SYMBIOTIC COMPUTER SYSTEMS

USER'S MANUAL

SYMBFILE SCSI HARD DISKS FOR MACINTOSH PLUS

JANUARY 1987

DISCLAIMER

* This manual does not constitute a description of the goods.

* The price and specification of the product may be subject to change, without notice.

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* Symbiotic Computer Systems Limited is not liable under any circumstances for the result of the buyer not reading or understanding the manual or failing to understand or use the product properly.

* <u>IMPORTANT NOTE.</u> It is appreciated that the Macintosh user interface provides an environment where it is frequently not necessary to make reference to the manual. Although the standard Macintosh interface is catered for by the SCSI Symbfile support software it is of tantamount importance that the user reads and understands the contents of this manual. Symbiotic Computer Systems Limited is not liable under any circumstances for the loss of data arising out of mis-use of the equipment.

* You should familiarise yourself with the normal use of the Macintosh Plus and the floppy disk drive <u>before</u> using the SCSI Symbfile.

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<u>E. & O.E</u>

Symbiotic Computer Systems

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CHAPTER 1 - SETTING UP THE SYMBFILE

UNPACKING

Your SCSI Symbfile hard disk for the Macintosh Plus is a single unit.

The SCSI Symbfile for the Macintosh Plus is available in two internal disk sizes :
5 1/4" or 3 1/2". The first character of the serial number on the back of the Symbfile denotes its capacity using the following code system :

SERIAL NO.	DRIVE SIZE
C or S	21.0MB (5 1/4")
D or U	42.0 MB (5 1/4")
H	155.0MB (5 1/4")
I	40.0MB (3 1/2")
J	20.0MB (3 1/2")
M	40.0MB (3 1/2")
Q	10.5MB (5 1/4")
T	21.0MB (5 1/4")
V or Z	20.0MB (3 1/2")
W	120.0MB (5 1/4")
X	85.0MB (5 1/4")
Y	55.0MB (5 1/4")

Additional drive sizes will probably be available in the future. Since it is not always possible to update this manual at the same time as a new product is introduced we would suggest that you contact the dealer who supplied your equipment to verify the size of your Symbfile if it has a different serial number from those shown above.

Accessories supplied with the Symbfile include:

- 1 mains cable with earth wire
- 1 25-way ribbon cable with male connectors
- 1 3 1/2" floppy boot disk (Symboot) which contains the housekeeper software for the Symbfile and several utility programs
- 1 manual
- 1 terminator pack

At the back of your Symbfile you will find a socket for the mains plug, a mains switch, 2 X 25-way female sockets specially designed to ensure that the ribbon cable is correctly inserted and a 16-way "device selector".

Figure 1.1 on the next page of the manual shows the physical layout of all of the sockets.
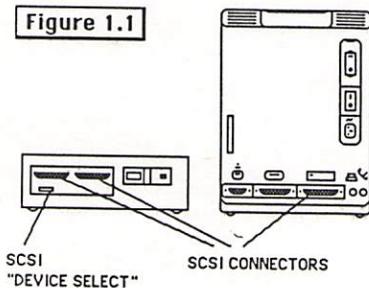
Figure 1.1

SCSI "DEVICE SELECT"   SCSI CONNECTORS

Note : You are advised to keep all boxes and packing material so that you may transport the equipment safely at a later date.

Due to the continued expansion of our range of products it is possible that you may find additional connectors or a different arrangement of connectors. It is not normally possible to damage the Symbfile or the Macintosh by attaching connectors incorrectly but we would recommend that you contact the dealer who supplied your equipment if your are in any doubt. Older style Symbfiles (those for the Apple //e and Symbnet network system) are not compatible with the Macintosh Plus's SCSI interface and would need to be upgraded by Symbiotic for use with the Macintosh Plus.

CONNECTIONS

Preliminary remarks :

The installation of a hard disk in a working environment calls for more care than that of the actual micro computer it is connected to.

You must provide :
- a stable and reliable power supply
- a flat, stable and well ventilated space

Check that your electrical installation is in good working order, and correctly wired, it may even be worth calling in an expert.

USERS OF THE INTERNAL SCSI SYMBFILE SHOULD REFER TO APPENDIX E OF THIS MANUAL FOR INFORMATION ABOUT THE DIFFERENCES BETWEEN AN INTERNAL SCSI SYMBFILE AND THE STAND-ALONE SCSI SYMBFILE. THE MAIN SECTIONS OF THIS MANUAL ARE DESIGNED TO COVER STAND-ALONE SCSI SYMBFILES SPECIFICALLY.

CHAPTER 1 - SETTING UP THE SYMBFILE

How to connect your Symbfile

1) The Macintosh should be switched off.

2) Carefully position the Symbfile on the right of or underneath the Macintosh. **DO NOT PLACE THE SYMBFILE ON THE LEFT OF THE MACINTOSH.**

3) Connect the ribbon cable between the Symbfile and the Macintosh. You may connect the ribbon cable to either of the 25-way connectors on the rear of the Symbfile.

4) Fit the terminator pack supplied with your Symbfile to the other 25-way connector on the rear of the Symbfile. If you are attaching more than one Symbfile to your Macintosh Plus refer instead to Appendix A of this manual.

5) Plug in the mains cable.

6) You are advised to switch on your equipment in the following order:

> SCSI Symbfile
> Macintosh

Important

The cables provided are long enough to allow for a certain amount of choice as to the installation of the Symbfile. However, because of the risk of interference, it is not advisable to set up your Symbfile on the left of the Macintosh (as seen from the front, facing the keyboard).

Never handle a mains cable that is attached to something which is powered up as this may well cause damage not covered by the warranty. ALWAYS USE THE SWITCH ON THE SYMBFILE TO POWER ON AND OFF.

THERE IS ONLY 1 WAY OF EXITING SAFELY FROM EITHER AN APPLICATION WHICH YOU ARE RUNNING ON THE SYMBFILE OR INDEED ON A FLOPPY DISK. THIS IS TO USE THE **SYMBIOTIC SHUTDOWN** OPTION WHICH IS AVAILABLE ONCE YOU HAVE SELECTED THE **MOUNT VOLS** DESKTOP ACCESSORY FROM THE PULL-DOWN MENU. THE MACINTOSH WILL BLEEP AND THE SCREEN WILL CLEAR. IT IS THEN SAFE TO POWER DOWN BOTH THE MACINTOSH PLUS AND THE SYMBFILE. SIMPLY SWITCHING OFF THE MACINTOSH PLUS OR SYMBFILE INSTEAD OF EXITING IN ONE OF THESE WAYS MAY CAUSE IRREPARABLE DAMAGE TO THE DATA.

IMPORTANT NOTE

You may find that your Symbfile appears to become slower over a period of time, as you enter more information and save more files onto volumes. One of the reasons for this is that some versions of the Macintosh Finder read the directory or catalogue of each volume into memory when that volume is first accessed. Thus the more files you have the longer it takes to enter the Finder. Also as a file increases in size it may become split into several sections across the volume. Duplicating the file using the Finder and then throwing away the old version of the file will normally make the file occupy contiguous space on the volume and reduce the amount of searching which the Macintosh will have to do when loading the file.

_____ CHAPTER 2 : SETTING UP THE SOFTWARE

CHAPTER 2 : SETTING UP THE SOFTWARE

FOREWORD

In this chapter a thorough knowledge of the workings of the Macintosh and its WIMP (Windows, Icons, Mouse and Pull-down menus) environment is taken for granted, particularly for the transfer of icons in the Finder. If you have any doubts, please consult the Macintosh manual before going any further.

The Symbfile is designed to cater for each particular user's organisation of data. Because of this it is probably best to do several "trial runs" in order to familiarise yourself with the support software for the Symbfile before you decide on a final configuration to use it regularly.

The Symbstart program is totally compatible with the Apple Macintosh "System" and "Finder" as supplied with your Macintosh. The versions of these programs which are supplied on the Symboot floppy disk have not been modified in any way. Only one version of the Finder should be present either on the Symbfile or on any floppy disks which you wish to access when using the Symbfile.

CHAPTER 2 - SETTING UP THE SOFTWARE

GENERAL PRESENTATION

The Symbstart program allows you to organise your data into volumes.

Volumes

The notion of volumes is particular to Macintosh and refers to any area containing documents (programs, data, pictures, etc. ......), and an up-to-date catalogue of all the documents, listing their type, size and other information required by the Macintosh. The most common example of a volume is the Macintosh floppy disk which is an 800 KB volume.

The user has to divide the Symbfile up into volumes of various sizes. The minimum volume size is 1MB and the maximum is constrained by the overall size of the Symbfile. Up to 40 volumes, of various sizes, can be installed on any SCSI Symbfile.

Each volume on the disk is independent and considered by the Macintosh as if it were a large capacity floppy disk. The operations for manipulating the volumes are, in fact, the same as those used to manipulate the floppy disks.

Each Symbfile volume is automatically given a name by the installation software. The first character of the volume name is the SCSI device number that the volume is on. This is followed by a period and then by the word SYMBVOL and the number of the volume. Thus the first volume is normally called 0.SYMBVOL1, the second 0.SYMBVOL2 and so on .... The user can later modify the name as he chooses by using the Finder.

Reminder :

VOLUME

Minimum size	: 1 Megabyte
Maximum size	: Size of Symbfile
Max. number of volumes	: 40

CHAPTER 2 : SETTING UP THE SOFTWARE

SYMBSTART STEP-BY-STEP

A 1 page section at the beginning of this manual details how an experienced
Macintosh user can immediately start using the SCSI Symbfile as a single volume
without reference to the main manual.

It is now assumed that you have unpacked, set up and plugged the
Symbfile into the Macintosh.

When you insert the Symboot floppy disk, you will see the following screen:-
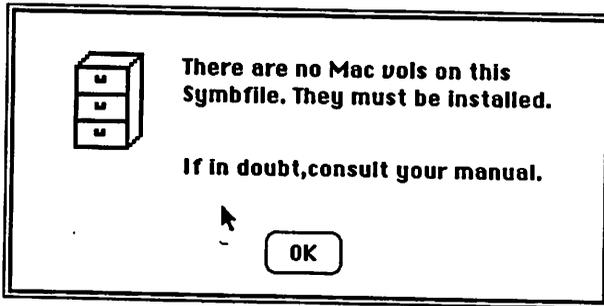
Welcome to Mac Plus with Symbfile

You should then be taken straight into the SYMBSTART program.

N.B. This chapter of the manual deals with the initial setting up of your Symbfile.
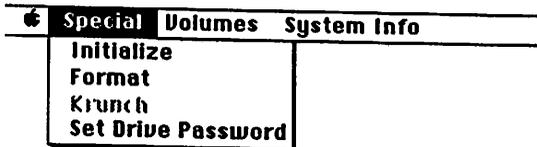See later chapters for other housekeeping routines

```
┌─────────────────────────────────────────────────┐
│ ┌─────┐   There are no Mac vols on this          │
│ │ ▫   │   Symbfile. They must be installed.       │
│ │ ▫   │                                           │
│ │ ▫   │   If in doubt,consult your manual.        │
│ └─────┘                                           │
│            �   ┌──────────┐                   │
│                    │    OK    │                   │
│                    └──────────┘                   │
└─────────────────────────────────────────────────┘
```

If no volumes have been installed on your Symbfile the screen above will be displayed.
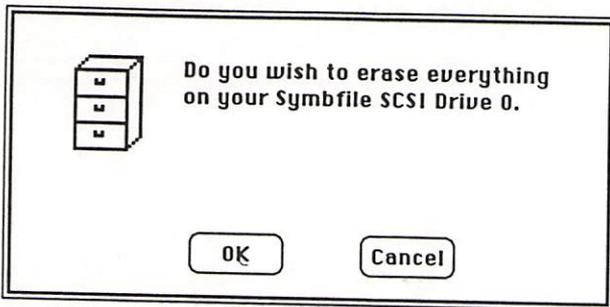
Click **OK** to continue once the screen shown above is displayed.

It is probable that your Symbfile has been configured prior to delivery to you (either because Symbiotic's test routines set up 1 single volume of the capacity of the Symbfile or because your dealer has already configured the Symbfile). If this is the case then you may want to select the option INITIALIZE from the menu bar by pulling down the Special menu and releasing the cursor on the INITIALIZE option as shown below.

```
┌──────────────────────────────────────────────────┐
│ ♦  │ Special │ Uolumes   System Info              │
├────┴─────────┴─────────────────────────┬──────────┘
│ Initialize                             │
│ Format                                 │
│ Krunch                                 │
│ Set Drive Password                     │
└────────────────────────────────────────┘
```
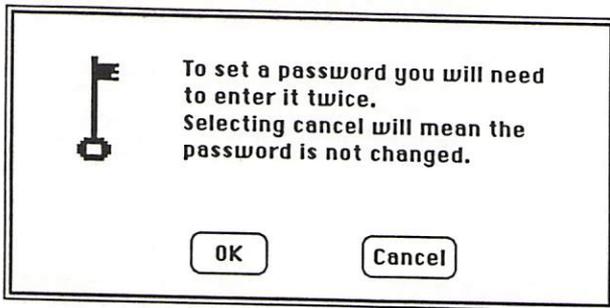
Once you have selected **Initialize** you will be asked to confirm that you wish to continue with the INITIALISATION by the screen at the top of the next page of this manual:-
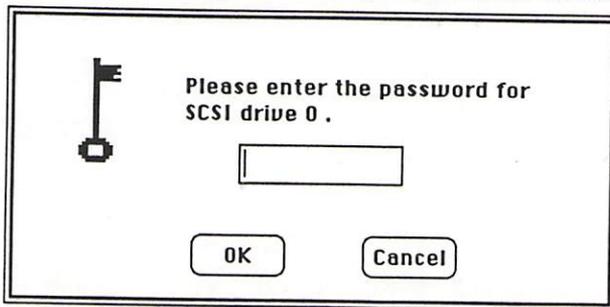
```
┌─────────────────────────────────────────────┐
│  ┌──┐     Do you wish to erase everything    │
│  │▪▪│     on your Symbfile SCSI Drive 0.     │
│  │▪▪│                                        │
│  └──┘                                        │
│                                              │
│      ┌────────┐      ┌────────┐              │
│      │   OK   │      │ Cancel │              │
│      └────────┘      └────────┘              │
└─────────────────────────────────────────────┘
```

Clicking on **OK** will take you to the screen below:-

```
┌─────────────────────────────────────────────┐
│   ╔═╗     To set a password you will need    │
│   ║ ║     to enter it twice.                 │
│   ╚═╝     Selecting cancel will mean the     │
│    ▪      password is not changed.           │
│                                              │
│      ┌────────┐      ┌────────┐              │
│      │   OK   │      │ Cancel │              │
│      └────────┘      └────────┘              │
└─────────────────────────────────────────────┘
```
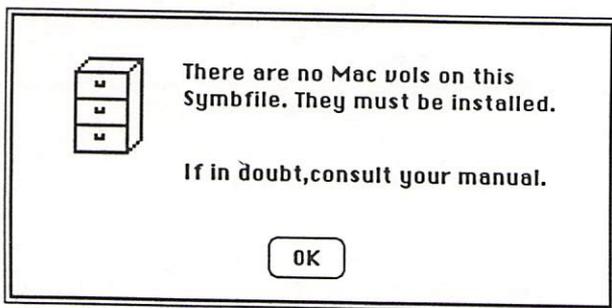
A password may optionally be allocated to the SCSI Symbfile itself. This basically means that anyone wishing to use the Symbiotic set-up utilities to add volumes etc. will have to enter the correct password before they are permitted access to the utilities. If no password is required you may just press **RETURN** 3 times and proceed to the next page of this manual. If a password is required you will have to click on **OK** (or press **RETURN**) and then type in the same password twice (to verify that you have typed it correctly) as shown in the screen below:-
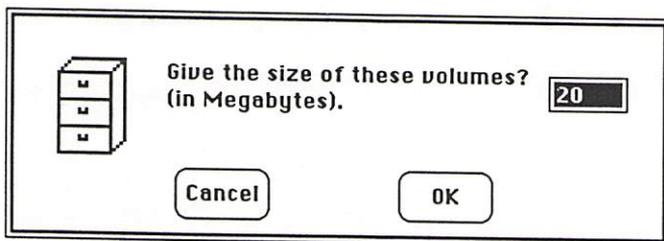
```
┌─────────────────────────────────────────────┐
│   ╔═╗     Please enter the password for      │
│   ║ ║     SCSI drive 0 .                      │
│   ╚═╝                                        │
│    ▪        ┌──────────────────┐             │
│             │                  │             │
│             └──────────────────┘             │
│                                              │
│      ┌────────┐      ┌────────┐              │
│      │   OK   │      │ Cancel │              │
│      └────────┘      └────────┘              │
└─────────────────────────────────────────────┘
```

It should be noted that the Initialize and Format options are only available if you have booted from the Symbstart diskette and are not available if you execute Symbstart from a SCSI Symbfile volume.

There are no Mac vols on this
Symbfile. They must be installed.

If in doubt,consult your manual.

OK

Having clicked on OK or pressed RETURN you will be taken to the screen below:-

Give the size of these volumes?
(in Megabytes).   20

Cancel   OK

You can select the volume size that you require by entering the relevant volume size and single-clicking on the O.K. icon or pressing the RETURN key. You are allowed to have a mixture of any size of volumes. The maximum volume size is, obviously, limited to the size of your Symbfile and the amount of space left on the Symbfile. This will be the default volume size given. In the example shown above there is only 20 megabytes of space left. If there is no space left on your Symbfile a message appears to advise you of this and you will have to click on the Cancel icon.

A screen similar to the one shown at the top of the next page will then be displayed:-

How many volumes of this size ?

Click on the number of volumes required of the size selected. The numbers shown in grey cannot be selected as insufficient space is available on the Symbfile to accommodate them. Click on 0 if you change your mind. The first volume which you add will not have a password allocated to it since it is the boot/system volume and the volume which is mounted when the Symbfile is booted. All other volumes may have an optional password allocated to them using the CHANGE PASSWORD option described in chapter 3 of this manual.
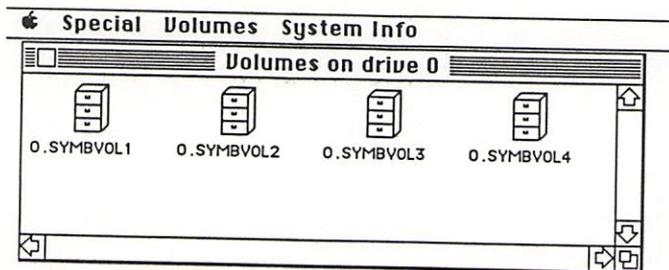
After the few seconds needed to update the Symbfile, you will either see the screen shown at the bottom of this page if there is still space left on the Symbfile or will be shown the volumes window (the picture at the top of the next page) if there is no space left on the Symbfile. Depending on your needs you can add more volumes now, or at a later stage, without modifying the existing data stored on the Symbfile in any way.
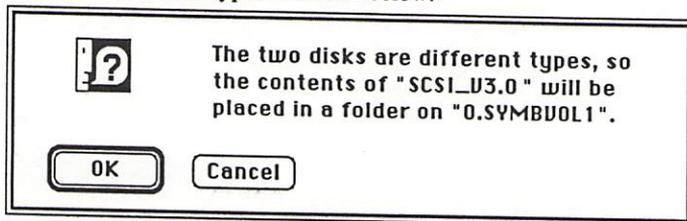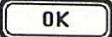

Do you wish to add more volumes ?

Yes   No

Click YES to add more volumes which will return you to the second screen shown on the page before last. Click NO if all your volumes are installed which will display the volumes window shown at the top of the next page.

```
 🍎   Special   Volumes   System Info
┌─────────────────────────────────────────────────────┐
│ ▣ ▤▤▤▤▤▤▤▤▤   Volumes on drive 0   ▤▤▤▤▤▤▤▤▤         │
│  ┌──────┐    ┌──────┐    ┌──────┐    ┌──────┐    ⇧   │
│  │ ░░░░ │    │ ░░░░ │    │ ░░░░ │    │ ░░░░ │        │
│  └──────┘    └──────┘    └──────┘    └──────┘        │
│  0.SYMBVOL1  0.SYMBVOL2  0.SYMBVOL3  0.SYMBVOL4      │
│                                                      │
│                                                   ⇩  │
│ ⇦                                                ⇨ 🔲 │
└─────────────────────────────────────────────────────┘
```

The volume 0.SYMBVOL1 (i.e. the boot/system volume) must contain a minimum
of the SYSTEM and FINDER files for the SCSI Symbfile to be auto-booting. This
may be achieved by double-clicking on the 0.SYMBVOL1 icon to open it. You will
then be in the Finder with 2 icons on the desktop - the icon for the Symbiotic utilities
diskette and the icon for 0.SYMBVOL1. Simply drag the icon of the Symbiotic
utilities diskette across onto the 0.SYMBVOL1 icon. You will be warned that the 2
disks are of different types as shown below:-

```
┌──────────────────────────────────────────────────────┐
│  ┌───┐    The two disks are different types, so       │
│  │!? │    the contents of "SCSI_V3.0" will be         │
│  └───┘    placed in a folder on "0.SYMBVOL1".         │
│                                                       │
│   ┌─────────┐   ┌──────────┐                          │
│   │   OK    │   │  Cancel  │                          │
│   └─────────┘   └──────────┘                          │
└──────────────────────────────────────────────────────┘
```

Click on the [OK] icon or press [Return]

You may then shut-down using the option in the Finder's Special pull-down menu
and the Symbfile will boot automatically.

THE MACINTOSH FINDER

THE USER MUST ENSURE THAT HE NEVER MIXES DIFFERENT VERSIONS OF THE MACINTOSH FINDER AS THIS CAN CAUSE CORRUPTION OF DATA ON SYMBFILE VOLUMES.

THE USER MUST AVOID EARLY VERSIONS OF THE MACINTOSH FINDER (1.0, 1.1g ETC.) AND ENSURE THAT THESE VERSIONS ARE NOT PRESENT EITHER ON SCSI SYMBFILE VOLUMES OR, INDEED, ON ANY FLOPPY DISKETTES WHICH HE INTENDS TO MOUNT WHEN USING THE SCSI SYMBFILE.

OBVIOUSLY SOME DISKETTES WILL BE COPY-PROTECTED AND SOME EARLY VERSIONS OF PROGRAMS MAY REQUIRE SPECIFIC VERSIONS OF THE FINDER - THE USER SHOULD CONSULT HIS DEALER FOR ADVICE ON UPDATING HIS PROGRAMS RATHER THAN RISK CORRUPTION OF HIS SYMBFILE VOLUMES.

IT SHOULD BE NOTED THAT, WITH EARLY VERSIONS OF THE MACINTOSH FINDER, WHEN YOU QUIT FROM AN APPLICATION PROGRAM THE FINDER IS LOADED (IF POSSIBLE) FROM THE VOLUME WHICH THE APPLICATION WAS RUN FROM. LATER VERSIONS OF THE FINDER WILL ALWAYS USE THE VERSION OF THE FINDER ON THE "BOOT" VOLUME. IT IS **IMPERATIVE** THAT EACH VERSION OF THE FINDER WHICH YOU USE IS THE SAME, EVEN WHEN RUNNING APPLICATIONS FROM FLOPPY DISKETTES.

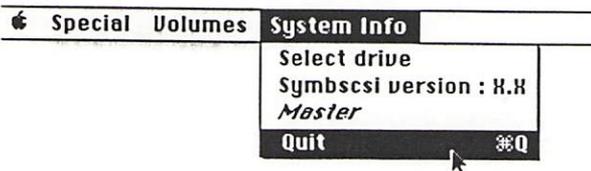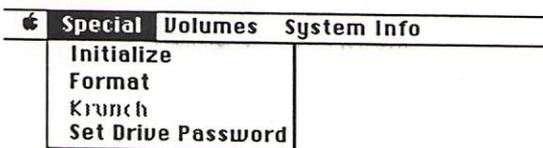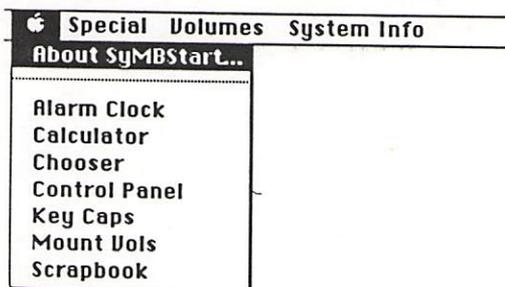_____ **CHAPTER 3 : THE HOUSEKEEPER**

EVERYDAY USE

Two different start-up environments are possible during normal day-to-day use of the Symbfile. They depend on whether you boot from a floppy disk or directly from the Symbfile (or, indeed, another SCSI device). The Macintosh Plus will attempt, initially, to boot from the internal floppy drive. If it does not find a floppy disk inserted it will then attempt to boot from any SCSI device which it finds attached to the SCSI port (working down from device number 6). The SCSI Symbfile is normally supplied set to device number 0 and would commonly be the last device that the Macintosh Plus would attempt to boot. Of course, if the Symbfile is the only SCSI device attached, it will automatically boot if no floppy disk is inserted in the internal floppy drive.

If you have any SCSI devices connected to the SCSI port, at least one of them must be switched on for the Macintosh Plus to startup.

CHAPTER 3 : THE HOUSEKEEPER

Shown on this page are the 4 pull-down menus which are available in the SCSI Symbfile housekeeper.

Special	Volumes	System Info
About SyMBStart...		
Alarm Clock		
Calculator		
Chooser		
Control Panel		
Key Caps		
Mount Vols		
Scrapbook		

Special	Volumes	System Info
Initialize		
Format		
Krunch		
Set Drive Password		

Special	Volumes	System Info
	Display volumes	
	Open	
	Add	
	Erase	
	Delete	
	Get Info	
	Change Password	

Special	Volumes	System Info
		Select drive
		Symbscsi version : X.X
		Master
		Quit ⌘Q

Those options which are shown in grey can only be selected when applicable.

About SyMBstart

This option simply displays information about the version of the Symbiotic configuration software which you are using.

Mount Vols

The Mount Vols desktop accessory is described in Chapter 4 of this manual.

SPECIAL

Initialize

This option allows the user to delete ALL information on the Symbfile.

Format

This option allows the user to **Format** the Symbfile. Please note that this is not usually necessary when re-initialising your Symbfile. The screen shown below will be displayed when formatting the drive. The letters W, X, Y, M etc. shown in the screen below relate to the first letter of the SCSI Symbfile's serial number.

```
┌─────────────────────────────────────────────────┐
│   ┌─────────┐   What type of drive is this?      │
│   │▱▱▱▱▱▱▱▱│   (Indicated by the first letter   │
│   │ ···     │    of the serial number)           │
│                                                   │
│   ○ W   120MB        ○ C/S  21MB                  │
│   ○ X    85MB        ● V/Z  20MB                  │
│   ○ Y    55MB        ○ Q    10.5MB                │
│   ○ M    40MB        ○ I    40MB                  │
│   ○ D/V  42MB        ○ J    20MB                  │
│   ○ T    21MB        ○ H    155MB                 │
│                                                   │
│   ( Accept )          ( Cancel )                  │
└─────────────────────────────────────────────────┘
```

Krunch

This option allows the user to make the space available which has been created by the deletion of volumes. For example, if 3 volumes had been created initially and at a later stage the master user decided to delete the second volume a **Krunch** would be necessary to free up the space which had been occupied by the second, volume. Although the **Krunch** program is very robust, it cannot be safeguarded against power cuts etc., even though it may be possible to re-start the **Krunch** after an interruption. The user <u>MUST</u> back up his drive before executing this option.

Set Drive Password

This option allows the master user to change the password of the SCSI Symbfile (that is the password which is required every time the utilities are used). IT SHOULD BE NOTED THAT PASSWORDS MAY BE UP TO 11 CHARACTERS AND ARE NOT CASE-SENSITIVE.

<u>VOLUMES</u>

Display volumes

This option allows the user to **display** all the volumes currently configured on the Symbfile.

Open

This option allows 1 or more volumes on the Symbfile (or Symbfiles) to be Opened.

Add

Add allows the user to **add** volumes if there is space available on the Symbfile.

Erase

This option allows the user to **erase** all the information on 1 or more volumes of the Symbfile. You can only use Erase when the **Display** volumes option has been used. As opposed to the Delete option described below, erasing does not remove the volume from the list of volumes set up on the Symbfile - it merely erases the directory. The **Erase** option cannot be used when the selected volume is mounted.

VOLUMES continued

Delete

This option allows the user to delete 1 or more volumes. This would allow, for example, 2 X 3 megabytes volumes to be deleted and a single 6 megabyte volume to be created. As with the **Describe** option you can only use **Delete** when the **Display** volumes option has been used. Also see the **Krunch** option for recovering this space. It should be noted that the **Delete** option cannot be used when the volume is mounted.

Get Info

This option displays the size and free space on the selected volume(s).

Change Password

Having selected a volume (or volumes) this option allows the master user to change the password(s) allocated to the volume(s). IT SHOULD BE NOTED THAT PASSWORDS MAY BE UP TO 11 CHARACTERS AND ARE NOT CASE-SENSITIVE.

SYSTEM INFO

Select Drive

This option displays a screen similar to the one shown below. Drive numbers shown in black may be selected. Up to 7 different SCSI devices may be attached to the Macintosh Plus. The Macintosh Plus itself is device number 7. The Symbfile is normally device 0 unless you have more than 1 Symbfile. Appendix A of this manual describes how you may attach and configure more than one Symbfile.
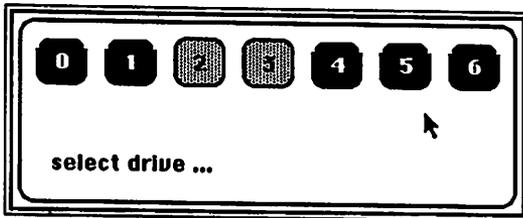
SYSTEM INFO continued

Write Driver

"Driver" is the term for a program which converts a request from the Macintosh into the commands necessary for the SCSI Symbfile to carry out the request. The **Write Driver** option copies this "driver" into the "driver" partition on the SCSI Symbfile. The "driver" has been changed between Symbstart version 1.0 and Symbstart version 2.0 in order to support large drives. The changes made in the "driver" between Symbstart version 2.0 and Symbstart 3.0 include a speed increase of anything up to 4 fold on multiple block accesses. Users of a SCSI Symbfile which has been configured with Symbstart version 1.0 who wish to use the **Mount Vols** desktop accessory or who wish to add an additional SCSI Symbfile will have to execute the **Write Driver** option on each SCSI Symbfile attached to their Macintosh Plus. Please also refer to the page at the front of this manual headed **READ ME FIRST**.

Backup Boot Blocks

The **Backup Boot Blocks** option creates a file called BootBlocks N (where N is the SCSI I.D. number) on the volume (or floppy) that it is executed from. The first 2 blocks of the SCSI Symbfile contain information about the way in which the SCSI Symbfile is configured. It is good practice to make a backup of the boot blocks. Should the boot blocks become damaged due to a power failure or other reason it may be possible to recover them by using the **Restore Boot Blocks** option. It is obviously sensible to keep a copy of the BootBlocks file on your Symbstart diskette by exercising this option from the Symbstart diskette.

Restore Boot Blocks

The **Restore Boot Blocks** option restores the first 2 blocks of the selected SCSI Symbfile from the file called BootBlocks N (where N is the SCSI I.D. number) on the volume or floppy that the Symbstart program has been executed from. See the **Backup Boot Blocks** option described above for more information on this.

Quit

This option allows the user to exit from the **SYMBSTART** software and to return to the Finder or MiniFinder on the boot volume of the current SCSI Symbfile or the **SYMBSTART** floppy diskette.

A minimum of the following files should be copied across to the "boot" volume from the Symboot diskette: **SYSTEM and FINDER.** The "boot" volume is the first volume which you set up on the SCSI Symbfile. It will, normally, be called **0.SYMBVOL1** if the device number of the SCSI Symbfile is set to 0. If you wish to use a version of the System file earlier than Version 3.2 then you will also need a file called "SCSI System Patch" which the dealer who supplied your Symbfile should be able to provide. It is <u>extremely important</u> that the file SCSI System Patch is copied across since there is a "bug" in some Macintosh ROMs which prevent any SCSI device from operating successfully when moving large amounts of data. System file Version 3.2 cures this "bug" and negates the requirement for the SCSI System Patch file.

It is possible that the Macintosh will "bomb" with a System Error under certain circumstances if it is unable to locate the System or Finder files. If this should occur it may be necessary to move the SYSTEM, FINDER and SCSI SYSTEM PATCH files from the System Folder of the boot volume onto the desktop volume of the boot volume.

Note : The Macintosh actually checks if the System and Finder files are present on the boot volume of the SCSI Symbfile each time you switch it on without a floppy disk in the internal drive. If they are not there, it will not be able to boot from the SCSI Symbfile and will wait for a floppy disk to be inserted, so you can even access the volumes on your Symbfile if part of the system files have been wiped out.

When in the FINDER the icons on the right of the screen represent the volumes which you have selected. Symbfile volumes are given the name 0.Symbvol1, 0.Symbvol2 etc. You may change these names in the same way as you would change a floppy disk name.

Each volume can be used as if it were a large capacity floppy disk. In order to copy floppy programs or files onto the Symbfile, insert the floppy into the internal drive, open it by double clicking on its icon and transfer the programs or files you need to the Symbfile by dragging their icons.

If you want to copy a complete floppy disk onto a SCSI Symbfile volume you can simply place the whole floppy icon on one of the Symbfile volumes. You will be warned that the two disks are of different types. A folder will appear in the Symbfile volume's desktop which has the same name as the floppy disk that was copied up. It should be noted that versions of the Macintosh Finder earlier than version 5.1 do not support the copying of entire volumes in this way. <u>Do not use this method for copying an entire SCSI Symbfile volume to another SCSI Symbfile volume unless the volumes are of the same size as this can "confuse" the Finder.</u>

Another means of copying all the files on a floppy disk to a SCSI Symbfile volume is to open the floppy window then choose **Select All** from the **Edit** menu. This allows you to select all the floppy files including those which do not appear in the window. Afterwards it's a simple matter of sliding all the files onto one of the SCSI Symbfile volumes.

CHAPTER 3 : THE HOUSEKEEPER

ENVIRONMENT PHILOSOPHY

You do not necessarily need to read this section of the manual to be able to run your Symbfile successfully, but it will familiarize you with the system architecture.

Why Symbstart ?

The only problems involved in making a hard disk and a link interface for a micro computer are purely technical ones. Even if the Macintosh is not a particularly easy example, the link was obtained without too many problems.

The most difficult part is ensuring that the hard disk is compatible with existing Macintosh software, while at the same time making it flexible enough to adapt to future software.

The different Symbstart options and it's organisation were only decided upon after an in-depth study of the user's requirements.

Why divide the Symbfile area into several volumes ?

a) Because when you are working on one program, you don't need to access other program files and so only use the disk area required by the application you are using.

b) Because it's a way of organizing your files and programs. You can create a program volume (containing the System, the Finder and the various application programs), a volume for data files from the same application or a volume by file type (client, supplier, etc.).

c.) Because Version 3.0 and later of the Symbstart software allow Passwords to be allocated to all of the volumes except the boot volume preventing unauthorised access to privileged information.

However, because of the way in which the Hierarchical Filing System (HFS) for the Macintosh Plus operates you will probably find it easiest to have one volume that occupies the whole of your SCSI Symbfile unless you require password protection. If you have one single volume then you will probably split it up into a number of folders containing your different applications or sub-divide the volume into file types. It should also be noted that if you have only one volume on your SCSI Symbfile then you will not need to use the Symbstart software again after you have initialised the volume and copied the entire System Folder to the volume.

CHAPTER 3 : THE HOUSEKEEPER

Automatic booting of an application :

It is possible to go directly to an application and open it when you boot the Symbfile. This is achieved by using the **Set Startup** option from the Special pull down menu of the Finder. The other option is to install the MiniFinder for all the applications on the volume although it should be noted that the MiniFinder cannot find applications which are within an HFS folder.
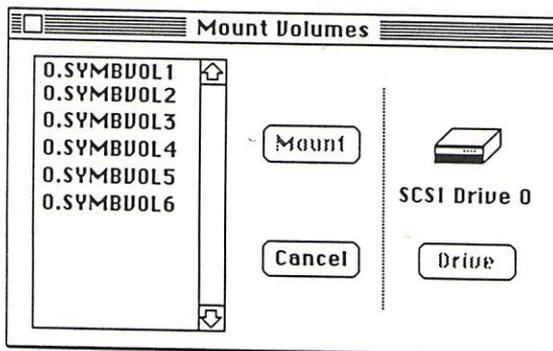
Conclusion:

We realise that there are always ways in which software can be improved and are constantly looking for ways to increase the Symbfile software's performance.

This sometimes means new versions which, of course, is not always convenient. You are advised to consult either your dealer or our technical support department for news of versions in the pipeline. We do our utmost to keep our distributors and dealers supplied with manuals and up-dated versions of software.

CHAPTER 4 : THE MOUNT VOLS DESKTOP ACCESSORY

The Mount Vols desktop accessory which may be initiated by selecting the Mount Vols option from the pull-down menu has 2 different uses which are described below. Whenever you choose the Mount Vols option, even from within an application, a screen similar to the one shown below will be displayed:-

```
╔══════════════ Mount Volumes ══════════════╗
║ ┌─────────────┐                             ║
║ │ 0.SYMBVOL1 ⬆ │                            ║
║ │ 0.SYMBVOL2 ▓ │    ┌────────┐    ┌─────┐   ║
║ │ 0.SYMBVOL3 ▓ │    │ Mount  │    │     │   ║
║ │ 0.SYMBVOL4 ▓ │    └────────┘    └─────┘   ║
║ │ 0.SYMBVOL5   │                            ║
║ │ 0.SYMBVOL6   │   SCSI Drive 0             ║
║ │            ⬇ │  ┌────────┐  ┌────────┐    ║
║ └─────────────┘  │ Cancel │  │ Drive  │    ║
║                  └────────┘  └────────┘    ║
╚════════════════════════════════════════════╝
```

The **Mount Vols** desktop accessory is present in the System File supplied on the SCSI Symbfile support diskette and may be installed in other (Version 3.0 or later) System files by using the FONT/DA MOVER utility.

MOUNT VOLUMES

The Mount Volumes option is useful if you have split your SCSI Symbfile up into several separate volumes and you wish to have access to a volume on it which is not currently on the desktop. You may use the Mount Vols option to select the volumes to be mounted or to switch from one SCSI Symbfile to another. To mount a volume either double-click on the name of the volume or single-click on the volume name and then single-click on the Mount option. You may select multiple volumes by shift-clicking. The Drive option allows you to change from one SCSI Symbfile to another and will appear in grey if you have only one SCSI Symbfile attached to your Macintosh Plus. The SCSI Symbfile drives will be moved through in a rotary fashion as you click on the Drive option.

If a password has been allocated to a volume when it was set up the user will be requested to enter the password as shown below before the volume can be accessed:-

Please enter the password for
the volume 0.SYMBVOL2 .

OK   Cancel
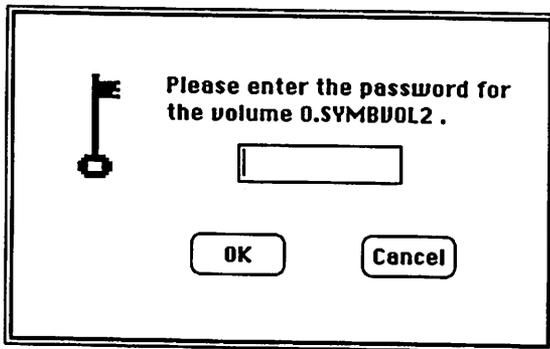
The volume will not be mounted if an incorrect password is entered. It is not wise to attempt to have more than 12 volumes on-line at the same time. Although the Macintosh should be able to handle this situation it may sometimes cause the Macintosh to lock up.

SHUT-DOWN

Whenever you choose the Mount Vols option an additional option called Symbiotic will appear in the top menu-bar. The only option on this pull-down menu is Shut Down. When you have finished using the SCSI Symbfile and wish to switch it and the Macintosh Plus off you must always use the Symbiotic Shut Down option. If you were to switch the Macintosh Plus or the SCSI Symbfile off in the middle of an application it is quite possible that you could damaged the data stored on the SCSI Symbfile. In fact it is dangerous to switch the Macintosh Plus off when using an application even if you are only using a floppy disk since much of the information which you are working with has probably not been saved away. You may not use the Symbiotic Shut Down option from within an application. It can only be used when the normal desktop is displayed. When the Symbiotic Shut Down option is selected the Macintosh will "tidy up the desktop", bleep the speaker, move the heads of the SCSI Symbfile into a parking position and clear the Macintosh's screen to black - it is then safe to switch both the Macintosh Plus and the SCSI Symbfile off.

YOU SHOULD ALWAYS USE THE SYMBIOTIC SHUT DOWN OPTION BEFORE SWITCHING YOUR MACINTOSH PLUS AND SCSI SYMBFILE OFF.

<u>Attaching more than one Symbfile to your Macintosh Plus</u>

Up to 7 different SCSI devices may be attached to the Macintosh Plus. The Macintosh itself is device number 7. The Symbfile is normally device number 0 unless you have more than 1 Symbfile. The next page of this appendix describes how you select a different SCSI device number if you attach more than one SCSI Symbfile to your Macintosh Plus.

If you have any SCSI devices connected to the SCSI port, at least one of them must be switched on for the Macintosh Plus to startup.

The **Mount Vols** desktop accessory or the **Select Drive** option under the **System Info** menu-bar option of the **SYMBSTART** program allows the user to select another SCSI Symbfile. Volumes may be mounted from any of the SCSI Symbfiles attached to the Macintosh Plus. This means, for example, that you could have up to 120 megabytes of information on-line at one time if you had six 20MB SCSI Symbfiles attached to your Macintosh Plus.

When you select this option a screen similar to the one shown below will be displayed.
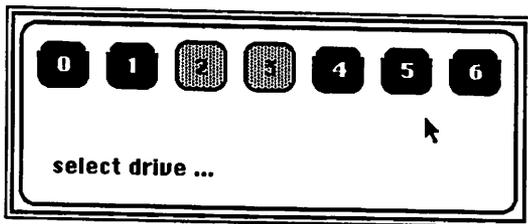
Numbers which are shown in black indicate that a SCSI Symbfile with that device number is attached to the Macintosh Plus. Numbers shown in grey would indicate that there is no SCSI Symbfile with that device number attached to the Macintosh Plus.

Simply single-click on the device number which you want to select and use the **Volume** pull-down option to **Add, Open, Delete** etc. volumes on that SCSI Symbfile.

When using the **Mount Vols** desktop accessory the SCSI Symbfile are rotated through by clicking on the **Drive** icon as described in Chapter 4.
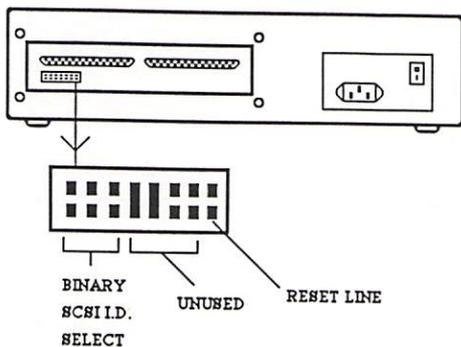
APPENDIX A

Attaching more than one Symbfile to your Macintosh Plus

SCSI I.D. SELECT TYPE A

0 1 2 3 4 5 6 7

SCSI I.D. SELECT   RESET LINE

SCSI I.D. SELECT TYPE B

BINARY
SCSI I.D.   UNUSED   RESET LINE
SELECT
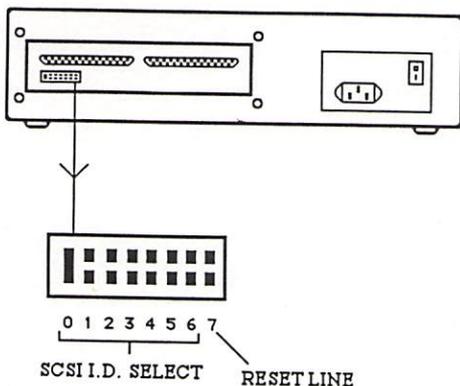
The pictures above are a representation of the 2 possible rear panels of a SCSI Symbfile with blown up sections showing the "jumpers" which allow you to select the SCSI device number. When you receive your SCSI Symbfile it will be set to device number 0. In the case of the I.D. select shown in the first picture above to change it to another device number you simply have to move the jumper to another of the sets of 2 pins as shown in the blown up picture. In the case of the I.D. select shown in the second picture above the SCSI I.D. is binary encoded as shown in the diagrams at the top of the next page of this manual:-

APPENDIX A

Attaching more than one Symbfile to your Macintosh Plus

BINARY ENCODED SCSI I.D. SELECT

SCSI I.D. 0 ▪▪▪ ▪▪▪   SCSI I.D. 3 ▌▌▪   SCSI I.D. 6 ▪▌▌

SCSI I.D. 1 ▌▪▪ ▌▪▪   SCSI I.D. 4 ▪▪▌ ▪▪▌

SCSI I.D. 2 ▌▪▌ ▪▪▪   SCSI I.D. 5 ▌▪▌ ▌▪▌

PHYSICAL WIRING AND TERMINATION

The Symbfiles are simply daisy-chained together. Each Symbfile links to both the next and the previous SCSI device. The picture below gives an indication of how this is achieved. It should be noted that the very last device in the daisy-chain must have a terminator pack fitted.

To the Macintosh Plus

Terminator pack

APPENDIX A

Attaching more than one Symbfile to your Macintosh Plus

STOP
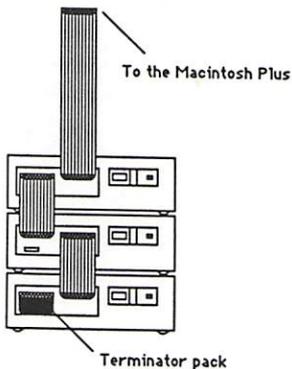
IN THE CASE OF THE SCSI I.D. SELECT **TYPE A** YOU MUST NEVER PUT MORE THAN ONE JUMPER ON THE DEVICE SELECT PINS.

NEVER SELECT DEVICE NUMBER 7 (device number 7 is the Macintosh Plus).

NEVER HAVE MORE THAN 1 SCSI DEVICE ATTACHED WITH THE SAME DEVICE NUMBER.

IF THERE IS A JUMPER ON PIN 7 OF THE DEVICE SELECT PINS THIS MUST BE REMOVED FOR STAND-ALONE USE (PIN 7 SELECTS WHETHER THE SCSI SYMBFILE IS BEING USED STAND-ALONE -I.E. ATTACHED DIRECTLY TO A MACINTOSH PLUS - OR VIA A SYMBTALK 2 APPLETALK DISK SERVER).

You can copy files or volumes from one SCSI Symbfile to another simply by dragging the relevant icon(s).

APPENDIX B

Hints and Tips

FINDERS (AGAIN!!!)

The Symbiotic SCSI boot diskette is supplied with the latest version of the Finder that Symbiotic have tested - this may not be compatible with earlier Macintosh programs. The earliest version of the Finder which we can recommend for use on the SCSI Symbfile is version 4.1. However, Finder 4.1 does not support the HFS (Hierarchical Filing System) disk/folder structure of the SCSI Symbfile volumes. Earlier in the manual we advise against using mixed versions of the Finder - this still applies.

BOOTING UP

Only the highest device number of a set of daisy-chained SCSI Symbfiles will auto-boot (i.e. drive 0 in a 2-drive configuration will not boot). The only bootable volume is, therefore, the first volume on the SCSI Symbfile with the highest device number.

POWER UP

Depending on the capacity of your SCSI Symbfile it can take from 20 seconds upwards for the winchester disk drive to "come up to speed". This is the reason that we recommend switching the SCSI Symbfile on before the Macintosh Plus and suggest that you wait after this for a minute or so before switching on the Macintosh Plus.

MAXIMUM NUMBER OF MOUNTED VOLUMES

Although the SCSI Symbfile support software allows up to 12 volumes mounted at any one time (even from multiple Symbfiles) Symbiotic recommend that the maximum number of volumes which you mount is 10 since the Macintosh Plus can normally only have a **maximum** of 12 volumes mounted at one time, i.e. 10 SCSI Symbfile volumes, the internal floppy disk and, optionally, the external floppy disk. If you attempt to mount more than 12 volumes at one time the Macintosh Plus will display the message **"There isn't enough memory to work with another disk"** and the volume will not be mounted.

APPENDIX B

Hints and Tips

Apple have issued several different versions of the Finder, System, Imagewriter and LaserWriter files, Presumably this has been done to rectify previous problems. Unfortunately it also seems to have produced a degree of incompatibility with earlier versions of the other files. Symbiotic recommend that users of the Macintosh Plus and SCSI Symbfile should use the following versions of the files (or a later version):-

FINDER version 5.3
SYSTEM version 3.2
LASERWRITER version 3.1
LASER PREP version 3.1
IMAGEWRITER version 2.3
APPLETALK IMAGEWRITER version 2.2
FONT/DA MOVER version 3.2
INSTALLER version 2.2
THE NAMER version 2.0
LOCALIZER PLUS created March 20 1986
RESEDIT 1.0D7

If earlier versions of these programs are used it is quite likely that System Bombs will occur due to the incompatibility. Similarly, some software packages will only work on the Macintosh Plus with the version of the SYSTEM file indicated above. It is likely that Apple will release further versions of these system files in the future and Symbiotic will, wherever possible, verify the suitability of these new versions before releasing them on our support diskette. If you experience System Bombs then always check that you are using the latest version of both the application software and the Macintosh system files.

MINIFINDER

It should be noted that the MINIFINDER does not currently function correctly on HFS volumes created on the Macintosh as the MINIFINDER does not recognise applications which are within a folder.

MACPAINT AND THE SCRAPBOOK

Versions of MacPaint up to, and including, Version 1.5 do not function correctly with the Scrapbook unless MacPaint is executed from the boot/system volume (i.e. the volume that appears in the top right hand corner of the desktop). The major symptom of this is that you will be unable to Paste to the Scrapbook or Copy/Cut from the Scrapbook whilst using MacPaint.

APPENDIX C : LBT ARCHIVER

This application which is supplied on the SCSI Symbfile support diskette will make safe copies of single data files which are larger than 800K to a number of diskettes. The actual number of diskettes used will depend on the size of the data file to be copied.

To start the Archiver application double-click on it's icon. The Archiver will not function correctly if executed from the internal Macintosh floppy drive. It must be executed from a volume on the SCSI Symbfile.

When you have read the introductory banner click on the **OK** icon. The **About Archiver** option in the pull-down menu will re-display this banner.

The items on the **Edit** pull-down menu are provided for compatibility with desk accessories only and are not used directly by the Archiver application.

To make a safe copy:-

1. Pull down the **File** menu and select the **Backup** option.

2. Open the file which you wish to make a **Safe Copy** of. If you cannot see the file you want it may be hidden because it cannot be copied by the Archiver. Only files that contain data and do not contain resources can be copied.

3. You will be requested to insert a diskette. Put a diskette in the internal floppy disk drive. There is no need to click the mouse - the Macintosh will know when you have inserted it! If the diskette is not initialised the Archiver will do so. Since you are using a Macintosh Plus please ensure that you use double-sided diskettes. Note that any information previously written on the diskettes will be erased.

4. If more than one diskette is required you will be informed how many you will need. If you do not have enough click the **OK** icon anyway and click Cancel when you are asked to insert the next diskette.

5. The Macintosh will continue asking for new diskettes until the Safe Copy is complete. Once the copy is started all you should have to do is insert diskettes until the copy is completed.

All the diskettes of each set should be labelled with information such as what file they are a copy of, how many there are in the set and the date of the copy. There is no need to record the sequence number of the diskettes. It is normal to keep three sets of diskettes for important data, copying to each set in turn. Regular safe copies are your best protection from lost data.

THE ARCHIVER CANNOT WRITE TO, OR READ FROM, DISKETTES IN AN EXTERNAL FLOPPY DISK DRIVE - YOU MUST USE THE MACINTOSH'S OWN INTERNAL FLOPPY DISK DRIVE.

To restore a data file from a safe copy:-

1. Pull down the **File** menu and select the **Restore** option.

2. Insert a **Safe Copy** diskette and open the "**...Safe Copy**" file on the diskette by double-clicking on its name.

3. Next you will be asked to select where you want to restore the file to. Be careful to select the appropriate SCSI Symbfile volume. You may alter the name of the file or accept the default file name.

4. When the information has been read from each diskette you will be requested to insert another. Put another diskette from the same set into the same floppy disk drive. This sequence will be repeated until all the diskettes from the set have been read. There is no need to insert the diskettes in the same sequence as they were created. The Macintosh keeps track of which diskettes have been dealt with and will not accept diskettes from other sets or accept the same diskette twice.

Another method of starting the Archiver application restoring from a safe copy is to insert a **Safe Copy** diskette while still in the Finder, open the diskette's icon and double-click on the icon of the **Safe Copy** file. This enables you to skip steps 1 and 2 above.

To quit from Archiver

Simply pull down the **File** menu and select the **Quit** option.

SYMBIOTIC Technical Support receive many telephone calls from end-users and dealers concerning error messages which are displayed by the Macintosh. In the vast majority of cases these errors can be attributed to programming bugs in applications software, bugs in the Finder or System file or using incompatible versions of files such as LaserWriter with older versions of the System file. Users should check that they are using the latest versions of applications programs and whether there is a documented way around the problem they are experiencing. We have endeavoured to document below the error codes which may be displayed - some of these codes and messages are obvious but the majority are rather obscure and we have simply reproduced information as supplied by Apple. The comments in *Italics* are from Symbiotic. ???? indicates that the Symbiotic Technical Support Department do not understand what this error code means!!!!

SYSTEM ERRORS

System Error messages are created by the Macintosh itself (rather than by the applications software which is running). They are normally accompanied by the ● *symbol and the message "Sorry, a serious system error occurred" and the option to Restart or Resume (which is normally not possible or, indeed, advisable!!!).*

ID01   Bus Error
ID02   Address Error - *Generally indicates a software bug (i.e. the program has tried to execute data). ID02 is also common when trying to execute applications on the Macintosh Plus which were designed for the Macintosh 512K or when using RAM intensive applications under the Switcher. See also NOTE 1.*
ID03   Illegal Instruction Error - *Generally indicates a software bug (i.e. the program has tried to execute data). See also NOTE 1.*
ID04   Zero Divide Error - *The program has tried to divide a number by zero (the Macintosh may be clever but it can't compute infinity!!).*
ID05   Check Trap Error - *Probably caused by a mathematical error in the software application.*
ID06   Overflow Trap Error - *Similar to ID05.*
ID07   Privilege Violation Error - *????*
ID08   Trace Mode Error - *????*
ID09   Line 1010 Trap Error - *Similar to ID02 and ID03.*
ID10   Line 1111 Trap Error (Breakpoint) - *Similar to ID02 and ID03.*
ID11   Hardware Exception Error - *Generally indicates some sort of problem with the Macintosh logic board itself.*
ID12   Unimplemented Core Routine Error - *The Macintosh is trying to use a function which does not exist!!*
ID13   Uninstalled Interrupt Error - *Usually caused by pressing the rear-most button of the "Programmer's switch" !!!!*
ID14   I/O Core Error - *????*
ID15   Segment Loader Error - *Check that Ram Cache size is not set to a very high value. See also NOTE 1.*

ID16   Floating Point Error - ????

ID17   Package 0 not present - *Probably due to a corruption in the System file.*

ID18   Package 1 not present - *Probably due to a corruption in the System file.*

ID19   Package 2 not present - *Probably due to a corruption in the System file.*

ID20   Package 3 not present - *Probably due to a corruption in the System file.*

ID21   Package 4 not present - *Probably due to a corruption in the System file.*

ID22   Package 5 not present - *Probably due to a corruption in the System file.*

ID23   Package 6 not present - *Probably due to a corruption in the System file.*

ID24   Package 7 not present - *Probably due to a corruption in the System file.*

ID25   Out of Memory Error - *Generally caused by running too many applications at the same time under the Switcher or by having too many desktop accessories or fonts. See also NOTE 1.*

ID26   Can't Launch File Error - *This error can occur if you quit an application when a disk doesn't contain either the Finder or MiniFinder. See also NOTE 1.*

ID27   File System Map Trashed - *Similar causes to ID25. See also NOTE 1.*

ID28   Stack has moved into application heap - *Similar causes to ID25. See also NOTE 1 and NOTE 2.*

ID30   Request user to insert off-line volume - *you should never see this error code.*

ID31   Not the disk the Macintosh wanted/requested - *again you should never see this error message.*

NOTE 1

*ID02, ID03, ID15, ID25, ID27 and ID28 can also be caused by more than one user on an Appletalk system attempting to utilise the same volume on the Symbfile. The Macintosh makes many of its changes to volume directories in memory rather than on the volume itself and these changes are only written back to the volume when the user does a **Shut-Down**. Thus, file, folder or volume corruptions caused by this may not be noticed until the next day when the user tries to erroneously access the data which he thinks he has saved. Similarly, these error codes can be caused by the user switching off the Macintosh in the middle of an application rather than quitting from the application and then using the **Shut-Down** option. Also having a RAM Cache larger than the amount of free RAM can cause these Error Codes.*

NOTE 2

ID-28 can also be caused by a faulty connection between the Macintosh Plus and any SCSI device or trying to use a SCSI Symbfile which has not been formatted correctly. Check for faulty ribbon cables, ribbon cables not pushed home firmly or a fault with the NCR-5380 SCSI controller chip on the logic board of the Macintosh Plus.

OTHER ERROR CODES

The following error codes are broken into a number of sub-divisions. Messages which accompany these error codes are created by the application software itself or by the Finder or System. This means that some errors will not be accompanied by the actual error code or, indeed, may not even be trapped by the application. The numbers themselves are negative.

GENERAL SYSTEM ERRORS

General System Errors are almost certainly caused by a bug in the application software.

-1	Queue element not found during deletion.
-2	Invalid queue element.
-3	Core routine number out of range.
-4	Unimplemented core routine.
-8	No debugger installed to handle debugger command.

I/O SYSTEM ERRORS

I/O System Errors are generally due to either bugs in the software driver for the device being accessed or due to a hardware fault with the device being accessed. I/O System Errors should really be trapped and reported by the applications software.

-17	Control Error - ????
-18	Status Error - ????
-19	Read Error - ????
-20	Write Error - ????
-21	Bad Unit Error - ????
-22	Unit Empty Error - ????
-23	Open Error - ????
-24	Close Error - ????
-25	Tried to remove an open driver - ????
-26	The driver to be installed could not be found in the resources - ????
-27	An I/O call was aborted - ????
-28	The driver which was called was not open- ????

APPENDIX D - MACINTOSH ERROR CODES

FILE SYSTEM ERRORS

The majority of File System Errors should be trapped by the applications software. However, they can also be caused by bugs in the Finder and/or System files.

-33   Directory full.
-34   Disk full.
-35   No such volume.
-36   I/O error *(could be due to errors on your Symbfile - check with your dealer for details of diagnostics routines).*
-37   There may be no bad names in the final system????
-38   File not open.
-39   End of file.
-40   Tried to position to before start of file.
-42   Too many files open.
-43   File not found.
-44   Diskette is write-protected.
-45   File is locked.
-46   Volume is locked.
-47   File is busy.
-48   Duplicate filename (rename).
-49   File already open.
-50   Error in user parameter list????
-51   Refnum error????
-52   Get file position error.
-53   Volume not on-line.
-54   Permission error (an open file).
-55   Drive/volume already on-line.
-56   No such drive (tried to mount a bad drive number).
-57   Not a Macintosh diskette.
-58   The volume in question belongs to an external file system.
-59   During rename the old entry was deleted but could not be restored.
-60   Bad Master Directory Block.
-61   Write Permission Error.

DISK, SERIAL PORTS, CLOCK SPECIFIC ERRORS

These codes normally indicate hardware faults with the Macintosh, Appletalk cabling faults, faulty diskettes or single-sided diskettes in a double-sided disk drive. Some "check floppy disk drive" errors could also be due to hard disk errors.

-64   Driver not installed.
-65   Read/Write request for an off-line drive.
-66   Couldn't find 5 nibbles in 200 tries - *check floppy disk drive.*
-67   Couldn't find valid address mark - *check floppy disk drive.*
-68   Read verify compare failed - *check floppy disk drive.*
-69   Address mark checksum didn't check - *check floppy disk drive.*
-70   Bad address mark bit slip nibbles - *check floppy disk drive.*
-71   Couldn't find a data mark header - *check floppy disk drive.*
-72   Bad data mark checksum - *check floppy disk drive.*
-73   Bad data mark bit slip nibbles - *check floppy disk drive.*
-74   Write under-run occurred - *check floppy disk drive.*
-75   Step handshake failed - *check floppy disk drive.*
-76   Track 0 detect doesn't change - *check floppy disk drive.*
-77   Unable to initialise IWM - *check Macintosh logic board.*
-78   Tried to read second side on a 1-sided floppy disk drive.
-79   Unable to correctly adjust disk speed - *check floppy disk drive.*
-80   Track number wrong on address mark - *check floppy disk drive.*
-81   Sector number never found on a track - *check floppy disk drive.*
-85   Unable to read same clock value twice - *check clock/battery.*
-86   Time written did not verify - *check clock/battery.*
-87   Parameter RAM written didn't verify - *check clock/battery.*
-88   Parameter RAM uninitialized - *check clock/battery.*
-89   SCC receiver error - *check serial printer port on logic board.*
-90   Break received SCC - *check serial printer port on logic board.*

APPLETALK ERROR CODES

The majority of these error codes can be attributed to faults in the Appletalk cabling or the serial printer port on the Macintosh itself. Executing and monitoring the PEEK program supplied by Apple on one of the Macintosh nodes of the Appletalk system may assist you in finding the location of the fault.

-91   Error in socket number - ????
-92   Data length too big - ????
-93   No network bridge for non-local send - ????
-94   Error in attaching/detaching protocol - ????
-95   Excessive collisions on write - ????
-97   Driver open error code (port is in use) - ????
-98   Driver open error code (parameter RAM not configured for this connection) - ????

APPENDIX D - MACINTOSH ERROR CODES

SCRAP MANAGER ERROR CODES

-100   No Scrap exists error.
-102   No object of that type in Scrap.

STORAGE ALLOCATOR ERROR CODES

These error codes are generally caused by the applications software trying to execute a command which cannot be completed due to lack of memory. Similarly, trying to run applications in a SWITCHER partition which is not large enough can cause this problem as can running applications under the SWITCHER which were written before the SWITCHER protocols were defined.

-108   Not enough room in heap zone.
-109   Handle was NIL in HandleZone.
-110   Address was odd or out of range.
-111   WhichZone failed.
-112   Trying to purge a locked or non-purgeable block.
-113   Address in zone check failed.
-114   Pointer Check failed.
-115   Block Check failed.
-116   Size Check failed.
-117   Trying to move a locked block.

HFS SYSTEM ERROR CODES

These error codes will only be displayed when running HFS.

-120   Directory not found.
-121   No freed WDCB available - ????
-122   Move into offspring error - ????
-123   Wrong volume type error.
-127   Internal file system error - ????

RESOURCE MANAGER ERROR CODES

-192   Resource not found.
-193   Resource file not found.
-194   Add Resource failed.
-195   Add Reference failed.
-196   Remove Resource failed.
-197   Remove Reference failed.

Error codes with a number above 1023 are application specific.

ADDITIONAL COMMENTS ON ERROR CODES

The Symbiotic SCSI Symbfile returns error codes to the Macintosh operating system in the form laid down by Apple in their Developers guidelines. Damage to the winchester hard disk drive's media caused by mishandling, power disturbances or a hardware fault can cause various different error codes to be returned to the Macintosh operating system. The GENTEST program supplied on the Symbiotic support diskette will carry out a "bad block scan" of the entire winchester disk drive and report any errors found.

It should be noted that the Symbiotic SCSI Symbfile driver occupies a very small amount of Macintosh RAM and makes minor use of the System Heap. Although a very small percentage of the 1000K of RAM in the Macintosh Plus is used it is always possible that clashes could happen between the Symbiotic driver and other applications. The guidelines laid down by Apple (as far as third party software is concerned) have been followed stringently but other software may not be as rigorously structured and tested. If you should find that a specific application causes you problems on the Appletalk Symbfile (but works successfully from floppy disk) please advise the Symbiotic Technical Support Department so that investigations may be made towards a possible resolution to your problem.

APPENDIX E - THE INTERNAL SCSI SYMBFILE

The internal SCSI Symbfile hard disk is a single unit which is fitted internally to the Macintosh Plus.

It consists of a 20 megabyte 3 1/2" winchester disk drive which will have been fitted to your Macintosh Plus by an authorised Symbiotic dealer, supplier or distributor.

It is possible that different drive sizes will be available in the future.

Accessories supplied with the Symbfile include:

- 1 3 1/2" floppy boot disk (Symboot) which contains the housekeeper software for the Symbfile and several utility programs
- 2 manuals

Figure 1.1 below shows the connections at the back of your Macintosh Plus.
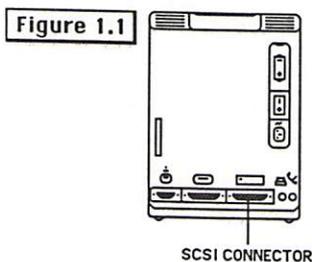
SCSI CONNECTOR

You will find that there is already a connector plugged into the SCSI port which has a ribbon cable leading from it to the inside of your Macintosh Plus. This is the way in which Symbiotic attach their internal drive to the Macintosh Plus.

Note : You are advised to keep all boxes and packing material so that you may transport the equipment safely at a later date.

Due to the continued expansion of Symbiotic and Apple's range of products it is possible that you may find additional connectors or a different arrangement of connectors. It is not normally possible to damage the Symbfile or the Macintosh by attaching connectors incorrectly but we would recommend that you contact the dealer who supplied your equipment if you are in any doubt.

The SCSI I.D. of the internal Symbfile is always set to 0 (zero). It is recommended that you do not change this I.D. as it is set internally on the winchester disk drive.

In all other respects the set-up of the internal SCSI Symbfile is identical to the set-up procedures for external Symbfiles. A separate Dealer Installation Manual is supplied for the internal SCSI Symbfile.
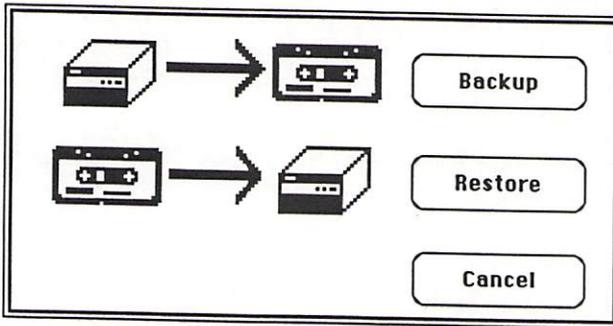
APPENDIX F - 60MB COMBINATION TAPE STREAMER

This appendix of the manual is intended for use with the 60 megabyte tape streamer combination SCSI unit (fitted with either a 42MB, 55MB, 85MB, 120MB or 160MB winchester disk drive). **PLEASE READ THE LAST PAGE OF THIS APPENDIX (TIPS, HINTS AND WARNINGS) BEFORE USING THE SYMBSTORE SOFTWARE.**

It is essential that you **execute the Symbstore software from diskette** rather than from the Symbfile or you may get a **System Error** after restoring since the Macintosh desk-top will not exist in the same form it was in when you executed the Symbstore software.

Double click on the Symbstore icon .

After a few moments a screen similar to the one shown below will be displayed.
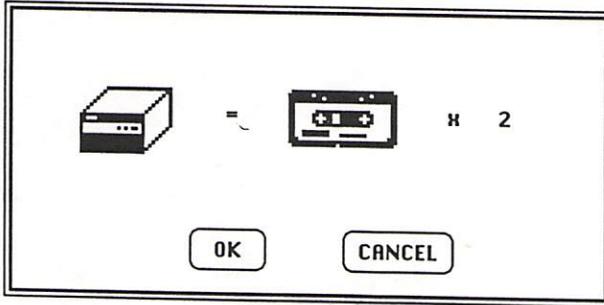

Select the BACKUP or RESTORE operation by clicking on the word BACKUP or RESTORE as appropriate. If you have run the Symbstore software by mistake simply click on the CANCEL icon.

BACKING-UP YOUR SYMBFILE TO TAPE(S)

Having clicked on **BACKUP** a screen similar to the one shown below will be displayed:-

The number 2 in this case indicates that 2 tapes would be required for the back-up. 1 tape can contain 61 megabytes of information so you will only require 1 tape unless you have a larger capacity drive than 61 megabytes.

After confirming that you wish to continue by clicking on **OK** you will be asked for the name to be used on the tape header (for tape identification purposes) as shown below:-
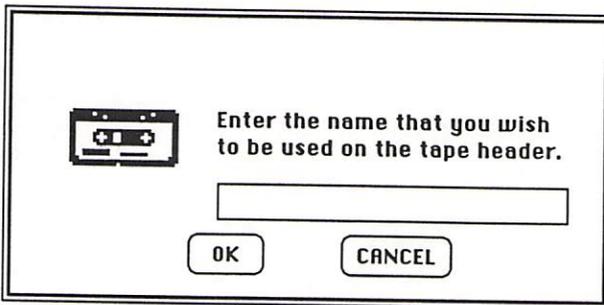
Enter an appropriate name (**of up to 20 characters**) for the set of tapes (i.e. MONDAY'S BACKUP) and click on **OK** or press **RETURN**. You will then be asked to insert tape number 1 as shown at the top of the next page.

BACKING-UP YOUR SYMBFILE TO TAPE(S)

```
  Please insert tape number 1 and click OK.



          [ OK ]       [ CANCEL ]
```

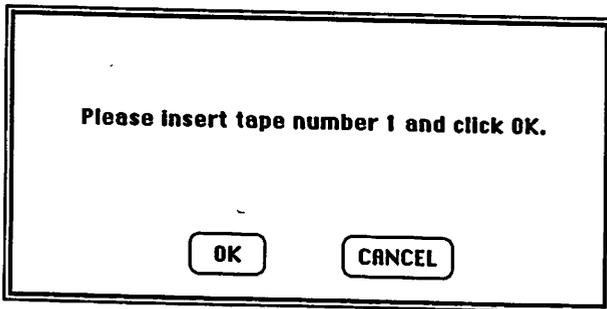If the tape has not been used before or you insert an incorrect tape the screen shown below will be displayed:-

```

           [cassette icon]    ■ 1


   [ ERASE ]    [ CHANGE ]    [ CANCEL ]
```
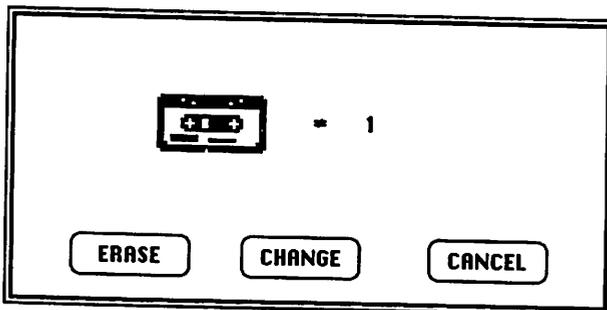
If the tape has never been used before, has been used for another purpose or is corrupt (perhaps because it was stored in an environment where there is electromagnetic interference) you will have to erase it by clicking on the ERASE icon.

If you have inserted the wrong tape you may change it and then click on CHANGE. You may quit by clicking on CANCEL.

You will then be asked to confirm that you actually wish to proceed with the back-up as shown at the top of the next page:-

APPENDIX F - 60MB COMBINATION TAPE STREAMER

BACKING-UP YOUR SYMBFILE TO TAPE(S)

```
┌─────────────────────────────────────────┐
│ ┌─────────────────────────────────────┐ │
│ │                                     │ │
│ │   Do you really want to back up your│ │
│ │   Symbfile on this tape ???         │ │
│ │                                     │ │
│ │                                     │ │
│ │      ┌──────┐    ┌──────────┐       │ │
│ │      │  OK  │    │  CANCEL  │       │ │
│ │      └──────┘    └──────────┘       │ │
│ │                                     │ │
│ └─────────────────────────────────────┘ │
└─────────────────────────────────────────┘
```
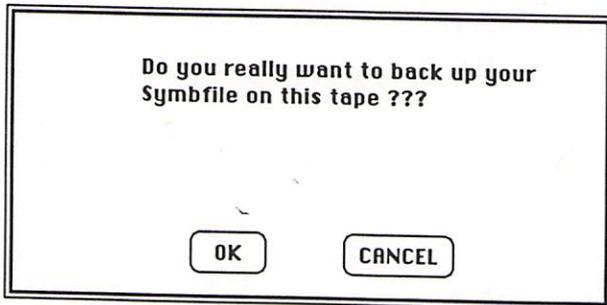
The back-up procedure will take approximately 14 minutes per 61 megabytes of Symbfile .

Once the first tape has been written, if more than 1 tape is required for the back-up a screen similar to the one shown below will be displayed:-

```
┌─────────────────────────────────────────┐
│ ┌─────────────────────────────────────┐ │
│ │                                     │ │
│ │   Please insert tape number         │ │
│ │   number 2 and click OK.            │ │
│ │                                     │ │
│ │    ┌──────┐        ┌──────────┐     │ │
│ │    │  OK  │        │  Cancel  │     │ │
│ │    └──────┘        └──────────┘     │ │
│ │                                     │ │
│ └─────────────────────────────────────┘ │
└─────────────────────────────────────────┘
```
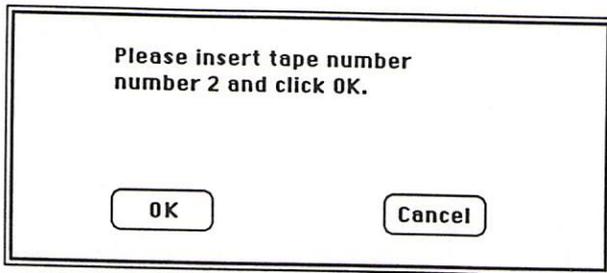
For each tape required you will either have to erase the tape or the back-up will continue automatically.

BACKING-UP YOUR SYMBFILE TO TAPE(S)

Once the complete Symbfile has been backed-up the screen shown below will be displayed:-

```
┌─────────────────────────────────────────────┐
│                                               │
│        Back-up finished....successfully       │
│                                               │
│                                               │
│                                               │
│                 ┌────────┐                    │
│                 │   OK   │                    │
│                 └────────┘                    │
│                                               │
└─────────────────────────────────────────────┘
```

Click on **OK** and you wil be returned to the Finder.

RESTORING YOUR SYMBFILE FROM TAPE(S)

Having clicked on **RESTORE** a screen similar to the one shown below will be
displayed:-
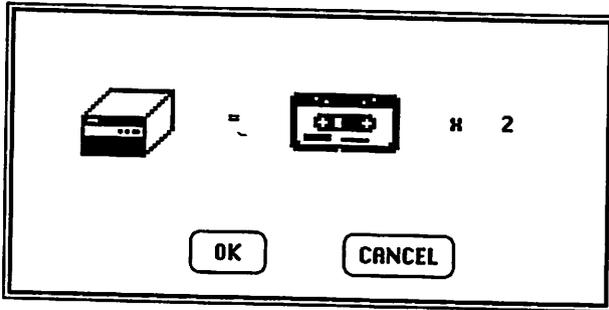
The number 2 in this case indicates that 2 tapes would be required for the restore. 1
tape can contain 61 megabytes of information so you will only require 1 tape unless
you have a larger capacity drive than 61 megabytes. After confirming that you wish
to continue by clicking on **OK** you will be asked for the first tape as shown below:-
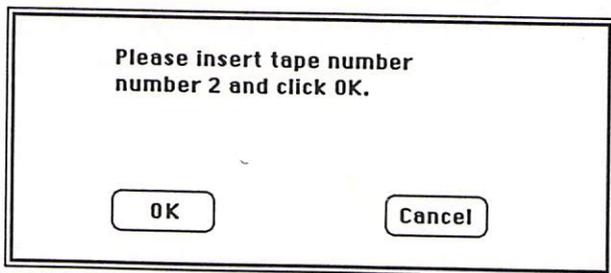

Please insert tape number 1 and click OK.

[OK]   [CANCEL]
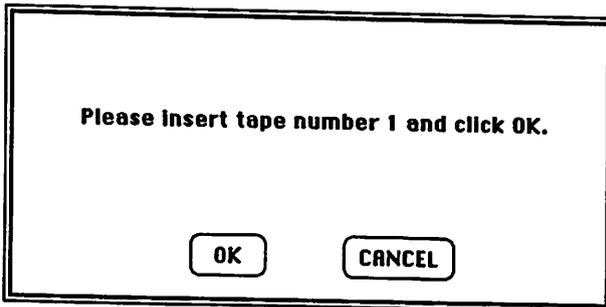
The restore procedure will take approximately 14 minutes per 61 megabytes of
Symbfile .

RESTORING YOUR SYMBFILE FROM TAPE(S)

If more than 1 tape is required for the restore the screen below will be displayed:-

```
┌──────────────────────────────────────────────┐
│                                                │
│       Please insert tape number                │
│       number 2 and click OK.                   │
│                                                │
│                                                │
│    ┌──────────┐           ┌──────────┐         │
│    │   OK     │           │  Cancel  │         │
│    └──────────┘           └──────────┘         │
│                                                │
└──────────────────────────────────────────────┘
```

Once the complete Symbfile has been restored the screen shown below will be displayed:-

```
┌──────────────────────────────────────────────┐
│                                                │
│        restore finished....successfully        │
│                                                │
│                                                │
│              ┌──────────┐                      │
│              │   OK     │                      │
│              └──────────┘                      │
│                                                │
└──────────────────────────────────────────────┘
```

Click on **OK** and you will be returned to the Finder.

APPENDIX F - 60MB COMBINATION TAPE STREAMER

TIPS, HINTS AND WARNINGS

Each tape is capable of storing 61 megabytes of data. You will appreciate that storing this amount of information on a 600 foot tape requires that the data is packed very compactly on the tape. Because of this tapes should be treated with care. Do **not** place your tapes on top of the Macintosh or Symbfile combination unit or, indeed, near any electrical equipment!! Store your tapes in a dry, clean location in the box provided for them. Dust, smoke and dirt should be avoided.

The tape streamer is a very reliable piece of equipment but, like your hi-fi, it contains delicate mechanical parts. For this reason do not drop it and do not place it in an area where it is likely to be knocked.

It is recommended that the Symbfile combination unit is not switched off or on whilst the tape is inserted in the tape mechanism. It is also recommended that the tape be removed unless you are actually doing a back-up or restore.

Free flow of air should be allowed around the Symbfile combination unit. Do not place anything on top of it and allow at least 10 centimetres of unrestricted space around it.

As with music cassettes the tapes used with the Symbfile combination unit will, over a period of time, deposit small particles of metal oxide on the heads of the tape mechanism. It is recommended that a proprietary cleaning fluid and suitable swab are used to clean the heads every month during normal operation. A suitable cleaning kit is available from the computer dealer who supplied your Symbfile combination unit or direct from Symbiotic Computer Systems.

The recommended back-up procedure utilises a system known as Grandfather, Father and Son. This simply means that at least 3 backups are kept and are used cyclically to ensure that there are always at least 2 backups available. We suggest if daily backups are being done that you keep tapes marked with the relevant day(s) of the week. If you are doing backups weekly then simply mark the tapes 1, 2 and 3 and keep a log of the dates when each tape has been used. The computer dealer who supplied your Symbfile combination unit should be able to advise you of standard procedures for this if you are not sure how to maintain an effective backup system.

You may write-protect tapes by turning the plastic "arrow head" towards the "SAFE" position.

The tapes can only be inserted into the Symbfile combination unit in one way. <u>DO NOT TRY TO FORCE A TAPE INTO THE MECHANISM AS THIS IS LIKELY TO DAMAGE IT.</u>

<u>ONLY APPROVED SYMBIOTIC TAPES SHOULD BE USED. USING NON-APPROVED TAPES WILL VOID YOUR WARRANTY.</u>

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APPENDIX G - TROUBLESHOOTING

If you encounter problems during normal day-to-day use of your SCSI Symbfile please read the following notes as they may resolve the situation for you.

1. If the SCSI Symbfile will not boot try booting from the SymbStart diskette and use the Mount Vols desktop accessory to mount the first volume on the Symbfile. Copy the System and Finder files across from the floppy to the System folder of the SCSI Symbfile, shut-down and see if the SCSI Symbfile will then boot correctly. If this cures your problem then you were probably suffering from a corrupt System file (probably due to a bug in an application program, the Macintosh System itself or a desk accessory).

2. Try removing all the desktop accessories (and any unnecessary fonts) from the System file on the SCSI Symbfile using the Font/DA Mover program. If your problems go away then you can start replacing them gradually until you locate the "guilty party".

3. Check with your Apple dealer that you are using the latest version of the application programs and Apple System files.

4. Check that all cables are plugged in firmly to the back of both the Macintosh Plus and the SCSI Symbfile.

5. Check that the SCSI terminator is screwed in firmly to the back of the SCSI Symbfile.

6. If you have a Macintosh 128K or Macintosh 512K which has been upgraded to a Macintosh Plus check with your dealer that the necessary modifications have been carried out to the power supply to enable it to handle the additional power requirements of the Macintosh Plus logic board.

7. Ask your dealer to run Apple's Disk First Aid program on your SCSI Symbfile (this will check if your directory has been corrupted by a rogue application, desktop accessory or System file).

8. Finally check to see if the same symptoms prevail with the same application(s) when they are run from floppy disk.