REMARKABLE FILE TRANSFER PROGRAM

On Snap-in™ ROM for the TRS-80 Model 100

Portable Computer Support Group

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CONTENTS

DISK+

CHAPTER I

AN OVERVIEW

DISK+ is a wonderful program that enables the Model 100 user to have the ability to use his other computer as a disk storage device.

You can save files from RAM to diskette with the touch of a function key and you can also load files from diskette into RAM with another. You can do these transfers with any kind of file, TEXT (.DO), BASIC (.BA), machine code (.CO) or Lucid Calcsheet files (.CA). The files go over and come back just as you left them, ready to run or use, with no conversions or protocol. You can even save an entire RAM menu in one motion, which is then stored conveniently on the disk directory under a single file name with the extension ".SD" (for subdirectory). You can move single files out of a subdirectory into RAM, or put a single file from RAM into a previously created subdirectory. You can even load whole subdirectories into RAM with the touch of one function key.

You have the ability to kill a file in RAM or on the diskette with just a function key, and you can learn the size of a file in bytes with another.

DISK+ is effective on a wide choice of popular micro computers, and new computers are being added continuously so you should check with the PCSG office for those not included here.

Currently DISK+ works on the TRS-80 Models I, II, III, IV, 1000, 1200HD, 2000 and Color Computer II, the IBM PC and most other computers that use MSDOS, (COMPAQ, CORONA,

EAGLE, etc.), the Apple II, IIe, II+, (with an Apple Super Serial Card), and CP/M computers.

DISK+ is amazingly simple to use because it has been designed to follow the intuitive simplicity of the Model 100's main menu. The DISK+ program comes to you on diskette and on ROM and you use both to get started with the program. To start with you will install the DISK+ ROM into your Model 100. The diskette contains another DISK+ program, which is used by your other computer. Whenever you copy the diskette, you also copy the program.

To use DISK+ you first connect your Model 100 to your other computer by a cable from the RS232 plugs on each machine. For most computers you will need to have a "null modem" adapter. While some, such as the Apple, have serial card switch settings that eliminate the need for a null modem. PCSG sells a cable, which has the null modem adapter built-in and is tested for your particular computer, for $40.00. You can also get the cable and a null modem adapter from your Radio Shack Computer Center for $30 each, (a $60 total).

To use DISK+ you just place the diskette into the disk drive and power up. (Some computers require that you turn the power on prior to placing the diskette into the drive, or that you enter the date. Specific startup instructions for your particular computer are given both in the step-by-step tutorial, Chapter III, and in the Special Instructions Chapter for your desktop computer.)

You don't need a monitor. Your Model 100 screen shows the function key labels and file directories, so you do all your input by looking at the Model 100 screen. If you

have a monitor connected to your other computer there are some messages that appear such as "Sending a file" or "Receiving a file", but you don't need these to work the program.

Memory requirement: The DISK+ program absolutely uses no RAM on the Model 100. Not only does it consume none of your precious RAM to run, but it also provides you vast storage on diskettes with virtually instant retrieval. So you never have to worry about running out of memory again.

Here's how easy it is to use:

From the main menu you just place the cursor on DISK+ and press ENTER.

Immediately you are shown the RAM directory, called Ram Files. This looks just like the main menu except that it doesn't show the resident programs like TEXT or SCHEDL. You can move the wide bar cursor from file to file with the arrow keys, or the spacebar. Along the bottom of the screen are displayed function key labels that describe what you can do from the RAM directory. While on the top line of the display is the amount of RAM that you currently have free. From the RAM directory many functions can be done;

1. You can move immediately to view the Disk directory - press function key F1--Disk. More will be explained about the Disk Menu later.

2. You can save any RAM file to diskette by putting the wide bar cursor on the file name and pressing ENTER.

3. You can rename any file in RAM. Simply place the wide bar cursor on the file you wish to rename, and press F2--Name. The screen will prompt you to

type in the new name.

4. You can reset the communication Stats that DISK+ is currently using. Just press F3--Stat. This does not affect your current TELCOM status.

5. You can learn the size in bytes of any RAM file - press function key F4--Size. You can also use this handy feature anytime without being connected to another computer.

6. You can kill a file in Ram with F5--Kill. The screen prompts you with: Sure? Typing "Y" deletes the file from the Ram menu, any other key aborts the kill.

7. You can save all files presently in RAM under a single file name (called a subdirectory, SD) on the diskette. You press function key F6--SvAll and then confirm by pressing Y. You then give the group of files a subdirectory name (this name will be on the disk directory with the extension "SD"). Pressing ENTER then saves all the RAM files to diskette as the wide bar cursor quickly moves automatically from file name to file name.

8. You can save single files to an already saved sub directory, but you have to go to the disk directory first for this. We discuss this in the next section.

8. You can return to the main menu from DISK+ anytime. Just press F8--Menu.

Function key F1 shows you the Disk directory, called Disk Files. This is also arranged just like the main menu, and you can move the wide bar cursor from file to

file with the arrow keys. If you haven't saved any files to your diskette all the directory spaces will be blank. If you have saved files from RAM they appear the same as on the main menu. But in addition to the ".DO", ".CO", ".CA" and ".BA" extensions you will have ".SD" extensions. These SD filenames, as we described earlier, are created when you do a "Save all" of the files on any RAM directory menu. Each "SD" filename represents a subdirectory of up to 18 separate files. This is convenient if you are working on a particular project, or if different people are using the same Model 100. By using the "Save all" you can keep all your files together under one subdirectory, and then load them back into the Model 100 when you would like to continue your work, or a specific project.

Here's what you can do from the Disk directory:

1. You can Load any single file, (".DO", ".BA", ".CA" or ".CO") from diskette to RAM by just placing the cursor on the desired file and pressing ENTER.

2. You can go back to the RAM directory with F1--Ram.

3. You can Load an entire SD subdirectory into RAM in one action. Place the cursor on the desired SD filename and press F6--LdAll. When you confirm with Y, the entire sub directory replaces what you previously had in RAM, so you should "Save all" of your files in another SD from the RAM directory before doing a "Load all".

4. You can go into a SD subdirectory by placing the cursor on a SD file and pressing ENTER. The subdirectory's menu

is shown, and is also arranged like the main menu. The only difference is that you're reminded that you are using a SD subdirectory by a "USING:xxxxxx.SD" prompt near the bottom of the screen.

From a subdirectory, you can:

A. Load a single file from the subdirectory, with ENTER.

B. Load the entire subdirectory with F6--LdAll, as before.

C. You can Kill any file in the subdirectory with F5--Kill. You can also get the size of a file with F4--Size.

D. You can save a single file from RAM into the subdirectory. You first go to RAM with F1. You are shown the Ram directory, but with the prompt: USING:xxxxx.SD at the bottom indicating that you are still in a subdirectory. Press ENTER to save a file in the SD file. Pressing F1 once more sends you to the Disk directory, but you no longer are using the subdirectory.

E. Naturally, you can go to the Main menu with F8.

From the Disk directory, (continued).

5. You can kill a file, or a SD subdirectory with F5--Kill. You must confirm with "Y".

6. You can size a file with F4--Size.

7. You can return to the main menu with F8--Menu.

DISK+ gives you enormous storage capabilities. A typical double-sided diskette allows you to store 300K bytes or more of programs, text files, and machine code or calcsheet files. Freedom from the slow and often unreliable cassette player makes the the Model 100 is truly more functional and useful computer.

Files are transferred at the highest baud rate feasible for your other computer. Most transfers are done at 9,600 baud (about 1000 characters per second). Compared to the 1200 baud of the cassette recorder, this is virtually instantaneous. Full error checking means that programs are ready to run and text files are exactly as you prepared them. The error checking is accomplished by checking each block of data that is transferred and if any character is not correct, that block is retransmitted automatically until it is verified as being correct. Because the speed of transmission is so rapid, the user never notices when a line has to be retransmitted.

Some Model 100 owners are purchasing inexpensive computers (such as used Apples at nominal prices) to use with DISK+, so they can have their own Model 100 disk drive. Since you only need one disk drive, and you don't need a monitor, (you can use an old TV if you like), such an approach can be very affordable.

Another exciting feature of DISK+ is the File Transfer Utility. You can convert one of your other computer's text files to Load into your Model 100, or convert a Model 100 text file to run on the other computer. You simply press ESC on your other computer, and you are shown the "File Transfer Utility" menu on the other computer's monitor. Screen instructions are completely

self-explanatory. You can quickly convert a file you prepared on your Model 100 for use with your other computer's word processing program (spelling checker, etc.), or convert a file from your other computer to work with on your Model 100. In Chapter IV are complete instructions for using this utility.

In the following chapters are step-by-step instructions for installing the DISK+ ROM, and then how to use DISK+ explained in a step-by-step tutorial fashion. Since DISK+ uses the Model 100 main menu concept, it is easy to learn and use. For many people, these tutorial instructions are not really needed, but you'll find that they are complete and certainly useful for reference purposes.

CHAPTER II
INSTALLATION

A. Make sure that you have a backup copy of all the important files in your machine. Normally you will not lose any data when installing your DISK+ ROM, but it is best to be safe.

Turn off your Model 100 (the regular power switch on the side, NOT the Memory Backup switch on the bottom). Spread a towel or cloth on a table or other flat surface, then turn your Model 100 over and lay it upside-down on the cloth, with the TRS-80 logo facing you. Pry off the cover in the center at the bottom. You can use a screwdriver or a pocket knife, or a dime will do.

B. There are two sockets under the cover. One is a long, flat one with two parallel sets of holes. This is the system bus.

The other is nearer the edge of the computer. It is a raised black socket with a row of silver contacts down the inside of each edge. This is the option ROM socket. Note that at one end of the socket there are two notches, and at the other end there is only one notch, in the center. It is important that the ROM be installed in the correct orientation.

C. Take the DISK+ ROM, and inspect it. The ROM is mounted on a tiny circuit board. You will notice that at one end of the board there is a little projecting square. You install the ROM with the label facing outwards (up), and with the projecting square on the end of the ROM fitting into the single notch on the end of the ROM socket.

Press the ROM into the socket firmly with both thumbs. It will make a small clicking noise as it snaps in. The surface of the ROM will be almost flush with the ROM socket. Don't replace the cover yet; turn the computer over so you can see the screen.

D. Switch the computer on. If you don't see the main menu switch the Model 100 off again, remove the ROM and reinstall it carefully following the instructions above.

STARTING A ROM

E. When you see the main menu, place the wide bar cursor on BASIC and press ENTER. When you see the Ok prompt type in the following

CALL 63012

And press ENTER. Immediately you should see the Ram Files menu of DISK+. If you don't, switch off the computer, remove the ROM, and reinstall it carefully following the instructions above.

F. When you see the Ram Files menu of DISK+, press F8 to return to the main menu, where you will see DISK+ appear just like the built in programs.

G. That's all there is to it. You can replace the cover on the back of the Model 100.

DIFFERENT ROMS

If you use other ROMs from PCSG, (like the Lucid ROM spreadsheet or the WRITE ROM, word processing program), the ROM name on the menu will not change when you change ROMs until you select the ROM program at the main menu by pressing ENTER. Although the old ROM's name was on the menu, you will find

yourself running the new ROM you just installed, and when you exit back to the main menu, the name will have changed to the new one automatically.

ROM REMOVAL

If you wish to remove the ROM and not replace it with another from PCSG, you will have to remove the name from the main menu before taking out the ROM. Go into BASIC, and type the following:

```
CALL 63012,0,9
```

This will remove the ROM name from the menu, and you can now simply take out the ROM. Grasp firmly on both ends of the ribbon and pull evenly on both ends simultaneously until the ROM pops out.

SPACER

Glued to the bottom of the ROM cartridge is a red (or clear) spacer. This spacer is important to the ROMs operation, and should never be removed from the ROM cartridge by the user.

CHAPTER III

STEP-BY-STEP TUTORIAL

This chapter is a step-by-step tutorial of how to use DISK+. Before you use the program you will need to have copies of the DISK+ Source diskette. You can't just use a blank diskette, because there is a DISK+ program on the diskette as well as in your Model 100. These two programs work together to control your file transfers. The process of making diskette copies is sometimes called "making backups".

Near the end of this manual are Special Instructions for your particular computer that explain how to backup the DISK+ diskette. You could also refer to the operating manual for your computer, but we include these directions because we know that sometimes more detailed step-by-step instructions are desirable.

Also in those Special Instructions are certain procedures which are necessary to setup your computer for use with DISK+; cable considerations, serial port details and the like. Even if you already know how to make backups of the DISK+ diskette, please read the appropriate chapter before proceeding with this Step-by-step Tutorial.

1. Connect your Model 100 to your other computer by means of an RS232 cable with a null modem adaptor (a plug that fits on the end of the cable). Connect your 2 computers at this time. Make sure that you plug into the correct serial communications port of the other computer.

2. You don't need to have your monitor connected to your other computer. The DISK+ program is worked from your Model 100 screen. If you have a monitor connected you

will observe some screen messages when files are being transmitted or saved and when the program is awaiting a command. You will need a monitor to use the File Transfer Utility, explained in Chapter IV.

3. RUNNING DISK+. Since computers are different there is a sequence to be followed for each one. Make sure that you have made a copy of the DISK+ Source diskette, as explained in the Special Instructions chapter that applies to your desktop computer. Brief instructions for running DISK+ are given here for continuity purposes, more elaborate procedures are given in the Special Instructions chapters.

APPLE II, II+, IIe: Place the diskette labeled DISK+ in the disk drive and turn the power on. If you have two drives use drive 1. DISK+ will run automatically. If your Apple is already on, type PR#6 and press ENTER to run DISK+.

TRS-80 Model I: Insert the diskette into drive 0. Place a formatted diskette (datadisk) in drive 1. Turn on the Model I. Type in the date and time. At the TRSDOS Ready prompt, type DISKPL and press ENTER.

TRS-80 Model II, 12 or 16: Insert the diskette, turn the computer on and set the time and date. At the TRSDOS Ready prompt, type DISKPL and press ENTER.

TRS-80 Model III: Insert the DISK+ diskette in drive 0. Turn on the Model III, set the date, and DISK+ will run automatically. If the Model III is already on, type DISKPL and press ENTER.

TRS-80 Model 4: Insert the DISK+ diskette in drive 0 and turn the power on (or press RESET). DISK+ will run automatically.

Color Computer: Turn on the CoCo, then place the DISK+ diskette in drive 0. At the Ok prompt, type RUN"DOS and press ENTER. When the screen presents the DOS options, select number 2 (to run a program). Type DISK+ and press ENTER.

MS-DOS Computers: (Including IBM PC, PC XT, Tandy 1000, 1200, 2000, Compaq, etc.) Insert the DISK+ diskette in drive A: and turn the power ON. Set the date and time, DISK+ will run automatically. If the computer is already on, type DISKPL and press ENTER.

6. Turn on your Model 100. At the main menu, place the cursor on DISK+ and press ENTER.

7. The screen shows the RAM directory as follows:

```
Ram Files   (8439)  DISK+  2.0  (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA WRITE+.BA FILEMN.CO CORTNS.CO
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-
Disk Name Stat Size Kill Svall      Menu
```

(Naturally, your menu will vary depending on the files and programs in your computer). Notice this directory looks like the main menu, except it doesn't show the resident programs like TEXT, TELCOM or SCHEDL. In the center at the top is the amount of free RAM in your Model 100. To go to the main menu, press F8--Menu.

8. Function key F3 says "Stat". You will need to press this key to set the communications parameters (Stats) for your desktop computer.

SETTING COMMUNICATION STATS

(Following is an explanation of what the Stats are, and what they mean. Beginners may skip down to HOW TO DO IT).

The most complicated part of getting two computers to communicate with each other via a serial link (or RS232) is the cabling. Running a close second is the low-level protocol. The Model 100 calls this protocol the 'Stats' in TELCOM, so we do the same. The Stats is not the entire protocol that DISK+ uses; DISK+ has a high-level protocol that ensures that no errors are made in file transfers. But DISK+ can not work at all unless the Stats are right. It doesn't really matter what the Stats are set to, provided that they match on the two devices. Since it is difficult to change the Stats on most computers, we have made it easy to change the Stats on the Model 100 to match whatever the other computer expects. The Stats are explained in the Model 100 User Manual under Telcom Communications Parameters and BASIC Input/Output.

Briefly, the Baud rate is the speed of communication, equivalent to bits per second.

Word length is the number of data bits per character (or Byte). DISK+ uses a 7-bit word, except on CP/M computers which require 8 bit words.

Parity describes the number of 1 bits in a data word. Parity can be None, Ignore, Even, or Odd. DISK+ does not use the Parity bit, so we set it to None.

DISK+ always uses 1 stop bit.

DISK+ does not need XON/XOFF, so it doesn't matter whether this is Enabled or Disabled.

HOW TO DO IT

When you press F3--Stat from the RAM Files Menu, you are offered a choice of the three most common setups:

```
F1    Most computers:  87N1E
F2    Most CP/M      :  88N1D
F3    Apple II       :  97N1E
Or    Type your own  :  _

   Current setting is 87N1E
```

Your current setting is displayed on the bottom of the screen.

To change your settings, press one of the function keys 1 through 3, or type in the stats of your choice and press ENTER.

Press F1 for all MSDOS and TRSDOS computers.

F2 is for most CP/M computers, except the Osborne (58N1D).

F3 is for the Apple II, II+ and IIe.

If you need something different, just type it in and press ENTER. It works, just like Stat in TELCOM. If what you typed isn't a valid setting it will beep and prompt you to type it again. M for Modem is not allowed with DISK+.

Your new setting will not be changed by TELCOM, and will not change the current TELCOM Stats. You only need to change your Stats once. DISK+ remembers them from then on, unless you cold start your computer, or unless you use both an Apple II and IBM, for instance. Then, you'd have to change the stats whenever you change computers.

9. We will go through the process of saving a single RAM file to diskette and then saving all the RAM files in a group to diskette. This lesson is most effective if you have some files in RAM with which to practice. You might want to load files from cassette or create some if you have a blank menu.

Before we save we will look at the Disk directory. Press F1--Disk. The Disk drive will spin, then the Disk directory will appear. Notice all the entries are blank.

```
Disk Files          2.0 DISK+ (C)PCSG
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-
Ram  Load       Size Kill Ldall     Menu
```

IMPORTANT: If there is no response when you press F1, except that the top line of the Model 100 screen says Disk Files, then turn to COMMON USER ERRORS, Chapter VI.

Notice that when you are looking at the Disk directory the F1 label says Ram, where on the RAM directory F1 said Disk. Press F1 to take you back to the RAM directory. F1 switches you back and forth between Ram Files and Disk Files.

10. Now we will go through the process of saving from Ram to Disk. Make sure you are in the Ram Files directory, then move the wide bar cursor with the arrow keys to a file you wish to save on diskette. You can save any kind of file; BASIC (.BA), TEXT (.DO), machine code (.CO), or Lucid calcsheet (.CA). For our example we will put the cursor on WRITE+.BA. (The excellent word processing program from PCSG. Soon to be released on ROM.)

Press ENTER. You will hear the diskette drive whir and the red light on the drive will go on. On the Model 100 screen the labels will disappear and the message Saving WRITE+.BA (or whatever file name) will appear for just a moment. If you have a monitor connected you will see the message "Receiving a File" appear.

11. When the save is complete the labels at the bottom of the screen return, and the monitor will say Awaiting Command.

12. Now press F1--Disk to look at the Disk directory:

```
Disk Files              DISK+  2.0 (C)PCSG
 WRITE+.BA -.-           -.-         -.-
 -.-       -.-           -.-         -.-
 -.-       -.-           -.-         -.-
 -.-       -.-           -.-         -.-
 -.-       -.-           -.-
Ram              Size Kill Ldall      Menu
```

Notice that the file we saved is now on the Disk directory. Press F1 again to return to the RAM directory.

13. Now we will save all your RAM files to disk as a group. Press F6--Svall.

14. Labels disappear and on the bottom of the screen it says:

```
Ram Files     (8439)  DISK+  2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA WRITE+.BA FILEMN.CO CORTNS.CO
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-

 Save all files  Are you sure?
```

Type Y for yes.

15. Along the bottom the screen says:

```
Ram Files    (8439)  DISK+  2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR.BA   WRITE+.BA  FILEMN.CO CORTNS.CO
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-

Enter .SD name:
```

16. Type in a filename. For illustration purposes we will put in the name EXAMPL. You can type in lower or upper case, it doesn't matter. Sometimes a date is appropriate, like F12/15. (The first character must be an alphabetic character, a, b, c, etc.) After you type the name, press ENTER.

17. The wide bar cursor moves automatically from filename to filename and then stops at the last one. If you have a monitor connected, when the saving is complete the screen will say "Awaiting Command". At this point you can now move the cursor with the arrow keys. While the saving is in progress you will notice that you can't use the arrow keys. Actually, you can use them, but the program will not respond until the previous action is complete. Turn to QUEUEING, in Additional DISK+ Information (Chapter V), for more on this.

18. Now press F1 to look at the Disk directory.

```
Disk Files             DISK+ 2.0 (C)PCSG
 WRITE+.BA EXAMPL.SD   -.-       -.-
 -.-       -.-         -.-       -.-
 -.-       -.-         -.-       -.-
 -.-       -.-         -.-       -.-
 -.-       -.-

Ram          Size Kill Ldall     Menu
```

You can see that there is a file saved on the Disk directory titled EXAMPL.SD. In a moment we will take a look to see if all the files that were in RAM are there, and we will explore what we can do with the subdirectory.

19. Now press F1 to go back to the RAM directory to study the other actions that can be taken from the RAM directory.

NOTE: The next several features, Name, Stat, Size and Kill work without your Model 100 being connected to another computer. You'll find them quite useful.

20. On the Ram Files directory put the cursor on any file (we chose FILEMN.CO) and press F2--Name. The label line on the bottom will clear, and the prompt

Enter new name: _

will appear in it's place. Simply type in the new name, up to six characters. Don't type in an extension (.CO or whatever), DISK+ will add the extension automatically. It should be noted also that you cannot rename a file on Disk with this key.

21. F3--Stat is explained in the section SETTING COMMUNICATION STATS, Step 8. Do not press it now.

22. On the RAM directory put the cursor on any file (we chose WRITE+.BA) and press F4--Size. The screen immediately displays the size of the file in bytes in the lower left corner.

```
Ram Files     (8439)    DISK+ 2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA  WRITE+.BA  NWNAME.CO CORTNS.CO
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-       -.-
 -.-        -.-

Size = 3237
```

NOTE: With the Size function, the function key labels will not reappear on the bottom line of the screen unless you press the LABEL key, or one of the other function keys. This allows you to view the size of a file at your liesure, instead of the size only "blinking" momentarily on the screen and then disappearing. This applies to sizing a file on Disk as well, described later in this chapter.

23. With the cursor on the same file press F5--Kill. The function key labels disappear and the screen says:

```
Ram Files     (8439)    DISK+ 2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA  WRITE+.BA  NWNAME.CO CORTNS.CO
 -.-        -.-        -.-       -.-
 -.-        -.-        -.-       -.-
 -.-        -.-

Kill WRITE+.BA  Are you sure?
```

Type Y for Yes. (If you type N or any other key you abort or cancel the kill). The moment you type Y the file is killed from RAM (and the main menu) and the file name disappears from the RAM directory.

At this time, so that we can be able to show how we load from diskette, kill, one-by-one, all the files you have on the RAM directory.

24. Here is a summary of what can be done from the RAM directory:

ENTER: Save a file to the Disk directory.

F1--Disk: Go to Disk directory.

F2--Name: Change the name of a file in RAM.

F3--Stat: Change the communication stats for DISK+.

F4--Size: Learn the size in bytes of any file in RAM.

F5--Kill: Kill any file in RAM. You must confirm with Y.

F6--Svall: Saves all files to Disk as a subdirectory. You must confirm with Y, and name the SD file with a filename of up to 6 letters.

F8--Menu: Takes you back to the main menu.

25. Press F8 to go to the main menu.

Later we will be illustrating how to add a single file from RAM into an existing subdirectory on the disk. In order to do that go into TEXT now, and start a new file called TESTA. Type a few lines of text of your choice, and then press F8 to go back to the main menu.

Then, put the cursor on DISK+ and press ENTER.

26. You are shown the DISK+ Ram directory. Press F1--Disk.

27. The Disk directory appears. If you are

using a monitor, the monitor screen will say "Sending Directory", as it comes across.

28. Note that the Disk directory shows the single file we saved as well as the subdirectory name.

```
Disk Files              DISK+ 2.0 (C)PCSG
 WRITE+.BA EXAMPL.SD -.-        -.-
 -.-       -.-       -.-        -.-
 -.-       -.-       -.-        -.-
 -.-       -.-       -.-        -.-
 -.-       -.-

Ram              Size Kill Ldall     Menu
```

29. Now we will load a single file from the disk to RAM. You will recall that we killed the WRITE+.BA file from RAM earlier back on step 23. Let's now load this file from the diskette back to RAM.

30. Put the cursor on the file to load (WRITE+.BA) and press ENTER.

31. The function key labels on the bottom of the screen disappear and the message "Loading WRITE+.BA" appears.

```
Disk Files              DISK+ 2.0 (C)PCSG
 WRITE+.BA  EXAMPL.SD -.-        -.-
 -.-        -.-       -.-        -.-
 -.-        -.-       -.-        -.-
 -.-        -.-       -.-        -.-
 -.-        -.-

Loading WRITE+.BA
```

32. If you are using a monitor the monitor says "Sending a File". When the Load is complete, the function key labels will reappear on your Model 100.

33. Using F1 you can go back to the RAM directory and see that the file we just

loaded is there, or using F8, you can go to the main menu to check it out. In either event, after you have checked, get back to the Disk directory.

34. Just like with RAM directory, from the Disk directory we can get the size of a file. You can only get the size of a single file. When you put the cursor on the subdirectory file (SD) and press F4--Size, you will get the message:

M100: File is .SD

You can't size a SD file directly, you must first Load (with ENTER) the subdirectory, then size each file separately.

Put the cursor on the single file on the Disk directory and press F4--Size. In the lower left of the screen appears,

Size = 3237

35. We will now kill a single file from the Disk directory. We will kill WRITE+.BA. We can also kill a entire subdirectory. We will do this later. Put the cursor on the single file and press F5--Kill. Labels disappear on the bottom of the screen. The screen says

Kill WRITE+.BA Are you sure?

Type Y. (If you change your mind you could type N or any other key instead of Y, and the file would not be killed.) In a moment the Disk directory reappears, without the killed file.

36. Now we will examine the subdirectory and what we can do with it. Put the cursor on the subdirectory (SD) filename and press ENTER. You are then shown the subdirectory menu.

```
Disk Files                DISK+ 2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA WRITE+.BA FILEMN.CO CORTNS.CO
 -.-        -.-        -.-        -.-
 -.-        -.-        -.-        -.-
 -.-        -.-
Using: EXAMPL.SD
Ram              Size Kill Ldall      Menu
```

Note the message on the screen,

```
Using: EXAMPL.SD
```

37. Remember, these SD files are all the files that we saved earlier when we did a save all (F6--Svall) from RAM in steps 13-17. They are now grouped together and saved as a single subdirectory.

38. Loading a file to RAM from a subdirectory. Place the cursor on one of the files (we chose W+SPEC.DO), and press ENTER. The function key labels disappear and the screen looks like this:

```
Disk Files                DISK+ 2.0 (C)PCSG
 GAME.DO    DON.DO     W+SPEC.DO TEST.BA
 TUTOR+.BA WRITE+.BA FILEMN.CO CORTNS.CO
 -.-        -.-        -.-        -.-
 -.-        -.-        -.-        -.-
 -.-        -.-
Using: EXAMPL.SD
Loading W+SPEC.DO
```

39. When loading is complete the function key labels reappear. That file is now in your RAM (and your main MENU). You can check by pressing F8 now, or just wait until the next step where we will view the RAM directory for another reason.

40. Just as we did on the RAM directory (step 22) and on the Disk directory (step

34), you can also learn the size for any file in the subdirectory by pressing F4--Size.

Put the cursor on one of your files in the subdirectory. Press F4. Observe that the function key labels disappear and the size is shown in the lower left of the screen.

41. F5--Kill also works for the subdirectory menu just like on the RAM directory and the Disk directory. Place the cursor on any file in the subdirectory and press F5. Answer Y to the question at the bottom of the screen:

```
Kill FILE.XX  Are you sure?
```

After a moment the subdirectory menu returns. Notice the file you killed is gone.

42. Now we will add a single file to the subdirectory from RAM. Remember the TESTA file we created earlier back in step 25? We will add this to our subdirectory, EXAMPL.SD.

43. Press F1--Ram. Now we see the RAM directory, but notice that we are still using the subdirectory.

```
Ram Files                  DISK+ 2.0 (C)PCSG
 TESTA.DO  W+SPEC.DO TEST.BA    WRITE+.BA
 FILEMN.CO -.-       -.-        -.-
 -.-       -.-       -.-        -.-
 -.-       -.-       -.-        -.-
 -.-       -.-
Using: EXAMPL.SD
Disk              Size Kill Svall      Menu
```

Notice the single file, W+SPEC.DO, we loaded from the SD is now in RAM, along with the single file, WRITE+.BA, that we loaded from the main Disk directory.

44. Now put the cursor on TESTA.DO and press ENTER. Labels disappear and "Saving TESTA.DO" appears. This file will go into the SD subdirectory, rather than the main Disk directory.

```
Ram Files     (8934)   DISK+ 2.0 (C)PCSG
 TESTA.DO  W+SPEC.DO TEST.BA   WRITE+.BA
 FILEMN.CO -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-
Using: EXAMPL.SD
Saving TESTA.DO
```

45. Press F1 and we go all the way back to the Disk directory, completely out of the subdirectory.

46. Next we illustrate loading an entire subdirectory in one step from either the Disk directory or the subdirectory menu.

REMEMBER: Whenever you do a load all (F6--Ldall) you completely replace all files in RAM with those in the subdirectory you are loading. If you want to keep any you should create a subdirectory of your current files as described in steps 13-17.

47. Put the cursor on the SD filename and press F6--Ldall.

```
Disk Files              DISK+ 2.0 (C)PCSG
 TESTA.DO  EXAMPL.SD  -.-       -.-
 -.-       -.-        -.-       -.-
 -.-       -.-        -.-       -.-
 -.-       -.-        -.-       -.-
 -.-       -.-

Load all files  Are you sure?
```

Type Y for yes.

48. All files in that subdirectory are loaded into RAM. The drive runs on and off as each file is transmitted.

49. You can do this same procedure from within the subdirectory. To practice, press F1 twice to return to the main Disk directory, then put the cursor on the SD filename. Press ENTER. You now see the subdirectory menu and "Using EXAMPL.SD" appears. Press F6--Ldall. The screen says

Load all files Are you sure?

Type Y. The cursor moves automatically from filename to filename until the Ldall is completed.

50. Back on step 35 we talked about using F5 to kill a file. We killed a single file and now we will kill an entire subdirectory. Press F1 twice to take you back to the main Disk directory. Put the cursor on EXAMPL.SD and press F5--Kill.

```
Disk Files                DISK+ 2.0 (C)PCSG
 TESTA.DO  EXAMPL.SD -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-
```

Kill EXAMPL.SD Are you sure?

Type Y. The subdirectory filename disappears when the kill is complete. This may take several seconds, as DISK+ kills each file individually.

51. Here is a summary of what can be done from the Disk directory:

F1--Ram: Go back to the RAM directory.

ENTER: Load any single file to RAM.

F4--Size: Learn the size of single file.

F5--Kill: Kill any single file or entire subdirectory. You must confirm with Y.

F6--Ldall: Load an entire subdirectory into RAM - replaces all files in RAM. You must confirm with Y.

F8--Menu: Go to main menu.

ENTER: When the cursor is on a SD file, this key allows you to view the subdirectory menu.

52. Here is a summary of what you can do from any subdirectory menu:

F1--Ram: Access the RAM directory while still using the subdirectory, so you can save any file (with ENTER) from RAM into the subdirectory.

ENTER: Load a single file to the Ram menu.

F4--Size: Learn the size of any file in the subdirectory.

F5--Kill: Kill any file in the subdirectory. Confirm with Y.

F6--Ldall: Load the entire subdirectory to RAM, replacing all files there. Confirm with Y.

F8--Menu: Go to the main menu.

53. Here again, to be complete, is a summary of what can be done from the RAM directory:

ENTER: Save a single file to Disk.

F1--Disk: Go to DISK directory.

F2--Name: Change the name of a file in RAM.

F3--Stat: Change the communication stats for DISK+.

F4--Size: Learn the size in bytes of any file in RAM.

F5--Kill: Kill any file in RAM. Confirm with Y.

F6--Svall: Saves all files to Disk as a subdirectory. Confirm with Y, and name the SD file with a filename of up to 6 letters.

F8--Menu: Takes you back to the main menu.

CHAPTER IV

FILE TRANSFER UTILITY

HOW TO USE DOCUMENTS ON YOUR OTHER COMPUTER

DISK+ stores your text files in a format other than the format that your other computer uses. You can transfer files from your DISK+ diskette and use them on your other computer, (or vice versa), with the FILE TRANSFER UTILITY of DISK+. There are several reasons why you would want to do this. One is if you have a text file that you have prepared with your other computer's text editor, and wish to work with it on your Model 100. Or, you might have a file in your Model 100 that you wish to run through a spelling checker program on your other computer, then bring back to your Model 100.

To use the File Transfer Utility, on the other computer's keyboard press Escape (ESC). On the Model 4, press and hold down the BREAK key until the file transfer menu appears. On the Model I and III hold down the CLEAR key. If your computer has none of these keys, hold down the "+" key (SHIFT =). The Color Computer has a quite different File Transfer Utility--see the section on the CoCo for how to transfer files with the CoCo.

The screen will say

File Transfer Utility

1 - Transfer a DOS file to a DISK+ file
2 - Transfer a DISK+ file to a DOS file
3 - Return to DISK+
4 - Exit from DISK+
5 - Set Default Drive (TRS-80 only)

Which is your choice?

NOTE: The screen messages may vary slightly depending on the type of computer you use, Apple, IBM, TRS-80, CP/M, etc. The program works the same way for them all. When we refer here to a DOS (Disk Operating System) file, it applies to the others as well. There might also be additional information on the File Transfer Utility in the Special Instructions chapter for your other computer(s).

First we'll give a brief description of what each option does, then we will explain in detail how to use them.

1 - Transfer a DOS file to DISK+ file: This allows you to transfer a file from your other computer to your DISK+ diskette, where you can Load it into your Model 100.

IMPORTANT NOTE ON ASCII FILES

DISK+ can only transfer ASCII TEXT files from the other computer's system into your Model 100. ASCII stands for Americam Standard Code for Information Interchange. This type of file conforms to certain industry standards, and is USUALLY, (but not always), the type of file that word processing programs manipulate. There is simply no way that DISK+ can know which format your other program creates (there are dozens), nor understand the non-standard control codes the programs insert and other things that some programs do to a file.

Word processing programs that don't use ASCII files usually take an ASCII file (like your Model 100 and DISK+ uses) and convert it to their own format while you use it (edit, print, etc.). They also have the capability to OUTPUT in standard ASCII format; this is what you'll have to do before you can transfer the file to your

Model 100.

Your program might use ASCII. If the files it creates are stored with a TXT extension (.TXT or /TXT), then it probably does. We recommend you just try transferring a file, and then look in your other program's manual, or talk to your dealer for instructions on how to output in ASCII format if it doesn't work right.

2 - Transfer a DISK+ file to a DOS file: This allows you to transfer a file from the DISK+ diskette onto a diskette (in ASCII format) for you to use with your other computer, where you can check the spelling, or whatever. You shouldn't try to use a DISK+ file directly.

3 - Return to DISK+: This allows you to quit the file transfer utility, and return to DISK+ (Awaiting Command), where you transfer files with the Model 100 normally.

4 - Exit from DISK+: This allows you to return to the System (DOS) of your other computer, exiting DISK+ completely.

5 - Set Default Drive: TRS-80 computers (except CoCo and MSDOS models) have an extra option, Set Default Drive. This allows you to change the drive that DISK+ will use whenever you get the directory, load or save a file, or size or kill a file. Make sure that you specify a drive that exists and is on-line.

Other computer's default drive can be set before you run the DISK+ program. See your DOS or CP/M manual.

To select an option, simply type 1, 2, 3, or 4 (or 5 for TRS-80). You will immediately proceed with your choice.

On the following pages are detailed explanations of how to use each option.

1. Transfer a DOS file to DISK+ file

A. To select this option, type 1. Then, the screen says

```
We need to select a DOS file.
Lets read the file directory.
What drive will we read from? (A/B...):
```

NOTE: This message will vary, (1/2) for Apple, (0/1) for TRS-80.

B. Type the letter (or number) of the drive where the DOS files are located. Press the spacebar to use the current default drive (whichever drive to which all disk accesses are made).

C. The screen shows the DOS directory.

```
Select a DOS file to transfer
   to the DISK+ directory.

A - filename
B - filename
C - filename

Space bar for more files, Escape
key for menu, Letter to select a file
```

If you need to see more files, press the spacebar. ESC sends you back to the File Transfer menu.

D. Type the letter next to the name of the file that you wish to transfer. The name appears momentarily on the bottom of the screen, then the screen says

```
Select the DISK+ directory that
will receive the transferred file.

0 - Main directory
A - xxxxxx.SD      B - xxxxxx.SD
C - xxxxxx.SD

Which is your choice?
```

E. We are selecting where on the DISK+ diskette the transferred file will be placed. Type 0 (zero) for the main directory, or a letter for one of the SD subdirectories. (If you have no subdirectories, none will be shown. You must then type 0 for the main directory.)

F. As soon as you select the directory that will receive the transferred file, the screen says

```
We are creating an Model 100 file.
Type the Model 100 filename:
```

You must type a filename of up to 6 letters, and press ENTER. The first character must be alphabetic (A-Z), the rest may not contain a period. The extension ".DO" is added automatically by DISK+.

The file is then transferred to the DISK+ diskette, where you can Load it into your Model 100, as explained earlier. As it is transferred, the disk drives whir, one at a time. When the transfer is complete, you return to the File Transfer menu.

Some versions of DISK+ allow you to use the DOS file name as the Model 100 (DISK+) file name. If so, just follow the prompts, pressing ENTER without specifying a name keeps the name the file already had. If your screen has no such prompt, you must type in the name you'd like the file to have.

2. Transfer a DISK+ file to a DOS file

A. To transfer a DISK+ file to your other computer, type 2. The screen says

```
Select the DISK+ directory that
contains the M100 file to transfer

0 - Main directory
A - xxxxxx.SD        B - xxxxxxx.SD
C - xxxxxx.SD

Which is your choice?
```

B. Type the letter next to the directory that contains the file that you wish to transfer. 0 (zero) selects the main directory. If you have no SD directories, you must type 0 for the main directory.

C. Then, the screen says

```
Select a DISK+ file to transfer
to the DOS.

A - xxxxxx.DO        B - xxxxxx.DO
C - xxxxxx.DO        D - xxxxxx.DO

Which is your choice?
```

D. Type the letter next to the filename that you wish to transfer. Only files in the selected subdirectory will be displayed.

NOTE: Only document files (.DO files) are displayed on the screen, because DO files are the only files you can transfer to the DOS. ".BA", ".CO", ".CA" and ".SD" files are exempt. If no files are listed, then the DISK+ diskette contains no DO files.

E. The screen says

```
The Model 100 file has been selected.
Lets transfer to a DOS file.
Which drive will we write to? (A/B...):
```

E. Type in the letter (or number) of the drive where you wish the transferred file to go. Then, the screen will say

```
We are creating a DOS file.
Type the DOS filename:
```

F. Type the file name in the style that is acceptable to the particular computer you're using, and press ENTER. Generally, you must not use periods or colons, and the first letter must be alphabetic (A-Z). Special characters like "?", "/", or "*" may or may not be legal on your system.

Some versions of DISK+ allow you to just press ENTER to use the same DISK+ name as the DOS name. If so, the screen prompt will show the DISK+ name of the file, and state that you can press ENTER to use it as a DOS name.

G. While the file is transferred, the disk drives whir. When the transfer is complete, you are returned to the File Transfer menu.

3. Return to DISK+

Typing 3 at the File Transfer menu will return you to DISK+, where you can transfer files to and from your Model 100.

4. Exit from DISK+

Typing 4 at the File Transfer menu will return you to the operating system (DOS) of your other computer.

With CP/M, you need to have a CP/M system

disk in the default drive when you exit DISK+, (as well as most other programs).

In addition, you can press ESC, (or BREAK, CLEAR or "+") at any time in the DISK+ program to return to the File Transfer menu.

5. Set Default Drive

This feature, implemented on certain TRS-80 models, allows you to tell DISK+ to search for files on a drive other than 0:, (or 1: on the Model I), whenever you load or save a file, get a directory, or size or kill a DISK+ file.

This is required for:

A. Hard disk drives, where the partitions of the hard disk is numbered.

B. Using floppy drive 1: as a datadisk, allowing you to store more DISK+ files on that disk by keeping TRSDOS and DISK+ in drive 0:, all your DISK+ files on drive 1:. You would then need to replace the datadisk (in drive 1:) less often.

C. Using externally attached disk drives.

To use this option, type the number 5 then the number of the drive you'd like to use. The drive you specify must be operational (on-line) before you use this option. See your DOS manual for more on Default drives and hard disks, since the procedure for setting them up varies greatly.

CHAPTER V
ADDITIONAL DISK+ INFORMATION
FILE MANAGEMENT HINTS

It should be noted that you can keep both DISK+ files, and DOS files on the same diskette. We recommend you keep them separate. DISK+ files are stored with the extension DSK, (.DSK or /DSK). Only DISK+ files will appear on the DISK+ directory, unless you transfer them to the DISK+ directory. See Chapter IV, option #1.

One time when it does make sense to keep both DISK+ and DOS files on one diskette is when you're editing a document with one computer, say an IBM, and formatting the document with the other computer, (with Scripsit-100, for instance). File names like DRAFTA, DRAFTB, etc., help to keep track of each successive revision. The DISK+ Name function (F2 from Ram Files menu) is a quick and easy way to rename files.

Some types of DOS files are exempt from being transferred, due to their non-text nature. Files with extensions like ".COM", ".BAS", ".EXE". "/CMD", "/BIN", and the like are included in this exemption. See your other computer's manual for more on file extensions and types.

BASIC PROGRAMS

We said before that you could not transfer BASIC programs with the File Transfer Utility; this is not quite so. If you use the

```
Save "file",A
```

option of Microsoft BASIC in the Model 100 (and many other computers), this will create

a ".DO" (ASCII) copy of the BASIC program. This ".DO" file CAN be transferred with the File Transfer Utility, and loaded (used) by the other computer's BASIC (or vice versa). It probably won't run correctly (some changes will be necessary), but it is easier than typing it back in from scratch!

The most common change needed is to put spaces between all keywords (AND, PRINT, THEN, etc). A complete guide to compatibilities is beyond this manual's scope, but this will get you started. See The Model 100 SAVE,A option, and your other computer's BASIC manual.

FILE NAMES

When you use F2--Name to rename a Ram file, or when you name a ".SD" subdirectory, there are some rules to follow.

1. There is a maximum of six characters per file name.

2. The first character must be alphabetic (A-Z). Upper or lower case, it doesn't matter. DISK+ will automatically make them upper case.

3. The remaining characters can be any characters except periods ".", or colons ":".

4. DISK+ will automatically add the proper extension (.DO, BA, CO, CA or SD) to the file name.

QUEUEING

As you become more proficient in the use of DISK+, you will begin to think out your next steps faster than your two computers can respond. DISK+ allows queueing (pronounced "cueing") of up to 16 instructions at once.

DISK+ remembers these instructions and will execute them automatically, in succession. This is similar to a "type-ahead buffer", meaning that you can enter your commands ahead of time and DISK+ will execute them when the previous instructions have been completed.

Simply proceed to key in Saves, Loads, arrow keys, Kills then Y's. You will need to be somewhat familiar with using DISK+, and have a good concept of what you want to do before attempting queueing. Queueing makes sense, for example, when you are performing an operation as: Saving a single file from RAM into a subdirectory, then killing the file in RAM, then opening a second subdirectory and taking several files out of the subdirectory into RAM. You will find many exotic combinations where queueing is very handy.

After you have gained some experience with queueing, you will find that it is quite easy to do, and you will be able to move very rapidly to Load and Save files and do complicated transfers more expeditiously.

A word of caution when you are doing queueing. Remember that when you kill a file (F5), then confirm with Y, that causes that file do dissappear from that menu. Therefore all the other entries after the killed file will "shift over" one place to the left on the directory. Make sure that you know where all the files will be before queueing Kills. Keep in mind that Kills are

permanent.

ALARM FEATURE

Often when transferring files to your other computer you will key in many commands, and find yourself waiting for the operation(s) to finish, and you might want to do something else in the meantime, on the other side of the room for instance. There is a handy feature of the Model 100 that will make your computer beep when it is finished with whatever operation(s) you have specified.

As your last DISK+ command, press F8--Menu. Then, press the DEL/BKSP key (in the upper-right hand corner of the Model 100's keyboard) several times. These Delete commands will be rejected by the main menu, producing beeping noises (alarms). You then know that it is finished, and you can proceed with whatever you'd like to do next. This handy alarm feature of the main menu also works with other programs.

INVISIBLE FILES

Invisible files (i.e., files that are present in the directory but do not appear on the main menu), are not recommended for use with DISK+. This includes CORTNS.CO, a machine code supplement to many PCSG programs. To make CORTNS visible on the menu, reload CORTNS from cassette as is described in the manual that accompanied the other program, then omit RUN 50, the last step of the loading instructions.

You can also call PCSG for your free copy of our FILEMN program, which has a feature that makes invisible files visible again.

Some programs can make your built-in programs BASIC, TEXT, TELCOM, SCHEDL, and

CHAPTER VI
COMMON USER ERRORS

There are two major categories of errors that you might encounter while using DISK+. The most common error is one caused by the Operating System of your other computer. This is caused by the DOS being unable to read a particular piece of data, or another type of Disk I/O error, or the disk becoming full. These errors vary widely between computers. Refer to your other computer's manual for aid in preventing this type of error.

The other type of error, which is more rare, is related to the operation of DISK+ in your Model 100. The Model 100 Operating System (and DISK+) is normally more reliable than the DOS of your other computer.

When an error occurs, the bottom line of the DISK+ screen will display an error message, and the Model 100 will beep. The error message will be preceeded by either of these prefixes:

M100:
PC:

These prefixes are an indication of where the problem lies. M100: means that the DISK+ in your Model 100 is the culprit. The prefix PC: means that the other computer is at fault.

When you see an error message, simply press any key and you can proceed with whatever you were doing. These errors are possible in DISK+.

1. No reaction when you press F1--Disk to look at the Disk directory. If you wait about 30 seconds without pressing any keys

this message will appear:

M100: Can't Load Dir.

CAUSE: Almost always caused by a bad connection between the two computers.

This is usually the result of the wrong kind of RS 232 cable being used, or by DISK+ being unable to open the serial port on the other computer properly. It can also be caused by incorrect Stats in DISK+. After DISK+ tries to perform an operation for about 30 seconds, it gives up and gives you this type of message.

FIRST: Make sure the other computer says "Awaiting Command" on the top of the screen, or DISK+ will not work.

SECOND: Check the serial communiations parameters. See SETTING COMMUNICATION STATS.

THIRD: Check the RS232 cable connection. Make sure you are plugged into the serial port of the other computer (the correct one if there is more than one).

FOURTH: Most computers require a NULL MODEM adapter installed in the cable. The exceptions are CORONA, OSBORNE, and APPLE. You can get a null modem adapter from Radio Shack. The cable we supply has a null modem built in, has the correct type of connectors, and is tested for the particular computer you specify.

If you made your own cable, take it back apart and wire it like this:

End A	End B
1	1
2	3
3	2
4	5
5	4
6	20
7	7
20	6

This wiring chart utilizes the standard RS232 layout (with the pins of a male connector facing you):

```
 1  2  3  4  5  6  7  8  9 10 11 12 13

  14 15 16 17 18 19 20 21 22 23 24 25
```

The pins of a female connector are a mirror image of the layout, with pin #1 in the upper right corner.

It doesn't matter which end has the splices, but it is usually a good idea to plug the end that is spliced into the other computer, since the Model 100 end gets plugged and unplugged more often.

The wire numbers not listed are not needed in the connection, but are usually wired regardless to give the assembly added durability.

If you use an IBM compatible computer, make sure you are plugged into the serial port, not the parallel printer port. The serial port is usually a male connector (has 25 pins sticking out), while the printer port is a female connector (has 25 holes). The serial port MUST be configured as COM1:.

See also the section that describes your particular computer for some hints as to the

cause of the problem.

2. M100: Can't save file

CAUSE: Bad connection.

SOLUTION: See above.

3. M100: Dir. is full

CAUSE: Too many directory entries. There is a maximum of 18 spaces available on the Ram files directory.

NOTE: Any "invisible" file(s) on your main menu takes up a directory entry also. We recommend that you keep all of your files "visible" when you are using DISK+.

SOLUTION: Kill (F5) several files, or Svall (F6) of your files in a SD file then kill some of them.

4. M100: Can't load file

CAUSE: Trying to Load a file that is too large to fit in RAM.

SOLUTION: Kill some files in RAM, or SvAll (F6) a SD file, then kill some RAM files. (Be sure the files you kill free enough RAM space to load the file.)

5. M100: File is .SD

CAUSE: Trying to Size (F4) a SD directory entry. You can't Size a SD file directly.

SOLUTION: Load (F2) the .SD file, then Size each file individually.

6. M100: File not .SD

CAUSE: Trying to Ldall (F6) a ".DO", ".BA", ".CA", or ".CO" file. You can't Load All

with any file other than a .SD file.

SOLUTION: Place the cursor on a .SD file before attempting a Ldall.

7. PC: Open File Error

CAUSE: Deleting a file from a DISK+ disk with DOS, not DISK+, and then trying to Load, Kill, or Size it with DISK+. DISK+ keeps its own directories, and DOS cannot update them.

Can also be caused by a diskette becoming full. The last file saved can be written without the end of file marker.

Can also be caused by using the MS-DOS COPY command to transfer DISK+ files (.DSK extension) without adding the "/A" parameter to the command, under certain circumstances. See the DOS manual for more on the COPY command.

SOLUTION: Go ahead and kill (F5) the file. You will get another error message, Delete File Error. This means that DISK+ couldn't delete the file from the disk. (It was already deleted!) This does delete the file from the DISK+ directory, though, so everything will be Ok from then on.

PC: ERRORS

There are some errors that are covered in your other computer's manual. All errors caused by the other computer are prefixed PC: on your Model 100 screen. As with DISK+ errors, pressing any key allows you to resume.

PC: Directory is full

CAUSE: Having too many files on the diskette. MS DOS 1.1 (on an IBM PC), has a

maximum of 110 files, including SD files. Apple and the others have limits on the number of files, also. Refer to the other computer's manual for the maximum number of files allowed.

SOLUTION: Copy several files to another diskette, then kill or delete them. Often you have files that are duplicated on a diskette. You can kill any duplicate files, if you like. If you have other, non-DISK+ files on the diskette, we recommend that these be the first files that you copy and delete. It is also good practice to keep only files pertaining to a particular subject or project on any one disk.

PC: Disk full error

CAUSE: Your disk has become full. This may seem unlikely, since diskettes hold so much data, but you will eventually fill a disk.

SOLUTION: See above, under Directory is full.

PC: DOS file too big

CAUSE: Trying to transfer a file (with the File Transfer Utility), from a DOS diskette to a DISK+ diskette that is too large for a Model 100's RAM. This applies also to other computers.

SOLUTION: Split the file into 2 or more files, then transfer each one separately.

MS DOS ERRORS

The IBM PC, and other MSDOS (IBM PC clones) computers use an error-handling routine that prevents the DISK+ program from handling errors that occur, especially disk I/O errors. A message will appear on your monitor stating the problem. Refer to your

CHAPTER VII

SPECIAL INSTRUCTIONS FOR:

IBM PC AND OTHER MS-DOS COMPUTERS

Includes: IBM PC, PCXT, PCAT, Tandy 1000, 1200, 2000, Leading Edge PC, Eagle PC, CORONA, COLUMBIA, COMPAQ, AT&T, Data General One, and others.

HARD DISK USERS

If you have a hard disk drive on your IBM-type computer, turn on your computer, go to the C> prompt, insert the DISK+ disk in drive A:, and type:

```
COPY A:DISKPL.EXE          (Press ENTER)
COPY A:TERMINAL.D          (Press ENTER)
```

These two files are all that is needed. The other file, AUTOEXEC.BAT, is optional. You will probably want a slightly different AUTOEXEC.BAT if you use a hard disk system. To run DISK+, type DISKPL and press ENTER.

These files can also be copied into a <DIR> of the hard disk; the possibilities are endless. Please refer to the DOS manual for further instructions on the use of the AUTOEXEC.BAT file, hard disks and <DIR>s.

USERS WITHOUT HARD DISKS

NOTE: Since we could not copy the Disk Operating System (DOS) onto your DISK+ Source diskette, (for copyright reasons), you must copy DOS and the DISK+ programs onto a WORKING MASTER. You will use the WORKING MASTER to make copies. If you already have made one, go to step MAKING COPIES, below.

MAKING A DISK+ WORKING MASTER

A. Insert your DOS diskette into drive A: (on the left).

If your computer isn't on, turn it on and press ENTER (↵) twice to get to the A> prompt.

B. Insert a blank diskette into drive B: (on the right).

C. Type

FORMAT B:/S (Press ENTER.)

D. Screen says

Insert new diskette for drive B:
and strike any key when ready

E. Press any key to format the diskette.

F. Screen says

Formatting...Format complete
System Transferred

(and disk space information)

Format another (Y/N)?

G. Type N for no.

H. Remove the DOS diskette from Drive A: and insert the DISK+ Source diskette (from PCSG). Type:

COPY A:*.* B: (Press ENTER.)

I. The screen will say

```
TERMINAL.D
AUTOEXEC.BAT
DISKPL.EXE
      3 file(s) copied
A>
```

J. Remove the diskettes. Be sure to label the disk from drive B: (on the right), as DISK+ WORKING MASTER. This is the diskette you will use when you make copies. Put a write-protect sticker on it.

MAKING COPIES

Now, follow these instructions to make copies of the DISK+ WORKING MASTER.

A. Insert a System Diskette (DOS) into drive A: (on the left). Close the door.

B. The screen will say

```
A>
```

C. Type

```
DISKCOPY A: B:        (Press ENTER.)
```

D. Screen will say (varies depending on DOS version):

```
DISKCOPY Version X.XX

Insert Source diskette into drive A:

Insert Target diskette into drive B:

Strike any key when ready
```

E. Insert the DISK+ WORKING MASTER diskette (with DOS, as above), into drive A:.

F. Insert a blank diskette into drive B:.

G. Press any key to begin the copy procedure.

H. The screen will give you various messages, like

```
Copying 2 side(s)
Formatting while copying
```

I. When the copying is finished, the screen will say

```
Copy complete
Copy another (Y/N)?
```

If you'd like to make another copy, type Y, then repeat from step F, above. Be sure to label each copied diskette DISK+ so it will not get confused with other diskettes.

RUNNING DISK+

The AUTOEXEC.BAT file is designed to make DISK+ run whenever you reset (CTRL-ALT-DEL) with the disk in drive A:. If you'd like to run DISK+ without resetting, from the A> prompt type DISKPL and press ENTER.

STATS

From the Ram files menu, press F3--Stat, then F1--87N1E for all MSDOS computers.

SERIAL PORT

DISK+ is designed to run as COM1: on the IBM PC. If you have a board in your PC, in COM1: that does not have an asynchronous communications adapter (also known as an Asynch. card, a serial port, or RS232 port), you will need to install one that does.

If you have to buy a serial port, a multi-function expansion card with extra memory, a clock chip, game port, or other options is usually a better value than a serial port alone, and a mail order house is significantly less expensive if you can install the card yourself.

COM2: DISK+ will not work with the serial port configured as COM2: There are usually DIP switches that allow other boards, like the QUBIE modem board, or the Hayes modem board, to run as COM2:. DISK+ does not operate through a MODEM.

WHICH PLUG?

The serial port is a 25-pin (DB-25) connector. On an IBM compatible computer the serial port is almost always a MALE connector, (and has 25 pins sticking out of it). If you have no male connectors and one female connector (with 25 holes in it), then that is your parallel printer port, and you need to install a serial expansion card in order to use DISK+. See above.

If you have two female connectors and no male connectors, then one of them is your serial port. It should be labelled "SERIAL".

CABLE

You'll need a serial cable (RS232) with a null modem adapter, a plug that fits on the end of the cable. Since serial cables usually have male connectors, and you need to plug into a male plug on the other computer, you'll also need a cable extender (a short cable with two female plugs on it) to connect the two computers in addition to the null modem adapter.

If all this cable business is more than

you'd like to deal with, PCSG has cables, with the null modem built in, with the correct gender of connectors, tested on your type of computer, for $40. See also COMMON USER ERRORS for more on null modem cables.

When you've made several DISK+ copies and determined which port to plug into and figured out your cable requirements, turn to Chapter III, Step-by-step Tutorial.

CHAPTER VIII

SPECIAL INSTRUCTIONS FOR:

COMPUTER: APPLE II, APPLE II+, APPLE IIe

MAKING COPIES

A. Insert your APPLE system disk (DOS disk) into Drive 1.

(If you have only one drive review the instructions in your Apple manual for copying a diskette. DISK+ will only work with Apple DOS 3.3.)

B. Turn on the power (switch is on the back). Screen says:

```
DOS Version 3.3              08/25/80
Apple II Standard            System Master
(Loading Applesoft in language card)
>
```

(Instead of > you might have a bracket symbol, with DOS or hardware variations.)

C. Type

```
RUN COPYA
```

(Or if using Apple II without Applesoft installed type RUN COPY.)

D. Press return.

E. Screen says

```
Apple Diskette Duplication Program
Original Slot:  Default=6
```

F. Remove Apple system disk (DOS disk) from drive 1.

G. Put the PCSG DISK+ Source diskette into drive 1.

H. Put a blank diskette into drive 2.

I. Press Return four times. Screen says (numbers change)

```
Original slot:  6
        Drive: 1
Duplicate slot: 6
        Drive: 2

Press "return" to begin copy
```

J. Press return.

K. Next the screen says

```
Reading
Writing
Formatting
```

One word at a time will be highlighted on the screen to emphasize each word, as that action is being taken, going back and forth until the copying is complete.

L. When the copy is complete the screen will say:

Do you wish to make another copy?

M. If yes, type Y, remove the new duplicate diskette and insert another blank diskette in drive 2, then repeat from step J, above.

O. Be sure to label each copied diskette(s) as DISK+ so that you don't confuse it with a blank diskette, or one for another purpose.

STATS

DISK+ runs at different baud rates for different computers. With the Apple, the DISK+ program must be set to 19,200 baud, (97N1E). From the Ram Files menu, press F3--Stat. You will be shown a set of

choices. Press F3 again for Apple.

CHANGING THE SLOT THAT DISK+ USES

DISK+ was designed to run with an Apple Super Serial card, in slot 3. DISK+ will not work with other serial cards.

You can change the slot that DISK+ uses, if you wish, with the SLOT CHANGER program, recorded on the DISK+ diskette.

IMPORTANT: If you have an Apple IIe you must install the Super Serial Card (and run SLOT CHANGER) in any slot OTHER THAN slot 3 before you can use DISK+. DISK+ will not work in slot 3 in the IIe.

A. First, get Applesoft BASIC to run. On the Apple II, this requires that you insert the Applesoft disk in drive 1 and type

```
PR#6
```

and press RETURN. Other Apples have Applesoft on a language card.

B. With Applesoft running, insert a copy of the DISK+ source diskette into drive 1.

C. Type UNLOCK DISK+ (Press RETURN.)

D. Type RUN SLOT CHANGER (Press RETURN.)

E. The screen says

```
DISK+ SLOT CHANGER PROGRAM
PLEASE TYPE THE SLOT NUMBER
IN WHICH YOU WANT TO USE YOUR
APPLE SUPER SERIAL CARD
```

F. You simply type the number you want.

G. The screen says

NOW WORKING

H. After a few moments the screen says

DISK+ SLOT HAS BEEN CHANGED

We recommend that you first test this diskette, and after you confirm that it works correctly, delete the slot changer program and use this diskette as a WORKING MASTER. Put a write protect tab on it, and use this diskette when you make aditional DISK+ copies for everyday use.

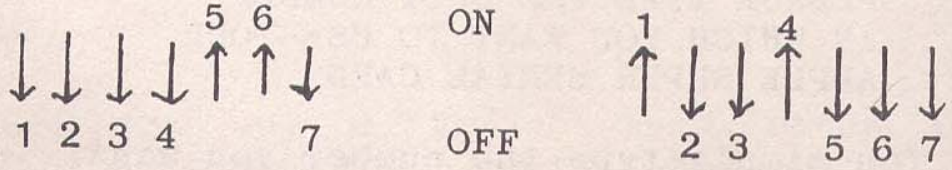
SUPER SERIAL CARD SETTINGS

The Apple Super Serial Card has a jumper block that creates the null modem effect that DISK+ requires. The jumper block is a circuit chip with a white-outline triangle printed on it. The chip can be installed two ways.

If you use a regular RS232 cable, you should install the chip with the triangle pointing to TERMINAL. If you use a cable with a null modem, (like the one we supply), or a regular cable with a null modem adapter, install it with the triangle pointing to MODEM.

DIP SWITCHES

Here is a drawing of the DIP switch settings of the Super Serial Card, for use with DISK+:



BLOCK 1 BLOCK 2

CHAPTER IX
SPECIAL INSTRUCTIONS FOR:
TRS-80 MODEL I

DISKETTE COPYING

DISK+ comes to you on a TRSDOS 2.3 diskette. You can simply BACKUP the diskette using the TRSDOS 2.3 BACKUP utility. You only need one copy, see DEFAULT DRIVE, below.

Most other DOSs should be able to read this format. We've tried MULTIDOS, DOSPLUS, LDOS, etc. You use a program like UTILITY or SUPERUTILITY to transfer to another DOS disk of your choice. These DOSs have BACKUP procedures of their own. You must always use the same DOS whenever you use DISK+.

CABLE

DISK+ requires an RS232 cable and null modem adapter. This cable, with the null modem built-in, is available from PCSG for $40.00, or you can get both pieces from Radio Shack for about $30.00 ea., ($60 total).

STATS

DISK+ comes preset at 87N1E, which is correct for all Radio Shack computers. If you change parameters, or there is any doubt, you would press F3 from the Ram files menu, then press F1 (87N1E) for the Model I.

RUNNING DISK+

On the Model I, from the TRSDOS Ready prompt, put the DISK+ copy in drive 0, a formatted datadisk in drive 1, type DISKPL and press ENTER.

FILE TRANSFER UTILITY

On the Model I, you must press and hold down the CLEAR key until the file transfer menu appears on the Model I screen. This is also where you can EXIT DISK+, option 4 of the File Transfer Utility.

The File Transfer Utility works slightly differently on the Model I as compared to most other versions of DISK+. This difference is due mostly to the wide variety of different aftermarket DOS's available, and to the different directory structures used by these DOS's.

When selecting option 1, to transfer a DOS file to DISK+, the screen will say:

Type the DOS filename:

You type the file name of the file you'd like to transfer, including its extension and drive designation, then press ENTER.

The other functions of the File Transfer Utility work the same as the other DISK+ versions. See Chapter IV.

DEFAULT DRIVE: IMPORTANT**

DISK+ comes preset with drive 0 being the default drive, (the drive that all files will be stored or retrieved) on the Model I. This overcomes the fairly limited amount of disk space on a Model I diskette. If you get a DISK DRIVE NOT READY message when you pressa F1--Disk, put a blank formatted disk in drive 1 and try it again.

An extra function on the File Transfer Utility Menu allows you to specify a drive other than 1 as your default drive. See FILE TRANSFER UTILITY, Chapter IV.

CHAPTER X

SPECIAL INSTRUCTIONS FOR:

TRS-80 MODEL 2, 12, 16B

DISKETTE COPYING

The DISK+ program comes to you on an 8 inch disk formatted with TRSDOS 2.0. You copy the DISK+ program onto your system disk, or hard disk, and then use this disk for DISK+.

There are 2 different DISK+ programs on the DISK+ Source diskette. One, DISKPL20, is for use with TRSDOS 2.0.

The other, DISKPL42, is for use with TRSDOS 4.2. You copy this with a program called FCOPY onto a TRSDOS 4.2-formatted system diskette (or your hard disk drive).

You need (a copy of) your TRSDOS diskette, and the DISK+ Source diskette, (from PCSG).

A. Place the TRSDOS disk in drive 0 (on the left).

B. Place the DISK+ Source diskette, from PCSG, in drive 1 (on the right).

C. For TRSDOS 2.0, type

```
COPY DISKPL20:1 TO DISKPL:0
```

If you are using TRSDOS 4.2, type

```
FCOPY DISKPL42:1 TO DISKPL:0
```

You can also FCOPY to a hard drive by designating a different drive number designation (DISKPL:3, for example).

D. Press ENTER. Screen says:

Copying Record 00001*

*Numbers ascend automatically

E. Then, screen says TRSDOS Ready.

F. Now type DISKPL and press ENTER. DISK+ will run in your computer. The screen will say AWAITING COMMAND. (Along with some copyright information.)

CABLE

DISK+ requires an RS-232 cable and a null modem adapter, both available from your Radio Shack Computer Center. PCSG does not make a cable for these 3 computers.

SERIAL PORT

Plug the cable into Port B on the Model 2 or 12, or 16B. YOU MUST USE PORT B. DISK+ will not work with port A.

CHANGING THE DRIVE THAT DISK+ USES

You can temporarily change the drive that DISK+ uses with function 5 of the File Transferr Utility menu. DISK+ will only use that drive as long as it is running.

On the Model 12 (or Model 16), press ESC to get into the File Transfer Utility menu, then type 5 to select the default disk drive option. In response to the prompt, enter the number of the number of the drive that you'd like to use, (range 0-7), then type 3 to return to DISK+.

Turn to Step-by-step Tutorial, Chapter III.

TECH FIX 100:01

Many older Model 100's have a circuit deficiency that prevents the TRS-80 Model 2 or 12 or 16 or Model 2000 from detecting certain RS 232 signals that the Model 100 sends. All other computers are immune to this problem.

You will need to get your Model 100 fixed by your Radio Shack store if you have a Model 100 with one of the following serial numbers. Ask for TECH FIX No. 100:01. They use this code number to indicate the correct fix. (They need to replace 4 resistors on the PCB.) It should cost you only about $15 or $20.

The affected Model 100's have serial numbers BELOW these:

Cat. #26-3801-
Ser. No. LESS THAN 306000001

Cat. #26-3802-
Ser. No. LESS THAN 306001901

DISK+ will not work without this fix with the Model 2, 12 or 16, or Model 2000. Again, all other computers are immune to this problem (at this writing).

CHAPTER XI
SPECIAL INSTRUCTIONS FOR:
TRS-80 MODEL III

DISKETTE COPYING

A. Turn your Model III ON. Place a TRSDOS disk in drive 0. When the screen says TRSDOS Ready, insert the DISK+ Source diskette (from PCSG) into drive 0. Insert a blank diskette into drive 1 and close both drive doors.

B. At the TRSDOS Ready prompt, type BACKUP and press ENTER. The screen will give some copyright information, then it will say:

SOURCE Drive Number?

C. Type 0 (Zero) and press ENTER. The screen says:

DESTINATION Drive Number?

D. Type 1 (One) and press ENTER. The screen says:

SOURCE Disk Master Password?

E. Type PASSWORD and press ENTER.

F. The disk drives will spin. If the disk in drive 1 has been used already, the screen may say "Diskette contains DATA. Use Disk or not?". Make sure you don't need the data on the disk, then type Y and press ENTER.

Otherwise, the copy process will proceed. In any case, the screen will tell you about how the backup is proceeding. When the backup is complete, and the TRSDOS Ready prompt returns, place the DISK+ Source diskette in a safe place and place the (new), DISK+ disk

in drive 0.

RUNNING DISK+

With the DISK+ disk (a copy, as above), in drive 0, press RESET. DISK+ will run automatically. Or, if you are just turning on the Model III, set the date and time and then DISK+ will run automatically. (You can disable the AUTO function by exiting DISK+ with CLEAR and 4, then just typing AUTO and pressing ENTER.)

Or, at the TRSDOS Ready prompt, type DISKPL and press ENTER to run DISK+. To EXIT DISK, press the CLEAR key and then type the number 4.

CABLE

DISK+ requires an RS232 cable and null modem adapter. This cable, with the null modem built-in, is available from PCSG for $40.00, or you can get both pieces from Radio Shack for about $30.00 ea., ($60 total).

STATS

The DISK+ program uses 87N1E as its communications parameters. From the Ram files menu, press F3 (Stat), then press F1 for the Model III (87N1E).

FILE TRANSFER UTILITY

On the Model III, you must press and hold down the CLEAR key until the file transfer menu appears on the Model III screen.

This is where you can EXIT DISK+, option #4 of the File Transfer Utility.

The screen prompts are slightly different on the Model III (as compared to the IBM version). All the functions are the same, though. See Chapter IV.

DEFAULT DRIVE

The File Transfer Utility also allows you to specify a drive other than 0 as your default drive. Select option 5 and type the number of the drive you'd like to use.

Turn to Step-by-step Tutorial, Chapter III.

CHAPTER XII
SPECIAL INSTRUCTIONS FOR:
TRS-80 MODEL 4 OR 4P

DISKETTE COPYING

A. Turn on the Model 4, insert a TRSDOS disk in drive 0 and set the date.

B. Type FORMAT and press ENTER. The screen says:

```
FORMAT 6.01.01 - Copyright 1983
   (and other copyright info.)

Which drive is to be used?
```

C. Place a new, unused diskette in drive 1. Then type 1 and press ENTER.

D. One by one the screen will say:

```
Master password?
Single or double density?
Number of cylinders?
```

E. Just press ENTER to each prompt (this used the default values).

F. The screen will then say:

```
Formatting cylinder 1*

Verifying cylinder 1*

(*These numbers flash
 automatically up to 39)

Formatting complete
TRSDOS Ready
```

G. Type BACKUP and press ENTER. The screen gives copyright info. then says:

Source drive number?

H. Remove the TRSDOS disk from drive 0 and insert the DISK+ disk, from PCSG.

I. Type 0 (zero) and press ENTER.
Screen says

Destination drive number?

J. Type 1 (one) and press ENTER. Screen says:

Destination disk ID is different:
Name is DATADISK
Date is 02/01/85* (Today's date)
Are you sure you want to backup to it?

K. Type Y and press ENTER.

L. The screen will repeat several messages (Loading, dumping, verifying) as it backs up the disk in drive 0. When the screen says:

Backup complete
TRSDOS Ready

M. The backup is now complete.

If you'd like to make more copies, repeat from step B., above. Make sure and label each copied disk DISK+.

CABLE

The TRS-80 Models 4 and 4P use an RS 232 cable, with the null modem adapter, or the cable we supply.

STATS

DISK+ uses 87N1E. From the Ram Files menu, press F3--Stat, then F1--87N1E.

USING THE FILE TRANSFER FEATURE

To use the File Transfer Utility, press and HOLD DOWN the BREAK key on the Model 4 or 4P until the File Transfer menu appears. Then, follow the directions in using the FILE TRANSFER UTILITY, Chapter IV.

DEFAULT DRIVE

DISK+ uses drive :0 to store your files (the default drive). DISK+ provides for the user to temporarily change the drive that DISK+ uses. With DISK+ running, press and hold down the BREAK key until the File Transfer Utility menu appears. Then type the number of the drive you'd like to use.

DISK+ will use this drive only as long as it is running. When you run the program again, it will default back to drive :0.

CHAPTER XIII

SPECIAL INSTRUCTIONS FOR:

TRS-80 COLOR COMPUTER (COCO)

DISKETTE COPYING

These instructions should be familiar to experienced CoCo users, but are included here to lead the way for CoCo beginners.

A. Turn on the CoCo, disk drive(s), and monitor or TV.

B. When the screen gives the Ok prompt, place a blank disk in drive 0 and type

DSKINI0

C Press ENTER. The disk formatting process will take a minute or so. When the screen says Ok, proceed to the section that describes your system, below.

TWO DRIVE SYSTEMS

A. Place the newly formatted disk (as above) in drive 1. Place the DISK+ Source diskette in drive 0.

B. Type

BACKUP 0 TO 1

and press ENTER. This copies the disk in drive 0 to drive 1.

When the screen says Ok, label the disk in drive 1 as DISK+, put the original DISK+ disk in a safe place, and turn to CABLE, below.

ONE DRIVE SYSTEMS

A. Place the DISK+ Source diskette in drive 0. At the Ok prompt, type

```
BACKUP 0 TO 0
```

and press ENTER.

B. After several seconds the screen will say:

```
INSERT DESTINATION DISKETTE AND
PRESS ENTER.
```

C. This process of swapping disks back and forth will proceed for several minutes. Just be sure to observe the prompts; the SOURCE disk is the one you're copying, the DESTINATION disk is the disk you are making.

D. When the screen says Ok, put the DISK+ Source disk in a safe place, and label the new disk as DISK+.

CABLE

DISK+ requires an RS232 cable (Cat. #26-3104) and null modem adapter (Cat. #26-1496), both available from your Radio Shack Computer Center. PCSG doesn't make a cable for the CoCo.

STATS

The CoCo uses 87N1E. From the Ram Files Menu, press F3--Stat, then F1--87N1E for the CoCo.

RUNNING DISK+

A. With the Ok prompt and with a DISK+ diskette in drive 0, type

```
RUN"DOS
```

and press ENTER.

B. The DOS program will give you a menu of choices. Type the number "2" to execute a program.

C. When the screen prompts you for a program name, type DISK+ and press ENTER.

AWAITING COMMAND FROM MODEL 100 will appear, as well as some Copyright information. This is where you will transfer files to and from your Model 100. See the Step-by-step Tutorial, Chapter III.

DISK+ UTILITY MENU

The next two sections describe several differences between the CoCo DISK+ and most other versions of DISK+. These differences were necessary to overcome a somewhat limited memory allotment in the CoCo.

To access the DISK+ UTILITY MENU, with DISK+ running press the BREAK key. These are the options available:

1. Change Default Drive: This allows you to instruct DISK+ to use a drive other than 0 whenever a disk access is made. Type 1 and the screen will say:

WHAT DRIVE WILL BE USED?

(0,1,..):

Type in the number of the drive you'd like to use. This setting is only in effect as long as DISK+ is running. You can change it permanently as is described in the next section.

2. Exit DISK+: This allows you to exit the DISK+ program, returning to BASIC.

3. Return to DISK+: This returns to DISK+ AWAITING COMMAND. You can then transfer files to and from your Model 100.

FILE TRANSFER UTILITY

You use the File Transfer Utility to transfer TEXT files to and from DISK+ and the remainder of your CoCo system. The File Transfer Utility is actually a separate program on the disk, DISK+FTU.

A. RUN"DOS, as in step A., above.

B. Type "2" to run a program, then type

DISK+FTU

and press ENTER.

The DISK+ FILE TRANSFER UTILITY will appear. A complete description of the first two functions is given in the File Transfer Utility section, you should refer to that section at this time.

Function 3 is different, however. Instead of returning to DISK+, you return to BASIC, where you can run DISK+ if you like.

Function 4 allows you to permanently change the Default Drive that DISK+ is to use. When you type "4", the screen says:

WE ARE GOING TO MODIFY THE FILE
DISK+/BIN. LETS LOAD THE FILE

WHAT DRIVE WILL WE USE?

(0,1...):

C. This is asking you which drive contains the DISK+ program. Type in the drive number where DISK+ is located.

D. The screen says:

```
WE NEED TO SPECIFY WHICH DRIVE
WILL BE DEFAULT DRIVE FOR DISK+.

WHAT DRIVE WILL WE USE?

    (0,1,..)?
```

E. Type in the number of the drive you'd like DISK+ to use as a default drive. This change will be permanent for the DISK+ you change; unless you modify the program again.

You can return to the File Transfer Utility Menu at any time by pressing the BREAK key.

CHAPTER XIV
SPECIAL INSTRUCTIONS FOR:
CP/M COMPUTERS

At this writing, a Universal CP/M version of DISK+ is in the final stagesof development.

Setting up DISK+ for a CP/M computer is quite different than other computers, due to the widely varied implementations of the CP/M operating system by the various manufacturers.

Please refer to the special addendum that was sent with your Universal CP/M DISK+ disk for instructions on setting up your CP/M computer.

CHAPTER XV
CONCLUSION

By now you are aware that DISK+ is a truly remarkable program that makes your Model 100 a vastly more useful and versatile computer. By using the disk drives of your other computer(s) for mass storage, you free yourself from the slow often frustrating cassette player. In addition, you have the capability to transfer a document to the other computer for further editing, formatting, to check the spelling, or whatever you'd like to do.

By programming the DISK+ program on ROM, PCSG has expanded the power of the Model 100, giving you extra capabilities without using any of the precious RAM of the Model 100. This trend towards ROM programs will continue, with several ROM programs currently available or in the final development stages.

OTHER PROGRAMS

WRITE ROM

A full function word processing program on ROM that gives the user capabilities far beyond any other word processing program previously available. Functions include Merging, page format preview (format display on the Model 100 screen before printing), full format control with function keys, linking several files together for printing, and many other features.

Modelled after the popular Scripsit-100 program, which is available from Radio Shack Computer Centers and was written by PCSG. (Scripsit-100 was originally titled WRITE+.)

LUCID

ROM-based spreadsheet that gives a Model 100 user spreadsheet functions that no other program can rival, not even on a larger computer. 126 columns by 254 rows, LUCID takes no RAM to store or for running overhead. Furthermore, LUCID uses no memory for unused cells in the spreadsheet, allowing spreadsheet applications and models far beyond what you thought possible in 32K of RAM.

Written in all machine code, LUCID is so lightning fast that it actually surpasses other popular spreadsheet programs in calculation speed (in many cases), even when the other programs run on larger, faster computers like the IBM PC.

LUCID has the unique capability to refer in a formula to a cell with a label (TEXT). LUCID also lets you have two dimensional table lookups, allowing LUCID to process text input and even return text output based on the input of two different answers. LUCID has cut and paste that works like cut, copy and paste in TEXT (one of the Model 100's built-in programs). You can copy or cut out of one spreadsheet and paste into another, or even paste into a text file.

LUCID allows you to have different print fonts within the same spreadsheet, and many other features possible with no other spreadsheet, as well as standard spreadsheet features like individually adjustable column width, cell protection and the like. Available now for the Model 100 from PCSG.

PCSG was the first to develop software for the Model 100. PCSG endeavors to continue as the leader in software and peripherals for the Model 100. These programs, distributed on cassette, are written by PCSG

and available at your Radio Shack Computer Center.

A) Scripsit 100, a text formatter that, when combined with the excellent TEXT program built into the Model 100, gives the Model 100 true word processing capability.

B) Barcode driver software that operates the Barcode wand with many popular barcode formats.

C) Barcode generator software that prints barcode on Radio Shack dot matrix printers.

D) DATA/SORT data base manager and sorting system. Includes on-screen searching and editing, full featured listing capabilities, merging with text files (for form letters or reports), and input directly from handheld barcode reader (wand).

E) EXPENSE/GRAPH expense report and budget management tool. Application spreadsheet with the formulas built-in, no formula entry required by the user. Graphs by column or row on any Radio Shack dot matrix printer, as well as the CGP-115 color graphic plotter.

If you have any questions about your DISK+ program, or even if you'd like to ask some general questions about your Model 100 or about any of our other software, feel free to call the Portable Computer Support Group, at (214) 351 0564.

If you have a problem with your DISK+, look in the appropriate section of the manual for possible solutions, then give us a call. Our technicians are quite knowledgeable, and will be happy to help you. Please help us to help you, though, by having your two computers handy.

INDEX