent of Apple, except in the normal use of the software or to make a backup copy. This exception does not allow copies to be made for others, whether or not sold, but all of the material purchased (with all backup copies) may be sold, given or loaned to another person. Under the law, copying includes translating into another language.

You may use the software on any computer owned by you but extra copies cannot be made for this purpose. For some products, a multi-use license may be purchased to allow the software to be used on more than one computer owned by the purchaser, including a shared-disk system. (Contact your authorized Apple dealer for information on multi-use licenses.)

Product Revisions

Apple cannot guarantee that you will receive notice of a revision to the software described in this manual, even if you have returned a registration card received with the product. You should periodically check with your authorized Apple Dealer.

© Apple Computer, Inc. 1982
20525 Mariani Avenue
Cupertino, California 95014

Apple and the Apple logo are registered trademarks of Apple Computer, Inc.

Simultaneously published in the U.S.A. and Canada.

Reorder Apple Product # A3D0012

Contents

Figures and Tables ***vii***

Preface ***1***

- 1 How to Use This Manual
- 2 What Is in This Manual
- 2 What the Symbols Mean

1 Overview and Startup ***3***

- 5 Equipment Required
- 5 Why You Should Back Up Your Files
- 6 Why You Might Need to Restore Files
- 6 Media Used by Backup III
 - 7 Devices
 - 7 Block Devices
 - 7 SOS Formatting
 - 8 Disk III Drives and SOS Disks
 - 8 The ProFile Disk Drive
- 9 Starting the Program
- 9 Backing Up Backup III
- 10 Help
- 11 How Long Does It Take to Back Up?

2 *Tutorial*

13

- 13 Equipment Required for the Tutorial
- 14 Devices Used in the Tutorial
- 15 Special Keys
- 15 Starting the Program
- 17 Help
- 18 Backing Up the Information on the ProFile
 - 18 Disks
 - 19 Double Clamping
 - 20 The Backup Files Menu
 - 22 Labels
 - 23 Changing Disks
 - 23 Listing the Files
 - 24 Another Verification
 - 26 Care of Disks
- 27 A Full-Volume Restoration of Data to the ProFile
 - 27 Reformatting the ProFile
 - 28 Restore Files Menu

3 *Menus*

31

- 31 General Information
 - 31 Relationship of the Menus
 - 33 ESCAPE
 - 33 Default Selections
 - 33 Source and Destination Devices
 - 34 Source Device for Backup
 - 34 Destination Device for Backup
 - 34 Default Selections for Restoring Files
- 35 The Main Menu
 - 35 The Set Options Menu
 - 36 Set Pathname Prefix
 - 36 Set Auto-Verify
 - 37 Why You Should Use Auto-Verify
 - 38 Quit

4 *Backing Up Files*

39

- 39 Overview of Backing Up
- 40 Volume vs. Subvolume
- 41 Subvolume Backup
- 43 Subdirectories vs. Files
- 43 BACKUP.VOLUME
- 44 Using a BACKUP.VOLUME
- 44 Using Some Other Formatted Disk
- 44 Using an Unformatted Disk
- 46 Labels
- 46 Table of Contents
- 46 The Backup Menu
- 47 Backup by Pathname
- 47 Backup by Date/Time
- 48 Limitations of Backup by Date/Time
- 49 Backup Modified Files
- 49 The Backup Bit
- 50 Printing a List of Files

5 *Restoring Files*

51

- 51 Overview
- 52 Restoring a Volume
- 53 Restore Volume vs. Retrieve by Pathname
- 55 The Restore Files Menu
- 56 Restore Volume
- 57 Retrieve by Pathname
- 57 Retrieve by Date/Time
- 57 Listing Files

6 Examples 59

- 59 Backing Up Files
- 61 Weekly Backup
- 62 Daily Backup
- 62 Backup by Date/Time
- 63 Restoring Files
- 63 Full-volume Restore
- 63 Restoring Specific Files
- 63 Retrieve by Pathname
- 64 Retrieve by Date/Time

A Helpful Hints 65

B List of Commands and Keystrokes 67

- 67 Editing Features
- 68 Pathname-Selection Keys

C Error Messages and Error Recovery 69

- 69 Error Messages
- 70 An Unacceptable Entry: Retype the Entry
- 71 An Unacceptable Entry: Retype the Set of Entries
- 72 Formatting Problems With a Disk or Device
- 73 Other Problems That Stop Backup III
- 74 What to Do When Memory Lapses
- 74 Too Many Files, Not Enough Memory
- 75 Bad Blocks on BACKUP.VOLUME

Glossary 77

Index 83

Figures and Tables

1 Overview and Startup

- | | | |
|----|------------|-------------------------------------|
| 4 | Figure 1-1 | Picture of the Backup/Restore Cycle |
| 7 | Figure 1-2 | Device, Media, and Volume |
| 10 | Figure 1-3 | Help Screen |

2 Tutorial

- | | | |
|----|-------------|--|
| 14 | Figure 2-1 | Devices and Device Names |
| 15 | Figure 2-2 | Special Keys |
| 15 | Figure 2-3 | Putting Backup III Into the Disk Drive |
| 16 | Figure 2-4 | Pressing CONTROL and RESET |
| 16 | Figure 2-5 | Main Menu |
| 17 | Figure 2-6 | Help Screen |
| 18 | Figure 2-7 | Putting in the Blank Disk |
| 19 | Figure 2-8 | Double Clamping |
| 20 | Figure 2-9 | Backup Files Menu |
| 22 | Figure 2-10 | Status of Backup |
| 22 | Figure 2-11 | Sample Label |
| 25 | Figure 2-12 | System Utilities Main Menu |
| 26 | Figure 2-13 | Write-Protected Disk |
| 28 | Figure 2-14 | Restore Files Menu |

Preface

The purpose of this manual is to teach you how to use the Backup III program to make a backup of the data on your ProFile and then to restore the data to the ProFile. Backup III may also be used with other storage devices. The audience for this manual includes people with a range of experience and interest in computers—from experienced programmers to new users assigned the task of backing up files daily and weekly.

How to Use This Manual

Depending on how much you know about your Apple III, you may choose to read only selected parts of this manual. Everyone should read Chapter 1, which gives an overview of Backup III. Even if you haven't used a computer before, you can follow the steps in Chapter 2 to use your Apple III and the Backup III program to backup and restore data. Except for the tutorial in Chapter 2, this manual assumes that you know how to use an Apple III with its disk drives.

Chapters 3, 4, 5, and 6 present reference information and examples for Backup III. To use the information in those chapters, you need to know how to do things such as booting a program, formatting disks, using pathnames, using the Apple III System Utilities program, and using the Disk III drives and the ProFile. If you're not sure how to use pathnames and so forth, you should refer to the *Apple III Owner's Guide*, the *Standard Device Drivers Manual*, and the *ProFile Helpful Hints Card*.

What Is in This Manual

The first chapter of this manual lists the equipment needed and gives an overview of how and when to use Backup III. The second chapter is a step-by-step tutorial. The third chapter presents general information on menus and describes the options on the Main Menu and the Set Options Menu. The fourth chapter explains backing up files. The fifth chapter explains restoring files. The sixth chapter presents examples of backing up and restoring files. The appendices present helpful hints, a list of commands and keystrokes, and information about error messages.

At the end of the manual is a glossary that explains terms you might not know. When you see an italicized word in the text, it is defined in the glossary.

What the Symbols Mean

Throughout this manual, you'll see the symbols explained below. Pay particular attention to the information in the paragraphs following the symbols.



This symbol precedes a paragraph that contains especially useful information.



Watch out! This symbol precedes a paragraph that warns you to be careful.



Stop! This symbol precedes a paragraph warning you that you are about to destroy data or harm hardware.

Overview and Startup

Some of the information in this chapter also appears in the tutorial in Chapter 2.

Backup III is a program with two major functions, backing up and restoring files. Backing up is the process of saving a file's information so that you can retrieve that information if the original file is lost or damaged. Restoring is the process of retrieving information from the backup and putting it in a file.

To back up files, Backup III transfers information from one *device* to another (typically from a ProFile disk drive to a disk or set of disks). To restore files, Backup III transfers information from the backup device (that is, the set of disks) to the main storage device for your Apple III (that is, a ProFile disk drive).



Unlike the copy function of the Apple III System Utilities program, Backup III does not make a “carbon copy” of your information. Backup III uses its own format for the data, which can't be used by other programs. You must use Backup III's Restore option to recreate usable files from the backup volumes.

You should back up your files daily and weekly. In general, you will need to restore files only if some mishap occurs and your original files are lost. Figure 1-1 shows the Backup/Restore cycle.

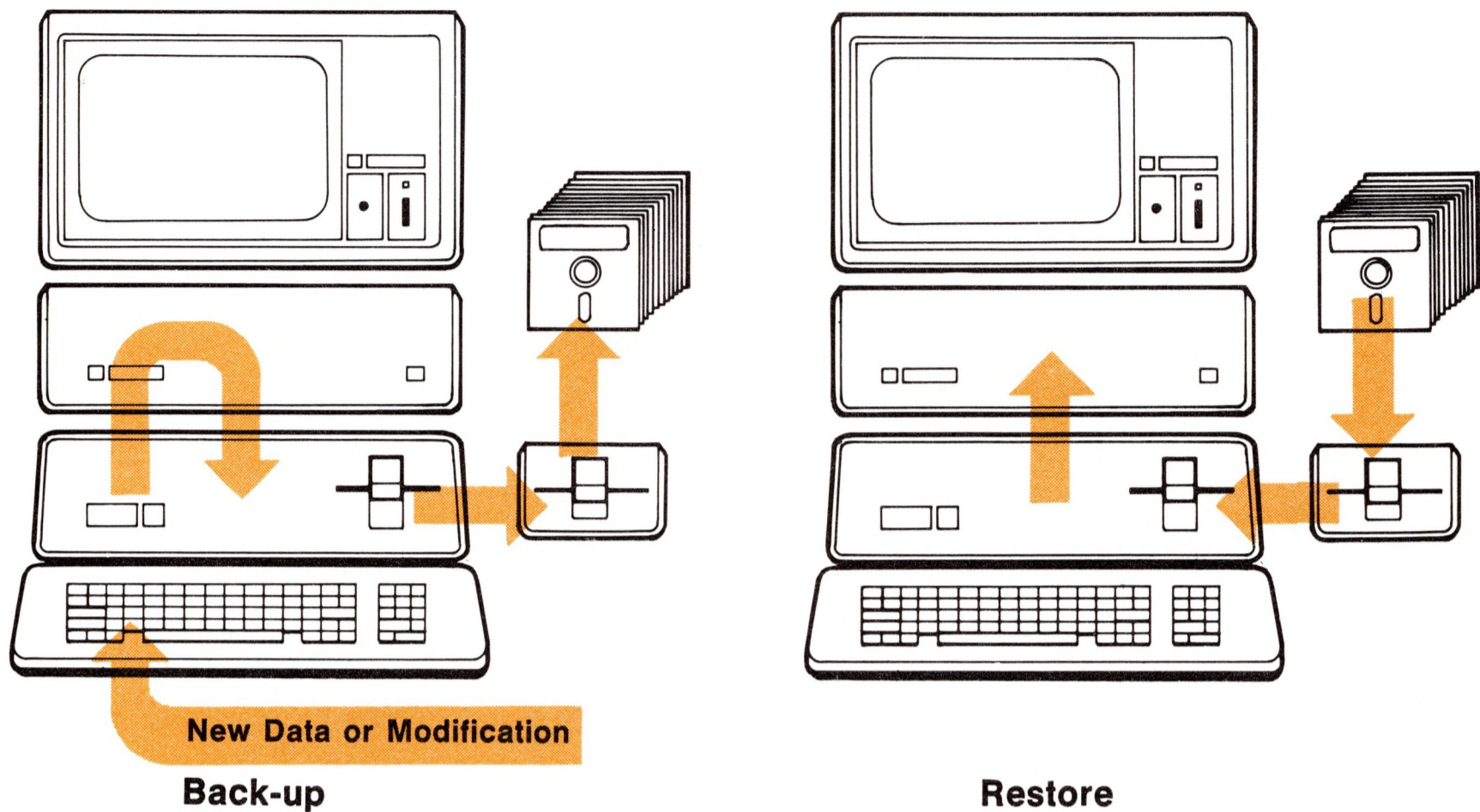


Figure 1-1. Picture of the Backup/Restore Cycle



Once you have used Backup III to create backup disks, you cannot use the backup data until you use Backup III to retrieve data from those disks. Other programs (such as the Apple III System Utilities program) cannot read the data on those disks.



If you use the Utilities filer to try to list the directory for a backup volume, you may get unusual results. Don't worry. It's all right.

If you have been using the Apple III System Utilities program to back up files, you may wonder why you would use Backup III instead. The answer is simple: Backup III has more flexibility. In particular, Backup III can copy a file too large to fit on one disk (for example, it can copy a ProFile file that occupies more than 280 *blocks*, which is the maximum number of blocks that fit on a standard 5-1/4 inch flexible disk).

Backup III also lets you choose which files to back up by specifying:

- the pathname for a file,
- the date a file was modified,
- or the status of the *backup bit*, which shows if a file has been modified since the last backup.

The following sections describe the equipment required to run Backup III, why you should make a copy of your data, what types of media Backup III can use, how to start the program, how to get help from the program, and how long it takes to back up various amounts of data.

Equipment Required

To use Backup III, you need the following equipment:

- an Apple III with at least 128K of memory
- a video monitor
- at least one external disk drive (ProFile, Disk III, and so forth)

Why You Should Back Up Your Files

This is a touchy subject. We hate to remind people that they sometimes make mistakes, that disasters occur, or, even worse, that sometimes computers have problems. But in the long run, it's better to guard against the fact that no one and no machine is perfect, and that you may need a copy of your files some day.

If you haven't used an Apple III or any other computer very much, you may wonder why you should go to the trouble of copying the data that you have saved on a disk or in the ProFile. With traditional paper filing systems, you might keep a backup of important documents in a fireproof safe as a guard against fire and theft. With the file storage system used with the Apple III, you need to back up your data in case of similar unpredictable disasters (fire, flood, electrical surges, hardware failure) and as insurance against commonplace, but frustrating, errors (deleting an important file by accident, scrambling a *directory* so that files are unretrievable, spilling coffee on your disks).

Under some conditions, you may prefer to copy files using the Apple III Utilities program rather than using Backup III.

Examples of those conditions are:

- when you want to copy from one disk to another
- when you want the backup information to be immediately readable by programs other than Backup III

Why You Might Need to Restore Files

If you use a ProFile as the main storage *medium* for the Apple III, you will want to restore any data lost in the event of accidents like those just mentioned. Although hardware failures are unlikely, you would probably hate to spend the hours required to retype all the data that you had stored in the ProFile (if, in fact, you had a copy of the data available). You probably have the message by now that it's a good idea to make a backup of your files. But, to stress the value of the backup, we want you to think for a moment what would happen if:

- the directory showed files that your programs couldn't retrieve (or showed no files at all, even though you know you saved them).
- the disk for Accounts Receivable fell off the desk and was swept out with the trash.
- you deleted what you thought was an unimportant file, but it really was the only copy of your final draft.
- your storage device lost power while a directory update was in progress.

In case of disaster, what you would want is a way to restore those files. Backup III gives you a way to do just that. This is a cyclic process.



Once you have restored your files, you should make another backup as you use and modify the original files.

Media Used by Backup III

Backup III lets you transfer data to and from any *SOS-formatted block device*, such as Disk III drives and the ProFile disk drive.

Devices

A device is a piece of computer hardware, other than the computer itself. For example, the ProFile is a device. Media reside in devices. Flexible disks and rigid disks are media. Removable flexible disks reside in Disk III drives; the ProFile contains a nonremovable rigid disk. A volume resides on a medium and is a collection of information with a name and a *root directory*. The information in a volume is organized in files. Figure 1-2 shows a device containing the medium that contains a volume named /DATA.

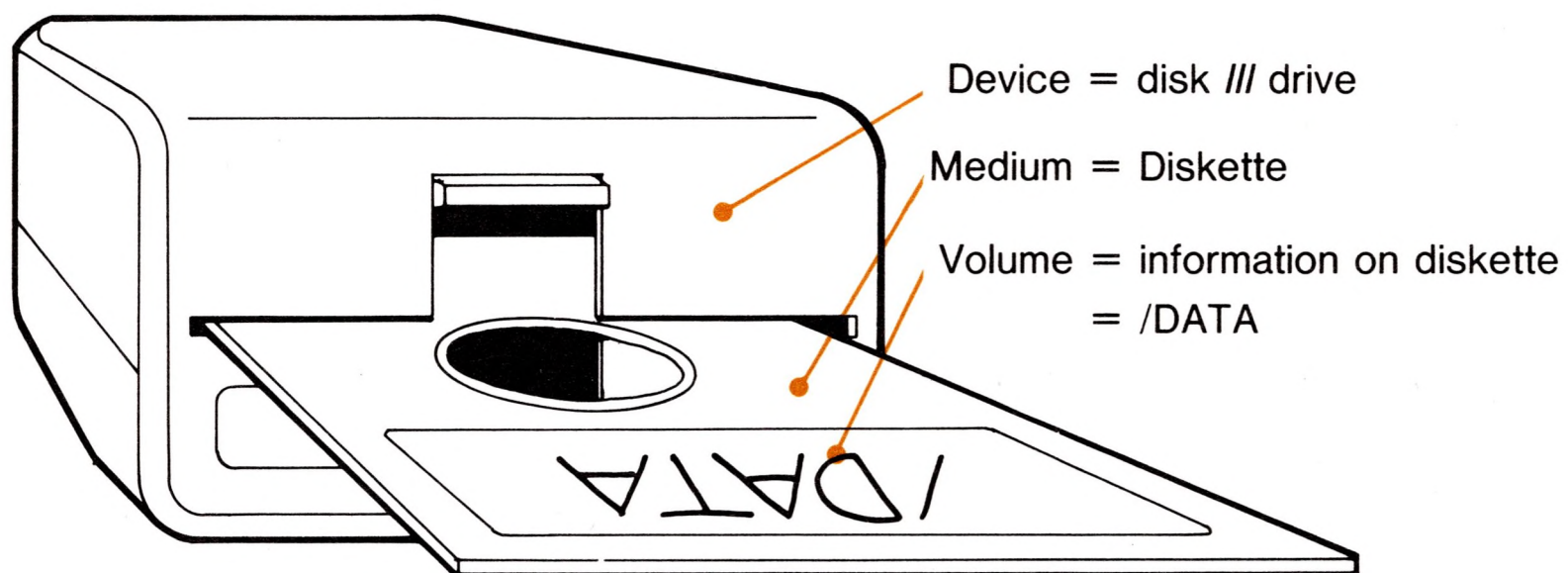


Figure 1-2. Device, Media, and Volume

Block Devices

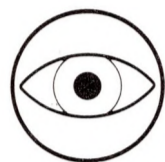
All Apple III disk drives (including the ProFile) are block devices, which is any device that stores information in blocks of 512 characters and can retrieve a given block on demand.

SOS Formatting

Before the Apple III can store data in a ProFile, on a disk, or on other media, the media must be formatted. That is, the Apple III operating system (SOS) needs to prepare the blank disk to store information in a form that SOS recognizes.



Backup III transfers data only from SOS-formatted media. Although Backup III can format disks, we recommend that you use the Apple III System Utilities program to format disks. This decreases the possibility that you will accidentally reformat a disk that contains information you want to keep.



Backup III cannot back up from or restore files to UCSD Pascal-formatted disks.

Disk III Drives and SOS Disks

Most people who back up or restore data will use disks and Disk III drives at some time. Even if you have several ProFile disk drives that serve as backups, you may want a more transportable medium for some data. Each SOS-formatted disk holds up to 143,360 *bytes* (or 280 blocks) of data.

Backup III refers to Disk III drives and SOS-formatted disks by the device names .D1, .D2, .D3, and .D4. The disk in the Apple III's built-in disk drive is .D1. The external disk drives are .D2, .D3, and .D4.

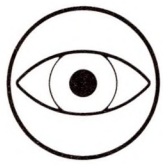
The ProFile Disk Drive

The ProFile is a fixed-medium, random access, 5-1/4 inch disk drive. The ProFile disk is permanently mounted and holds 4,980,736 bytes of data. A quick calculation shows you that one ProFile holds the same amount of data as about 35 standard 5-1/4 inch flexible disks. When you back up files, Backup III shows you how many disks it uses (see Figure 2-8).

Backup III refers to the ProFile by the device name specified in the Utilities program, for example:

.PROFILE

(If you don't know what the device name is, don't be concerned. Backup III prompts you with the name automatically.)



Here are some things to consider before using the ProFile as a backup device. When the ProFile is a backup device, that is its only function because its data will be in Backup III format and, therefore, will be unusable by any program except Backup III. This means that only Backup III can read the files on the ProFile: the System Utilities program can no longer read those files.

Starting the Program

Depending on how much memory your Apple III has, there are two ways to start the program.

For a 128K system: start it up by putting the Backup III disk into the Apple III's built-in drive and turning on the Apple III. Alternatively, if some other program has been running on the Apple III, you can restart by pressing CONTROL and RESET simultaneously. A few programs (for example, VisiCalc and Apple Writer III) won't allow you to restart by pressing CONTROL and RESET, so you must turn off the Apple III and turn it on again.

For a 256K system: start Backup III on a 256K system the same way as on a 128K system. Or, you can execute the file SYSTEM.STARTUP. (on the Backup III disk) from Pascal. Be sure to include both periods (.) in the name SYSTEM.STARTUP. . Backup III can be in any disk drive connected to the Apple III (including the ProFile).



Any disk that you use as a boot disk must have format drivers configured on it as part of the device drivers. If you don't know what that means, don't worry about it. Backup III will display an error message if a problem arises. In that case, you would need to refer to the *Standard Device Drivers Manual* or get help from someone who knows about configuring drivers.

Backing Up Backup III

To make a backup of Backup III, use the Apple III System Utilities program to transfer SYSTEM.STARTUP from the Backup III disk to another SOS-formatted disk or to the ProFile.



If you use Backup III to back itself up, you need to use Backup III again to restore itself . . . and if the original Backup III disk has problems, you won't be able to do that restoration. If you use the Apple III System Utilities to copy the Backup III disk, you won't need to go through the restoration—you can use the copy as it is.

Help

Backup III includes help screens that explain selections or commands. To get help, press the OPEN-APPLE key and the ? key at the same time.

The help screen appears in a box on the top half of the Apple III's screen; Figure 1-3 shows an example.

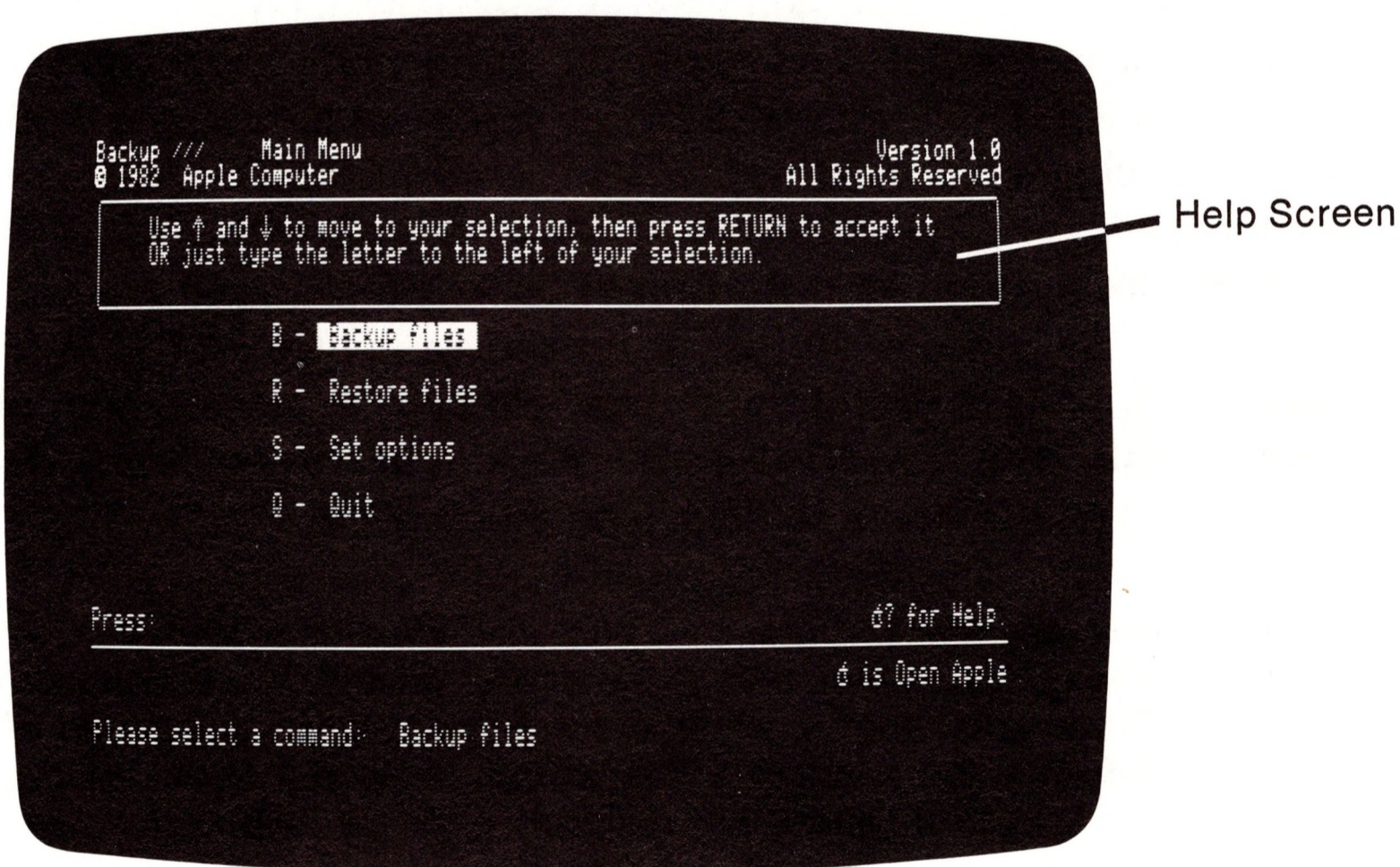


Figure 1-3. Help Screen

When you request help, the screen displays information related to where you are in the program, for example

Type the first character of the command

To continue with the program, press any key. Sometimes after you press a key, Backup III responds

Please pick a selection from the menu

Type a letter for the menu selection.

How Long Does It Take to Back Up?

The length of time Backup III takes to transfer your data depends on how much data you have. Backup onto a standard disk takes a little over a minute and a half (depending on how full the disk is). Backup for a full ProFile takes about one and a half hours (you'll need to change disks every couple of minutes). If the ProFile is only partially full, the process may take less time.

Backup III has a verify option that affects the time it takes to back up files. Chapter 3 explains verifying, which adds about 20 seconds per disk.



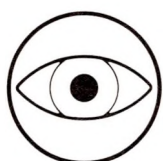
Some programs use a special kind of file called a *sparse file*. When you use Backup III to back up sparse files, the backup process takes longer than usual. For backing up files, you don't have to know what sparse files are. Backup III takes care of them automatically.

Tutorial

The purpose of this chapter is to teach you how to use Backup III to back up and restore the data stored on a ProFile disk drive. The tutorial doesn't cover all the things Backup III can do, but it does present a series of steps to teach you one way to back up and restore information.



To learn most quickly, read these directions carefully, going one step at a time.



When you get to the section on restoration, read the steps, but don't actually go through the process of restoring files unless you need to.

Equipment Required for the Tutorial

To use Backup III with this tutorial, you need the following equipment:

- an Apple III with at least 128K of memory
- a video monitor
- at least one external Disk III drive
- a ProFile disk drive



If you don't have an external Disk III drive, you can still use the tutorial. However, the screen will display messages from time to time telling you to take the Backup III disk out of .D1 or to put it back into .D1. Just follow the instructions you see on the screen. The tutorial doesn't show these messages.

The *Apple III Owner's Guide* and the *ProFile Owner's Manual* explain how to set up this equipment. You will also need

- the Backup III disk,
- a System Utilities disk,
- a set of blank disks, and
- labels for the disks.

Devices Used in the Tutorial

A device is a piece of computer hardware (other than the computer itself) such as a disk drive. Figure 2-1 shows the devices and device names used in this tutorial.

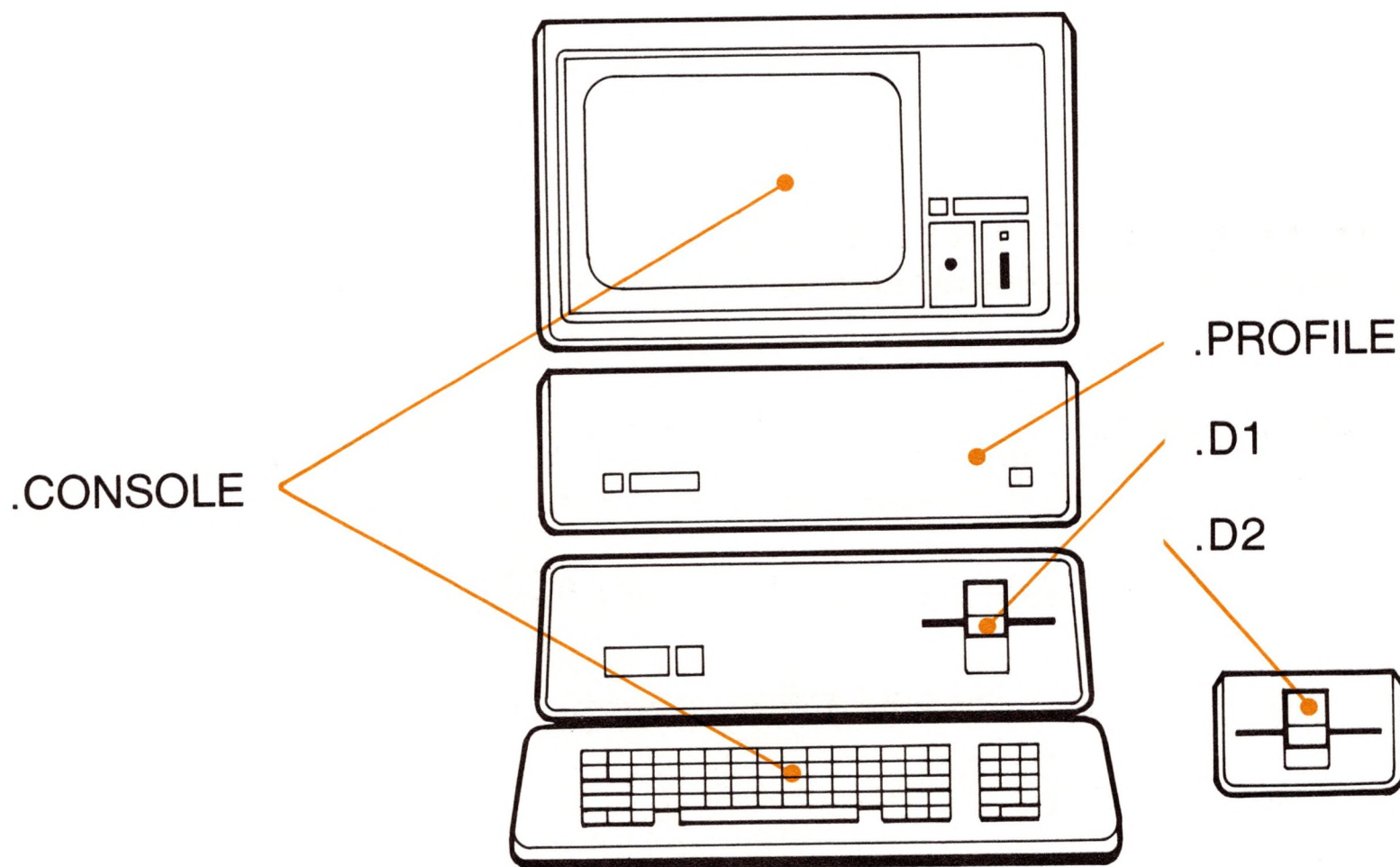


Figure 2-1. Devices and Device Names

Special Keys

Look at the Apple III's keyboard and locate the keys highlighted in Figure 2-2:

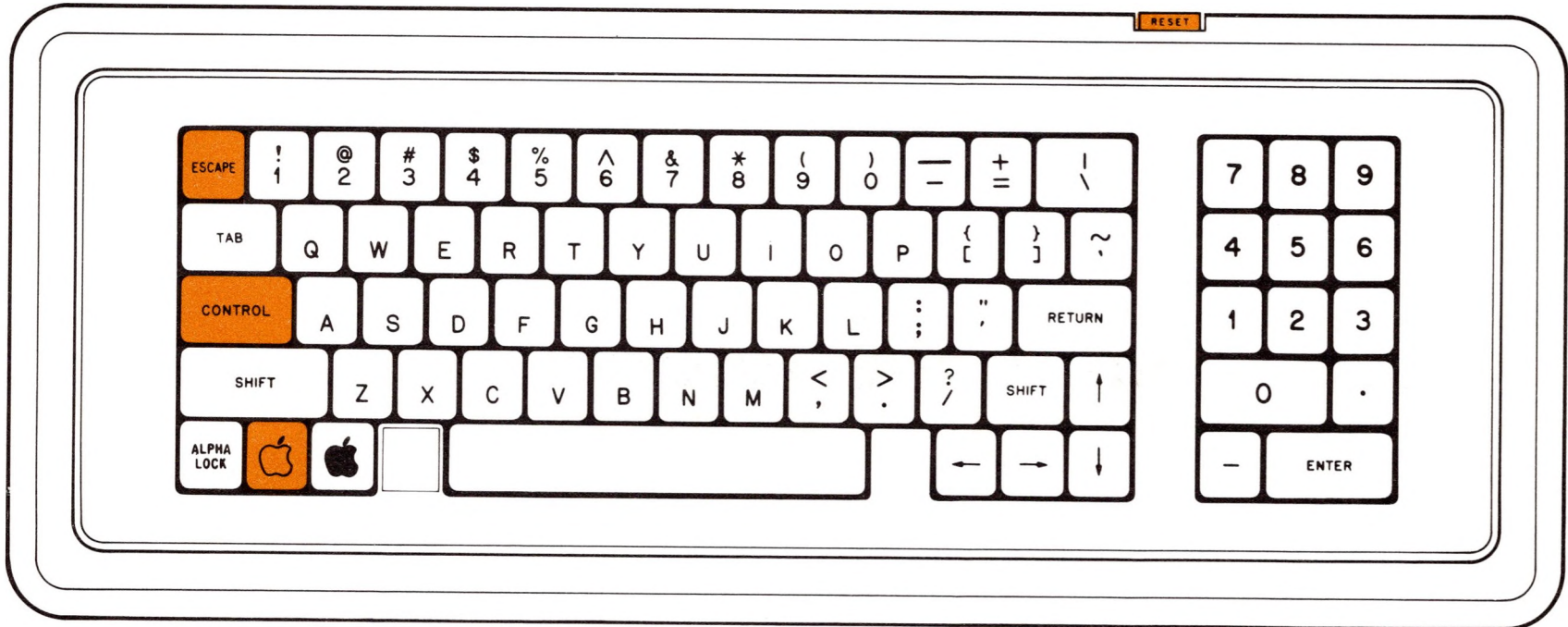


Figure 2-2. Special Keys

You'll use these keys while following the steps in this tutorial.

Starting the Program

Start Backup III by putting the Backup III disk into the Apple III's built-in drive. Figure 2-3 shows the correct way to hold the disk when you put it in the disk drive. Close the disk drive door.



Figure 2-3. Putting Backup III Into the Disk Drive

If all the equipment is turned off, turn on the monitor, the ProFile, and the Apple III. If you've just turned on your ProFile, you must wait until the ready light stays on.

If the equipment is already on, put the Backup III disk into the Apple III's built-in drive, close the disk drive door, and hold down the key labeled CONTROL, then press and release the RESET key, as shown in Figure 2-4.



Figure 2-4. Pressing CONTROL and RESET

This is how you start the program.

For a few seconds, the screen displays a message showing the date and the version of Apple III SOS. After about 20 seconds more, the screen shows the Main Menu (Figure 2-5):

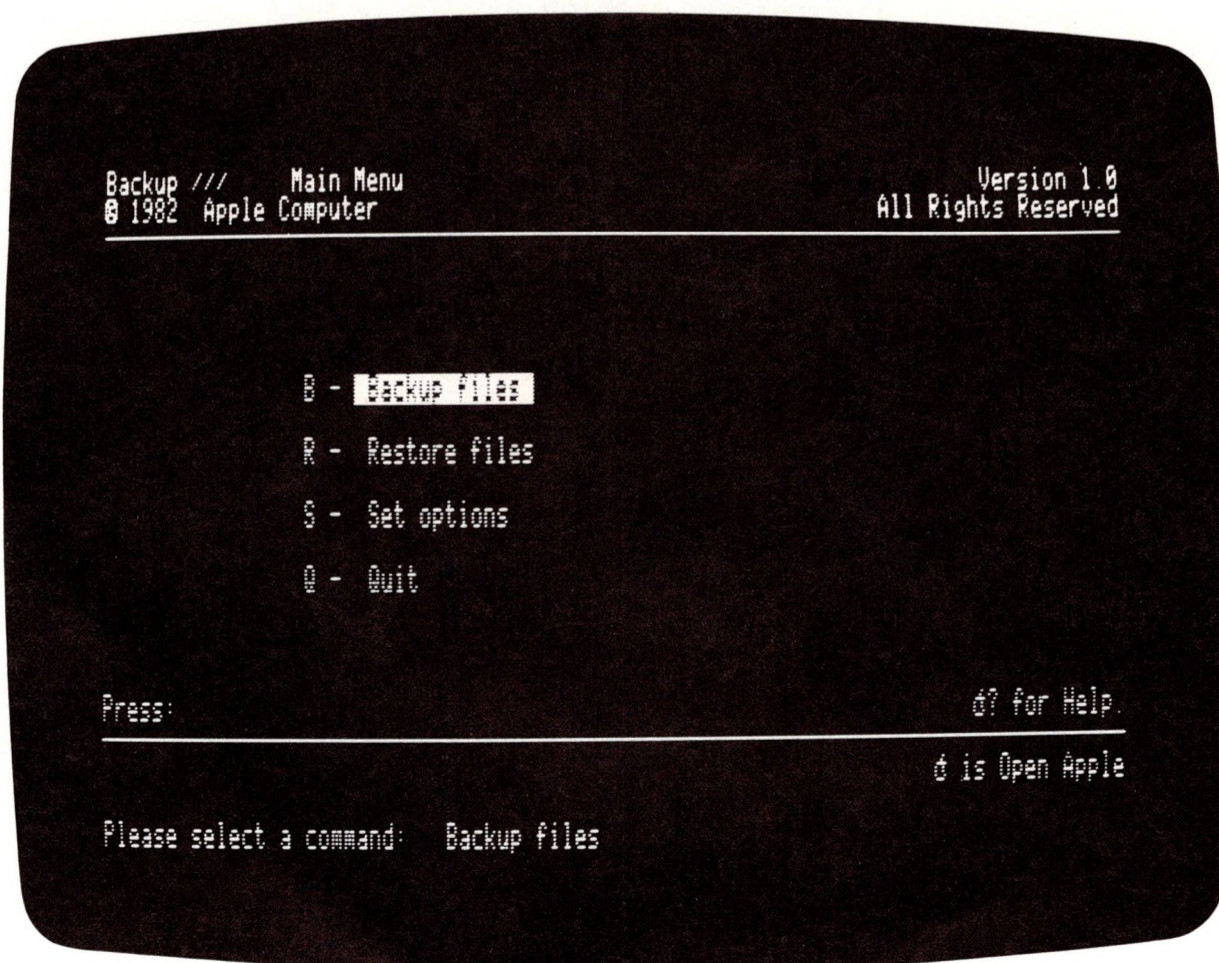


Figure 2-5. Main Menu

This lists Backup III's major options. This tutorial describes how to use Backup files and Restore files, but doesn't cover Set options or Quit.

Help

In addition to the options listed on the menus, Backup III has Help Screens that explain selections or commands. If you want a quick explanation of the options or a reminder about what the arrow keys do, press the OPEN-APPLE and ? keys simultaneously. It's not necessary to hold down the SHIFT key while you type the ?. You can press the OPEN-APPLE and / keys.

The helpful message appears in a box on the top half of the Apple III's screen. For example, try pressing OPEN-APPLE and ? now. The screen (Figure 2-6) should say:

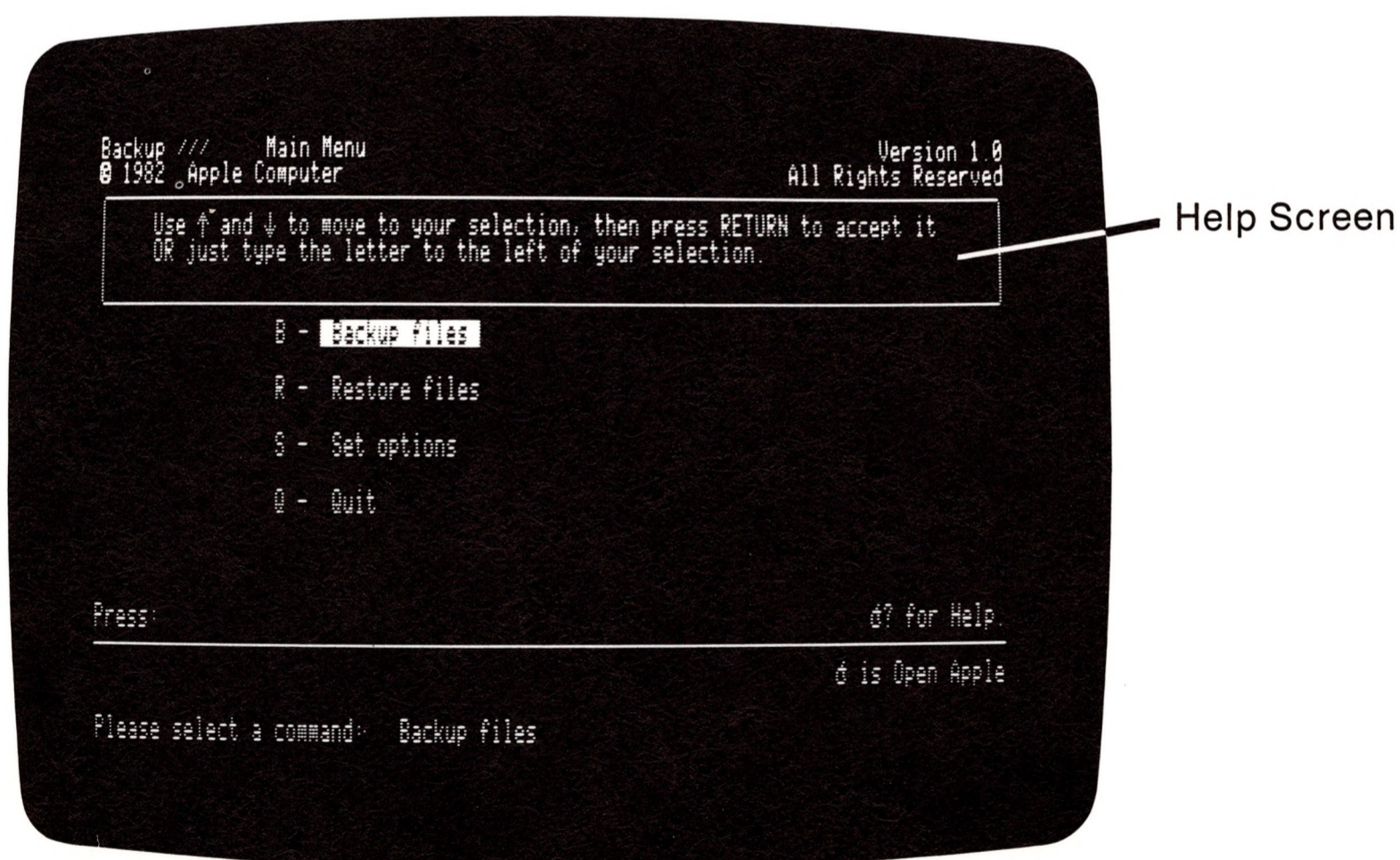


Figure 2-6. Help Screen

The help screen disappears the next time you press a key.

Backing Up the Information on the Profile

This part of the tutorial leads you through the sequence of menu choices necessary to back up all the files on your ProFile.

Disks

To make a backup of the data on the ProFile, you will need a set of blank disks and about an hour. The number of disks and the amount of time needed varies for each backup, depending on the number and kind of files that are stored on the ProFile. Data from a full ProFile fills about 35 standard 5-1/4 inch flexible disks.

Because so many factors affect this process, we can't predict how many disks you'll need or the exact amount of time required. But, as you make periodic backups of your ProFile, you will learn to estimate how many disks a backup requires and how long it will take. To be sure that you have enough disks for this first backup, have 35 disks ready even though the process may not take that many.

Put a blank disk in .D2, which is the external Disk III drive, as shown in Figure 2-7.



Figure 2-7. Putting in the Blank Disk



When you put a disk into .D2, make sure that the disk doesn't contain data you want to keep. Backup III will destroy any data previously stored on the disk.

If your Apple III system has more than one external disk drive, .D2 is the one connected directly to the Apple III by the cable in back. The other disk drives are connected by a similar cable from drive to drive.



If your Apple III does not have an external Disk III drive, you can insert the backup disks in the internal Disk III drive. This method can be slightly complicated because you must remove and reinsert the Backup III disk when you're prompted by messages on the screen during the backup process. The prompt will tell you which disk you need in .D1, referring to the internal disk drive.

Double Clamping

Sometimes when you put a disk into a disk drive, the disk won't be properly centered. Even though the disk isn't centered, the disk drive can often write information onto the disk without detecting a problem. However, the next time you put that same disk into a disk drive, the disk probably won't be off center in exactly the same way as before. So the information on the disk may be unreadable.



To minimize the chance of off-center disks, every time you put a disk into a Disk III drive, close the disk drive door, then open it and close it a second time. This is called double clamping and is shown in Figure 2-8.

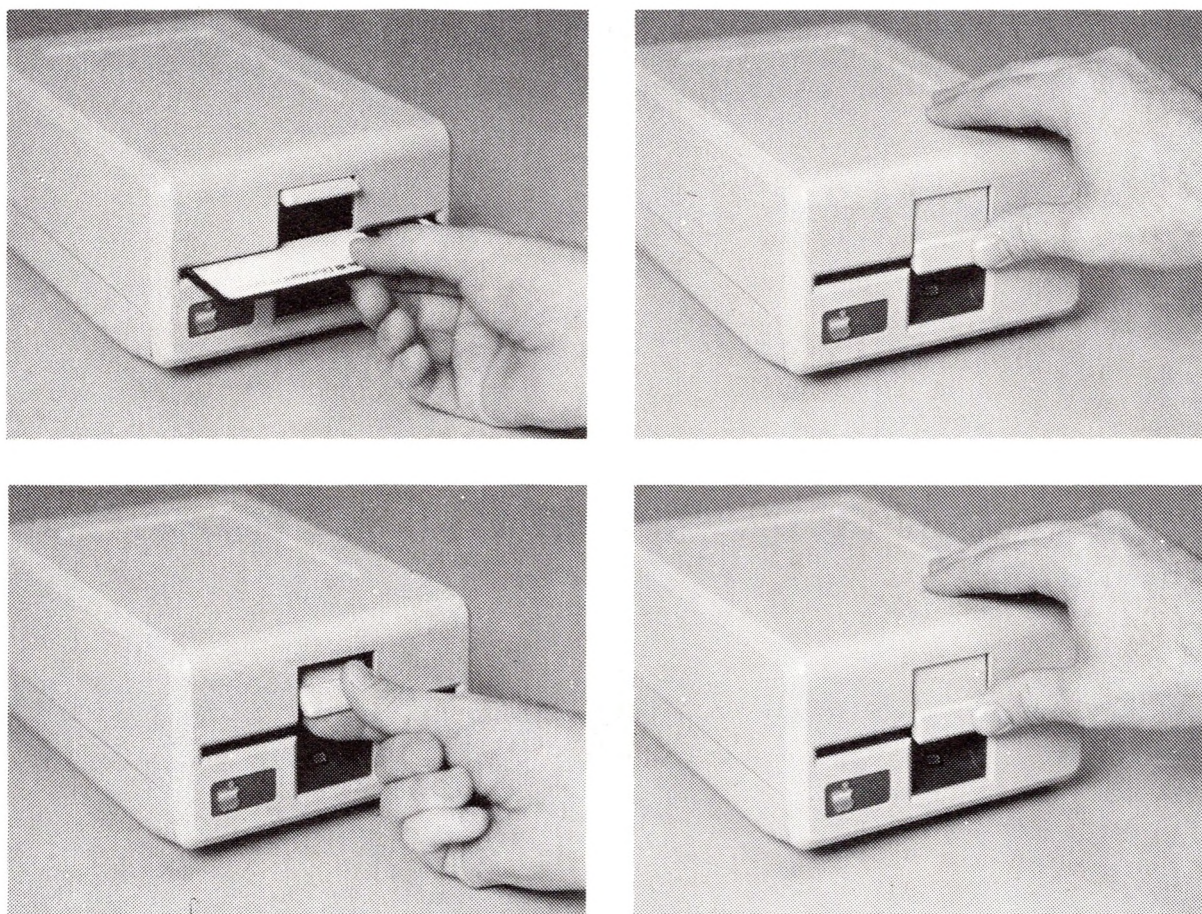


Figure 2-8. Double Clamping

The Backup Files Menu

From the Main Menu, type

B

to see the Backup Files Menu shown in Figure 2-9. Notice that if you press the ESCAPE key, the Main Menu will return to the screen. ESCAPE lets you return to the previous level in the program. See Chapter 3 for more information on ESCAPE.

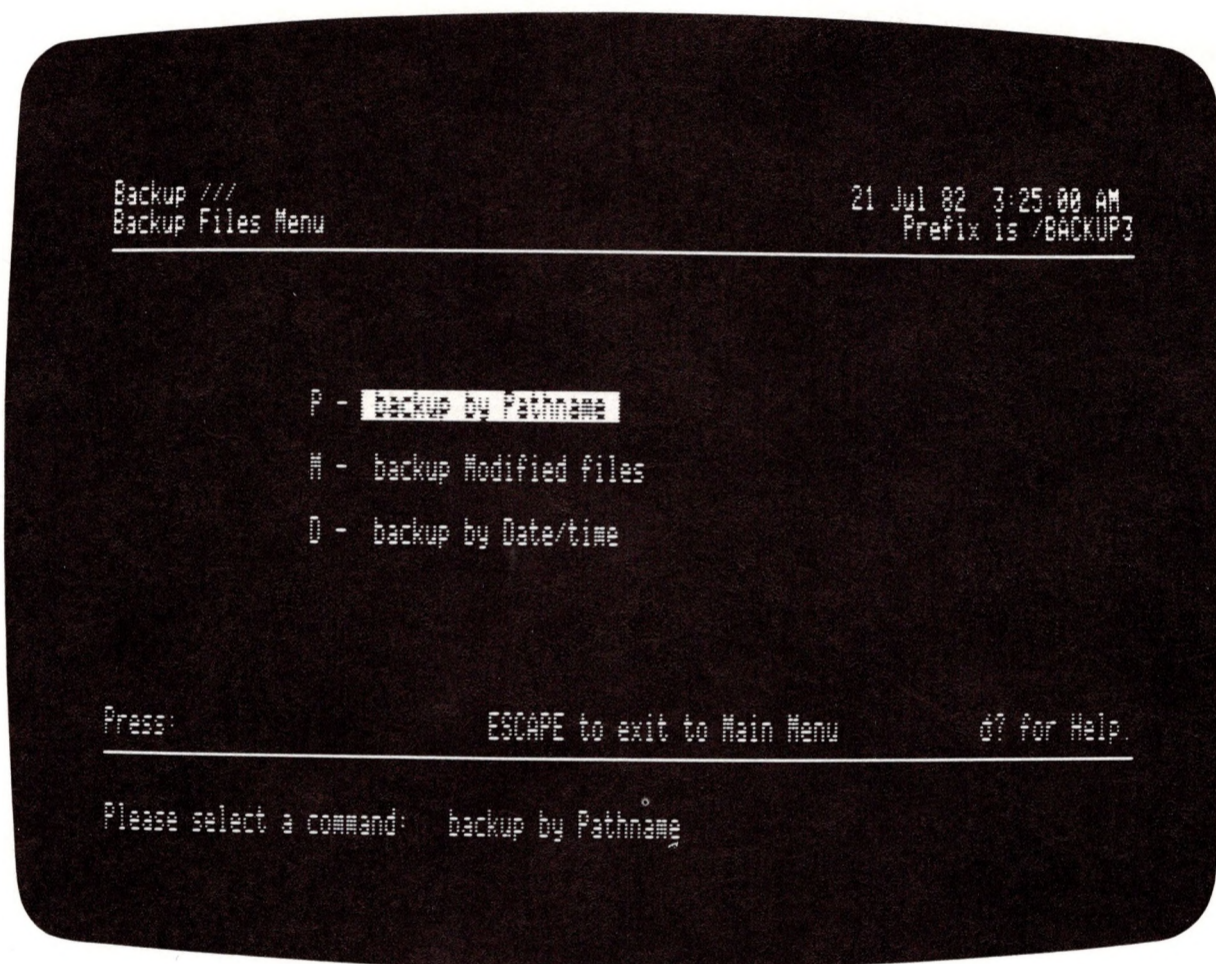


Figure 2-9. Backup Files Menu

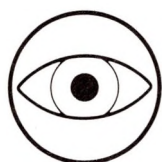
From the Backup Files menu, type

P

to choose the option “backup by Pathname”. A prompt appears at the bottom of the screen:

```
Backup from [.PROFILE/= ]
```

Part of the prompt is a white rectangle, called a *cursor*, which shows you that the program is waiting for you to type something. Press RETURN to tell Backup III to back up the information on the device shown in the prompt. For example, press RETURN to select .PROFILE. Each time you press RETURN, the cursor moves to the next item.



If you type something that Backup III won't accept, an error message appears in a box on the screen.

Now press RETURN twice to tell Backup III to transfer the information to .D2 and to list on the screen what is being transferred, as indicated in the next two prompts:

```
To the device [.D2          ]
Send the listing to [.CONSOLE      ]
```

Backup III should then begin transferring data. Messages on the screen keep you informed about the progress of the backup and tell you when you need to replace the disk in .D2.

First, Backup III constructs a table of contents for the volume, then it formats the blank disk, if necessary. If the blank disk is already formatted, Backup III asks

```
Is it okay to destroy all the contents of (volume name)?
```

Type Y to indicate that it's all right to use the blank disk. Backup III then verifies that the disk is good. If the disk is flawed, the screen displays the message:

```
Verify failed
Press SPACE to continue; ESCAPE to abort
```

Press the SPACE bar. When the screen tells you to replace the disk, put another blank disk in .D2. Remember to double clamp the disk after putting it in .D2. Then press the SPACE bar again. Backup III will format the disk (if necessary) and verify it. After verifying that a backup disk is good, Backup III transfers data from the ProFile to the disk.



The screen (Figure 2-10) shows you how many disks the backup will require and lists the files as Backup III transfers the information in them.

```

Backup ///
Backup by Pathname
19 Oct 82
Prefix is /PROFILEPASCAL

Volume Backup taken on 19 Oct 82 0:00 AM Using 10 Backup Volumes
Size Filetype Date/time of last change
MAIL1.DATA 1 Datafile 11 Sep 81 0:00 AM
SYSTEM.EDITOR 55 Codefile 11 Sep 81 0:00 AM
PLAYLIST.TEXT 4 Textfile 9 Apr 82 0:00 AM
GW.TEXT 12 Textfile 30 Apr 82 0:00 AM
HISTORY.TEXT 10 Textfile 26 May 82 0:00 AM
SYSTEM.FILE 51 Codefile 11 Sep 81 0:00 AM
CHRISTMAS.DATA 1 Datafile 3 Nov 81 0:00 AM
CHRISTMAS.INDX 31 Datafile 3 Nov 81 0:00 AM
FRONT.TEXT 12 Textfile 2 Apr 81 0:00 AM
ALISTME.TEXT 6 Textfile 3 Nov 81 0:00 AM
PRMTHS.INDX 31 Datafile 19 Oct 81 0:00 AM

Press: RETURN to accept ESCAPE to exit to Backup menu 0? for Help

Backup from [ PROFILE/= ]
To the device .02
Send the listing to .CONSOLE
  
```

Number of Disks

List of Files

Figure 2-10. Status of Backup

Labels

While Backup III transfers data from the ProFile to a disk, you should prepare a label for that disk. Figure 2-11 shows the kind of information to write on the label:

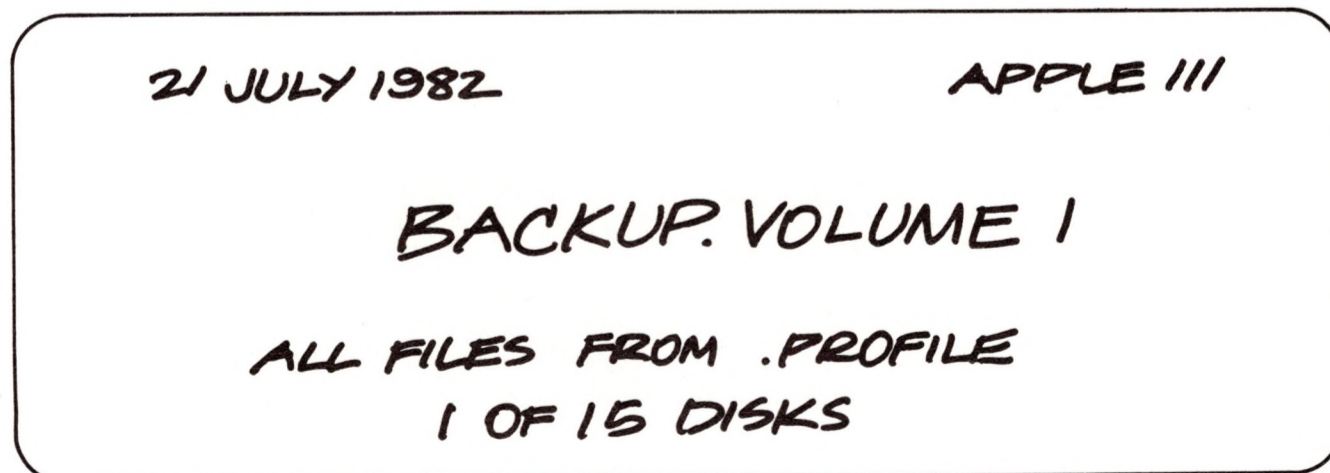


Figure 2-11. Sample Label

Each disk should have the BACKUP.VOLUME number on it. When you know in advance how many disks you need, you can prepare the labels ahead of time.

Changing Disks

When the disk is full, Backup III prompts you for another disk:

```
Remove BACKUP.VOLUME1 from .D2      Replace with next Volume
Press SPACE to continue; ESCAPE to abort
```

When you see the prompt, take BACKUP.VOLUME1 out of .D2, put it in a paper disk envelope, and stick the label on it. Then, put another blank disk in .D2 (remembering to double clamp), and press the SPACE bar.

If you accidentally put BACKUP.VOLUME1 back into .D2, you will get this message:

```
Cannot write over current BACKUP.VOLUME  Replace with next Volume
Press SPACE to continue; ESCAPE to abort
```

Keep replacing and labeling disks until Backup III has transferred all the data from the ProFile. When Backup III finishes backing up the files, this message appears on the screen:

```
(n) files contained in this Backup
```

The cursor moves back to the prompt

```
Backup from [.PROFILE/=          ]
```

Press ESCAPE twice to return to the Main Menu.

Listing the Files

When you first use Backup III, you should double check that it transferred the files you thought it would. To see a list of the files, you can use the List files option from the Restore Files Menu.

Put BACKUP.VOLUME1 in .D2 (remember to double clamp). From the Main Menu, type

R

to get the Restore Files Menu. To see a list of files on the BACKUP.VOLUME, type

L

then press RETURN twice in response to the prompts

```
List the Table of Contents from the Device [.D2          ]
Send the listing to [.CONSOLE          ]
```

If a listing is longer than one page, the screen prompts you to press the SPACE bar to see subsequent pages.

Another Verification

Each verification gives you an additional level of assurance that your backup disks are good. This section of the tutorial describes using the System Utilities program to verify the backup disks.

As mentioned in the section on double clamping, sometimes when you put a disk in a disk drive, the disk won't be properly centered. Even though the disk isn't centered, the disk drive often can write information onto the disk without detecting any problems. However, the next time you put that same disk into any disk drive, the disk probably won't be off center in exactly the same way as before. So the information on the disk may be unreadable.

Even if you have double clamped each disk when you put it in a disk drive, you should use the System Utilities program to verify that your disks are readable. Finding bad disks at the time of backup lowers the chance that you will encounter unreadable disks when you restore files.

With BACKUP.VOLUME1 in .D2, take the Backup III disk out of the built-in disk drive, put in the System Utilities disk (which must include the device driver for the ProFile), and start the System Utilities program (remember about pressing CONTROL and RESET). After a few seconds, the System Utilities Main Menu, shown in Figure 2-12, appears on the screen.

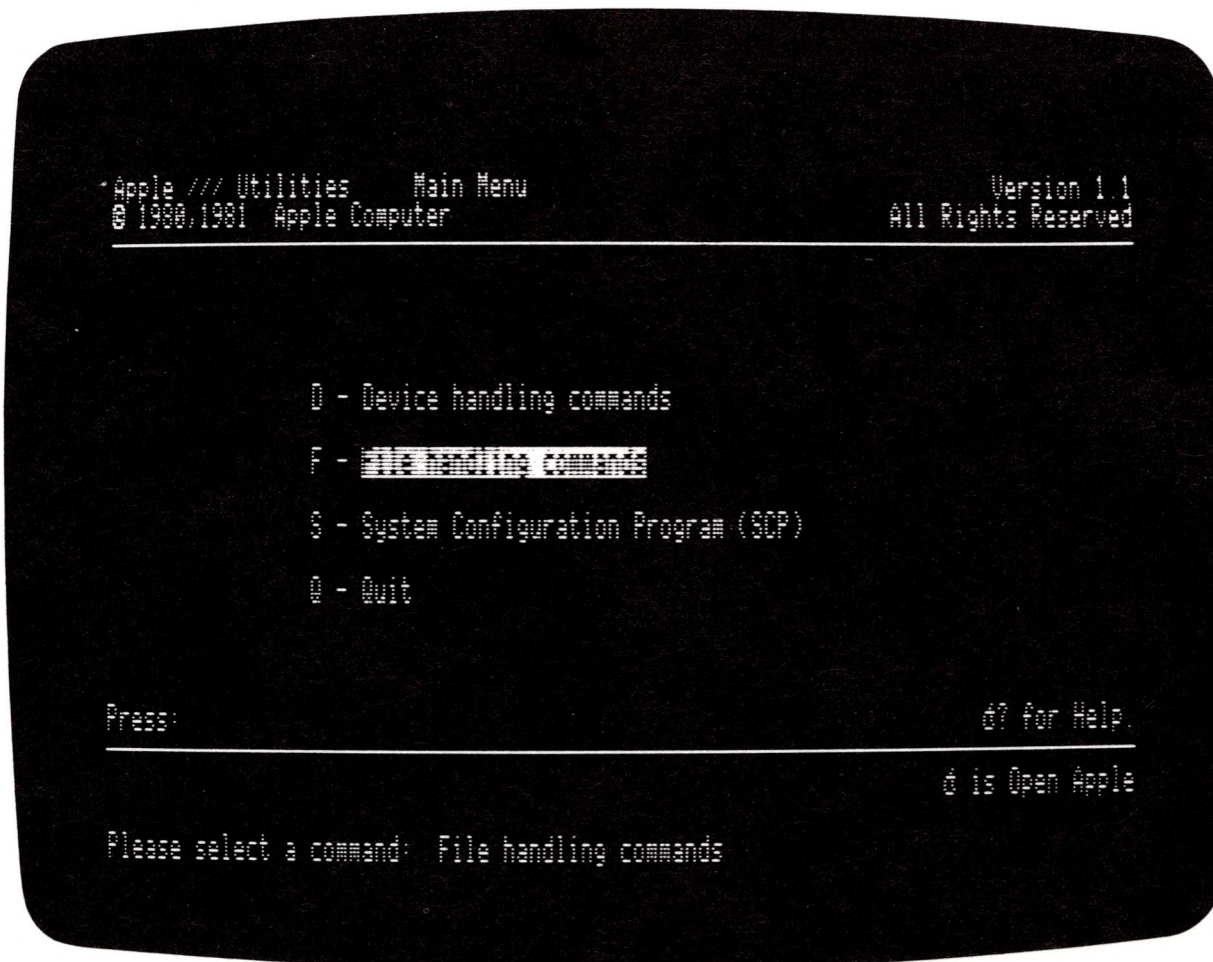


Figure 2-12. System Utilities Main Menu

Type

D

to select Device Handling Commands. Type

V

to select Verify a device. In response to the prompt

```

Verify the medium of the volume:
[.D2 ]
Reading the first 280 blocks

```

press RETURN twice.

After several seconds, the screen displays a message, telling you whether or not the disk has bad blocks. If the disk has bad blocks, you will need to discard it and go through the backup process again. If there is more than one BACKUP.VOLUME, replace BACKUP.VOLUME1 with each of the other BACKUP.VOLUMES in order (pressing RETURN twice in response to the prompts), verifying that each of them is good. When you have verified all the backup disks, press ESCAPE to return to the Device Handling Commands Menu.

Care of Disks

After you complete a backup, you should put the backup disks in a safe place away from heat, moisture, dust, and magnets. To prevent Backup III from accidentally destroying data on a backup disk, put a write-protect tab over the notch on each backup disk (Figure 2-13 shows you how).

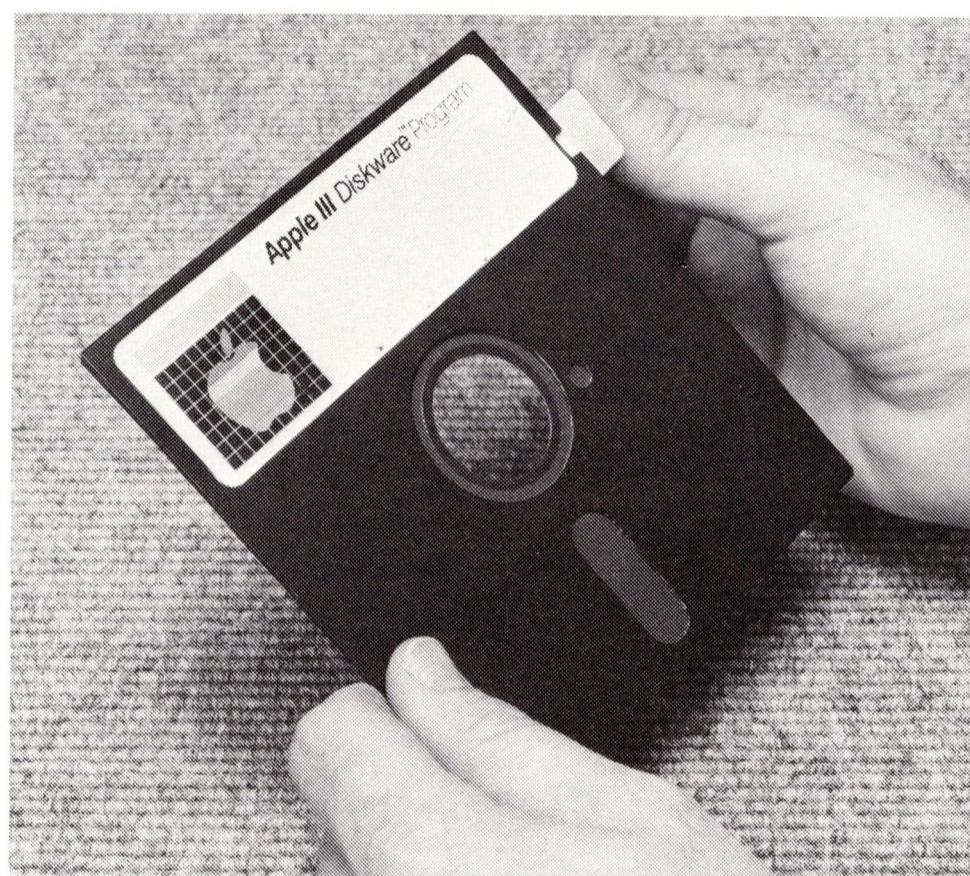


Figure 2-13. Write-Protected Disk



This concludes the part of the tutorial that you should do while you read. Just read the rest unless you need to restore all the files to your ProFile.

A Full-Volume Restoration of Data to the ProFile

This part of the tutorial explains what to do if you lose *all* the data on your ProFile. You will use “restore Volume”, which is one of the three options for restoration.

Chapter 3 describes all three options for restoring data. Most of the time, you’ll use either “retrieve by Pathname” or “retrieve by Date/time”.



While you should read this section carefully, we recommend that you go through these steps only if you actually have to restore all the data to your ProFile. Don’t use this procedure if your ProFile contains usable data. Use “retrieve by Pathname” or “retrieve by Date/time” instead. In particular, if nothing is wrong with the directory on the ProFile, you don’t need to reformat the ProFile.

Reformatting the ProFile

To restore all the files to your ProFile, you will probably want to reformat the ProFile. This procedure prepares the ProFile to store the data and erases any data currently on the ProFile.

From the Device Handling Commands Menu, type

F

to select Format a device. In response to the prompt

```
Format the medium of the volume;
```

type

```
.PROFILE
```

and press RETURN. To make certain that you want to reformat the ProFile, the program gives you a warning:

```
Warning: you are about to format a large disk.  
Please make sure this is appropriate.
```

Make sure you really want to reformat the ProFile, remembering that reformatting destroys all the data on the disk.

In response to the prompt

```
with the new volume name
```

type

```
PRO
```

(or whatever name you want for the volume on your ProFile) and press RETURN. When the program finishes reformatting, it displays this message:

```
Formatting Successful
```

Restore Files Menu

Take the System Utilities disk out of the built-in disk drive, put the Backup III disk in, and restart Backup III. When the Backup III Main Menu appears on the screen, type

```
R
```

to select Restore files. The Restore Files Menu appears on the screen as shown in Figure 2-14.

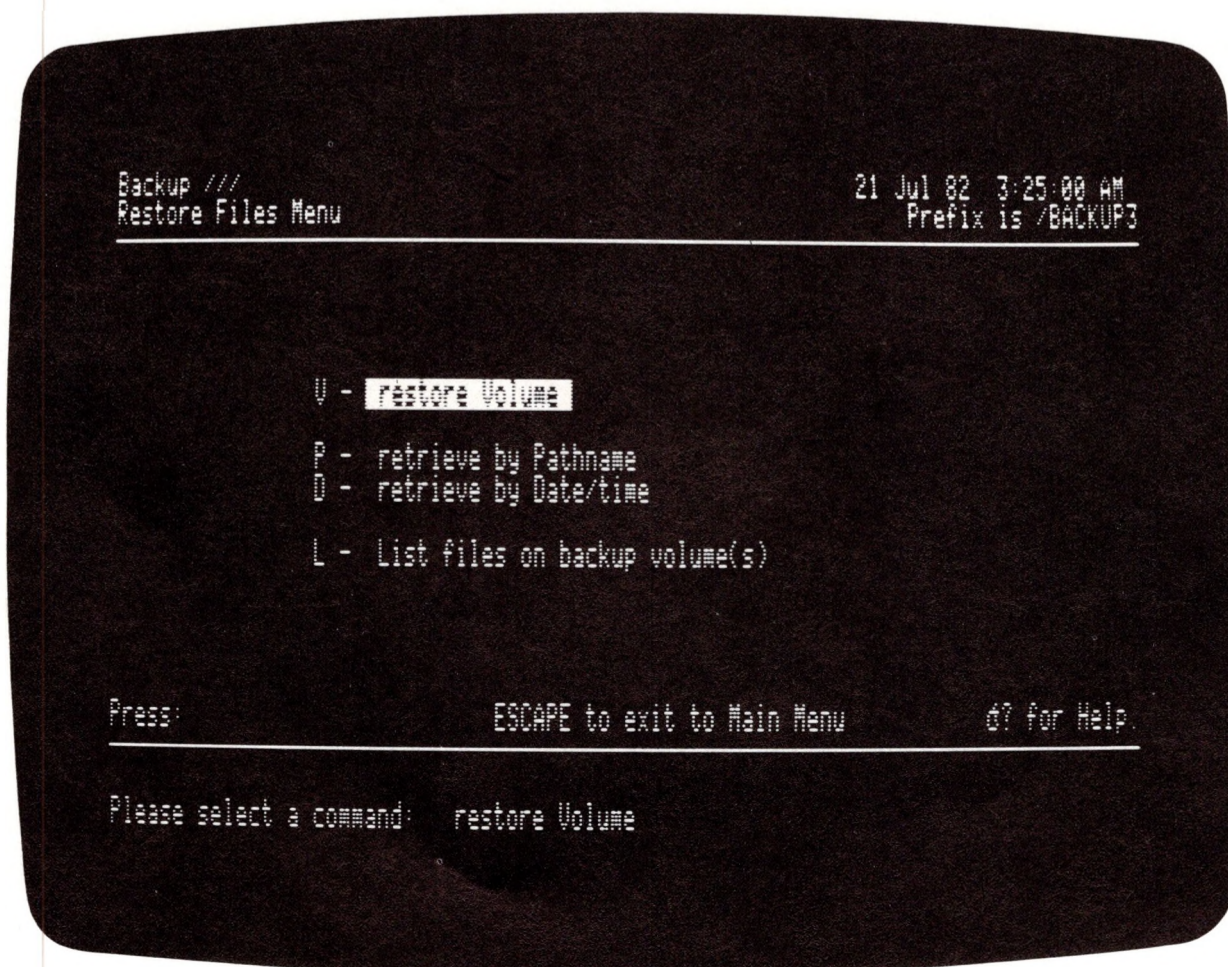


Figure 2-14. Restore Files Menu

From the Restore Files Menu, type

V

for “restore Volume”. First, you’ll see the message:

Caution: This may delete files not present at the time of backup.

This means that you might lose some files if you aren’t careful about how you specify what Backup III should restore. Backup III will restore your ProFile to the state it was in when you made the backup. If you have added files to the ProFile since then, the files may be removed. If you just reformatted the ProFile, then it doesn’t contain any files, so this message doesn’t apply.

Put BACKUP.VOLUME1 in .D2. Close the disk drive door (remember to double clamp). Three prompts appear one at a time at the bottom of the screen:

```
Restore from [.D2 ]
To the directory [.PROFILE ]
Send the listing to [.CONSOLE ]
```

Press RETURN three times to select .D2, .PROFILE, and .CONSOLE. Each time you press RETURN, the cursor moves to the next item.

Now Backup III begins transferring data. Messages on the screen keep you informed about the progress of the restoration and tell you when you need to replace the disk in .D2. Backup III transfers data from the disk to the ProFile, reconstructing the original files. When Backup III has transferred all the data from BACKUP.VOLUME1, the screen prompts you for the next disk:

```
Remove BACKUP.VOLUME1 from .D2      Replace with next Volume
Press SPACE to continue; ESCAPE to abort
```

Take BACKUP.VOLUME1 out of .D2, and put BACKUP.VOLUME2 into .D2. Close the disk drive door (remember to double clamp), then press the SPACE bar. Keep changing the BACKUP.VOLUMES until Backup III has restored all the files.

When Backup III has completed the restoration, the following message appears on the screen:

(n) files contained in this Restore

(n) is the number of files.

This completes the backup and restoration process. As you modify the files you have just restored, you should back them up in case you need to restore those new versions some day.

Menus

This chapter presents general information about Backup III's menus and describes the options available on the Main Menu and the Set Options Menu.

General Information

This section describes the relationship of the menus, the function of ESCAPE, the program's *default* selections, and the *source* and *destination* devices.

Relationship of the Menus

Think of the menus as being on different levels. To go from one menu to another, from one level to another, you press a particular key. Figure 3-1 shows the relationship of the menus and the keys to press to move between menus. To return to the previous level, press ESCAPE.

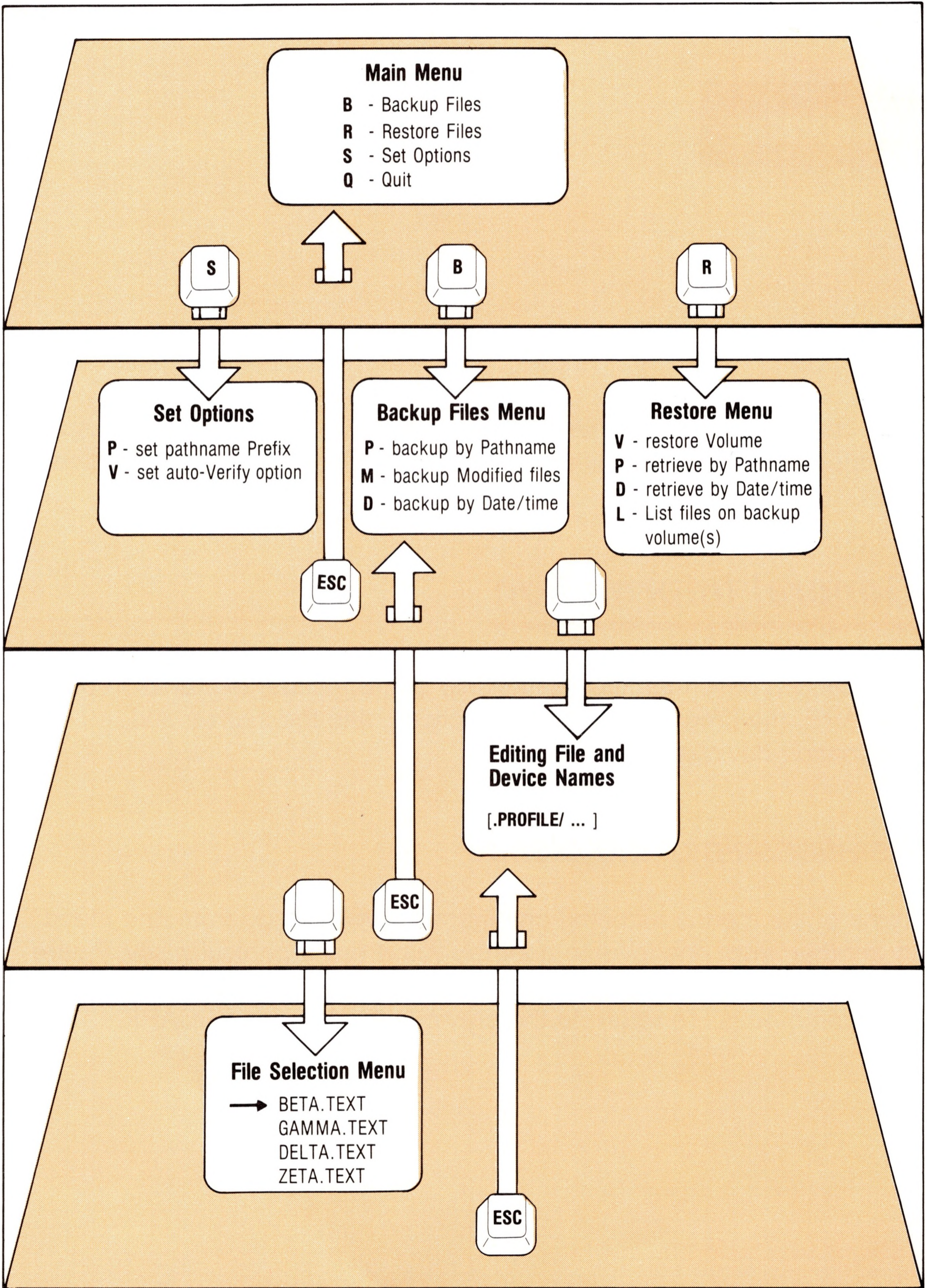


Figure 3-1. Menus for Backup III

Escape

Figure 3-2 shows what happens when you press ESCAPE at various levels:

From:	Pressing ESCAPE Produces this Result:
Main Menu	Error message
Backup Menu	Return to Main Menu
Restore Menu	Return to Main Menu
Unedited pathname	Return to Backup or Restore Menu (whichever you were just using)
Editing a pathname	Returns name to its former state
Selecting files from a list	Returns to the pathname that's the basis for the file selection

Figure 3-2. Effects of Pressing ESCAPE

Default Selections

From any menu, when you press RETURN without typing anything else, you get the default selection for that menu. The default selection is the choice that Backup III provides if you don't specify your own choice. For example, "backup by Pathname" is the default for the Backup Menu. The default is highlighted (displayed in inverse video) on the menu.

Source and Destination Devices

For all backups, Backup III uses a source device and a destination device. Backup III transfers files from the source device to the destination device. At appropriate points in the backup and restoration process, Backup III prompts you for the name of the file or device. The screen lists default names for a source device and a destination device each time you select an option to back up or restore files. You can, of course, type other names for the source and destination devices.



For each device, Backup III uses the name specified for that device by the System Configuration Program (SCP). For example, you may use the name .PRO for the ProFile by using SCP to change the name of the ProFile (device) to .PRO.

Source Device for Backup

When backing up files, Backup III uses the largest block device as the default for the source device. If similar devices are on line (for example, two ProFiles), then the first unit is selected. To determine which unit is first, second, third, and fourth (for devices plugged into the Apple III's slots), Backup III checks the order of the configuration of the device drivers.

Backup III prompts you with the name of the default source device. Since you can specify the source device, you don't need to know about the device driver configuration unless you want to change the default.

Destination Device for Backup

When backing up files, Backup III uses the largest removable-media block device as the default for the destination device. If the Apple III system has at least one external Disk III drive (.D2) and a ProFile, Backup III uses .D2 as the default for the destination device when backing up files.

Default Selections for Restoring Files

When restoring files, Backup III reverses the defaults for the source and destination devices.

Figure 3-3 shows the default source and destination devices for an Apple III system that includes a ProFile (called .PROFILE), the built-in Disk III drive (.D1), and one external Disk III drive (.D2).

	Source Device	Destination Device
backup	.PROFILE	.D2
restore	.D2	.PROFILE

Figure 3-3. Standard Default Selections for Backup and Restore

The Main Menu

The Main Menu has four options:

- Backup files
- Restore files
- Set options
- Quit

The default selection is Backup files, which is highlighted on the screen. To get the Backup Menu, the Restore Menu, the Set Options Menu, or to exit from (quit) the program, type B, R, S, or Q, respectively. Or you can use the arrow keys and press RETURN to choose another selection.

The Set Options Menu

Before you back up or restore any files, you may want to set or change the options from the Set Options Menu:

- set pathname Prefix
- set auto-Verify option

Set Pathname Prefix

When you first start Backup III, the *pathname prefix* is the name of the volume containing Backup III. If you execute SYSTEM.STARTUP. from Pascal to start Backup III, the pathname prefix stays the same as it was before you executed Backup III.

You might want to change the prefix when you back up files from some device other than the largest block device or when you back up several files from a particular *subdirectory*. For example, you might add the file name ACCOUNTS to the prefix .PROFILE, so the new prefix would be

.PROFILE/ACCOUNTS

The screen displays the current prefix in the upper-right-hand corner. To change the prefix, select Set Pathname Prefix from the Set Options Menu by typing P. Type the new prefix and press RETURN. Or, if you see that you don't want to change the prefix, press ESCAPE to leave the current prefix and return to the Set Options Menu. After you type the new prefix, Backup III displays it. When the prefix appears the way you want it, press ESCAPE to return to the Set Options Menu.



If you exit from Backup III and return to the Pascal command line, the prefix remains in effect for subsequent Pascal programs until you change it.

Set Auto-Verify

Backup III provides for two verifications of each backup disk, one before transferring data and one after transferring data. Backup III always checks the backup disk before transferring data. If the "auto-Verify" option is on, Backup III also checks the disk after transferring data.

Verifying means that Backup III checks a disk for bad blocks. A disk with bad blocks is at least partially unreadable.

When Backup III finds bad blocks on a backup disk *before* transferring data, the screen displays this message:

```
Verify failed  
Press SPACE to continue, ESCAPE to abort
```

At this point, you can replace the bad disk with another disk and continue with the backup.

When Backup III finds bad blocks on a backup disk *after* transferring data, the screen displays this message:

```
Verify failed; Backup aborted
```

When this occurs, you can't continue the backup. The BACKUP.VOLUMES created by this backup aren't very useful as they aren't a complete set. Generally, you will have to restart the entire backup.

Auto-Verify adds about 20 seconds per disk to the time for backing up files. The default setting for "auto-Verify" is On.

Type V to select the "auto-Verify" option. The first time you select this option, the screen displays the following message:

```
The auto-verify option is On.  
Do you wish to turn it Off? [Yes]
```

To change the "auto-Verify" option, type Y for yes. When the "auto-Verify" option is the way you want it, type N for no or press ESCAPE. The Set Options Menu returns to the screen. For example, after you type Y to change the setting, then you should press ESCAPE to return to the Set Options Menu.

Why You Should Use Auto-Verify

Experienced users might want to turn off "auto-Verify" to save a little time during backup, but in doing so you face these risks: unreadable disks and having to reconstruct a backup of modified files. We recommend that you leave "auto-Verify" on.

A bit of dust or a hair might lodge on the disk while Backup III is writing information onto it, rendering the disk unreadable. When "auto-Verify" is on, Backup III can detect that a problem occurred while writing information onto the disk. Although it is frustrating to have to redo a backup, it's better to know about it sooner rather than finding out when you go to restore files.

In particular, Backup III turns off the backup bits after you back up modified files. Therefore, if "auto-Verify" was off when you backed up modified files and you have to redo the backup, you will have to figure out which files were supposed to be part of the backup and use "backup by Pathname" or "backup by Date/time" to recreate the backup.



Always make sure that "auto-Verify" is on when you use "backup Modified files".

Quit

Type Q to exit from the program. If you executed the program from Pascal, the Pascal command line reappears at the top of the screen. Otherwise, the program gives you the message

INSERT SYSTEM DISKETTE AND REBOOT

Backing Up Files

This chapter describes the process of backing up files. It presents an overview of backing up, describes BACKUP.VOLUMES and their table of contents, and explains the choices on the Backup Menu.



The examples in this chapter assume that you are using a ProFile as the source device and .D2 as the destination device.

Overview of Backing Up

When making a backup of your files, Backup III transfers data from one volume to another. Common characteristics of the source volume and the destination volume are

Source	Destination
Large (i.e., ProFile)	Small (i.e., a set of disks)
Single large volume	Many small volumes
Readable files	Files unreadable unless Restored
All files	Subset of files

Backup III produces backups in four general categories:

Category	Files included
full volume	all files from ProFile
volume (modified)	all modified files from ProFile
subvolume	files selected by a pathname
subvolume (modified)	modified files from pathname

Volume vs. Subvolume

A volume backup preserves all the files from the ProFile, unless you specify that you want to back up only modified files. A subvolume backup preserves only a subset of the files on your ProFile.

For any backup, you must specify the source from which Backup III makes the backup. The default source is `.PROFILE/=`, which produces a volume backup. If you change the source, for example to `.PROFILE/ACCOUNTS/=`, then you get a subvolume backup.



Volume backups from the ProFile always have `.PROFILE/=` as the source. *You must use `.PROFILE/=` as the source for a backup if you expect to use the “restore Volume” option later.*

For both a volume and subvolume backup, you can select either to back up all the files or to back up only modified files. Make your selection by choosing from the options on the Backup Files Menu. Figure 4-1 shows the kind of backup you get when you specify each of the options and either `.PROFILE/=` or another pathname.

Menu Option	Source	
	.PROFILE/=	Another pathname
by Pathname	volume (all files)	subvolume (only files specified by pathname)
Modified files or by Date/time	volume (modified files only)	subvolume (only modified files specified by pathname)

Figure 4-1. Kind of Backup



A volume backup of modified files is called an *incremental backup*. Generally, you will make a volume backup of all files weekly and incremental backups daily.

When Backup III displays a listing of files on the screen, it distinguishes between the volume backup and the subvolume backup by the header line at the top of the listing. For a volume backup, the header reads

Volume Backup Taken on. . .

For a subvolume backup, the header line reads

Backup Taken on. . .

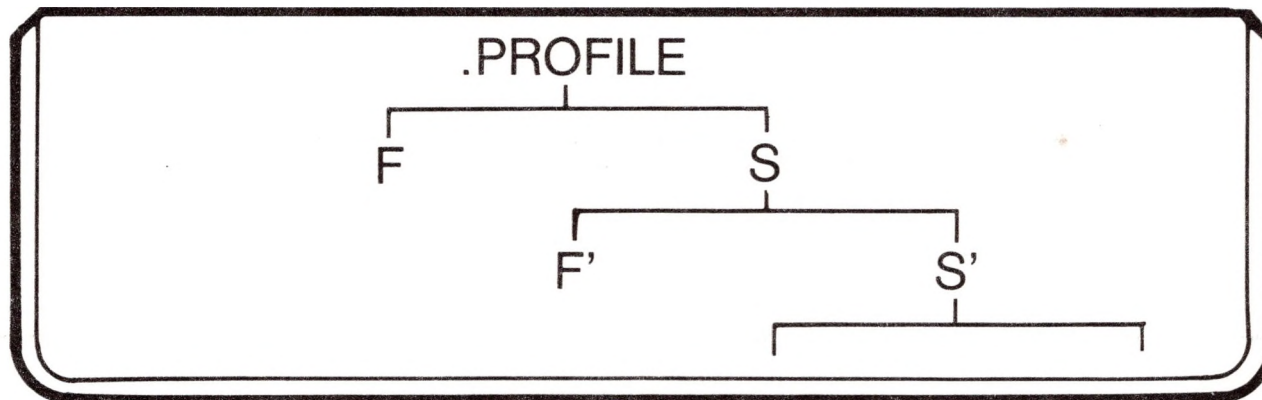
Subvolume Backup

Subvolume backups allow you to select a particular file or files to be backed up. The following table shows the three possible types of

specifications for backing up files and which files are backed up in each case:

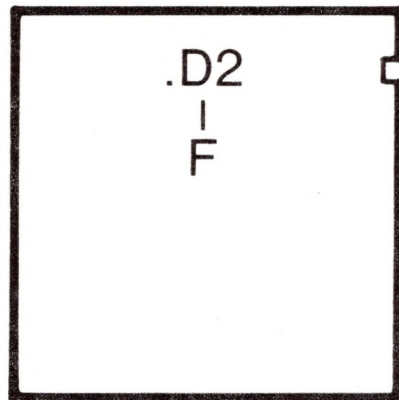
Pathname specified	Files backed up
Case A: .PROFILE/F	Only file F
Case B: .PROFILE/S	Subdirectory S and all files in S, including any subdirectories under S, down to all levels
Case C: .PROFILE/S/=	All the files in the subdirectory S, including any subdirectories under S, down to all levels, but not S itself.

Figure 4-2 shows an example.

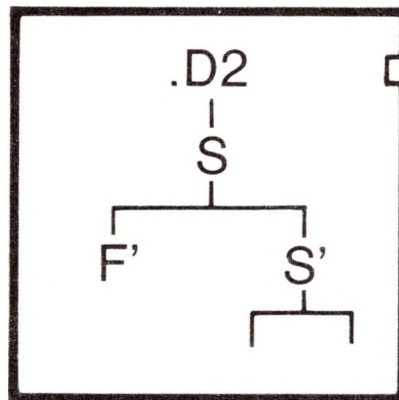


Backup from:

.PROFILE/F



.PROFILE/S



.PROFILE/S/=

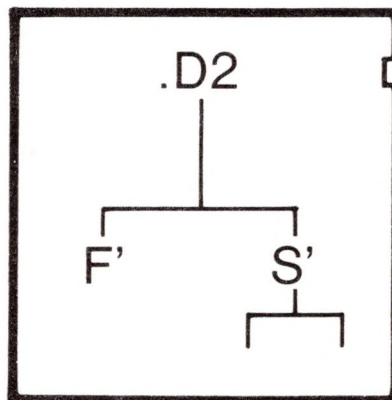


Figure 4-2. Files Backed Up

You can select files further down in the subdirectory structure by using the proper pathname. For example,

`.PROFILE/S1/S2/S3/F`



The backup volume has no record of where F came from in the .PROFILE file structure. You must properly specify where to put the files or subdirectories when restoring them.



You can use the UP-ARROW and DOWN-ARROW to get to the file selection menu so that you can select more than one file or subdirectory, but the backup process is the same on each file and subdirectory.



If you have selected either “backup Modified files” or “backup by Date/time” rather than “backup by Pathname”, the non-subdirectory files selected by the pathname are also candidates for backup. They must also meet the other criterion of being modified since the last backup or since the specified date/time.

Subdirectories vs. Files

The backup option (by Pathname, Date/time, or Modified files) has no effect on which subdirectories are backed up. For example, when backing up modified files, Backup III backs up all subdirectories according to the pathname specification, even if the subdirectories have not been modified. So, you may see Backup III listing subdirectories being backed up, with none of their files being backed up.

BACKUP.VOLUME

This section describes the procedure for using either a formatted or an unformatted disk as a BACKUP.VOLUME. It also explains what to do when Backup III prompts you about formatting a disk you are using as a BACKUP.VOLUME.



Whether you use formatted or unformatted disks for your BACKUP.VOLUMES, be sure to double clamp each time you put a disk into a disk drive. This essentially assures that the disk is properly centered.



We recommend that you use the System Utilities program to format the disks you plan to use as BACKUP.VOLUMES.

Whichever backup option you choose, Backup III names each backup disk

BACKUP.VOLUME(n)

where n is the number of the backup disk in sequence.

Using a BACKUP.VOLUME

If you use a BACKUP.VOLUME that is part of the current sequence, Backup III protects you from accidentally erasing the files on it. The screen displays the message:

```
Cannot write over current BACKUP.VOLUME
```

Take out the BACKUP.VOLUME and replace it with another disk.



If you use a BACKUP.VOLUME from another set, Backup III uses that disk without displaying any prompt or message.

Using Some Other Formatted Disk

When you use a formatted disk that is not a BACKUP.VOLUME, Backup III asks

```
Is it okay to destroy all the contents of (volume name)? [Yes/No]
```

To save the contents of the disk, type N for no and use some other disk. To use the disk for your backup (and thereby lose all the data currently on it), type Y for yes.

Using an Unformatted Disk

When you use an unformatted disk, Backup III prompts

```
Is is okay to format blank volume in .D2 [Yes/No]
```

You need to decide if you want Backup III to format the disk. If you know that the disk is unformatted, you probably want Backup III to format the disk. In that case, type Y for yes. Backup III formats the disk, then uses it.

Sometimes Backup III prompts you about formatting the disk when you know that the disk is already formatted. This may happen if the disk is off center in the disk drive (especially if you haven't double clamped it). In that case, you probably don't want to format the disk, so type N for no. The prompt

Replace with next Volume
Press SPACE to continue; ESCAPE to abort

appears on the screen.

If you want to try the same disk again, open and close the disk drive door once more, then press the SPACE bar. Backup III checks the disk again to see if it is formatted. If the disk doesn't appear to be formatted and readable, Backup III again prompts you about formatting the disk. In that case, replace the disk with another one. If the disk does appear to be formatted, follow the appropriate procedure described in the sections Using a BACKUP.VOLUME or Using Some Other Formatted Disk.

If you don't want to try the same disk again, open the disk drive door, take out the current disk (which you may want to reformat later), and put in another disk (preferably a formatted disk). Close the disk drive door, remembering to double clamp. Press the SPACE bar again to continue with the backup.



Unfortunately, sometimes an off-center disk appears to be correctly formatted. In that case, Backup III won't prompt you about formatting the disk. Therefore, as a precaution against unreadable disks, you should use the System Utilities program to verify that your backup disks are good.



If the System Utilities program finds a bad BACKUP.VOLUME, and Backup III created that backup by using the "backup Modified files" option, then you should redo the backup using "backup by Pathname" or "backup by Date/time". "Backup Modified files" won't work again because Backup III turned off the backup bit and can't detect which files were modified files. (See the section on the Backup Bit.)

Labels

You should put a label on each backup disk. When you prepare the labels, it is a good idea to include a brief description of the contents of the files on each disk as well as the BACKUP.VOLUME number, for example, as shown in Figure 4-3.

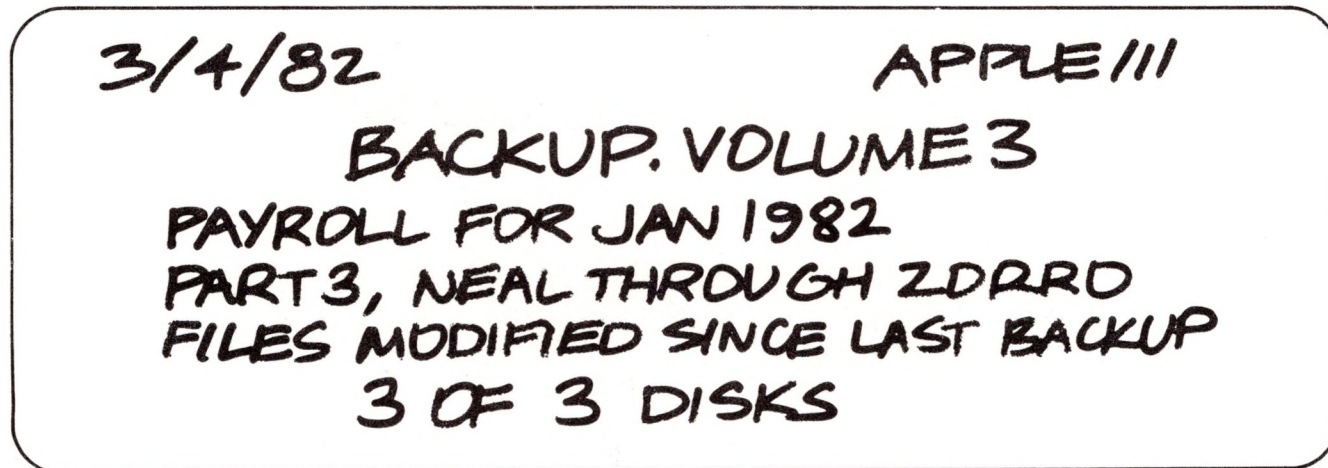


Figure 4-3. Sample Label

Table of Contents

Whichever backup option you choose, Backup III creates a table of contents for the files it transfers. It puts the table of contents on the first backup volume.



The Apple III can read the backup disk's volume name using Business Basic, the System Utilities Filer, or the Pascal Filer. To get a list of the files on a backup disk, however, you must use the List files option from Backup III's Restore Files Menu, which reads the table of contents from the first backup volume.

The Backup Menu

The Backup Menu has three options:

- backup by Pathname
- backup Modified files
- backup by Date/time

Type P, M, or D, respectively, to back up files by pathname, by whether they were modified since the last backup, or by date. Whichever option you choose, Backup III prompts you for the source volume. For example:

```
Backup from [.PROFILE/= ]
```

Using .PROFILE/= as the source gives you a volume backup. If you want to back up selected files, you must specify the files or subdirectories as the source.

Backup by Pathname

The “backup by Pathname” option lets you specify an entire volume or part of a volume as the source device. You can specify a device name (for example, .PROFILE), or a pathname (for example, .PROFILE/payroll/Jan), or a file pattern (for example, .PROFILE/payroll/=). The following prompts show the default selections for “backup by Pathname”:

```
Backup from [.PROFILE/= ]
To the device [.D2 ]
Send the listing to [.CONSOLE ]
```

Backup by Date/Time

This option lets you specify files based on their modification date and time as listed in the directory. If your Apple III does not have a clock chip that automatically changes the date and time, you may set the date and time using the System Utilities program.

When you choose “backup by Date/time”, Backup III prompts you for the names of devices, for the date, and then for the time. For example:

```
Backup from [.PROFILE/= ]
All files modified after 2 Apr 82 09:56:00 AM
To the device .D2
Send the listing to .CONSOLE
```


To specify the date, use one of the following formats:

29-Jan-82
29-Jan
29

This lets you change the entire date, the day and the month, or just the day.



If you misspell the abbreviation when changing the month, Backup III uses the old month.

To specify the time, use the format

hh:mm XX

where hh is the hour, mm the minute. XX is either AM, PM, or blank. For example,

9:30 AM



If XX is blank, Backup III assumes the 24-hour convention. For a time between 1 PM and midnight, you must specify PM or use a time between 13:00 and 24:00. Similarly, for a time between midnight and 1 AM, you must specify AM or use a time between 0:00 and 1:00.

Limitations of Backup by Date/Time

The “backup by Date/time” option is limited because not all operations on a file change the modification date and time for that file. Three instances when the date and time don't change are

- when copying files
- when lock/unlocking files
- when renaming files

When you copy a file, the creation date changes to the current date, but the modification date stays the same as it was. So, backing up by Date/time may not back up a copied file since Backup III checks the modification date, not the creation date.

Locking or unlocking files does not set the date or time, so a change in the locked/unlocked status won't be saved on a backup by Date/time.

Similarly, renaming a file does not set the date or time. This can be especially hazardous if you rename a subdirectory, since a volume restore could delete the old subdirectory and all of its files and not replace it with the newly named subdirectory.



Use the “backup Modified files” or “backup by Pathname” options for those files that Backup III won’t back up by Date/time.

Backup Modified Files

This option lets you back up files that have been modified since you last made a backup.



This is a convenient way to back up only those files that you’ve modified since the last backup.

The Backup Bit

SOS keeps track of when a file has been altered by turning on a bit called the backup bit. SOS turns on the backup bit when

- creating a file
- restoring a file using Backup III
- changing a file’s contents (except for a subdirectory)
- renaming a file
- changing a file’s write-protection status
- copying a file (the new copy has its backup bit on)

After making a backup, Backup III turns off the file’s backup bit. When you specify that you want to back up modified files, Backup III checks to see which files have been modified. If the backup bit is on, Backup III copies the file and turns off the backup bit. If these files are subsequently restored, the backup bits are turned on again.

If you rename or change the write-protect status of a subdirectory, “backup Modified files” will back up the subdirectory and all of its files.



Be sure that the "auto-Verify" option is on when you use "backup Modified files".

Printing a List of Files

During the backup process, Backup III prints a list of the files transferred. The list includes the name and other information for each file transferred to the backup volume. Backup III prompts you for the pathname to send the listing to:

```
Send the listing to [.CONSOLE ]
```

You may specify any pathname. For example:

- to print the list on a printer—specify `.PRINTER` or `.SILENTYPE`
- to display the list on the screen—specify `.CONSOLE`
- to save the list as a file—specify the pathname for the file

The default is `.CONSOLE`.

Figure 4-4 is a sample listing.

```

Backup taken on 17 Jun 82 3:50 PM
                                Using 4 Backup Volumes
                                Date/time of last change
Size      Filetype
SYSTEM.PASCAL      66      Datafile      13 May 82     9:30 AM
SYSTEM.MISCINFO    1       Datafile      26 May 82     0:00 AM
PSCL.FILER.CODE    51      Codefile      10 May 82     0:00 AM
SYSTEM.LIBRARY     75      Datafile      10 May 82     0:00 AM
SYSTEM.EDITOR      55      Codefile      12 May 82    10:30 AM
SYSTEM.SYNTAX      12      Textfile      10 May 82     0:00 AM
SYSTEM.COMPILER    81      Codefile      10 May 82     0:00 AM
SYSTEM.ASSMBLER    49      Codefile      10 May 82     0:00 AM
OPCODES.6502       2       Datafile      10 May 82     0:00 AM
ERRORS.6502        7       Datafile      10 May 82     0:00 AM
SYSTEM.LINKER      25      Codefile      10 May 82     0:00 AM
LIBRARY.CODE       9       Codefile      10 May 82     0:00 AM
LIBMAP.CODE        9       Codefile      10 May 82     0:00 AM
RTIFORMAT.CODE    10      Codefile      10 May 82     0:00 AM
SETUP.CODE         11      Codefile      10 May 82     0:00 AM
FILL               1       Datafile      26 May 82     0:00 AM
PMOVE.CODE         15      Codefile      10 May 82     0:00 AM
SYSTEM.FILER      123     Codefile      10 May 82     0:00 AM
WORK/
RPT.TEXT           6       Textfile      11 Jun 82     9:31 AM
QUESTIONR.TEXT     4       Textfile      19 May 82     9:30 AM
BU3                48      Datafile      3 Jun 82      5:41 PM
PFS.CODE           61      Codefile      28 Jun 81     0:00 AM
TEST.PLAN          10      Textfile      13 May 82     9:30 AM
SCENARIOS.TEXT     10      Textfile      24 May 82     9:30 AM
VERIFY.CODE        19      Codefile      6 May 82      7:22 PM
BU3.TEXT           54      Textfile      3 Jun 82      5:41 PM
MANUAL.TEXT        14      Textfile      7 Jun 82      3:55 PM
MANUAL.2.TEXT      6       Textfile      10 Jun 82     1:29 PM
SYSTEM.WRK.TEXT    6       Textfile      3 Jun 82      9:37 AM

30 files contained in this Backup

```

Figure 4-4. Sample Listing of Files

Restoring Files

This chapter presents an overview of restoring files and describes the options on the Restore Files Menu.

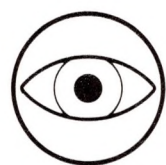


The examples in this chapter assume that you are using .D2 as the source device and .PROFILE as the destination device.

Overview

The process of restoring is for the most part the reverse of the process of backing up files. To restore files, Backup III transfers data from one or more BACKUP.VOLUMEs to the main storage device to recreate the original files (for example, from a set of disks to a ProFile). Be sure to double clamp the disks when you put them into the disk drives.

The choices for restoring are restoring an entire volume (such as .PROFILE) or retrieving individual files.



To restore a volume, you must have used the volume specification (.PROFILE/=) as the source device when you created a volume backup. Generally, you will restore a full volume only if the main storage device loses all your data.

To retrieve individual files, you must specify the proper directory or subdirectory on the destination volume. When you specify one or more files from a specific subdirectory, Backup III assumes that you want the

files restored to the same subdirectory on the destination device. For example,

If you specify files:

.D2/A/B/C/D

.D2/A/B/C/=

.D2/A

.D2/=

Backup III assumes subdirectory:

.PROFILE/A/B/C

.PROFILE/A/B/C

.PROFILE

.PROFILE



Note that the file .D2/A/B/C/D is transferred to the subdirectory .PROFILE/A/B/C unless you specify another subdirectory.

You can edit the subdirectory specification if it's not the way you want it. You would be most likely to edit the subdirectory when

- You want to restore a file to some place in the directory structure other than the place the file was when you made the backup.
- The backup was not a volume backup. For example, if you backed up the file .PROFILE/A/B/C, the file exists as .D2/C with no indication of the subdirectories /A/B. So you should edit the default subdirectory .PROFILE, changing it to .PROFILE/A/B to put the file C in its proper subdirectory structure.

Restoring a Volume

A typical volume restoration requires several steps. Each step involves restoring files from a set of disks. First, you should restore the full-volume backup, then, in chronological order, restore any incremental backups you have made since the volume backup.

The result will be a volume that contains all the files that were present at the time of the last incremental backup. Backup III does this by restoring files that were present when it made the backups and deleting files that were deleted between backups.



Backup III won't remove files from the root directory. It removes files from subdirectories only. Before each incremental restoration, you should use the Utilities filer to check the root directory and delete any files that should be removed from the root directory.



In between retrieving files from the sets of incremental backup volumes, you may use the Utilities Filer to remove files from the root directory of the destination device, but don't reformat the destination device. Reformatting removes whatever is on the device; in this case it would remove all the files you just restored.

Before restoring a volume, you may wish to reformat the destination device. On the other hand, you may want to leave the files on the device and restore files along with whatever files are currently on that device. The risk in not reformatting is that you might run out of space on the volume or in the root directory, which only holds 51 files.



The only time you might want to reformat a volume is when you use "restore Volume". Do not reformat the volume when retrieving files by pathname or date/time.

Restore Volume vs. Retrieve by Pathname

The advantage of "restore Volume" is that it restores only the files that the volume contained at the time of the last backup. Assuming that you have a full-volume backup and some incremental backups, your backup volumes may contain files that you later deleted from the main storage device. Restore Volume keeps track of the directory and deletes the appropriate files as it recreates the history of your backups. So you end up with only those files restored that were part of the ProFile at the time of the disaster.

When you select "retrieve by Pathname", Backup III retrieves all the backup files for the pathnames you specify, including files that you may have intentionally deleted from your main storage device after you made the backup copy of the files.

Figure 5-1 shows an example of the contents of the ProFile and the Backup Volume during a backup, then during the restoration of the files. Compare the contents of the ProFiles at the end of the illustration to see the difference between the options "restore Volume" and "retrieve by Pathname".

Date	Contents of ProFile (Source)	Action	Contents of .D2 (destination)
Aug 1	BETA GAMMA DELTA EPSILON /S FILE1 FILE2	backup by pathname of full volume	BETA GAMMA DELTA EPSILON /S FILE1 FILE2
Aug 2	BETA* GAMMA DELTA EPSILON* /S FILE1* FILE2	backup modified files	BETA* EPSILON* /S FILE1*
Aug 3	BETA* DELTA EPSILON* /S FILE1	no backup delete GAMMA and File2	
Aug 4	BETA** DELTA EPSILON* /S FILE1* ZETA	backup modified files	BETA** /S ZETA
Aug 5	Disaster wipes out ProFile		

* indicates modified files
 ** indicates modified again

Aug 6

```

BETA**
GAMMA
DELTA
EPSILON*
/S
  FILE1*
ZETA

```

Restore Volume .D2/=
using BACKUP.VOLUMEs from
Aug 1
Aug 2
Aug 4

gives you the subdirectory contents that the ProFile contained on Aug 4. Note that S/File2 is gone. The ProFile contains the root directory contents as of Aug 4, plus GAMMA, because root directory files are not deleted automatically.

```

BETA**
GAMMA
DELTA
EPSILON*
/S
  FILE1*
  FILE2
ZETA

```

Retrieve by Pathname .D2/=
using BACKUP.VOLUMEs from
Aug 1
Aug 2
Aug 4

gives you all the files that were ever backed up.

* indicates modified files

** indicates modified again

Figure 5-1. Restore Volume vs. Retrieve by Pathname

The Restore Files Menu

The Restore Files Menu has four options:

- restore Volume
- retrieve by Pathname
- retrieve by Date/time
- List files on backup volume(s)

Type V, P, D, or L, respectively, to restore files by volume, pathname, or date, or to see a list of the files on a backup volume. Restore Volume is the default selection.



Restoring files changes the creation dates and times on the directory record to the current date and time. The Basic CATALOG command will show the creation date and time; Pascal directory listings will show only the modified date and time, which are not changed by a restoration.

Restore Volume

Select the “restore Volume” option from the Restore Files Menu, then transfer data from the appropriate sets of BACKUP.VOLUMES, using the sets in chronological order, oldest set first. Generally, you will restore a full-volume backup, then restore the incremental backups.

When you select “restore Volume”, Backup III transfers files from one or more BACKUP.VOLUMES to the destination device. It prompts you for the source device, the destination device, and where to send the listing. For example:

```
Restore from .D2
To the directory .PROFILE
Send the listing to .CONSOLE
```

If BACKUP.VOLUME1 indicates that there is more than one BACKUP.VOLUME, Backup III prompts you for subsequent volumes.



If the volume that you specify as the source device is not the first BACKUP.VOLUME, the screen displays this message:

```
Volume is not first Backup Volume
```

Either put in the correct diskette or specify another source device if you really want some other device.



If the volume that you specify as the source device was not created as part of a volume backup, the screen displays this message:

```
Cannot do Restore Volume from this backup
```

Either put in the correct diskette, specify another source device if you really want some other device, or select “retrieve by Pathname”.



If you try to restore more data than will fit on the destination device, Backup III stops when the device is full and gives you an error message. You will have to start the restoration process again after reformatting the destination device, deleting unwanted files, or selecting a larger destination device.



To reformat the destination device, you must use the System Utilities program.

Retrieve by Pathname

When you select “retrieve by Pathname”, Backup III transfers selected files from the BACKUP.VOLUME to the destination device. Unlike “restore Volume”, “retrieve by Pathname” does not delete any files.

It prompts you for the source and destination devices, for example:

```
Restore from .D2/=
To the directory .PROFILE
Send the listing to .CONSOLE
```

Retrieve by Date/Time

When you choose “retrieve by Date/time”, Backup III prompts you for the names of devices and for the date and the time:

```
Retrieve from .D2/=
All files modified after 23 Apr 82      10:24:00 AM
To the directory .PROFILE
Send the listing to .CONSOLE
```

To specify the date, use any of the formats shown in the “backup by Date/time” section of Chapter 4.

Listing Files

This option lets you view a listing of the directory for the BACKUP.VOLUMES. You can send the listing to a printer or to the console or save it as a file. In any case, Backup III sends the header and a summary line to the .CONSOLE. Backup III prompts you for the pathname of the listing, for example:

```
List the Table of Contents from the Device .D2  
Send the listing to [.CONSOLE ]
```



.D2 must contain BACKUP.VOLUME1.



If you specify a file as the destination for the listing, be careful not to overwrite another file.

The header line includes the word "Volume" when Backup III has created a volume backup.

Examples

This chapter presents examples of using Backup III to backup and restore files. The type of backup plan you choose depends on how conservative you feel about your data, the number of files you modify, how often you modify your files, and the difficulty of recreating lost files.

These examples assume that you have a fairly large number of complex files that you modify daily. You may want to use a backup plan with fewer safeguards if you don't modify your files often or if the time (and stress) required to recreate the files would be less than the time required by a type of backup that is this careful.



The examples in this chapter assume that you are using .D2 and .PROFILE.

Backing Up Files

A systematic approach is the best plan for backing up your files. Having a scheduled day and time of day for each backup is a good way to preserve your data. For example, make a full-volume backup every week and a modified-files backup every day.

This example backs up the entire contents of a ProFile on Friday, then backs up only modified files on Monday through Thursday. The plan requires ten sets of backup disks:

Group A.

- Set 1: Full-volume backup of the previous week's data
- Set 2: Incremental backup for last Monday
- Set 3: Incremental backup for last Tuesday
- Set 4: Incremental backup for last Wednesday
- Set 5: Incremental backup for last Thursday

Group B.

- Set 6: Full-volume backup of last week's data
- Set 7: Incremental backup for Monday
- Set 8: Incremental backup for Tuesday
- Set 9: Incremental backup for Wednesday
- Set 10: Incremental backup for Thursday



In each group, use a different set for each daily backup so you can restore all the modified files in case you must do a full-volume restoration. In addition, you can use the daily backup to restore yesterday's modified files, if some disaster occurs while you are backing up today's files.



Be sure to label the disks clearly and to keep the weekly disks in a safe place, where they won't be confused with the daily set.

Figure 6-1 shows a plan for using the ten sets of backup disks.

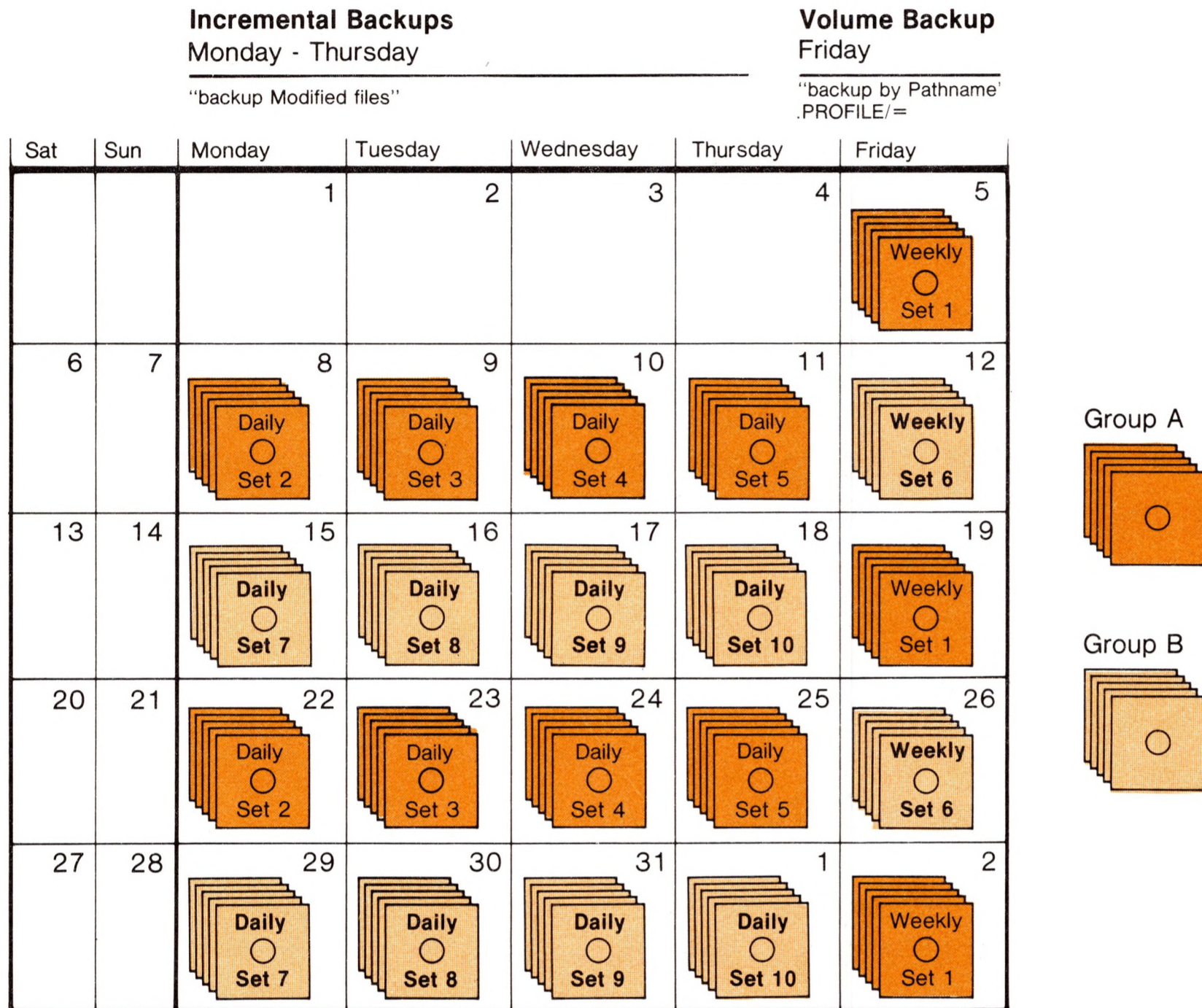


Figure 6-1. Plan for Backups

Weekly Backup

On Friday, make a full-volume backup. Use the option

backup by Pathname

to transfer

.PROFILE/=

to a set of disks. Label the disks to show that they are your weekly backup, for example:

BACKUP.VOLUME1

7/09/82

Weekly Backup: Set 1

Put that set of disks in a safe place. Use Set 1 every other week to make the weekly backup, making sure that you always have the most recent data on hand.

Daily Backup

Monday through Thursday, back up modified files by selecting the option

backup Modified files

from the Backup Menu, and backing up the files from .PROFILE/= to the BACKUP.VOLUME(s) for that day. We suggest you label the disks with the day of the week, for example

BACKUP.VOLUME1
Files Modified on THURSDAY
Daily Backup: Set 5

Backup by Date/time

For this example, two agents (Dan and Barbara) each have ProFiles with data about their clients. They share the Crosley account. When Dan returns from vacation, Barbara uses

backup files by Date/time

to back up .PROFILE/CROSLEY/=, using the date when Dan went away. The disk is labeled

BACKUP.VOLUME1
Crosley account files
Modified since 7/3/82 (copy for Dan)

Dan then transfers those files to his ProFile, using the Restore Files option. Note that you don't have to use "restore by Date/time". "Restore by Pathname" of .D2/= to .PROFILE/CROSLEY works also.

Restoring Files

The examples that follow cover two major instances for which you would need to restore files: when a disaster wipes out all the files on the ProFile, and when just a few files are lost.

Full-Volume Restore

To restore all the files to your ProFile, the two steps are restoring all the files from the last full backup and restoring any incremental daily backups in chronological order. You may also need to reformat the ProFile in some instances. Use the option

restore Volume

After Backup III reconstructs the files from each BACKUP.VOLUME, it prompts you for the next BACKUP.VOLUME. It uses the table of contents on BACKUP.VOLUME1 to keep track of how many disks and files to expect.

Restoring Specific Files

Backup III lets you restore specific files that were lost or deleted by accident.

Retrieve by Pathname

If the lost files are related by pathname, use the option

retrieve by Pathname

For example, you can restore all the files you accidentally lost for the subdirectory

.PROFILE/JOHNSON/=

Use the BACKUP.VOLUME that contains those files and specify the pathname

.D2/JOHNSON/=

as the source.



If you have made incremental backups either of modified files or by date/time, you may need to repeat the process (specifying the pathname) with each incremental backup to be sure you get all the files you want.

Retrieve by Date/Time

If the lost files are related by date, use the option

retrieve by Date/time

For example, you thought you had two copies of files modified yesterday, so you deleted them to make room for other files. Use yesterday's set of BACKUP.VOLUMEs to restore the missing files.

Helpful Hints

1. Follow a strict regimen of backups to protect your data.
2. Be sure to use high-quality disks.
3. To have the greatest confidence that your backup disks are good, use the System Utilities program to verify the backup disks after you make a backup. If the System Utilities program finds a bad BACKUP.VOLUME, and Backup III created that backup by using the “backup Modified files” option, then you should redo the backup using “backup by Pathname” or “backup by Date/time”. “Backup Modified files” won’t work again because Backup III turned off the backup bit and can’t detect which files were modified files. (See the section on the Backup Bit.)
4. Label your disks sequentially (1 of n, 2 of n, . . . n of n).
5. Store last week’s backup in a fireproof, dust-free environment away from magnets in some building other than the one where your Apple III is.
6. If you plan to use disks, use the Apple III System Utilities program to format a set of disks for making backups.
7. Keep a printed list of the files on the backup media with that media. Backup III will send the list to a printer attached to the Apple III.
8. If you are going to be backing up a specific set of files regularly, put them all in one subdirectory.
9. Always use double clamping when you put a disk into a disk drive. After you put a disk into a disk drive, reopen and close the disk drive door a second time. This helps to center the disk properly.
10. If Backup III prompts you about formatting a disk that you know is already formatted, respond “no” to the prompt and reclamp or replace the disk.

List of Commands and Keystrokes

Editing Features

A dash (-) between two keys indicates that you must hold down the first key while you press the second key.

RETURN

Accepts the contents of the field and moves the cursor to the next field on the screen. When the cursor reaches the last field on the screen, the command is executed.

CONTROL-RETURN

Moves the cursor to the first field on the screen.

ESCAPE

As the first keypress in response to a menu or field, ESCAPE returns the program to the previous menu. As any subsequent keypress in a field, it restores the program's default response.



Moves the cursor one character to the left.



Moves the cursor one character to the right.



Turns Insert mode on and off.



Deletes the character immediately to the left of the cursor.



Deletes the character under the cursor or, in insert mode, to the right of the cursor.



Displays Help Screen

Pathname-Selection Keys



Wildcard character (see *Standard Device Drivers Manual*)



In field editing of a pathname, enters file-selection mode. In file-selection mode, moves the highlighting up one file name.



In field editing of a pathname, enters file-selection mode. In file-selection mode, moves the highlighting down one file name.



In file-selection mode, selects the highlighted file name.



In file-selection mode, rejects the highlighted file name.

ENTER

In file-selection mode, accepts selected file names and returns to field editing.

RETURN

Accepts the group of selected file names and accepts the field. (This is equivalent to ENTER.)

Error Messages and Error Recovery

This appendix describes error messages Backup III may display and what to do about them. It also describes what to do when your Apple III runs out of memory in the middle of a restore and when a BACKUP.VOLUME has bad blocks.

Error Messages

When something goes wrong and stops the progress of the program, Backup III displays an error message in a box on the screen. The following tables present the error messages (in alphabetical order in each table) and the recommended action in response to each message.

This section shows the error messages that occur when

- you've typed something wrong. The cursor returns to the prompt, and you can retype the entry.
- you've typed something wrong. The cursor returns to the first prompt, and you will need to retype all the entries.
- there is a formatting or device problem. Backup III prompts you for another disk.
- there is an error that would stop the program. The cursor returns to the first prompt.

An Unacceptable Entry: Retype the Entry

This shows the error messages that occur when you type something wrong. The cursor returns to the prompt, and you can retype the entry.

FILE NOT EXPECTED HERE.

Check what you typed, then type some other entry, such as a device name.

FILE SELECTION NOT ALLOWED HERE.

When specifying what files to restore from, you can't use the UP-ARROW or DOWN-ARROW to select files from the table of contents. You must type the entire pathname (except that the wildcard, = , is allowed).

NO FILES MATCH THIS NAME.

Try another name or check the directory to see the correct spelling of the file you want.

ONLY ONE FILE EXPECTED HERE.

Do not use a wildcard specifier.

ONLY ONE FILE MAY BE SELECTED HERE.

This message appears when you use an incorrect file specification, for example:

```
Restore to: .D2/myfile/=
or
List to: .D2/myfile/=
```

Correct the specification so that it lists only one file.

PATHNAME TOO LONG.

Pathnames are limited to 80 characters.

PLEASE TYPE Y FOR YES AND N FOR NO.

Please type Y for yes, or N for no.

ROOT DIRECTORY EXPECTED.

The backup destination and the restore volume source and destination must be at the root directory level.

SUBDIRECTORY EXPECTED.

Type a subdirectory or volume name.

SUBDIRECTORY NOT FOUND.

Check the pathname to be sure the subdirectory is correct.

UNRECOGNIZED COMMAND. TYPE ? FOR MORE HELP.

Type OPEN-APPLE-? to see which commands are available, then retype the command.

WILDCARD NOT USED CORRECTLY.

Only one wildcard can be used, and it must be in the last part of the pathname. For example,

Right:

PRO/ = DATA

Wrong:

PRO = /DATA

An Unacceptable Entry: Retype the Set of Entries

This shows another set of error messages that occur when you type something wrong. The cursor returns to the first prompt, and you will need to retype all the entries.

BLOCKED VOLUME NAME EXPECTED.

You must use a block device.

CANNOT USE SAME DEVICE AS SOURCE AND DESTINATION.

Change the specification so that the source and destination are different devices.

COMMAND REQUIRES SOS FORMAT DISK.

You can't use UCSD Pascal disks.

FILE EXPECTED.

You must type a file name.

FILE NOT FOUND.

Check the pathname you typed. You may need to list the files to see the name of the file in the table of contents, or to be sure that the file is included in the volume.

FILE OR BLOCKED VOLUME EXPECTED.

You must use a block device.

FORMATTER DEVICE DRIVER NOT PRESENT IN SYSTEM.

Try another device to see if it has a formatter. If none of the devices has a formatter, you must run the System Configuration Program and include a formatter as part of the device driver (see the *Standard Device Drivers Manual*).

NO FILES MATCH THIS DATE.

Check to see that you have entered the proper date and time and the proper pathname. Another possibility is that your Apple III may not have a clock chip, in which case you must set the date and time using the System Utilities filer each time you modify files, so that backup by Date/time is possible.

NO FILES REQUIRE BACKUP.

Check the source specification to make sure you typed what you intended for the subdirectory or date/time.

Formatting Problems With a Disk or Device

This shows the error messages that occur when there is a formatting or device problem. Backup III prompts you for another disk.

DEVICE-DEPENDENT ERROR #nn;
SEE MANUFACTURER'S DOCUMENTATION

DEVICE NOT CONFIGURED INTO THE SYSTEM.

Be sure that the device driver is configured into the SOS.DRIVER.

DEVICE NOT ON LINE.

Check that the device you asked for is connected to your Apple III.

FORMAT ERROR #nn; INTERNAL PROGRAM ERROR**FORMAT FAILED, DEVICE TOO SLOW or
FORMAT FAILED, DEVICE TOO FAST.**

Take the device in question to an Apple dealer for calibration.

Other Problems That Stop Backup III

This shows the error messages that occur when there is an error that would stop the program. The cursor returns to the first prompt.

DIRECTORY FULL or NO ROOM ON VOLUME.

Use the Utilities filer to delete unnecessary files.

ILLEGAL OPERATION ON UNIT.

You tried something impossible like trying to back up to the Silentype.

INVALID SOS PATHNAME.

Check to be sure that the correct drivers are configured.

I/O ERROR or VOLUME NOT FOUND.

Check to make sure there is a disk in the device you specified. Take the disk out and put it back in, wiggling and double clamping it to make sure it's properly seated. If you still get an I/O error, try another disk. Also, you will get a VOLUME NOT FOUND error if you specify "backup by Pathname" using a nonexistent subdirectory.

MEDIUM IS WRITE PROTECTED or WRITE PROTECT ERROR.

First check to see if the medium is a disk with a write-protect tab. In that case, take off the write-protect tab. Otherwise, check to be sure that the device is present. If not, try another device.

TOO MANY FILES, NOT ENOUGH MEMORY.

See the section Too Many Files in this appendix.

TWO VOLUMES WITH SAME NAME ON-LINE.

There are two volumes on line that have the same volume name.

UNABLE TO READ FILE OR DIRECTORY.

The disk in question is bad.

VOLUME IS NOT FIRST BACKUP VOLUME.

Take out the backup volume and put in BACKUP.VOLUME1.

What to Do When Memory Lapses

This section describes what to do in case of two unfortunate events: when your 128K Apple III system runs out of memory in the middle of a restoration, and when a BACKUP.VOLUME that is part of a completed set develops bad blocks.

Too Many Files, Not Enough Memory

If your Apple III system has 128K of memory, Backup III can create a set of backup disks that it can't entirely restore using "restore Volume". In that case, you may use "retrieve by Pathname" and then delete any unnecessary files with the System Utilities Filer.

The message

Too many Files, not enough memory

comes up when Backup III is restoring a volume and runs out memory. When this message appears, the cursor drops to the prompt for the source device. Select the List option, note the subdirectories you want to retrieve, and then use either “retrieve by Pathname” or “retrieve by Date/time”. More advanced users may choose to use the System Configuration Program to remove drivers to save room in memory (for example, changing FMTD drivers to inactive status), then restart Backup III.

Bad Blocks on BACKUP.VOLUME

In the event that a BACKUP.VOLUME develops bad blocks, Backup III displays the message

```
Volume not found
```

You can still retrieve files from a BACKUP.VOLUME as long as the table of contents for its set of disks is intact. Put BACKUP.VOLUME1 for the set in .D2, list the table of contents on a printer, then use “retrieve by Pathname” to retrieve the files that are in good blocks. You can probably specify a file pattern that would include most pathnames and that doesn’t include the file or files with bad blocks.

Glossary

back up To make a copy for safekeeping. In the event of a power failure, data writing errors, or a careless mistake that destroys information on a disk, a backup copy can save you much time and grief.

backup bit One bit of a byte of each file's directory entry. SOS uses this byte to keep track of attributes of the file such as when it is created or renamed. When the system updates a file's entry, SOS turns on the backup bit.

block A unit of information 512 bytes long. The Utilities List command reports the sizes of disks and files in blocks.

block device A random-addressable device that uses one block (512 bytes) of information as its basic unit of communication.

built-in Within the Apple III's case. The Apple III has a built-in speaker, disk drive, serial interface, and so on.

byte A basic unit of a computer's memory. A byte usually comprises eight bits and is capable of expressing a range of numbers from 0 to 255.

character device A device that sends or receives streams of characters, one at a time. The console and Silentype printer are both character devices.

console The Apple III's video display and keyboard together make up the console. This is the part of the Apple III you communicate with directly.

cursor The symbol, typically a white rectangle, that moves across the screen and indicates where editing and similar action will take place.

destination device The device that contains the medium that is to receive information in a transfer of data (as in a backup or restoration process).

device A piece of computer hardware, such as a disk drive or monitor, other than the computer itself. Devices may be built-in devices or they may be external (also called peripheral) devices.

device driver The program that acts as a communications link between a device and the operating system. Before you can use a new device with your Apple III, you must use the System Configuration Program on the Utilities disk to install and configure the driver for that device. The use of device drivers is described in the *Standard Device Drivers Manual*.

device name The name used in SOS pathnames to refer to a particular device, without regard to what files are associated with the device. Device names begin with a period and a letter, followed by up to 14 alphanumeric characters. For example, the device name of the disk drive built into the Apple III is .D1 , regardless of what disk is in the drive.

directory A file that contains the names and locations of other files on a volume in a device. These other files may themselves be directories, in which case the other files are called subdirectories. The list of the contents of a directory file is sometimes called a catalog.

disk A device for storing computer files that consists of a plastic or metal disk coated with metal oxide that works the way metal oxide on recording tape works. Rigid and flexible (sometimes called floppy) disks are two kinds of disks. You must format a disk before the Apple III can write to or read from it. Remember not to touch the magnetic surface of a disk; handle it only by its plastic cover.

disk drive The complete machinery and electronics that turn, read, and write to a disk; and receive and transmit files in a manner intelligible to a computer (to a device driver in the case of an Apple III).

external Not within the Apple III's case. Usually used to refer to devices that are not built-in. The Apple III can have as many as three external Disk III drives. Synonym: peripheral.

file An orderly, named collection of information. The information you work with on your Apple III is stored in files named and organized by SOS. SOS files are usually stored on a disk. Each file on a disk is identified by a pathname (which see) unique to that disk. SOS organizes names and locations of files into a special type of file called a directory. The files in a directory may include subdirectories of other files on the disk.

file name See pathname.

flexible disk A disk made of metal-coated flexible plastic sealed in a protective jacket; often called floppy disks. Flexible disks are typically slower in response and smaller in storage, but cheaper and more portable than hard disks.

format To prepare a rigid or flexible disk for use. You must format a disk before the Apple III can write on it. Note: When you format a disk, all information that was previously on the disk is destroyed.

incremental backup A volume backup (of modified files) made after a full-volume backup.

list Used as a verb, to display on a monitor or print on a printer the contents of the computer's memory or of a file.

local name The name of a file, directory, or subdirectory that omits the volume name for convenience. For example, the pathname /ACCOUNTING/PAYABLE/QUIGLY consists of three local names: ACCOUNTING, PAYABLE, and QUIGLY, naming a root directory, subdirectory and file, respectively. You can only get at the file QUIGLY using its local name if the prefix is set to /ACCOUNTING/PAYABLE, otherwise you must use its full pathname.

medium (plural: media) A kind of material used to hold information, such as the recording surface of a flexible or rigid disk.

menu A list of choices. A program typically displays a menu on the monitor screen, and then waits for you to choose one of the items by letter or number.

pathname The full name by which SOS identifies a file. A pathname is a sequence of local names, each preceded by a slash, that specifies the path you take from directory to directory to get to a certain file. A pathname always begins with a volume name or device name and ends with the local name of a file. The pathname /ACCOUNTING/PAYABLE/QUIGLY identifies QUIGLY as a file on the volume ACCOUNTING, in the directory PAYABLE.

peripheral Shortened form of **peripheral device**. A device that is not within the Apple III's case. Synonym: external device. A disk drive is a peripheral.

prefix A pathname that specifies all or part of a pathname. You can get at all files within the directory named by the prefix simply by mentioning their local names. For example, if you use the SCP's Prefix command to set the prefix to /ACCOUNTING/PAYABLE you can use the local name QUIGLY to get at /ACCOUNTING/PAYABLE/QUIGLY. Then to specify a file in another directory, for example /ACCOUNTING/RECEIVABLE, you must use either its entire pathname or change the prefix. Device names do not require a prefix.

restore To relocate files by transferring information from a backup device to the main storage device, for example, from a set of disks to a ProFile; and to organize the files in a way that makes it possible for other programs to use their information.

rigid disk A disk made of hard metal and sealed into a drive, or cartridge. Rigid disks are typically faster in response and larger in storage than flexible disks.

root directory The main directory of a volume. The root directory is identified by the name of that volume. For example, the root directory of the disk called ACCOUNTING is /ACCOUNTING.

SOS (pronounced "sauce") The Apple III's Sophisticated Operating System. It provides the means for programs to use the hardware of the Apple III and its peripheral devices. A version of SOS is included on every boot disk for the Apple III. You can change (or, configure) SOS, with SCP, to accommodate various devices for use with your Apple III.

source device The device that contains the medium whose information is to be transferred in a process of data exchange, such as in the backup or restoration of a volume.

SOS formatting Preparing a device for use with SOS. See format and SOS.

sparse file A SOS file in which the number of data bytes that can be read from the file exceeds the number of bytes physically stored in the data blocks allocated to the file.

subdirectory A file that contains the local names and locations of other files. Every subdirectory has its local name listed in a root directory, or in another higher-level subdirectory.

System Configuration Program (SCP) The System Configuration Program allows you to add and delete device drivers, change their parameters, and create and organize files. It is part of the System Utilities Program.

table of contents A list of the files in a backup volume.

UCSD-Pascal formatting Preparing a device for use with the UCSD-Pascal language.

verify The process that checks a disk for bad blocks.

volume A general term referring to the medium in a storage device. The volume most commonly used with the Apple III is the disk. A volume has a name, a root directory with the same name, and its information organized into files. Each volume the Apple III is using at one time must have a different volume name.

volume name The name of a specific volume (which can be temporarily generalized to the device that contains it), also the local name in the main (or root) directory of the volume.

wildcard When specifying pathnames to Backup III (and to the Filer of SCP), you can use the equal sign (=) to represent characters shared in common by several file names. The equal sign used like this is called the wildcard character.

Index

A

- auto-verify 36, 50
 - set 36
 - why use 37

B

- backing up 18
 - Backup III 9
 - files 3, 39
 - examples 59
 - why 5
 - overview 39
- backup bit 4, 49
- backup by
 - Date/time 41, 43, 46–48, 62
 - limitations 48
 - Modified files 41
 - Pathname 20, 41, 46–47
- Backup Files Menu 20
- Backup files option 35
- Backup menu options 46
- Backup III, backing up 9
- backup
 - daily 62
 - destination device for 34
 - incremental 41
 - Modified files 38, 43, 45, 46, 49–50

- source device for 34
 - standard default selections 35
 - status of 22
 - subvolume 40, 41–42
 - time required 11
 - volume 40
 - weekly 61
- BACKUP.VOLUME 43
 - bad 45
 - bad blocks 74
 - number 22
 - using 44
- backups, plan for 61
- bad blocks 25, 36
 - on BACKUP.VOLUME 74
- bit, backup 4, 49
- block device, SOS-formatted 6
- block devices 7
- blocks, bad 25
- built-in drive 15

C

- change prefix 36
- changing disks 23
- clamping, double 19
- command line, Pascal 36, 38
- .CONSOLE 14, 50

CONTROL 15
 CONTROL-RETURN 67
 current prefix 36
 cursor 21

D

.D1 13, 14, 19
 .D2 14, 18
 daily backup 62
 date, to specify 48
 Date/time
 backup by 43, 46–48, 62
 retrieve by 27, 57, 64
 default name
 destination device 33
 source device 33
 default selections 33
 for restoring files 34
 deleting files 52
 destination device 33
 for backup 34
 default name 33
 reformat 53, 57
 device 3
 destination 33
 drivers 9
 names 14
 source 33
 devices 7
 block 7
 used in tutorial 14
 disk
 format blank 21
 formatting 43
 off-center 45
 putting in 18
 System Utilities 24
 using
 an unformatted 44
 some other formatted 44
 write-protected 26

disk drive, ProFile 8
 Disk III drives 8
 diskette, system 38
 disks 18
 changing 23
 flexible 7, 18
 off-center 19
 rigid 7
 UCSD Pascal-formatted 8
 double clamp 19, 43, 51
 DOWN-ARROW 43, 68
 drive, built-in 15
 drivers
 device 9
 format 9
 drives
 Disk III 8
 ProFile 8

E

editing features 67
 CONTROL-RETURN 67
 ESCAPE 67
 LEFT-ARROW 67
 OPEN-APPLE-? 67
 OPEN-APPLE-I 67
 OPEN-APPLE-LEFT-ARROW 67
 OPEN-APPLE-RIGHT-ARROW 67
 RETURN 67
 RIGHT-ARROW 67
 ENTER 68
 entire volume, restoring 51
 = 68
 equipment required 5
 for tutorial 13
 error messages 69
 ESCAPE 15, 20, 33, 67
 examples
 backing up files 59
 restoring files 62

F

file, sparse 11
 files 7
 backing up 3, 39
 default selections for
 restoring 34
 deleting 52
 listing 23, 57
 restoring 3, 51
 why backup 5
 why restore 6
 flexible disks 7, 18
 format
 blank disk 21, 43
 disks, System Utilities
 program 43
 format drivers 9
 formatted disk, using some
 other 44
 formatting, SOS 7
 full volume 40
 full-volume restore 26, 63

G**H**

help 10, 16
 helpful hints 65

I

incremental backup 41
 individual files, retrieving 51

J**K**

key
 CONTROL 15
 ESCAPE 15, 20, 33
 OPEN-APPLE 15

RESET 15

keys
 pathname-selection 68
 special 15
 kind of backup
 by Date/time 41
 by Pathname 41
 Modified files 41

L

label, sample 22
 labels 22, 46
 LEFT-ARROW 67, 68
 limitations of backup by
 Date/time 48
 List files on backup volume(s)
 option 55
 List files option 23, 46
 list of files, printing 50
 listing
 files 23, 57
 of files, sample 50

M

Main Menu 16, 35
 System Utilities 24
 media 6, 7
 memory
 lapses, what to do 74
 not enough 74
 Menu
 Backup Files 20
 Main 16
 Restore Files 28, 55
 Set options 35
 menus relationship 31
 Modified file, backup by 46,
 49–50
 modified
 files, backup 38, 43
 subvolume 40
 volume 40

N

names, device 14
 not enough memory 74
 number, BACKUP.VOLUME 22

O

off-center disk 19, 45
 128K system 9
 OPEN-APPLE 15
 OPEN-APPLE-? 67
 OPEN-APPLE-? (help) 10,
 16, 17
 OPEN-APPLE-I 67
 OPEN-APPLE-LEFT-ARROW 67
 OPEN-APPLE-RIGHT-
 ARROW 67
 option
 Backup files 35
 List files 23, 46
 on backup volume(s) 55
 Quit 35
 Restore
 files 35
 Volume 55
 retrieve by
 Date/time 55
 Pathname 55
 options
 Backup menu 46
 Set 35
 overview 51
 backing up 39

P

Pascal command line 36, 38
 Pascal-formatted disks 8
 pathname 50
 prefix 36
 Pathname
 backup by 20, 46-47
 retrieve by 27, 57, 63

pathname-selection keys 68
 = 68
 DOWN-ARROW 68
 ENTER 68
 LEFT-ARROW 68
 RETURN 68
 RIGHT-ARROW 68
 UP-ARROW 68
 plan for backups 61
 prefix 36
 change 36
 current 36
 print a list of files 50
 .PRINTER 50
 ProFile 7
 reformatting 27
 .ProFile 14
 .PROFILE/= 40, 51
 program startup 9, 15
 putting in a blank disk 18

Q

quit 38
 Quit option 35

R

reboot 38
 reformat
 destination device 53, 57
 ProFile 27
 relationship of menus 31
 RESET 15
 restoration, full-volume 27
 Restore Files Menu 28, 55
 restore
 files option 35
 full-volume 63
 standard default selections 35
 volume 29
 Volume option 55
 vs. retrieve by pathname 53

restoring
 a volume 52
 entire volume 51
 files 3, 51
 default selections 34
 example 62
 why 6
 specific files 63

retrieve by
 Date/time 27, 57, 64
 option 55
 Pathname 27, 57, 63
 option 55

retrieving individual files 51

RETURN 21, 67, 68

RIGHT-ARROW 67, 68

rigid disks 7

S

sample
 label 22, 46
 listing of files 50

SCP 34

selections, default 33

set
 auto-verify 36
 pathname Prefix 35

Set option menu 35

Set options 35

.SILENTYPE 50

SOS 7
 formatted block device 6
 formatting 7

source device 33
 default name 33
 for backup 34

sparse file 11

special keys 15

specific files, restoring 63

specify
 date 48

time 48

standard default selections for
 backup and restore 35

starting the program 9, 15

status of backup 22

subdirectories vs. files 43

subdirectory 36

subvolume 40
 backup 40, 41-42
 (modified) 40

System Configuration
 Program 34

system diskette 38

System Utilities
 disk 24
 Main Menu 24
 program to format disks 43

system
 128K 9
 256K 9

SYSTEM.STARTUP. 9, 36

T

table of contents 21, 46

time
 required to back up 11
 to specify 48

tutorial
 devices used 14
 equipment required 13

256K system 9

U

UCSD Pascal-formatted disks 8

unformatted disk 44

UP-ARROW 43, 68

using
 a BACKUP.VOLUME 44
 some other formatted disk 44
 unformatted disk 44

V

verification 24
verify definition 36
volume 7
 backup 40
 full 40
 (modified) 40
 restore 29, 52
 table of contents 21
 vs. subvolume 40

W

weekly backup 61

why

 backup files 5
 restore files 6
 use auto-verify 37
write-protected disk 26

X

Y

Z



20525 Mariani Avenue
Cupertino, California 95014

(408) 996-1010
TLX 171-576

030-0381-A