

Diamond Computer Systems, Inc.

WPC Bridge

Reference Manual

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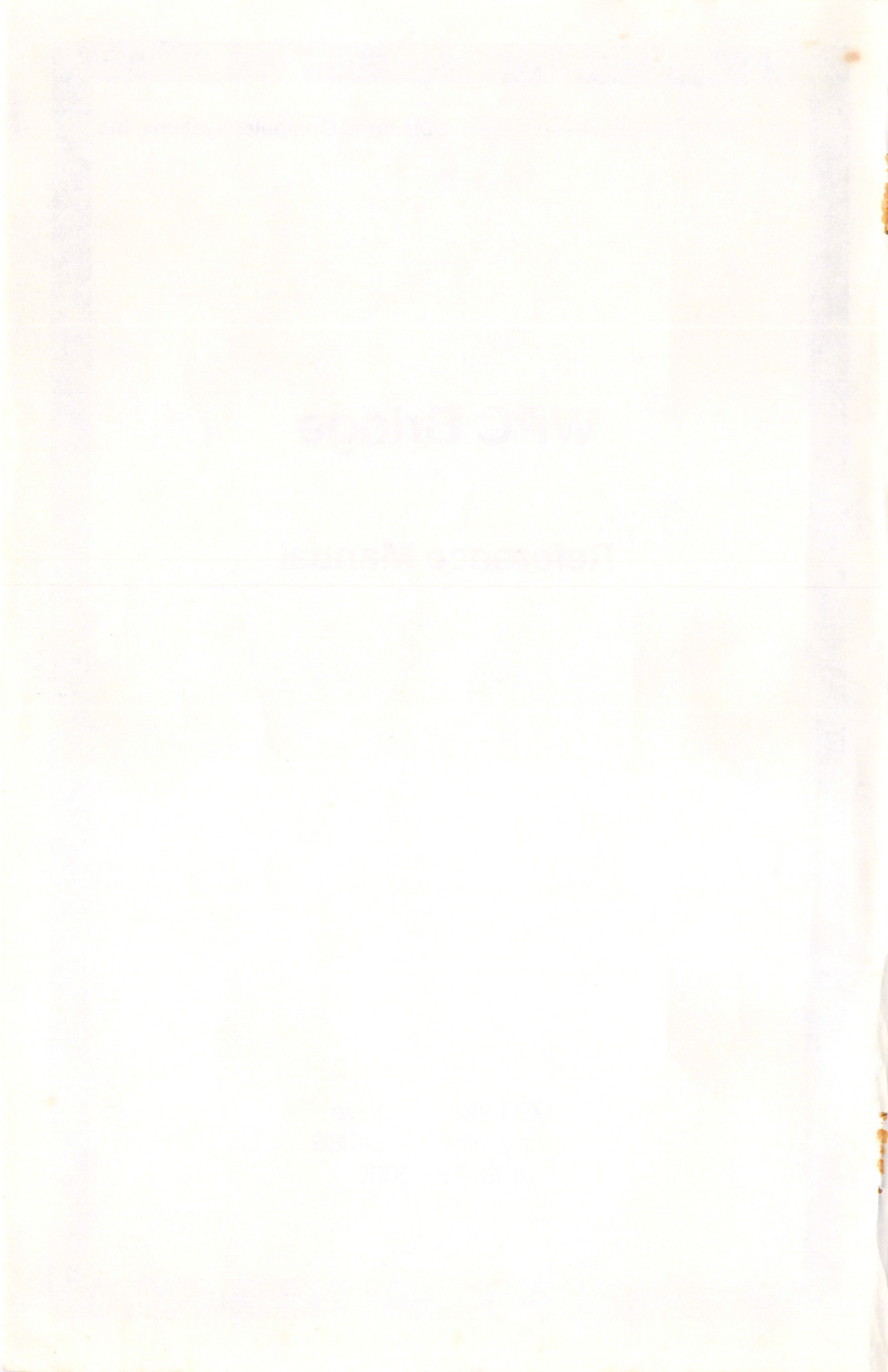


Table of Contents

Chapter One - Before You Begin	1
How to use the manuals	1
Chapter Two - The ProDOS Hard Volume	2
Introduction	2
Advantages	2
Creating a ProDOS Hard Volume (Slot 7, Drives 1/2)	3
Formatting the ProDOS Hard Volume	3
Copying Files to the ProDOS Hard Volume	4
Using the ProDOS Hard Volume	4
Chapter Three - BridgeStore	6
Introduction	6
About Apple Disks	7
Creating a BridgeStore Disk	8
Booting the System from a BridgeStore Disk	8
Changing the BridgeStore Disk Names	9
Copying Apple Disks to Apple Disks	9
Copying BridgeStore disks to Apple Disks	9
Copying BridgeStore disks to BridgeStore Disks	10
Selecting a BridgeStore Disk	10
Switch Disk	10
Chapter Four - Software Configuration (BRUTIL)	12
Before Configuring your System	12
Software Compatibility	12
Assigning Apple Disk Drives in an MS-DOS Machine	13
Apple-Ready Disk Drives	13
Configuring the Bridge	14
System Configuration	14
Function Key Programming	18
Disk Conversion Utility (BridgeStore)	19
New Blank BridgeStore Disk Allocation	21
BridgeStore Disk Description Modification	21

Chapter Five - Bridge Initialization and Booting 22

- Booting an Apple Disk 22
- Apple Keyboard Equivalents for the DOS Keyboard 23
- Bridge Help Menu 23
- Apple Slots and Peripherals on the Bridge 25
- Bridge Printing Mode 27
- General Comments on Bridge Input/Output 28
- Using Apple "Flippy" Disks on the Bridge 28
- The Apple Game Port 29
- Telling Time 29
- Controlling your Color 29
- Switching Between MS-DOS and Apple 29

Chapter Six - Advanced Bridge Applications 31

- The Education Environment 31
- Configuring the Bridge for the Hard Disk 31
- Bypassing the Bridge Menus 32
- Choosing Your Configuration 33
- Multiple Configurations 34
- Configuring Printers for AppleWorks v1.0 - v2.1 35
- Configuring Printers for AppleWorks v3.0 36
- Configuring Print Shop by Broderbund for Bridge 37

Chapter Seven - Troubleshooting the Bridge 38

- Bridge Technical Specifications 38
- Power Consumption 38
- Connecting an Apple Imagewriter to Bridge 39
- Imagewriter I 39
- Imagewriter II Color Printer 39
- Possible Solutions to Annoying Problems 40
- Getting Assistance with the Bridge 42

Glossary 43

Chapter One

Before You Begin

How to use the manuals

The Quick Start Tutorial:

This step-by-step guide will carefully lead you through:

- Utility Disk Backups
- The BRIDGE program
- Using an Apple program

Quick Start is a roughly thirty minute process familiarizing you with the basic Bridge operations.

The Bridge Reference Manual:

Beginning with Chapter Two, the manual discusses:

Unique disk storage features

System's Configurations

Apple software and hardware equivalents

The Bridge and Local Area Networks

Programs and Hardware set-ups

This manual uses open and closed brackets "< >" to indicate a particular key stroke. For example, you may be told to "Press the <ESC> key".

This requires pressing the key marked "ESC". Do **not** type the individual letters E S C.

Throughout this manual, precautions and interesting information or tips appear in italics. Be sure to carefully read ALL information set off in italics.

Chapter Two

The ProDOS Hard Volume

Introduction

The ProDOS Hard Volume is a special information storing feature of the Bridge. Uniquely, Bridge allows the use of hard disk drives using our BridgeStore software. A ProDOS Har Volume may be create on any MS-DOS supported hard disk drive, network file server, or floppy disk. Our Bridge Utility Program allows people to use files as if they resided on an Apple Computer hard disk. Two ProDOS Hard Volumes may be created with a maximum 10 megabytes each. The volumes perform as if they are attached to Apple Slot 7, as Drive 1 and Drive 2. No partitioning or special formatting is needed.

Advantages

Using a ProDOS Hard Volume rather than using a floppy has two major advantages. First, speed is increased significantly. ProDOS stored programs will operate up to three times faster. The faster the drive, the more quickly programs will work. Speed is particularly important with programs using large amounts of data, or programs that require frequent disk access.

Second, ProDOS Hard Volumes allow numerous Apple programs to be stored in one easily accessible area. For example, a program like AppleWorks 3.0 requires several separate floppy disks to perform its tasks. Using the ProDOS Hard Volume eliminates the need to constantly exchange floppy disks, because everything including data files is neatly stored on the hard disk.

The only ProDOS Hard Volume limitation is that only ProDOS based programs can be stored. No other operating systems can be used with the Hard Volume. However, all Apple //e compatible operating systems can use the Bridgestore features explained in the next chapter.

Creating a ProDOS Hard Volume (Slot 7, Drives 1/2)

ProDOS Hard Volumes can be created using any MS-DOS disk drive. However, Diamond recommends a hard disk. These volumes may be several sizes (352k, 704k, 1Mb, 2Mb, 5Mb, or 10Mb each) limited only by the specified drive's unused space. ProDOS Hard Volumes are stored within an MS-DOS file. They can be copied and deleted like any other file. ProDOS "disks" created using these selections are unformatted within Apple program terminology. An Apple ProDOS format utility (like FILER) must be used before storing data. For each ProDOS Hard Volume selected, the program will request a size. ProDOS Hard Volumes can only be created or modified using the BRUTIL System Configuration.

Using the Bridge Utility Disk run the program BRUTIL. (See Chapter Four for details about using BRUTIL). After typing BRUTIL and pressing < Enter >, highlight the System Configuration option and press < Enter >. Choose disk drive configuration and alter the drive locations to meet your needs:

- Slot 7, Drive 1: Select the MS-DOS drive designation where the first ProDOS Hard Volume should be stored. (It will appear as PRODOS.HD1 in your MS-DOS directory). Next select the ProDOS Volume size desired.
- Slot 7, Drive 2: Select the MS-DOS drive designation where the second ProDOS Hard Volume should be stored. (It will appear as PRODOS.HD2 in your MS-DOS directory). Next select the ProDOS Volume size desired. If no data ProDOS Hard Volume is desired, select the "No assignment at this time" option.

Formatting the ProDOS Hard Volume

The ProDOS Hard Volumes must be formatted using a ProDOS file utility program (like FILER) before data can be stored. Initiate the program BRIDGE by typing the word "STAR" and pressing the < Enter > key. (See Chapter Five for Details) Choose the drive containing your ProDOS file utility program, and follow these steps:

Choose "Format a Volume": The program will ask you for a slot and drive. Choose either "Slot 7, Drive 1" or "Slot 7, Drive 2" based upon the ProDOS Hard Volume you wish to format.

Enter a Volume Name: All ProDOS disks require a unique volume name. Enter any short, simple, name for the ProDOS Hard Volume (for example: /HARD1, /PRODOS, or /HARDDISK). The program may respond the volume already has the name "/". Go ahead and choose to replace it with your desired new name. The formatting should almost be instantaneous.

Copying Files to the ProDOS Hard Volume

Now the volume formatting is complete. To use the ProDOS operating system and programs, each must be stored on the ProDOS Hard Volume. The ProDOS operating system resides in a file named "PRODOS" within any self-booting ProDOS based disk. The file utility disk used previously to format the Hard Volumes will have the "PRODOS" file. This file and any program files must be copied to ProDOS Hard Volume - 1.

Once copied, the PRODOS file when initiated from the BRIDGE program will automatically load the operating system into memory and search out the first file with the extension of ".SYSTEM" (like BASIC.SYSTEM or APLWORKS.SYSTEM). This first system file in your directory will be automatically executed. Therefore, the first system file should be the program you wish to use everytime you use the ProDOS Hard Volume.

Use the following procedure to copy the PRODOS file and any program files to the ProDOS Hard Volume - 1:

Copy Files: Enter the source file pathname (/USERS.DISK/PRODOS for example). Enter the destination pathname (/HARD1/PRODOS for example). Refer to your file utility disk documentation for exact instructions.

Using the ProDOS Hard Volume

To use the ProDOS Hard Volume, boot the BRIDGE program from the Bridge Utility Disk. The last choice on the initial BRIDGE menu is the ProDOS Hard Volume. Highlight the option by using the arrow keys or

press the corresponding number and press <Enter> to accept the choice. To exit the ProDOS Hard Volume, type <F1> <Esc> (hold down the <F1> key then press the <ESC> key). Exit to MS-DOS by pressing <X>.

Chapter Three

BridgeStore

Introduction

MS-DOS programs and data are stored differently than Apple programs. This is why an MS-DOS system can not read Apple disks (and vice versa) without a product like the Bridge.

When storing Apple programs in MS-DOS format, a special place must be reserved. This special place, which can be recognized by both the Apple and MS-DOS systems, is called BridgeStore. A BridgeStore file or "disk" is an imitation of an Apple floppy disk on an MS-DOS file.

First some numbers: An Apple formatted 5.25 inch disk can hold up to 140k (140,000 characters). An MS-DOS formatted disk can hold 360k to 1,440k of information depending upon its type. A hard disk can contain 10 to 80 million (or more) characters.

Before storing your Apple disk contents on an MS-DOS drive, BridgeStore reserves a 266k area within your MS-DOS disk. The reserved area will contain all your Apple data and formatting information. This reserved area is called the BridgeStore disk. Just copy all the files from your Apple disk into the BridgeStore area, you will then be able to run the Apple programs right from BridgeStore.

You may have as many MS-DOS formatted BridgeStore disks as space allows. This will typically be one on a 360k disk, two on a 720k disk, four on a 1,200k (1.2Mb) disk, and many on a hard drive or network file server.

Your PC recognizes the BridgeStore area as a MS-DOS data file. It can be copied, moved, and archived just like any other data file. The one thing the MS-DOS system can not do by itself is use the contents of the BridgeStore disk.

Give each BridgeStore disk a unique name. This name can be one to eight characters long and will serve to identify it to the Bridge system. It will be stored on the MS-DOS disk under the name given with the suffix .APP.

For example, you might have a BridgeStore disk called GRAPHICS. It would be stored in MS-DOS as a 266k file called GRAPHICS.APP. Within GRAPHICS.APP would be the contents of an Apple disk.

The Bridge system allows you to assign an additional 46 character description to the BridgeStore disk at the time it is created. Use these 46 characters to help remember the contents of specific disks. This is especially useful when numerous BridgeStore disks are on a hard drive.

About Apple Disks

To get the most from the BridgeStore concept, a few details on floppy disk workings should be covered. If you plan on storing Apple copy protected programs on your hard disk or network file server, this section will be particularly important.

Floppy disks store information much the same way sound is stored on your favorite band's album. The information is stored in concentric rings around the circumference of a disk. Each of these rings is called a track.

Since each track must be a specified distance away from its neighbor, an Apple disk can contain only 40 such tracks. During the early day of Apple computers, a clever programmer figured out that he could prevent other people from copying his software by placing these tracks at other than standard positions.

Since the only other place tracks could be placed is halfway between the standard track locations the practice became known as half-tracking. Placing a track at location 1.5 meant that information could not be stored at locations 1 or 2 (too close to the other) so the maximum density of 40 tracks was preserved.

BridgeStore allows the option of copying all possible half-tracks to an MS-DOS file. This uses double the usual space, but allows more programs to be copied to MS-DOS media.

When copying a protected disk, it is difficult to tell which half tracks actually contain data. As you will see later, you will have the option of copying all 80 tracks from a protected disk to a BridgeStore disk.

Creating a BridgeStore Disk

To create a BridgeStore disk, first run the BRUTIL program to access the Disk Conversion Utility. Options #3, #4, and #5 apply to the creation and editing of BridgeStore disks.

Follow the instructions in Chapter Four under the Disk Conversion Utility on how to create a BridgeStore disk on a MS-DOS device.

Booting the System from a BridgeStore Disk

A Bridge system disk need not be booted from an External Apple drive. Previously copied Apple programs can be booted directly from the MS-DOS BridgeStore floppy disk, hard disk, or network file server file without using an Apple drive.

The first step in booting a BridgeStore stored program is to use the BRUTIL program to assign an MS-DOS drive as Apple Slot 6, Drive 1. This MS-DOS drive can be any drive including a hard disk or file server. Take this opportunity to modify your disk drive configuration to make Slot 6, Drive 1 a BridgeStore device. Detailed instructions about modifying your configuration are found in Chapter Four.

The Bridge system will always boot from the disk in drive D1.

There are three special names reserved for BridgeStore disks. These names are STARTUP1, STARTUP2, and INIT. If you have a BridgeStore disk named STARTUP1 in drive D1, that BridgeStore disk will be automatically selected when you boot from that drive regardless of how many BridgeStore disks are stored on the device. If there is no BridgeStore disk named STARTUP1, you will be prompted to highlight and select one from the BridgeStore disk menu.

STARTUP2 performs the same function for Drive D2 serving as the default option.

INIT is the BridgeStore disk containing FPBASIC. It can be loaded as specified during system configuration. Refer to Chapter Five for FPBASIC and INIT information.

Changing the BridgeStore Disk Names

As discussed previously, BridgeStore disks are stored using one to eight character filenames plus the .APP suffix. Once created, BridgeStore disk names can only be altered by using the RENAME command from MS-DOS. The Bridge system cannot be used to rename the disk. Remember Bridge will only recognize MS-DOS filenames with .APP suffixes. Therefore, any renamed disks must retain the .APP suffix. Refer to your MS-DOS users manual for more information on the RENAME command.

Copying Apple Disks to Apple Disks

As we mentioned earlier, only the External Apple compatible drive or a compatible 360k MS-DOS drive is capable of reading and writing Apple formatted 5.25" disks. If you wish to read or run Apple created programs or files, an Apple compatible or 360k drive must be used. Similarly, creating an Apple computer readable disk on Bridge requires an external Apple compatible or MS-DOS 360k drive.

The external Apple drive must be configured as either Apple D1 or D2. Then simply use any Apple copy routine to duplicate the disk. Refer to the section within those instructions for making single drive copies.

Copying BridgeStore disks to Apple Disks

Copying the contents of a BridgeStore disk to an Apple disk are possible using the external Apple or MS-DOS 360k drive. Before attempting this process, remember the following points:

- Forty track BridgeStore disks may be copied without restriction to an Apple disk using any Apple copy program.
- Eighty track BridgeStore disks may also be copied; however, an Apple copy program capable of copying half-tracked software must be used. Half-tracked software by definition is copy-protected. Therefore, the results of this copying process can not be guaranteed.

Copying BridgeStore disks to BridgeStore Disks

Copying from one BridgeStore disk to another requires observing much the same restrictions as copying BridgeStore to Apple.

A destination BridgeStore disk must already exist. This can be an existing disk or one newly created using the Utility Disk Program.

- Forty track disks may be copied using any Apple copy program without restriction.
- Eighty track disks may be copied using an Apple copy program capable of copying half-track software. However, the result is not guaranteed.

Remember, a BridgeStore disk is actually an MS-DOS file with the .APP suffix. MS-DOS copy commands can be used to duplicate BridgeStore disks without information loss. This is true of both forty and eighty track BridgeStore disks.

Selecting a BridgeStore Disk

Once several BridgeStore disks have been created on the same MS-DOS drive, some selection method is required.

For example, drive C: (a hard disk) is designated as Apple Drive D2. Your hard disk may contain ten or fifteen BridgeStore disks. How do you CATALOG or list the "Apple Disk" contents in Apple Drive D2.

How does your system know which of the ten or fifteen BridgeStore disks available is the one you want to use?

The answer is the Switch Disk feature.

Switch Disk

The Switch Disk features can be accessed from the Bridge Help Menu by pressing <F1> <Esc> while in Apple mode. Within the Help Menu, there are two Switch Disk options:

- [1] Switch Disk 1
- [2] Switch Disk 2

Switch Disk 1 allows selection among multiple BridgeStore disks stored within any MS-DOS drive designated Apple Drive D1.

Switch Disk 2 allows selection among multiple BridgeStore disks stored within any MS-DOS drive designated Apple Drive D2.

Using "Switch Disk" on Apple formatted disks have no effect.

Selecting "Switch Disk" displays all BridgeStore disks contained on the designated drive. Select a BridgeStore disk by using the arrow keys. Highlight the BridgeStore disk desired and press < Enter > .

One way of using the "Switch Disk" feature can be demonstrated with AppleWorks. AppleWorks requires two disks, a boot disk and a program disk. With an Apple computer, the boot disk must first be placed in Apple Drive D1 and started. AppleWorks will partially load and request the boot disk be removed and replaced with the program disk in Apple Drive D1. Then press < Enter > and AppleWorks will begin.

This process can be simplified using the Bridge system. If the AppleWorks Boot and Program disks have been copied to a MS-DOS formatted BridgeStore disk drive, the following procedure is followed:

- Use BRIDGE and boot the AppleWorks Boot disk from the BridgeStore format. This will be set for Apple Drive D1.
- When prompted to "Insert the AppleWorks Program disk into Drive 1 and press Return," press < F1 > < Esc > to view the Bridge Help Menu. Use the [1] Switch Disk option to select the AppleWorks Program disk in BridgeStore format.
- Press < Enter > once the correct disk is highlighted.
- Press < Enter > to return to the Apple mode.
- Press < Enter > again to indicate to AppleWorks that the Program Disk is in Drive D1.

AppleWorks will now finish booting. You can now use [2] Switch Disk to assign an AppleWorks data disk to Apple Drive D2.

Chapter Four

Software Configuration (BRUTIL.COM)

Before Configuring your System

Two concepts are crucial to successful Bridge installation. These concepts determine how the Bridge system translates Apple software particularly with respect to disk drive usage. The Bridge has several unique features that make the system much more powerful than the standard Apple //e.

The two areas include software compatibility and properly using MS-DOS disk drives while in Apple mode. This section also provides a necessary overview before configuring your system. Each of the concepts explained here are covered in more detail later in the manual.

Software Compatibility

Software compatibility is crucial to maximizing your Bridge system's value. The Bridge has two compatibility levels...standard and high. The compatibility mode is determined by the BASIC language version stored in the Bridge.

Standard Compatibility Mode:

The Bridge contains Language Arts, Inc. BASIC. This BASIC is very similar but not identical to the BASIC supplied by Apple Computer. Therefore, **most** Apple programs will run flawlessly. When using the Bridge supplied Language Arts BASIC, you are in the standard compatibility mode.

High Compatibility Mode:

Some programs require Apple's BASIC version to run correctly. This BASIC program entitled Floating Point BASIC or FPBASIC resides on the **Apple DOS 3.3 System Master Disk**. It is **NOT** included with the WPC Bridge. It must be supplied by the user. FPBASIC may be loaded into the Bridge system at startup. With FPBASIC installed, Bridge is operating in high compatibility mode. Most users prefer High Compatibility Mode.

NOTE: Any program that runs in standard compatibility mode will also run in high compatibility mode.

Assigning Apple Disk Drives in an MS-DOS Machine

An Apple //e computer typically has two 5.25 inch floppy disk drives. One drive (the boot drive) is identified by the Apple computer as residing in Slot 6, Drive 1. Apple programs are started or "booted" from this boot drive. The other drive is identified as Slot 6, Drive 2. This drive (the data drive) is used to read data and program disks.

The Bridge can read and write programs from four "Apple disk drives." Physically, the Bridge can have only one Apple disk drive directly attached to it. However, it can be told to use your MS-DOS disk drives as if they were Apple drives. This is accomplished in the configuration procedure.

As mentioned previously, all Apple //e software is sold in 5.25 inch format. When configuring your system, especially as a first time user, the Apple boot drive (Slot 6, Drive 1) should be the External Apple Drive (the BOTTOM drive). This means the drive associated with Slot 6, D1 must be either an External Apple Drive or a compatible 360k MS-DOS drive.

Drive two (Slot 6, D2) can be an Apple external drive, an Apple-Ready 360k drive, or a BridgeStore disk on any MS-DOS volume. It will use either Apple disks or BridgeStore media based upon the drive selected. The utility configuration program selections determine the media acceptable to each drive.

These two disk drives can be used with any Apple //e Operating System including DOS, ProDOS, or PASCAL.

Apple-Ready Disk Drives

A 5.25 inch Apple formatted disk can only be read using the Apple disk drive or an Apple-Ready MS-DOS 360k drive (the TOP drive).

The term Apple-Ready describes an MS-DOS 360k drive that is compatible with Apple formatted disks or has been modified to be compatible.

An Apple-Ready 360k drive can read both Apple formatted disks or MS-DOS disks including BridgeStore files but not both simultaneously.

Configuring the Bridge

The configuration program for the Bridge is called BRUTIL.COM; it resides on the Bridge Utility Disk. Execute the BRUTIL program by inserting the Utility Disk into your MS-DOS drive and typing:

```
BRUTIL <Enter >
```

This menu represents the Bridge Utility program. Use it to tell the computer what equipment is attached to the system, configure the function keys, and store Apple programs on a MS-DOS disk or network. The items include:

1. **System Configuration.** This selection details your system hardware configuration options.
2. **Function Key Programming.** Program the unused function keys with this option.
3. **Disk Conversion Utility (BridgeStore).** Convert Apple 5.25 inch disks to store on MS-DOS drives.
4. **New Blank BridgeStore Disk Allocation.** Create a 'blank' Apple floppy within your MS-DOS disk.
5. **BridgeStore Disk Description Modification.** Change the BridgeStore disk name description.

Each function is thoroughly explained. The novice users will find it useful to master the BRUTIL System Configuration option before venturing into the other four sections.

System Configuration

#1 Configure the Disk Drives. This screen shows your current system configuration. The slot 6 drives contain your Apple boot and data drives.

The slot 7 drives are the assignments for the ProDOS Hard Volumes. The Automatic FPBASIC Loading disk drive should contain an Apple FPBASIC file if you intend to achieve high compatibility mode.

#1 Modify the Setup. This section determines which MS-DOS drives will be used with the Bridge. It also establishes how each drive will be used in Apple mode.

For each of the options presented, use the arrow keys or press the corresponding keyboard number to highlight the correct drive descriptions. Press <Enter> to confirm your choice.

External Apple Drive: An External Apple Drive is attached to your system, select "ATTACHED" and press <Enter> .

PC Drive A: A 360k disk drive is attached as Drive A:.. Select "360k drive" and press <Enter> .

PC Drive B: No Drive B: is attached to your Bridge system. Select "Not Attached" and press <Enter> .

First Hard Drive: The Bridge can use two hard disk drives. This menu option allows the identification of the first hard drive accessible to the Bridge. If no hard drives exist, select "Not Installed" and press <Enter> to confirm your choice..

Second Hard Drive: Specify the second hard drive accessible to the Bridge. If no second hard drive exists, select "Not Installed" and press <Enter> to confirm your choice.

Next comes the configuration elements of the program. Five questions are asked. Each menu will present highlighted default options based on the information previously given to the Bridge.

If you are uncertain which option to choose, merely select the default option by pressing <Enter> . The System Configuration choices may be changed at any time by reentering the BRUTIL program.

(The term Apple Format means the actual Apple 5.25 inch diskette used in a drive. The term BridgeStore format means special Bridge created Apple area within a MS-DOS disk.)

Slot 6, Drive 1: Select the disk drive to be used when **booting** or starting an Apple program. Press <Enter> to confirm your choice.

Slot 6, Drive 2: Select the disk drive to be used as an Apple data disk. The same disk drive may be assigned to both Slot 6, Drive 1 and Slot 6, Drive 2. Press <Enter> to confirm your choice.

The final two disk assignment screens identify the drive selections for ProDOS Hard Volumes. ProDOS Hard Volumes may be created on any MS-DOS disk drive. Using a hard disk drive is recommended. ProDOS Hard Volumes can be assigned a variety of space parameters. They can contain 352k, 704k, 1Mb, 2Mb, 5Mb, or 10Mb each; the only practical limit is the space remaining on the disk.

Note the ProDOS "disks" created with these selections appear as unformatted to Apple software. An Apple ProDOS format utility (like FILER) must be used to format the volume prior to storing data. The software will ask the user to determine the volume size each time a ProDOS Hard Volume is created. ProDOS hard volumes created on floppy disks will be the largest size allowed by the disk drive. The ProDOS Hard Volumes can only be created or modified within this System Configuration section.

Slot 7, Drive 1: Select the drive to be used when "**booting**" or starting a ProDOS Hard Volume (saved as PRODOS.HD1). If no ProDOS Hard Volume is desired, select "No assignment at this time". Press <Enter> to confirm your choice.

Slot 7, Drive 2: Select the drive to be used as a data ProDOS Hard Volume data disk (saved as PRODOS.HD2). If no data ProDOS Hard Volume is desired, select "No assignment at this time". Press <Enter> to confirm your choice.

The final menu requests the drive designation containing the FPBASIC file available for automatic loading. This drive should only be assigned if you have a FPBASIC file available and wish to use the Bridge in High Compatibility Mode.

Automatic FPBASIC Loading: To run Bridge in High Compatibility Mode requires the loading of FPBASIC when the Bridge is initialized. Any drive may be designated as the Automatic FPBASIC Loading drive. To be used, however, a hard drive must contain a BridgeStore file with FPBASIC stored in the same MS-DOS directory as the BRIDGE.COM program. The

BridgeStore disk containing FPBASIC must be named INIT. Chapter Five more thoroughly outlines these concepts.

Select the drive for Automatic FPBASIC loading. Press <Enter> to confirm your choice.

A screen displaying your disk drive configuration choices will now appear. If these choices are correct, press the <Space Bar> to continue. To change any selection, use the <Esc> key to step back through the drive configuration section.

#2 Configure the Display Monitor. This menu allows Bridge to automatically select the display mode, or requires Bridge to select either the Color/Composite or Monochrome signal in Apple mode. When in doubt about your monitor type, choose option #1. The Bridge will make the correct choice. An incorrect monitor configuration may cause the Apple display to be unreadable. If this occurs, return to the System Configuration area and make the correct selection.

- 1. Auto Selection.** Bridge will auto-detect your monitor specifications and configure the display correctly.
- 2. Color or Composite Monitor.** If the computer has a composite, RGB, or CGA monitor and video card, select this choice.
- 3. TTL Monochrome Monitor.** If the computer has a monochrome monitor and video card, select this choice.

#3 Configure the Printers. To use the printer(s) attached to your WPC Bridge for Apple programs, the Bridge needs to know where the printer is located. Your printer is attached to either a COM: or LPT: port. Selection 1 indicates a serial printer attached to a COM port. Selection 2 indicates a parallel printer attached to an LPT port.

- 1. Change Serial Printer.** This selection displays the COM: port currently chosen for your machine. The default selection is COM1:, the standard value for your machine. Select either COM1 or COM2.
- 2. Change Parallel Printer.** This selection displays the LPT: port, data length, and printer type for a parallel printer. The default printer settings are very common and most likely are correct for your machine. The Epson Compatible printer option is used to describe all printers other

than the Tandy DMP 130/140 series. Chapter Six covers printer configurations and setup options for common Apple programs.

A brief technical note about data length: when an Apple program sends a character to a printer, the seventh bit is always set. When MS-DOS sends a character to the printer, the seventh bit is always cleared. The data bit length will be set at eight in most circumstances. If you encounter problems printing graphics, it may be necessary to change the data length to seven.

#4. Exit the Install Program. When exiting the Printer Configuration section, the entire system configuration is complete. Select Option #4 to Exit the System Configuration Menu. The Bridge Utility Program Main Menu will appear.

Function Key Programming

Bridge allows the programming of PC function keys for your convenience. Press Option #2 from the Bridge Utility Main Menu and the Function Key Menu will be displayed.

Six function keys are available for programming. They include F3 through F8. F1, F2, F9, and F10 are dedicated to the control key functions described in this manual and cannot be user programmed.

Select the [Quit] option at any time to exit the Function Key Menu and return to the previous menu.

Use the arrow keys to select the function key to be modified. Press the <Enter> key to confirm your choice. Enter the selected characters, words, or commands the key represents in Apple mode. The definition may total 32 characters, including the <Enter> key.

Use the key to delete selected characters and the <End> key to indicate that the command string is complete.

Press the <End> key to return to the menu after typing in the finished key definition. Choose to modify another key or select [Quit] to return to the Utility Main Menu.

The Function Key definitions are stored in the BRIDGE.COM program and loaded when the Bridge is initialized. To maintain several sets of Function Key definitions, configure multiple copies of the BRIDGE.COM program, saving each new copy with a different name.

Disk Conversion Utility (BridgeStore)

The Disk Conversion Utility allows you to copy an Apple 5.25" disk to a BridgeStore disk on an MS-DOS drive. You must have an Apple compatible drive or an Apple-Ready 360k MS-DOS drive connected to your Bridge to use the Disk Conversion Utility.

Most Apple programs can be copied to a BridgeStore disk. Some programs are heavily copy-protected and will not convert properly. The Disk Conversion Utility will be unable to tell if the copy was successful. If you suspect a program has been copy protected in this way, run the BridgeStore copy. If the software fails, use a commercial duplication program to copy the disk to a new, blank BridgeStore disk.

If the BridgeStore copy still fails to run, you will be limited to running that particular program from the Apple Drive.

Before copying any software to a BridgeStore disk, read the copyright notice accompanying the original software. Most publishers allow duplication to a hard disk for personal use by the purchaser; this may not be true in all cases. It is especially important when copying programs to a network file server that many individuals have access to.

Select Option #3 from the Bridge Utility Main Menu. The following questions will be asked:

Target Drive (MS-DOS) Drive (A/B/C/D):

The Target Drive is where the Apple disk will be copied. A BridgeStore disk will be created on the Target Drive containing the Apple disk.

Next, enter the name of the BridgeStore disk to create:

BridgeStore Disk Name : STARTUP1

A maximum of eight characters are allowed. Press <Enter> without specifying a BridgeStore disk name will accept the default name of STARTUP1.

Enter a description for the BridgeStore disk.

BridgeStore Disk Description :

This description may be any character string such as "AppleWorks Backup" or "Educational Game Disk." Press <Enter> without a description to leave the description blank.

BridgeStore Disk Density (40/80) :

Press the <4> key to copy the 40 regular tracks of the Apple disk to a new BridgeStore disk. This will occupy 266,240 bytes (roughly 256k) of MS-DOS disk space. Only one 40 track BridgeStore disk may be stored on a MS-DOS 360k disk.

Press the <8> key to copy all 80 possible tracks, the 40 standard tracks and the 40 possible half-tracks. This will occupy twice as much MS-DOS disk space.

A program that does not work after a 40 track copy should be attempted using option <8>. Remember: the 80 track copy requires the Apple Compatible drive.

A 40 track program will work correctly with an 80 track copy. However, this is a waste of disk space.

Specify the drive containing the Apple disk to be converted.

Source Disk:

The copy will proceed with the information given. Verify the questions are answered correctly before proceeding. Hit <Esc> to abort the procedure.

New Blank BridgeStore Disk Allocation

The New Blank Disk Allocation creates an empty BridgeStore disk. The information required is the same as the Disk Conversion Utility described above.

IMPORTANT!

A blank BridgeStore disk is similar to a new, blank floppy disk. It contains no information and must be formatted before it may be used. Format the BridgeStore disk using any Apple format utility; DOS 3.3 or ProDOS according on the operating system being used.

Accessing a blank BridgeStore disk without formatting it will result in an I/O ERROR message appearing.

BridgeStore Disk Description Modification

Converting an Apple disk into a BridgeStore file or creating an empty BridgeStore disk allows the option of entering a 46 character description of the disk. The BridgeStore Disk Description Modification is used to change that description.

First, specify the MS-DOS drive containing the BridgeStore disk.

Target Drive (MS-DOS) Drive (A/B/C/D):

A list of all BridgeStore disks will be displayed. Select the BridgeStore disk to change by using the up and down arrow keys. The BridgeStore disk selected will be displayed in inverse video.

Once selected, enter a new description by typing over the old one. Press the <Enter> key to end the editing. Confirm the change by entering <Y>.

Press <Esc> to end the entry and return to the Bridge Utility Main Menu.

Chapter Five

Bridge Initialization and Booting (BRIDGE)

Booting an Apple Disk

Bridge may be initialized by running the program BRIDGE.COM from MS-DOS. BRIDGE.COM can be run from any MS-DOS floppy disk, hard disk, or network file server.

If you have been following this manual in sequence, a configured copy of BRIDGE.COM should be in your A: drive now. At the MS-DOS prompt, type **BRIDGE** and press <Enter>. You will see one of two screens:

High Compatibility Boot: If High Compatibility Mode was specified during your initial Bridge set-up, the system will request the insertion of a disk containing FPBASIC. Insert the disk and press <Enter>. If a disk containing FPBASIC is unavailable, or Standard Compatibility Mode is preferred, press the <Spacebar>.

Similarly, if FPBASIC is to be loaded from a BridgeStore disk residing on a hard drive or network file server, the system will attempt to load it now. If a BridgeStore disk named INIT or FPBASIC is unavailable on the specified drive a warning message will appear with the problem encountered.

Boot Menu: Which screen appears next depends on the choices made during the System Configuration.

A few options may appear, or the system may request the insertion of a disk into a particular drive. If the Apple drive is specified for use, insert an Apple disk into it now and press the <Enter> key. **Or...**

If the MS-DOS 360k drive was specified for use with Apple disks, place an Apple disk in the drive and press the <Enter> key. **Or...**

If the system was told to boot from a BridgeStore disk, hard drive, network file server, or ProDOS Hard Volume, highlight your choice and refer to the manual chapter concerningsk BridgeStore or the ProDOS Hard Volume for additional help.

One last press of the <Enter> key and the Language Arts banner will be displayed at the top of the screen, the disk will spin, and the Apple program will load into memory and run.

Remember many Apple programs require that the CAPS LOCK be enabled.

If problems occur, check your installation and consult the Troubleshooting guide in Chapter Seven.

Apple Keyboard Equivalents for the DOS Keyboard

Before starting your first Apple program, consider these keyboard differences. Apple computers have three keys not available on your DOS keyboard. The keys are:

- **Open Apple**
- **Closed Apple (or Solid Apple)**
- **Reset**

The Open and Closed Apple keys are similar to the ALT function. They are used to alter the meaning of the standard alphanumeric keys. For example, using AppleWorks, to begin a printing operation requires holding down the Open Apple key and then pressing <P>. Many Apple programs take advantage of this feature.

When using the Bridge, press <F9> for Open Apple and <F10> for the Closed Apple function.

The Apple Reset key is used to Reset or Reboot an operating Apple program. This reset function is available from the Bridge Help Menu invoked by pressing <F1> <Esc> when in Apple mode.

Bridge Help Menu

The Bridge Help Menu allows the performance of functions not available directly from the keyboard or specific to Bridge operations. To access the Bridge Help Menu, the system must be in Apple mode. While in Apple mode, press <F1> <Esc> to display the help menu.

Accessing the Help Menu with <F1> <Esc> will not interrupt your Apple program. If you return to your Apple program without Resetting or Rebooting the system, the program will continue to run.

The following functions are available from the Bridge Help Menu:

- Control-Reset
- Control-Open Apple-Reset
- Switch BridgeStore disks in Slot 6, D1
- Switch BridgeStore disks in Slot 6, D2
- Enable/Disable Apple][+ Mode
- View Other Control Keys for Bridge
- Exit to MS-DOS and terminate Apple mode
- Return to the Apple program

Reset: Pressing the R key from within the Bridge Help Menu will cause the Reset command to be sent to the Apple program. Pressing <R> while in the Bridge Help Menu is equivalent to pressing Control-Reset on the Apple //e keyboard.

Reboot: Pressing the B key from within the Bridge Help Menu will reboot the Drive D1 disk. This is equivalent to typing Control-Open Apple-Reset on an Apple //e keyboard.

Switch Disk: Within the Help Menu are two Switch Disk options:

- [1] Switch Disk 1
- [2] Switch Disk 2

Switch Disk 1 will allow the switching among the multiple BridgeStore disks contained on the MS-DOS drive defined as Apple Drive D1.

Switch Disk 2 will allow the switching among the multiple BridgeStore disks contained on the MS-DOS drive defined as Apple Drive D2.

If you attempt to use "Switch Disk" on an Apple format disk, it will have no effect.

When Switch Disk is selected all BridgeStore disks contained on the specified MS-DOS drive will be displayed. Select a BridgeStore disk using the arrow keys. Highlight the BridgeStore disk desired and press < Enter >. The current BridgeStore disk will be shown in the Help Menu.

Apple][+ Mode Toggle:

Some older Apple programs were written exclusively for the Apple][+. Most of these programs require the use of High Compatibility mode to operate properly. A few are looking for specific codes that were contained in the F8 ROM in the Apple][+. To duplicate these codes, choose the Apple][+ mode by pressing < Shift > < + >. By pressing < Shift > < + > the screen will toggle between "Enabled" and "Disabled" mode. Once "enabled", reboot the Bridge system by pressing < B > from the Help Menu and the][+ Mode will take effect. Within this mode, the Bridge is emulating an Apple][+ with 64k of memory and a 40 column text display.

Other Control Keys:

This option presents a list of the special function keys usable while in Bridge mode.

Exit to MS-DOS:

When your Bridge activities are completed, its operation may be terminated by pressing the < X > key from within the Help Menu. The system will request your choice be confirmed. With confirmation, the Bridge activities will be terminated and you will return to MS-DOS. To run Apple programs once Bridge is terminated, the BRIDGE program must be reinitialized.

Go Back to Bridge:

Press < Enter > to return to the Bridge and continue using the Apple program where it left off.

Apple Slots and Peripherals on the Bridge

Like an MS-DOS machine, the Apple computer has a series of electrical slots inside its case where peripheral cards may be added. Each peripheral card in the Apple is known by the slot number (1-7) it occupies. For example, an Apple might have two printer cards, one in slot #1 and one in slot #2. The program would indicate which printer was to be used

by directing output to a specified slot. It might accomplish this by using the printer commands PR#1 or PR#2.

Similarly, the disk controller card(s) are also located in specific slots. Each controller card can have one or two drives attached to it. By convention, the first drive controller card is plugged into slot #6. A second controller, if any, for a hard drive is placed in slot #7. Thus, an Apple disk in a drive might be addressed as Slot 6, Drive 1; Slot 6, Drive 2; Slot 7, Drive 1; or Slot 7, Drive 2. This is often abbreviated S6, D1; S6, D2; S7, D1; etc...

When an Apple computer is turned on it will always start by running the program on the disk in Slot 6, Drive 1 (S6, D1).

Since your MS-DOS computer does not have "Slot" and "Drive" designations, the Bridge disk configuration program is used to assign an Apple slot and drive number to each MS-DOS volume that will be used with Apple programs.

Disk drives are not the only peripheral cards that can be added to an Apple computer. Printers, clocks, and other devices might be used in slots. On the Bridge, these slots are emulated. Bridge intelligently reassigns the proper device in your PC to be the various Apple peripheral controllers. The following list explains the slot equivalents for Apple, and the PC device assigned to each:

- Slot 1:** Parallel port assigned in System Configuration for use with parallel printers.
- Slot 2:** Serial communications port assigned in System Configuration for use with serial printers.
- Slot 3:** Apple 80-Column text card. This is emulated by the onboard circuitry of Bridge and invoked by typing PR#3 from a BASIC program or automatically through a prepackaged Apple program.
- Slot 4:** Empty
- Slot 5:** Thunderclock Compatible Apple Clock Card. Takes PC system clock and makes it usable in Apple programs supporting a clock and date stamping routine.

- Slot 6: Primary Drive Controller Card. Emulates Apple Disk II dual drive controller. Drives are configured through System Configuration program.
- Slot 7: ProDOS Hard Volume(s). Set through System Configuration for mass storage of ProDOS based programs and files. Acts like an Apple ProDOS Hard Drive.

Bridge Printing Mode

The Bridge can use any attached printer to produce Apple documents. When an Apple program sends text to a printer, it addresses the printer by the slot number its controller is plugged into (i.e. you must tell each Apple program which slot contains the controller card that drives your printers). If two printers were attached to an Apple computer with their controllers in slots one and two, the printer would be selected by instructing the program to use either slot number one or slot number two.

Most Apple programs have a Setup Menu allowing users to select the slot number, controller card type, and printer. Apple programs view the Bridge as having two printer slots. The printers are in slot number one and two. Since the Bridge has no slots for controller cards, it uses your PC printer ports.

Your PC has two different printer connectors: parallel and serial. Parallel printers are addressed as an MS-DOS LPT type device. Serial printers are addressed as an MS-DOS COM device. Please refer to your computer Owners Manual for a complete printer port description.

The Bridge uses slot number one to control a parallel printer connected to an LPT port. Bridge slot number two is for controlling a serial printer connected to a COM port. If your PC printer is parallel, tell the Apple program the printer resides in slot one. If using a serial printer, tell the Apple program the printer resides in slot 2.

The Bridge emulates the Apple Super Serial Card. It is the best interface card choice in any Apple program. Even if using a parallel printer, choose the Super Serial Card as the interface.

General Comments on Bridge Input/Output

Apple DOS and Apple ProDOS use certain conventions when directing output to a printer or requesting input from some other peripheral device. The Bridge supports these conventions and will work correctly with any Apple program that uses these same methods.

To increase speed, some programs bypass these programming conventions and attempt to access the Apple serial or parallel cards directly. These programs will not work correctly with the Bridge.

Telecommunications programs or any program designed to use a modem are examples of software that may exhibit this problem.

Using Apple "Flippy" Disks on the Bridge

MS-DOS drives are capable of reading both sides of a 360k disk at the same time. A drive head on the top reads the top side and a drive head on the bottom reads the back side of the disk. However, an Apple drive reads disks like a record player. If information from side A is desired, the disk is inserted with side A facing up, and the drive arm reads the top side information. If side B is desired, the disk is inserted with side B facing up.

Many Apple programs have information on both disk sides. For example, side 1 might be the boot disk and side 2 would be the program disk. To read the second side, take the disk out of the drive, "flip" it over, and reinsert the disk.

MS-DOS drives also make use of the index hole located just outside the large hub ring in the disk's center (about the size of a hole punch). A light shines through the hole telling the drive a disk exists and operations can proceed normally.

A problem arises when the second side of an Apple disk is placed in an MS-DOS drive. That hole is no longer in the correct space and the drive thinks no disk exists. Some Apple programs have a second index hole to overcome this problem, yet some with this modification still do not function properly.

To compensate for this problem, copy the back side of the suspect Apple disk to the front side of a blank Apple disk. Use either the External Apple drive attached to the Bridge or temporarily use an Apple computer to make this copy. Put the second side of the disk in the Apple drive and make the copy into the same drive or to the 360k Apple-Ready drive. Follow the instructions included with your Apple copy program on making single or dual drive copies.

The external Apple drive attached to your Bridge system can use Apple "flippy" disks without problems. The problem only arises with MS-DOS 360k drives.

The Apple Game Port

The Bridge supports the Apple game port for joysticks or other hand controllers. This port can be used with an Apple //c joystick or any Apple game device with a 9-pin "D" type connector.

Telling Time

The Bridge system will use the MS-DOS clock installed in your PC to provide the time to Apple programs that require it. The Bridge clock is located in "Slot 5" of the system and is Thunderclock compatible.

Controlling your Color

"Text" characters drawn on the screen using Hi-Res graphics may be surrounded by rainbow colors. This problem is inherent to the Apple //e and was never corrected. To make these characters more readable, press the <F2> key to remove all color from the screen. Pressing <F2> again will restore color to the display.

Switching Between MS-DOS and Apple

Earlier in this manual, switching from the Bridge to MS-DOS operations by using the Exit to MS-DOS command from the Bridge Help Menu was

explained. This terminates Bridge operations, stopping any running Apple program, and returns you to MS-DOS. Once returned using this procedure, the BRIDGE.COM program must be used to re-enter the Bridge System.

An alternative switching method between MS-DOS and Apple systems once in the Apple mode can be used by holding down the <Alt> key then pressing <Esc>. If you are using the Apple mode when you use <Alt> <Esc> you will be switched to the MS-DOS system instantaneously. The MS-DOS system may be used as if the Apple mode was not initialized. Any running Apple program will continue to operate until an Input/Output request is made. It will then suspend until Apple mode is re-entered.

Using the <Alt> <Esc> combination again will return you the system to Apple mode. This procedure may be repeated as frequently as the user desires.

While the Bridge system is running in the background, it uses about 80k of your PC RAM memory.

Chapter Six

Advanced Bridge Applications

This chapter covers various topics including tips on using popular programs with the Bridge and shortcuts to improve daily usage. Diamond acknowledges its inability to predict every issue or question users will have. Questions not covered in this manual are welcome. Just write or call the Diamond Computer Systems Product Support Department.

The Education Environment

The Bridge contains several special features making it especially useful to the educational environment. The Bridge can:

- Store and run Apple programs using a local hard disk.
- Run both Apple and MS-DOS programs for a central menu (without requiring an additional special Apple sub-menu).
- Provide a uniform interface for choosing either Apple or MS-DOS programs.
- Provide floppy disk support for data files.
- Bypass Bridge screen prompts and menus for expert users.

Configuring the Bridge for the Hard Disk

The Bridge BRUTIL program allows your system to identify the location of Apple programs. During disk drive installation one question concerns which drive should be designated as Slot 6, Drive 1 (the primary boot drive). This could be:

- The Apple Drive
- Drive-A (Apple Format)
- Drive-A (BridgeStore Format)
- Drive-C (BridgeStore Format)

Using these options, there are several possibilities.

Choose an External Apple Drive and Bridge will look for the External drive. The system will be initiated from the Apple disk residing in the external drive.

Choose Drive-A (Apple Format) and the Bridge will start from an Apple formatted disk in A:. If drive A: does not contain an Apple formatted disk, the drive will simply spin and wait for an Apple formatted disk to be inserted.

Choose Drive-A (BridgeStore Format) and the Bridge will begin by looking for an MS-DOS file with the suffix ".APP" in Drive A. If a BridgeStore file is found, the name(s) will be displayed and the user may select the desired file. The system will start from the BridgeStore disk selected.

Choose Drive-C (BridgeStore Format) and the Bridge will search the hard disk for BridgeStore disks. Any BridgeStore files in the current sub-directory will be displayed. Select the desired file. NOTE: Any drive C: through Z: may be used as the hard drive.

Additional BRUTIL screens allow system configuration for slots and drives S6, D2; S7, D1; and S7, D2. Refer to the BRUTIL chapter if necessary.

Bypassing the Bridge Menus

Using the Bridge's standard operating mode, typing the command BRIDGE will cause the system to request the boot volume location and then display programs available on the selected volume. The user selects the desired program and Bridge initiates the choice.

Bridge software incorporates an additional feature that can be used to simplify use.

As described in an earlier chapter, BridgeStore files appear in the MS-DOS directory as "name.APP". The name is assigned by the user when the file is created; Bridge assigns the .APP extension.

With the Bridge, Apple programs may run directly from the MS-DOS prompt using the following command:

```
BRIDGE NAME1.APP  
or BRIDGE NAME1.APP NAME2.APP  
or BRIDGE PRODOS.HD1  
or BRIDGE PRODOS.HD1 NAME1.APP  
or BRIDGE PRODOS.HD1 NAME1.APP NAME2.APP
```

Using STAR NAME1.APP selects the BridgeStore disk with the designated NAME on the volume assigned as Slot 6, Drive 1. STAR NAME2.APP selects the BridgeStore disk with the designated NAME on the volume assigned to Slot 6, Drive 2.

These commands initiate the Bridge using the identified file and drive.

If PRODOS.HD1 is used, the system boots from Slot 7, Drive 1. PRODOS.HD1 must be the first name in the command list.

If the specified BridgeStore disk is not found on the MS-DOS volume, the user will be asked to choose a new name from a list of resident BridgeStore files. If a BridgeStore disk name is designated for a volume configured as "Apple Format" the assignment will be ignored.

This method bypasses all Bridge menus and allows a single MS-DOS menu system to load and run both MS-DOS and Apple programs without special knowledge or action by the user.

Choosing Your Configuration

When adding Bridge capability to a hard disk, the user must decide where on the system you will keep Apple programs and where to store data files.

As an example, consider the most common Bridge installation in a hard disk drive:

- All Bridge files and Apple programs are stored on the hard disk in the same subdirectory. Apple programs have been previously converted to BridgeStore format.
- The hard disk is configured as Slot 6, Drive 1. The Bridge will look there for an Apple program to boot.

- The external Apple drive is configured as Slot 6, Drive 2. Many Apple programs use the second disk drive as a data drive. The user can thus store his or her own data on floppy disks for later use.
- Also, the subdirectory contains a 1 megabyte (1 Mb) ProDOS Hard Volume named PRODOS.HD1 . This ProDOS volume may contain, for example, AppleWorks or other Apple program. Placing a large program like AppleWorks in a ProDOS volume eliminates the need to swap floppy disks when booting.
- The ProDOS volume is assigned Slot 7, Drive 1, and may be booted using the command BRIDGE PRODOS.HD1 as described above.

This configuration provides the ideal organization for the most Apple programs. Using the BRUTIL program, change this configuration to best suit your individual needs.

Multiple Configurations

Here's a useful tip...

When BRUTIL is used to configure the Bridge, the configuration information is stored in a file named BRIDGE.COM . Therefore, the BRIDGE.COM file contains all the information for slot, drive, printer, and monitor assignments.

Perhaps you use several Apple programs. One requires an actual floppy drive as Drive D2, another needs both S6,D1 and S6,D2 assigned to the hard drive, and a third program must be booted from a floppy drive. How can this be easily accomplished?

Simply configure multiple STAR.COM program copies, one for each unique situation.

Follow this procedure:

- Use BRUTIL to configure BRIDGE.COM for the first situation
- COPY BRIDGE.COM to a new file called BRIDGEA.COM using normal MS-DOS commands.

- Use BRUTIL to reconfigure BRIDGE.COM for the next situation.
- Again, COPY BRIDGE.COM to BRIDGEB.COM using normal MS-DOS commands.
- Use BRUTIL once again to configure BRIDGE.COM for a third situation.

Now three executable BRIDGE programs are available: BRIDGE, BRIDGEA, and BRIDGEB. Each version will be appropriate for a different Apple program or system configuration.

Configuring Printers for AppleWorks v1.0 - v2.1

Printing an AppleWorks document using Bridge requires eliminating all control characters from the initial printer setup. To properly choose the appropriate settings for your computer:

At the Main Menu, choose:

- 5) Other Activities
- 7) Specify information on printers
- 2) Add a printer

Select CUSTOM PRINTER from the printer list

Name the Printer (Dot Matrix, Daisy, Etc.)

The printer slot is:

Slot = "1" if the printer is connected to the parallel port
 Slot = "2" if the printer is connected to the serial port

From printer options menu, select 5) Interface cards

Answer NO to "Control Characters OK?" Current control characters will be erased and the system will request a setup string be entered. Do **NOT** enter **ANY** control characters.

Type a caret < ^ > and then < Enter > (< Shift > < 6 > < Enter >).

Press the <ESC> key to return to the Main Menu.

Your printer is properly configured to print AppleWorks documents.

Configuring Printers for AppleWorks v3.0

Printing an AppleWorks document using the Bridge requires eliminating all control characters from the initial printer setup. To choose the appropriate setup for your printer:

At the Main Menu, choose:

- 5) Other Activities
- 6) Select Standard Settings for AppleWorks
- 6) Specify information on printers
- 2) Add a printer

Select CUSTOM PRINTER from the printer list.

Name the Printer (Dot Matrix, Daisy, Etc.)

The printer slot is:

Slot = "1" if the printer is connected to the parallel port

Slot = "2" if the printer is connected to the serial port

From the printer options menu, select 5) Interface cards

Answer NO to "Control Characters OK?" Current control characters will be erased and the system will request a setup string be entered. Do **NOT** enter **ANY** control characters.

Type <F9> <Enter> to exit editing area (Hold down <F9> and press <Enter>).

Use the <ESC> key to return to the Main Menu.

Your printer is properly configured to print AppleWorks documents.

Configuring Print Shop by Broderbund for Bridge

Configuring Bridge to print a Print Shop document provides a good example of a typical printer setup. Use these parameters for similar programs:

Printer Interface: Use the "Apple Super Serial" card or "Videx Uniprint" for both parallel and serial printers.

Slot Number: Use Slot #1 for a parallel printer or Slot #2 for a serial printer.

Printer Type: Choose the printer most similar to your own. Many IBM printers work well if "Old Epson with Grafrax Option" is selected.

Chapter Seven

Troubleshooting the Bridge System

Bridge Technical Specifications

Bridge is an Enhanced 128k Apple //e co-processing board. It includes:

- Dual 65C02 Microprocessors
 - > one for the video controller
 - > one for the main CPU
- 128 Kilobytes Random Access Memory
- 40/80 Column Text
- Apple LoRes, HiRes, and Double HiRes Graphics support
- Supports a maximum of four disk drives
 - > 2 - 360k Apple-Ready MS-DOS
 - > External Apple Drive
 - > 1 - Hard Drive
- Hard Drive support
- Standard Serial and Parallel port support
- Apple //c game port
- Thunderclock compatible Apple clock

Power Consumption

Bridge Board	8 Watts at +5 Volts
Bridge with Apple Drive	10 Watts at +5 Volts

Connecting an Apple Imagewriter to Bridge

Imagewriter I

To correctly adapt the Imagewriter I printer to work with your serial port, attach a Full Handshake Null Modem adaptor between your serial port and the printer cable. Use the following printer switch settings:

<u>Bank 1</u>	<u>Bank 2</u>
1 Closed	1 Open
2 Closed	2 Open
3 Open	3 Open
4 Open	4 Open
5 NoChange	5 Closed
6 NoChange	6 Closed
	7 Open
	8 Open

Imagewriter II Color Printer

To correctly adapt the Imagewriter II Color Printer to work with your serial port, obtain a cable with the following pinouts and configure the printer switches as follows:

<u>Mini-Circular</u>	<u>RS-232</u>	<u>Bank 1</u>	<u>Bank 2</u>
1-----	5	1 Open	1 Closed
1-----	6	2 Open	2 Closed
1-----	8	3 Open	3 Open
2-----	20	4 Open	4 Open
3-----	3	5 Open	5 NoChange
4-----	7	6 Closed	6 NoChange
5-----	2	7 Open	
6 No Connection		8 Open	
7 No Connection			
8-----	7		

Both printers must be attached to your serial port and configured through BRUTIL. When requested for the Apple Slot in an Apple program, enter Slot #2.

Possible Solutions to Annoying Problems

Stop! Don't throw your computer away just yet! Here are some hints and answers to commonly asked questions about Bridge and Apple software. Hopefully, this will make your computing time a little more enjoyable.

I get a "Bridge Does Not Respond" message when trying to configure or run Bridge.

This can be one of two things. Either you don't have the Bridge installed in the computer or you have broken it! Try moving the Bridge to a different slot and see if the message reoccurs. If the problem goes away, your computer has a bad slot and should be serviced. If the problem still persists, contact your dealer or Diamond Computer Systems.

My screen stays the same once I tell it to run an Apple disk, but the drive light is on and I can hear it loading my program.

This happens when Bridge is installed improperly. The Bridge acts like a bridge between your video output and your monitor. The Bridge decides whether the signal coming from your video card will be passed directly to the monitor or if Apple video will be sent there instead. The cables included with the WPC Bridge must be connected properly. The cables channel the video from the computer's video output connector INTO the Bridge then connect your monitor to the connector marked Video. Go back to the Quick Start manual and retrace the instructions precisely.

When running a program out of my 360k drive, all I get is the LANGAUGE ARTS banner across the top of my screen. The drive light is on, but nothing else happens (after about 1 minute).

Make sure the Apple program is made to work on an Apple //e and under the conditions listed in this chapter's first page. Also, identify if your program is the original disk or a backup copy. Nobody can guarantee the performance of a backup disk on anything but the drive it was made on. If you do not wish to try using your original on the Bridge, make a backup of it according to the programs copyright laws. Place your to-be backup disk in the 360k drive and make a program backup. Again, make sure this does not violate any copyright notices or laws.

If the program still does not work properly, it may require either booting in High Compatibility mode or using the Apple drive, or both. Try these combinations. They will solve about 99% of the problems.

Something still not working? Try the disk on an Apple //e to make sure the disk is functional. Then contact the Product Support Department of Diamond Computer Systems. The Product Support staff continuously tests Apple programs. Have the program title and software publisher's name handy if you call.

When running a program out of my Apple drive, all I get is the LANGAUGE ARTS banner across the top of my screen. The drive light is on, but nothing else happens (after about one minute).

The investigation steps here are similar to the ones for a 360k drive. Make sure you are using an original of the program or a legal duplicate made with the Apple drive. Check the program to insure it was made to operate on an Apple //e. Use High Compatibility mode if all else fails.

The Apple program I load gets to the introduction screen then does nothing. I can hit a <Spacebar> or <Enter> but nothing happens.

This is a typical symptom of a program requiring High Compatibility mode. Reconfigure your disk drives to load FPBASIC and try the program again. You may need to use the Apple drive if you are using an Apple-Ready 360k drive.

My printer double spaces all my Apple text and graphics. My pictures look like they're behind bars in jail!

No printer DIP switch setting changes are required to use the Bridge. Using the BRUTIL program reconfigure your printer as a Tandy DMP printer. This seems to clear the jailbird effect. If this doesn't solve the problem, flip the DIP switch on your printer that controls line feeds after a carriage return.

Getting Assistance with the Bridge

Questions...
Questions...
Questions???

If you have read this Reference Manual, the Quick Start Tutorial, and still have questions... don't despair, The Bridge is a product of Diamond Computer Systems. And our Product Support Department is anxious to solve your Bridge related problems.

Simply...

CALL: Area Code (408) 736-2000
8 AM to 4 PM (Pacific Time)
Monday through Friday

or

WRITE: Diamond Computer Systems, Inc.
ATTN: Product Support Department
470 Lakeside Drive
Sunnyvale, CA 94086

or

FAX: Area Code (408) 730-5750
24 Hours, 7 Days a Week
(Our FAX never sleeps)

For the best possible service include the following facts in all communications:

- The WPC Bridge Product Name.
- And...have your Quick Start and Reference Manual in hand if phoning Diamond Computers.

BRIDGE™ is proudly designed and manufactured in the United States of America. We appreciate your business.

Glossary

Apple Compatible Drive - Floppy disk drive attached internally to Bridge for running Apple programs (the BOTTOM drive).

Apple DOS 3.3 - System Master disk available from National AppleWorks Users Group to boot Bridge into high-compatibility mode. Disk contains FPBASIC file.

Apple-Ready drive - term used to identify MS-DOS 360k capable of reading both PC and Apple // series diskettes (the TOP drive).

ASCII - acronym for the American Standard Code for Information Interchange. Format used by computers to store text data files. No formatting commands are used in this format.

Backup - to duplicate the contents of a file or disk. Store the original disk safely and use the copies as working disks.

BRIDGE - file contained on Bridge Utility Disk that initializes Bridge with disk configuration provided by user.

BridgeStore - Bridge feature allowing Apple diskettes to be stored to and retrieved from MS-DOS storage media (5.25 inch and 3.5 inch disks, hard disk drives). Eliminates the need for constant floppy disk usage and provides quick program access.

BRUTIL - file contained on Bridge Utility Disk that configures system setup and creates or edits BridgeStore disks.

Copy Protect - method used by manufacturers to prevent making duplicate copies of disks.

Custom Printer - AppleWorks term used to describe printer not listed as normally supported. Bridge must have a custom printer without control characters to print documents.

Directory - list of files and subdirectories on a given media. File names and file information is shown.

DOS - Disk Operating System. The language that gives the computer its identity and abilities.

External Apple drive - 5.25 inch floppy disk drive used for Apple disks only. Attached to the Bridge as the BOTTOM drive. Allows "flippy" disks to operate properly.

File - a stored computer document.

Filename - The name given a file. Appears in the directory and allows multiple files.

Format a disk - process to prepare a computer disk to accept information storing. Creates a "road map" for storing and retrieving information.

FPBASIC - Floating Point BASIC. The Apple // Operating system. This file is used to temporarily replace the Language Arts BASIC on the Bridge during Apple operation. It allows Bridge to shift into high compatibility mode.

Highlight (bar) - method to select a menu option. Highlighted screen area controlled with arrow keys.

Kilobyte (K) - 1024 bytes or characters of information. A byte is 8 bits. A bit is a change of state represented by a zero or a one. A keyboard letter occupies about one byte of disk space or memory.

Menu - A list of program options.

Printer Control Codes - key sequences that invoke printer features or options. The sequences vary from printer to printer.

ProDOS - Apple // operating system that newer programs like AppleWorks are written under. Not directly compatible with Apple DOS 3.3 or other Apple operating systems.

ProDOS Hard Volume - Bridge feature allowing the creation of one or two ten Megabyte pseudo Apple hard drives specifically for ProDOS support. A volume can be created on any PC media as storage space permits.

ProDOS Pathname - description of location of file for ProDOS based application. Can include disk name, any subdirectory name, and filename.

ProDOS Prefix - the first part of a pathname. Locates correct disk name and subdirectory for file to be accessed.

RAM - Random Access Memory. Temporary read/write computer memory that is lost when power is turned off. Bridge has 128k of on-board RAM for Apple use.

ROM - Read Only Memory. Permanent memory incapable of being written to. Contains instructions used by the computer.

Switch Disk - Bridge option to swap BridgeStore disks on MS-DOS media. Commonly used if Apple program contains more than one operating disk.

Text file - file containing only text data in ASCII format.

Volume - common term for any storage device in ProDOS.

Volume name - name given to a storage device formatted in ProDOS.

Write protect - to prevent accidental writing to a disk. A tab covering the rectangular disk notch or the lack of such a notch means the disk is write protected.

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