POWER!

A USER-ORIENTED, INTELLIGENT FRONT END FOR CP/M**

Documentation by David F. Barry
Clyde L. Steiner
Shari Y. Steiner

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POWER!

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WHAT POWER! DOES FOR YOU

Welcome to POWER!, a compact package of system housekeeping utilities and sophisticated memory/disk monitor functions.

POWER stands ready to give you ease of use no matter how new you are to computers, ability to salvage disasters like text with bad sectors and disks with glitched directories, and, finally, offers the key to the heart of CP/M so that you can explore the inner workings of the system when programming and debugging. POWER does all of this while giving you prompts in plain English so that you always know what to do, and providing you with sensible error traps and user protection features, so that you don't have to spend energy worrying about making every entry letter perfect.

There are over 55 commands available to you in POWER, but the program takes up only 16K. This is the reason even those who have already used separate programs for some of POWER's functions prefer to weed all those out, and work with the POWER streamlined version.

POWER's features are designed for the CP/M user by a CP/M user. One that you'll use constantly is the Numbered Menu that allows quick and easy selection of everything from one file to the complete contents of a hard disk. With the Numbered Menu, your files can be sorted either alphabetically by name or by extent first and then by name. This cuts out all that time spent looking through hodge podge directories trying to find a particular master copy of a sales letter or data analysis formula. With the Numbered Menu, you let your computer do the first search, then you can make your selection with ease.

The drudgery of series manipulation of files has also been eliminated. With POWER'S Numbered Menu, all you have to do is make your selection of files to be worked with, enter the file number once, and POWER does it for you. And while the operation is taking place, by the way, POWER lets you look over exactly which files and which operation you have selected, so that you know what's going on at all times.

Another impressive part of the program is the way POWER cuts out those frustrating and potentially disastrous situations where you inadvertently hit the wrong key or some other problem and a BDOS error causes the loss of an afternoon's work. If you attempt to log onto a drive that has no disk, for example, POWER merely responds with "Can't Log on A:". There's no problem, NO SYSTEM CRASH...You're simply automatically returned to POWER's AØ= prompt so you can either put a disk in A: or initiate another operation.

MANUAL ORGANIZATION

This manual gives quick reference to the easy-to-use array of POWER functions. There are two indexes, one listing the commands alphabetically by name, the other listing the commands by functions. There is a CONVENTIONS section which explains the uniform syntax that is used throughout POWER. Following the CONVENTIONS section are the COMMANDS themselves, each listed alphabetically with information as to its use, its syntax and its capabilities.

At the end of the manual, we've collected a COMMON ERROR MESSAGES AND THEIR CAUSES list and a TIPS AND TROUBLESHOOTING section to assist you in using POWER's unique direct disk read/write commands. These can help you salvage data and information from disks with glitched directories or bad sectors which would otherwise be completely inaccessible.

Finally, we've given you the CUSTOMIZATION section for your use in modifying the POWER program to suit your individual needs.

*****

GETTING STARTED

Getting started with POWER is easy. First, check to see that your Master Disk is Write Protected so that you CANNOT write to it. REMEMBER that on a 5" disk, a cut-out notch means that you CAN write to it, whereas on an 8" disk, a cut-out notch means that you CAN NOT write to it. Always keep your Master Disk Write Protected, so that if something goes wrong with the Working Disk you can make a new copy from the Master Disk. In the meantime, the Master Disk always remains unchanged.

You'll want to start off by making a copy of POWER onto a Working Disk. Here's how to use POWER to copy itself:

TO BEGIN:

1. Boot up on Drive (A:) with a Working Disk or a Systems Disk that is NOT WRITE PROTECTED and has space to accept the file duplication from POWER's Master Disk.

2. Place the POWER Master Disk in Drive (B:) and press (Control C) to set up the POWER disk.

3. At the A> prompt, type B:POWER

4. POWER loads with the Copyright notice and the (AØ=) prompt, telling you that you are still logged on the (A:) drive, and you are operating in User Area Ø.

5. Type after the AØ= prompt COPY B:***. This uses POWER's Master Wild Card to tell your computer to initiate copying everything on the disk on drive (B:). Notice there's no strange term to learn for the COPY function.

6. POWER will respond with a request for (destination drive:). Once again you have no problem understanding exactly what your computer needs to know in order to proceed.

7. Enter A. You don't need to type : or (RETURN).

8. POWER will now automatically copy itself to your system disk in Drive (A:). While this activity is taking place, POWER brings up the name of each POWER file being copied, so that you can see what is happening. The COPY is complete when the (AØ=) prompt returns.

9. Remove your POWER Master Disk from drive (B:), and store it in a safe place.

10. Now place any initialized CP/M disk that you want to work with in Drive (B:) and log it in by hitting (Control C). You are ready to work with any of POWER's functions, or RUN any of the other programs you have via the POWER Numbered Menu.

NOTE THAT THE DISK WITH THE CP/M SYSTEM PROGRAM AND THE POWER PROGRAM

ITSELF DOES NOT HAVE TO REMAIN IN ANY DRIVE, NOR DO YOU NEED TO SYSGEN THE NEW DISK. SIMPLY PRESS (Control C) TO LOG THE DIRECTORY, AND THE AØ= PROMPT WILL APPEAR. YOU'RE NOW READY TO BEGIN RUNNING YOUR SYSTEM. ENTER ? FOR A LIST OF POWER COMMANDS, BEGIN IMMEDIATELY WITH THE NAME OF THE POWER COMMAND YOU WANT TO USE, OR ENTER RUN FOR A NUMBERED MENU OF YOUR .COM FILES, SO THAT YOU CAN START CONTROLLING YOUR COMPUTER "BY THE NUMBERS".

*****

A FILE MANIPULATION TUTORIAL

I will now take you through a series of steps with POWER to help familiarize you with the program.

Ordinarily, you'll initiate running POWER by entering A>POWER. The copyright notice will appear on the screen, followed by POWER's command prompt which is similar to CP/M's yet somewhat different. It will read (AØ=), telling you that you are operating on Drive A and in User Area Ø. AØ is the "Default" or the "boot-up" Drive and User Area where you work the most.

NOTE If you change your Drive or User Area, the prompt will also change, and continue telling you where you are operating except with CP/M versions 1.4 and earlier, where there were no User Areas.

Typing one of POWER's standard Numbered Menu commands such as (AØ=COPY), will display the POWER Numbered Menu directory of your files. Your screen display will look like the one below. From here on, everything can be done "by the numbers", and you'll see how much it simplifies your computer operations.

EXAMPLE of Directory File Name Display with POWER NUMBERED MENU

```
AØ=COPY
AØ:   1= COLLEGE.TXT |   2= CUR/IO  .ASM |   3= DAISY   .COM
AØ:   4= DEMO   .COM |   5= END     .BAK |   6= INQUIRE.TXT
AØ:   7= LPRINT .COM |   8= MONEY   .CMD |   9= MOVCPM  .COM
AØ:  1Ø= PRINT  .CMD |  11= SYSGEN  .COM |  12= TRADE   .TXT

select?1 3 7 9-11  (RETURN)

destination drive :B
```

Using POWER's assigned numbers rather than typing the full file name normally reduces entry time and typing errors by eight to one. Your advantage can be as high as 2ØØ to one if you use a POWER program like COPY when you're manipulating a long series of files.

NOTE POWER commands can "spool" a series of file manipulations without your intervention. You simply enter the first number, a dash, and the last number of the series (8-12). If you want everything from one number through the end of the directory, you type the first number of the series and a dash only (8-). Remember that numbers or number groups must always be separated by one or more spaces.

POWER's next prompt will ask for the (destination drive :). Enter B.

Try it . . . and your disk transfer is done!

*****

SYSTEM REQUIREMENTS

Any CP/M system, including those on 8080, Z80 or 8085 based computers; Apple with Z80 card and CP/M operating system; TRS-80 with CP/M hardware adaptation.

Special versions for CP/M 86 and IBM PC (with CP/M 86)
Special version for MP/M

Program occupies approximately 16K
Minimum working memory approximately 24K

NOTE Certain functions of POWER are not available in the early versions of CP/M prior to 2.xx, because they do not permit advanced file handling.

*****

CONVENTIONS

Throughout the operation of POWER, certain conventions are used. Many of these are the special features which help make POWER such a useful operating tool. This CONVENTIONS section describes each of them in more detail than in the rest of the manual, so that you can understand their functions more completely.

RUNNING POWER

You can RUN POWER like any other program by entering **POWER** at CP/M's A> prompt, and then proceeding. POWER is furnished to Auto Restart itself as long as the POWER program is on your disk. This means that POWER will continue to be in control of your system as you go from one command to the next and as you go in and out of other programs like Word Star and DBase. Whenever an operation is completed, you simply enter the appropriate Quit command for that operation, and you automatically return to POWER's (A0=) prompt, ready for file manipulation.

If you want to return to CP/M after RUNning just one of POWER's commands, your entry syntax should change. In that case, enter **A>POWER COPY** or whatever other command you have singled out. Once that command action is complete, POWER will return you to CP/M.

It's more likely that you will want to use POWER continuously, only going out to the system occasionally via the EXIT command. In that case, if your system has an Auto Start, you can customize POWER into it by entering **(POWER RUN)** in your system's Auto Start buffer. See your CP/M manual and the TIPS AND TROUBLESHOOTING section.

STANDARD FUNCTIONS

POWER offers total support of standard CP/M command functions so that at no time do you run into a problem if you enter the CP/M syntax instead of POWER's. POWER will simply carry out the CP/M command in POWER's own enhanced form.. In addition, features like assuming the currently logged drive unless another drive is specified are maintained throughout POWER unchanged.

The outstanding attributes of POWER are the user friendly prompts that tell you what you need to do in plain English and the error traps that keep your system running when something happens outside of the regular routine.

You'll find that the POWER commands are particularly easy to remember because they use a uniform syntax so that each entry goes through the same steps. In addition, little things make a big difference. When scrolling through a TYPE out of the contents of a series of letters, for example, POWER's proceeds page by page to let you look through the text at your pace instead of the computer's. The same goes for looking through long directories on 8" or hard disks or searching through program information when DUMPing.

THE POWER PROMPT

POWER's AØ= main prompt has been set up so that you always know what User Area you're operating on as well as which Drive. This is particularly helpful when you have more than one person using an 8" disk or a hard disk, and special User Areas have been set aside for different people. It is also useful when particular kinds of files are kept in different User Areas, and/or you are searching through several User Areas on several Drives - a function that is easy with POWER's bracket [] commands.

NOTE The AØ= main prompt and the AØ: display prompt always show on the screen when you are issuing commands and making changes. However, when the verify messages are displayed while POWER is carrying out a command, only the drive prompt A: (or B:, etc.) appears. Also, YOU DO NOT HAVE TO ENTER (Ø). The Ø-15 parts of the POWER prompt need only be entered when you are working with the USER and XUSER commands to change User Areas.

If you decide you don't want the Ø to show, or you want to change the POWER prompt in any other way, see the CUSTOMIZATION section and the Display/Substitute command.

POWER NUMBERED MENU

This is one of POWER's most useful conventions and you'll see it again and again in your operations. The NUMBERED MENU alphabetizes your disk filename directory and assigns consecutive numbers to each file so that manipulation of files can be done using numbers instead of typing (or mistyping) each file name. This greatly reduces the chance of error, especially when you need to enter a large number of file names. It is important to remember that the assigned numbers have no permanent relationship to any particular file and that they will change in the menu listings as files are deleted, moved or otherwise manipulated.

NOTE On long directories that take up more than one screenfull, you advance to the next section of the directory by pressing (**RETURN**).

NOTE When working with files from the Numbered Menu, always REMEMBER TO MAKE YOUR SELECTION BY NUMBER, NOT BY NAME. Entering a filename after the select? prompt is not accepted, and you will return to the AØ= main prompt.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=**BOLD FACE**)

```
AØ=TYPE  (RETURN)
AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .CMD | 11= SYSGEN  .COM | 12= TRADE  .TXT

select?1 3 7 9-11  (RETURN)
```

This is what happens:

Step 1: At the (AØ=) prompt you enter whichever command you wish activated. For a list of the commands, enter (?). The TYPE command is used here as an example. It will TYPE a file to the screen so that you can see if it is the one you're looking for without going through the process of RUNning your word processor or data base program - a particularly efficient aid if you're looking for something that could be on several disks. After entering **TYPE**, press **(RETURN)**.

Step 2: POWER will display the Numbered Menu of all the files on the (AØ:) disk. You simply type in after the (select?) prompt the number or numbers which have been assigned to the files that you wish to scan. REMEMBER to separate each number or group of numbers by a space. The order of numbers, however, makes no difference. 1 3 7 or 3 1 7 will both perform operations on files 1 and 3 and 7. Press **(RETURN)**.

To manipulate a number of files in series enter 9-11. Using the designation 9- (RETURN) will manipulate files numbered nine through the end of your file directory.

POWER ENTRY SYNTAX

POWER follows a uniform syntax and allows for a number of variations. The first thing you will notice if you have already gotten acquainted with the CP/M syntax is that POWER allows you to log onto another drive AND issue a command all at the same time. If you want to move to a NEW Default Drive, you enter that destination BEFORE you enter the command. If you want to REMAIN with the SAME Default Drive but obtain files from another Drive, you enter the Drive with the file you want AFTER the command.

NOTE With all POWER commands, it is essential to enter a (SPACE) between the Command and a filename or other instruction.

NUMBERED MENU SYNTAX

Two general variations occur with POWER syntax - the command entry which calls up the NUMBERED MENU, and that which does not. The following WILL CALL UP THE NUMBERED MENU. File name identification is NOT used. Again, I'm using the TYPE command as an example.

(a) AØ=TYPE (RETURN)
(b) AØ=TYPE B: (RETURN)
(c) AØ=TYPE 2: (RETURN)
(d) AØ=B:TYPE (RETURN)
(e) AØ=B:TYPE 3: (RETURN)
(f) AØ=TYPE [4R] (RETURN)
(g) AØ=TYPE T*.* (RETURN)
(h) AØ=TYPE T** (RETURN)
(i) AØ=TYPE *** (RETURN)
(j) AØ=TYPE T?S?.TXT (RETURN)

(a) AØ=TYPE (RETURN) This is the simplest command syntax. By using this command you have told the computer that you want to TYPE out some file, although you're not sure which.

NOTE THAT WHEN YOU DO NOT DESIGNATE A DRIVE, POWER WILL AUTOMATICALLY BRING UP THE NUMBERED MENU FOR THE CURRENTLY LOGGED ON DRIVE AND USER AREA - IN THIS CASE, DRIVE (A:), USER AREA (Ø:).

When the Numbered Menu appears, you then decide which file (or files) you want TYPEd by entering the appropriate numbers at the (select?) prompt. You stay logged on Drive (A:).

(b) AØ=TYPE B: (RETURN) This command also stays logged on (A:) but asks the computer to select the files from Drive (B:). The numbered menu of Drive (B:) will be displayed following the carriage (RETURN).

(c) AØ=TYPE 2: (RETURN) This command is the same as the one above, except NOTE that you used a number 2 instead of a letter B, to designate the drive destination. As a convenience to those accustomed to designating drives by numbers instead of letters, throughout POWER, you can use numbers or letters interchangeably to designate the drive.

NOTE that you can use numbers 1 through 9, or you can use letters A through P.

(d) AØ=B:TYPE (RETURN) With this command, the computer switches the logged on drive from (A:) to (B:) and then displays the files on Drive (B:). NOTE that you can enter BOTH the new Drive and the command at the same time. Once the Numbered Menu is shown, you automatically log on Drive (B:).

(e) AØ=B:TYPE C: (RETURN) This command changes the logged drive from (A:) to (B:) and then lists the Numbered Menu of files from Drive (C:). Again, NOTE that POWER lets you enter all these instructions at once.

(f) AØ=TYPE [4R] (RETURN) Any command can be followed with bracket [] commands like this. Bracket commands make alterations in the Default settings. For a list of these and an explanation of what they do, see the LOG command.

In this example, once the (RETURN) key is pressed, POWER will change the directory listing to 4 columns and will toggle ON the R function, a user protection feature, which requests a Y/N go ahead before each file action.

(g) AØ=TYPE T*.* (RETURN) This command uses the conventional CP/M wild card, "*.*" to ask POWER for the Numbered Menu display of the directory of all files beginning with "T". NOTE that this rather cumbersome procedure is acceptable to POWER, but not necessary. See the following examples.

(h) AØ=TYPE T** (RETURN) This command allows you to use POWER's wild card, "**". Upon hitting (RETURN), all files beginning with "T" will be displayed in the Numbered Menu and the (select?) prompt will ask which ones you want to TYPE out. NOTE this procedure cuts out the upshift, downshift, upshift procedure of the *.* wild card.

(i) AØ=TYPE *** (RETURN) This command allows you to use POWER's Master Wild Card, "***". Upon hitting (RETURN), all files of the entire directory of Drive A, USER Area Ø will be TYPEd out. NOTE that the Numbered Menu will be displayed on the screen before the TYPE so that you can check to be sure you've got the right disk, but no (select?) prompt will appear, as your instruction is to TYPE all the contents of the disk. If it does happen to be the wrong disk, or you find what you're looking for in the middle of the series, you can stop the TYPE by hitting ESCape. See below for more information on POWER wild cards.

(j) AØ=TYPE T?S?.TXT (RETURN) This command allows you to use question marks (? ?) in place of individual letters in the file name. NOTE, however, that unlike the "**" syntax, each question mark MUST correspond to a letter of the file name.

NON MENU COMMAND SYNTAX WITH SPECIFIC FILE NAMES

Command syntax which WILL NOT CALL UP THE NUMBERED MENU because you USE the file name identification instead:

(k) AØ=TYPE TEST.TXT (RETURN)
(l) AØ=TYPE B:TEST.TXT (RETURN)
(m) AØ=TYPE 2:TEST.TXT (RETURN)
(n) AØ=B:TYPE TEST.TXT (RETURN)
(o) AØ=LOAD TEST.TXT (memory address) (RETURN)

Because file names have been indicated in all the commands above, the Numbered Menu will NOT appear. This syntax can be used anytime you

are manipulating files and remember the EXACT name of the file you want. In the direct memory commands illustrated by (o), this syntax with the exact name PLUS the file parameters is essential.

(k) AØ=TYPE TEST.TXT (RETURN) In this command, you have asked the computer to TYPE out a particular file, TEST.TXT on Drive (A:). Upon hitting (RETURN), POWER will carry out the command.

(l) AØ=TYPE B:TEST.TXT (RETURN In this command, you have asked the computer to TYPE out the file TEST.TXT from Drive (B:), but after the action is complete, you'll be logged on Drive (A:).

(m) AØ=TYPE 2:TEST.TXT (RETURN) This command performs the same function as the preceding one except that you have used POWER's convenience number 2, instead of the letter B, to designate the drive.

(n) AØ=B:TYPE TEST.TXT (RETURN) With this command, the computer switches the logged on drive from (A:) to (B:) and TYPE out the contents of TEST.TXT. When the action is complete, you will be logged on Drive (B:).

(o) AØ=LOAD TEST.TXT (memory address) (RETURN) With commands such as LOAD or GO, which work with files directly in memory, THE EXACT FILE NAME PLUS MEMORY ADDRESS INFORMATION SYNTAX IS IMPERATIVE. See those commands for further information.

NON MENU COMMAND SYNTAX WITH NO FILE NAME

With some of POWER's commands, no file name is used at all. In these cases, of course, neither the Numbered Menu directory nor a specific file name is used in the syntax. Instead, the following syntax is used:

(p) AØ=TEST (RETURN)

(p) AØ=TEST (RETURN) With this command, you simply enter the command name and (RETURN). REMEMBER If you are changing Drives just for this one operation and want to STAY logged on Drive (A:), enter the Drive designation AFTER the command, i.e., (TEST B: (RETURN)). If you want to be logged on the NEW Drive, enter the Drive designation BEFORE the command, i.e., (B: TEST (RETURN)).

The commands that follow this syntax perform several types of functions. Some deal with the whole disk, i.e., TEST, READGR, WRITE, etc. Others are used with patching and programming to work inside memory, like MOVE or DUMP. Finally, there are commands like SORT or XUSER, which tell POWER to change the way it operates.

FREEDOM IN CHANGING DISKS

While POWER is in command of your computer, you can swap disks in the drives at will. You still need to REMEMBER to hit a (Control C) to reset the disk directory before any disk write activity. Because of this requirement, it's a good idea to get in the habit of hitting (Control C) every time you change the disk.

NOTE, however, that if you forget, POWER will not perform an incorrect command, nor will the system crash or issue a BDOS error message. Instead, POWER WILL PROMPT YOU TO USE (Control C) and start over.

Alternatively, POWER allows you to dispense with the (Control C) requirement. You need to change the byte at 116 Hex in the program to Ø1. This instructs POWER to issue an automatic (Control C) every time any disk activity takes place. (See CUSTOMIZATION.) You should be aware that this auto (Control C) will somewhat slow down POWER operations, because the function must then take place on ALL disk activity, whether or not you've changed the disk.

POWER's (Control C), unlike CP/M's, does not reload to Console Command Processor from the disk, nor does it in any way require that a CP/M system disk be on any drive. This means no more BDOS error messages, even when Drive A has no disk at all.

NOTE: Some systems do not allow changing from one density to another, which will therefore restrict your disk swapping.

ABORT

You may abort any of the command processes in mid-stream by hitting (ESCape) or (Control C). Either of these keys can be used at anytime when you see you've made a mistaken selection or you want to end a printout, dump or other lengthy operation, such as series disk-to-disk copying. (ESCape) is usually preferred because it is faster and instantly returns you to POWER's AØ= prompt. (Control C) may be more familiar to you. It resets the disk and thus takes longer to operate.

WILD CARDS AND AMBIGUOUS FILE NAMES

POWER allows great flexibility with wild cards when you want to look through a directory of ambiguous file names during any command operation. The conventional *.* and the ? substitute letter are both acceptable, but POWER's streamlined versions are usually preferred. The POWER wild card syntax is:

```
SYNTAX    AØ=COPY T** (RETURN)
                  or
```

```
AØ=COPY **TXT (RETURN)
        or
AØ=COPY*** (RETURN)
```

By entering COPY (first letter or letters of all files desired) and (**) you bring up the Numbered Menu of only those files with the first letter or letters entered. All files with the first letter you selected will be shown, no matter what their extent. This is a quick way to isolate your directory search for files when you have only a part of a name that you remember exactly.

By entering (**) and (the three letters) of the file extent, you bring up the Numbered Menu of only those files with the extent you want. This makes for fast manipulation of files when you're weeding out a general disk, and filing things away on specialized disks.

Finally, by entering POWER's Master Wild Card (***) after the command, you instruct the system to perform the requested operation on all the files in that Drive and User Area. You can enter a first letter modifier with the ***, i.e. (T***), and POWER will then proceed to automatically carry out the command you've selected WITHOUT the intermediate Numbered Menu (select?) step. NOTE that to manipulate all the files with the same extension, all you enter is **BAK - DO NOT ENTER THE THIRD STAR OR THE PERIOD.

SCROLLING CONTROL KEYS

Whenever screen display of information is extensive, POWER allows you to scroll at your own pace, rather than at the computer's. A number of control keys can modify this screenfull-by-screenfull "paging" process, so that you can skim through some information, and slow down as you find an area you want to look at more closely.

SPACE BAR — A panic stop for all output operations. The conventional (Control S) is also recognized by POWER, but most people prefer the much less clumsy POWER (SPACE BAR).

This command also starts single stepping output lines each time the (SPACE BAR) is hit. Hitting (RETURN) resumes output to normal paging a screenfull at a time. Hitting any other key during output causes continuous scrolling.

RETURN — (RETURN) is also utilized in paging while scrolling through a long directory, a disk file or memory. (RETURN) tells POWER to output a screenfull of information, and wait for you to hit another (RETURN) before giving you the next screenfull.

LINE FEED — Same as (RETURN).

	Control M	Same as (RETURN).
	Control J	Same as (RETURN).
Control P	Printer toggle. Hitting (SPACE BAR) to stop the scrolling allows you to enter a (Control P), which will send information continuously to the Printer for a hard copy. The display on the screen will continue during this operation, but you cannot use the paging operation. Hitting (Control P) and (SPACE BAR) the second time tells POWER to resume sending information to the screen only, and paging can be resumed.	
Ø-9	Hitting any of these numbers during output cancels paging and sets the speed of output line-by-line display (Ø-fast, 9-slow).	
ANY KEY	Hitting (Any Key) cancels paging during output and initiates line-by-line scrolling.	

COMMAND SYNTAX CONTROL KEYS

When entering commands in POWER, you have a mini editor that allows you to delete and correct errors. You can use three different keys for this function so that almost every console is accommodated. In addition, the conventional CP/M control keys also operate in POWER.

DELete	Deletes the last character typed and allows retyping.	
	BACK SPACE	Same as (DELete).
	Control H	Same as (DELete).
	UNDERLINE	Same as (DELete).
RETURN	Hitting (RETURN) after a command tells POWER that the command entry is completed and the input should be accepted.	
	NOTE On many keyboards, this key is labeled ENTER.	
	LINE FEED	Same as (RETURN).
	Control M	Same as (RETURN).
	Control J	Same as (RETURN).
Control E	Moves cursor to the next line when entering long command instructions.	

Control P	Printer toggle - hitting (Control P) the first time tells POWER to send information to the printer. Hitting it the second time tells POWER to resume sending information to the screen.
Control R	Retypes input line after errors have been corrected.
Control U	Cancels the command input and moves the cursor to the next line.
Control X	Cancels the command input and leaves cursor at the original line.

*****

NOTE TO CP/M 86 USERS

NOTE to CP/M 86 users: All monitor functions may use a CP/M SEGMENT number which provides access to particular areas of memory. Use of the SEGMENT number works as indicated in the following MOVE memory command:

AØ=MOVE (SEGMENT number.) (start address) (end address)
(new SEGMENT number.) (new start address)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=MOVE 7ØØ.1ØØ 4ØØØ 8ØØ.6ØØØ (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt enter MOVE 7ØØ.1ØØ 4ØØØ 8ØØ.6ØØØ, indicating that you wish to move the program at segment number 7ØØ, address 1ØØ to segment number 8ØØ, address 6ØØØ. NOTE A dot (.) must follow the segment number, followed immediately by the address (no space in between). Press RETURN.

Step 2: POWER proceeds to move the program.

NOTE The following memory/disk monitor commands may use SEGMENT numbers: CM, DS, DUMP commands, EX, FILL, GO, JP, LOAD, MOVE, READ, READGR, SAVE, SEARCH, WRITE and WRITEGR.

The LOG command will show POWER's own SEGMENT number and a (Control C) will restore you to that SEGMENT number.

NOTE TO MP/M 86 USERS

(Control D) exits to MP/M in the same manner as DETACH. Hitting (Control D) again returns to POWER.

*****

Your POWER! Commands (Version 3.3) 1983

?
HELP LIST OF POWER! COMMANDS

USE: The question mark (?) entered anytime the main prompt (AØ=) appears will print a list of POWER's commands to the screen. As a special aid to the user, POWER prompts "incorrect, for list of commands enter (?)" whenever you make a mistake on command entry syntax.

SYNTAX: AØ=?
or
AØ=? ?

NOTE Double question marks (??) can display additional POWER commands if they have been customized to be invisible with the normal (?) command list. (See CUSTOMIZATION for this option.)

CHECK
CALCULATES UNIQUE FILE CHECKSUM

USE: This command enables the user to do a quick verify if two files are in fact identical. It provides a unique number which reflects both the actual length of a disk file and its contents. If you want to investigate further, you can use the Compare Memory command to give data on the exact location of differences or you can use the TYPE command to display the entire file to the screen or TYPE it out on the printer.

SYNTAX: **AØ=CHECK**

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=B: CHECK      (RETURN)

BØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM
BØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
BØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
BØ:  1Ø= PRINT  .COM | 11= SYSGEN  .COM | 12= TRADE  .TXT

select?1Ø 7  (RETURN)

BØ:PRINT  .COM  - checksum:D1D8  total:D1D8  dec:53723
BØ:LPRINT .COM  - checksum:368B  total:Ø866  dec:215Ø
```

This is what happens:

Step 1: At the (AØ=) prompt enter B: CHECK, indicating that you want to change the logged on drive to (B:) and do a check of the files on the (B:) drive. Press (RETURN).

Step 2: POWER displays the Numbered Menu of the files on Drive (B:), then displays the (select?) prompt, awaiting your selection.

Step 3: Enter 1Ø and 7 at the (select?) prompt, indicating that you wish to have calculated the checksums on the files PRINT and LPRINT. Press (RETURN).

Step 4: POWER displays the checksum on each file. In addition, POWER displays the running total of the files entered in Hex and Decimal. In the above example, you can see from the two different checksums of the two files that the files are not the same, despite their similar names. If you were comparing groups, you'd compare the running totals.

For syntax variations, see CONVENTIONS.

CM
COMPARE MEMORY

USE: This command lets you compare two separate sections of memory to determine whether or not they are the same and if not, where and how they are different. It can be used to compare two programs you believe are different but have the same names or similar names on the same disk or on different disks. Because you actually load files to memory and check inside them, this is a more comprehensive comparison than CHECK. If you want an even more detailed look, use the TYPE command to display the entire contents of a file to the screen or TYPE them out on the printer.

SYNTAX: A0=CM (Beginning Hex address of first section) (Ending address of first section) (Beginning address of second section)

NOTE You do not enter a second address for the second section. POWER automatically computes the length of the first section of memory, determines the length of the second section and then compares the contents of the memory space occupied.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
A0=CM 5500 6000 7200     (RETURN)
5500: 43 1E :7200
5501: 3D CD :7201
5502: 43 D0 :7202
5505: 53 23 :7205
```

This is what happens:

Step 1: At the (A0=) prompt, enter CM 5500 6000 indicating you want to compare the stretch of memory from 5500 to 6000 with the stretch from 7200 to an equal length as the first section. Press (RETURN).

Step 2: POWER compares the two stretches against each other. Included in the display are ONLY the bytes that are different. The bytes from 5500 to 5502 are different from the bytes 7200 to 7202 so they are shown. Bytes 5503 and 5504 are not shown, because they are identical with the characters at bytes 7203 and 7204.

NOTE: Ordinarily you'll be LOADing both files to be compared into memory at specific addresses in the Transient Program Area before doing the CM function. See the LOAD command.

For syntax variations, see CONVENTIONS.

*****

COPY
COPYING OF FILES

USE: You'll find this is one of POWER's most valuable commands. With COPY you can quickly duplicate any number of files from a currently logged drive, or from any specified drive, to any drive you select. The importance of POWER's COPY command is ease of use. With the Numbered Menu, you simply enter as many file numbers as you want, and POWER automatically copies them for you - a tremendous time saver over the laborious process of typing (or mistyping) the names of each of the files you want copied.

Another powerful feature of this command is that POWER displays on the screen the name of each of the files at the moment it is being copied, rather than leaving a blank screen. This gives you the opportunity to double check your operation. If you decide not to COPY a file, simply press (ESCAPE) when the wrong name comes up, and the COPY is aborted. For other POWER options, see below.

Finally, in conjunction with POWER's SIZE and STATistics commands, you can find out ahead of time whether or not a file or a group of files will fit on the destination disk. See those commands for further instructions.

SYNTAX: AØ=COPY

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=COPY
AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY   .COM
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .CMD | 11= SYSGEN  .COM | 12= TRADE   .TXT

select?1 4-6  (RETURN)

destination drive :B

B:=A:COLLEGE.TXT
B:=A:DEMO    .COM file exists,<B>ackup,<O>verwrite,<S>kip: S
B:=A:END     .BAK
B:=A:INQUIRE.TXT - bad sector on read, abort Y/N: y
```

This is what happens:

Step 1: At the (AØ=) prompt, type COPY, indicating that you wish to COPY a file from your logged on drive (A:). Now, press (RETURN).

Step 2: POWER displays the Numbered Menu followed by the (select?) prompt awaiting your selection.

Step 3: You type files 1 and 4 - 6, indicating that you want to COPY the COLLEGE, DEMO, END and INQUIRE files. Press (RETURN).

Step 4: POWER asks for the (destination drive :). Type B. NOTE you do not need to type a (:) nor a carriage (RETURN).

Step 5: POWER proceeds with the COPY bringing up each file name as each COPY takes place.

Step 6: When POWER starts to COPY the DEMO program, it discovers another program of the same name on the (B:) disk. POWER will never inadvertently overwrite your file. Instead, at this point you're asked what you want to do - <O>verwrite the (B:) disk DEMO file; make a <B>ackup copy on the (B:) disk; or <S>kip COPYing the DEMO file to the (B:) disk. This time you decide to <S>kip, so you tell POWER by hitting the S character. NOTE that this choice stays displayed on the screen, so that you have the opportunity to double check it if you want to redo the COPY.

Step 7: When POWER starts to COPY INQUIRE, it discovers a bad sector in the file. Once again POWER tells you what the status is and asks for your instructions. In this case, you decide to abort the COPY, so you press Y.

NOTE With CP/M versions 2.xx and later you can use COPY and/or MOVE files between USER Areas as well as between disks. See the USER/XUSER command.

IMPORTANT COPY OPTIONS

There are a number of options which greatly enhance the use of COPY. Before activating, enter the LOG command and check how the Default [] options are set. These can be changed for the current COPY operation, or you can make the changes permanent by using the SAVE command.

The first line of the LOG display details the automatic action to be taken when encountering a file of the same name on the destination drive. The first character tells you which Default flag is now set. The balance of the line shows your choices - i.e., A-overlay (to automatically overwrite the destination disk file), B-back-up (to automatically create a back-up copy on the destination disk), C-ask (to ask your choice for each COPY), D-skip (to skip the COPY of the particular file that already exists on the destination disk).

Further, take a look at the [R], [V], [T] [M] and [Q] options. The [R] toggle turned ON asks Y/N confirmation for each file COPY before it occurs. Turned OFF, there is no Y/N verification question.

The [V] toggle will automatically read back the COPY on the destination disk to verify that no errors have occured in writing to the disk. This will, of course, take some extra time in the COPY.

The [T] toggle turned ON aborts the COPY if a file in the series is too large to fit on the Destination Disk and the disk is full. Turned OFF instructs POWER to proceed to attempt COPYing the rest of the series, looking for files small enough to fit into remaining space on the destination disk. NOTE that POWER protects you and your files from getting caught in a situation without knowing what files have been transferred.

The [M] toggle marks the file name in the directory entry on the original disk (<) AND on the destination disk (>). This gives you a permanent record of which of your files are originals and which are duplicates, and is especially useful for making archive back-ups.

IMPORTANT For the [M] option to work, the ORIGINAL disk cannot be Write Protected, because POWER has to write to it to place the marker. If you attempt a COPY from a Write Protected original disk with the M toggle ON, POWER will tell you "can't log on", because the Marker cannot be placed.

The [Q] option allows you to rename files as they are being copied. This is particularly valuable because it allows you to COPY a new, edited version of the same file to the same disk without invoking the separate RENname command.

You initiate this by entering COPY [Q] at the (AØ=) prompt. After the Numbered Menu has been displayed and you have made your selection of files and destination drive, POWER will prompt for a (new name:). [Q] is a one time only option, so that you only invoke it when needed.

NOTE Toggle Bracket Control Key are deactivated by entering the same Control Key inside the brackets a second time.

NOTE: COPY writes to the disk. Use (Control C) before setting it up. If you forget, however, POWER will not perform an incorrect COPY. It will prompt you to press (Control C), so that you can start over.

For syntax variations, see CONVENTIONS.

DIR
DIRECTORY

USE: This is often the first command you enter in the day, so POWER offers you a number of ways to tailor design your directory of files to suit your needs.

The following is a description of the variety available to you.

SYNTAX: AØ=DIR
AØ=DIR [X] -list the directories of all drives on-line
AØ=DIR [U] -list all USER areas on disk
AØ=DIR [XU]-list all USER areas and all directories
(Customize Byte Ø16Ø for number of drives)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=DIR B: [2]    (RETURN)
BØ:   1= COPY     .TXT |  2= IN[      .TXT
BØ:   3= PASS     .COM*|  4= POWER    .COM
BØ:   5= PWRETOOL.COM  |  6= PWZ      .COM
BØ:   7= SETUP    .TXT |  8=(SYS      .COM)

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt enter DIR B: [2], indicating that you wish to see the directory of disk (B:) in two columns. Any other number inside the brackets alters the number of directory columns correspondingly. Now, press (RETURN).

Step 2: POWER displays the directory of disk (B:) in two columns. Notice that the file SYS .COM is enclosed in parenthesis, indicating that it is a system file. Also, PASS is designated with * to let you know that it has been set to READ ONLY. See the SETSYStem and the SETReadOnly commands for more information on these designations.

The POWER directory can be modified in numerous other ways utilizing other commands. The most common one is the SORT command, which arranges files alphabetically by:

(a) file name
(b) " " , but with system files last
(c) extension
(d) " , but with system files last

See the SORT command for instructions on this modification.

If you want to do a one time directory search for a particular file or group of files, you can instruct POWER to do this by using wild cards. POWER accepts either CP/M's conventional *.* or the special ** POWER wild card. For example, you have a disk full of the last six months of accounting files - they all start with ACT and you only want January, enter:

```
DIR ACTJA**
```

Conversely, you only want to isolate files with a particular extent, enter:

```
DIR **TXT
    or
DIR **.TXT
    or
DIR *.TXT
```

Obviously, choices are limitless. See Wild Cards in the CONVENTIONS section for more possibilities.

Finally, characters inside each file name can be specially SET to isolate certain groups of files automatically. See the SET command.

For syntax variations, see CONVENTIONS.

DISK
DISK INFORMATION DISPLAY

USE: This command lists the important system parameters of a disk, such as disk format, capacity, density and where system tracks are. These statistics are useful in patching or altering disk data using POWER's direct disk access READ/WRITE commands. The sectors per group information is needed for the READGR/WRITEGR commands.

For faster checks of available space on several disks in different drives, see the STATistics command. For further statistics on individual files, see the SIZE command.

SYNTAX: **AØ=DISK**

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=DISK (RETURN)

```
Disk                        A:
Disk capacity:              165k
Tracks:                     35      2 system
Sectors/track:              4Ø      22 last
Sectors/system:             8Ø      16 dir
Dir entries:                64      2K
Sectors/group:               8      1K   A4H groups
KByte/extent:               16K
```

This is what happens:

Step 1: At the (AØ=) prompt, enter DISK, indicating that you wish to check the system parameter of the currently logged disk. Press (RETURN).

Step 2: POWER displays the information on that disk. Disk information will vary according to individual hardware manufacturers.

In the example above you have learned the following:

The information is about the DISK on Drive (A:). The capacity of the disk is 165K. There are 35 tracks on the disk, two of them occupied by the operating system. There are 4Ø sectors to a track but the last track contains only 22 sectors. The operating system occupies 8Ø sectors (or two tracks), the directory occupies 16. The directory is capable of storing 64 entries for a total of 2K. There are eight sectors to a group, which occupies 1K of space. The total number of groups on the disk in Hex is A4H. One extent occupies 16 K.

For syntax variations, see CONVENTIONS.

*****

DS
(DISPLAY/SUBSTITUTE)

USE: DISPLAY/SUBSTITUTE is the most sophisticated byte level memory modification command available for microcomputers. It permits the operator to enter Hex, Ascii, Binary, or Decimal code directly into computer memory addresses. Code may be entered in any mixed combination in sequences up to 120 bytes. Memory may be sequentially displayed and altered. The operation may be toggled backwards or forwards at will.

Conversion between Ascii, Hex, Binary and Decimal is computed instantly for the user by POWER.

See TIPS AND TROUBLESHOOTING, PATCHING and CUSTOMIZATION for uses of this command.

SYNTAX: A0=DS (Hex address to start Display/Substitute of memory)

Press (RETURN) to display addresses line by line without any changes. Press (TILDE) to reverse the direction of the single stepping through memory. You can change the mode of entry into memory by .H for Hex, .D for Decimal, .B for Binary, or .A for Ascii.

NOTE The following example is for investigation of the variety of steps you can make with the POWER Display/ Substitute command, not for a specific memory change.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
A0=DS 4000  (RETURN)
addr:Hex Dec   Binary  Ascii Enter
4000: C3 195  11000011   -C   <H>E5 E5                (RETURN)
4002: 00  00  00000000    @   <H>                     (RETURN)
4003: 00  00  00000000    @   <H>.A                   (RETURN)
4003: 00  00  00000000    @   <A>T E S T .H E5 E5 .B (RETURN)
4009: 00  00  00000000    @   <B>(TILDE)
4008- E5 229  11100101   -e   <B>                     (RETURN)
4007- E5 229  11100101   -e   <B>                     (RETURN)
4006- 54  84  01010100    T   <B> 01111111 (TILDE)
4007: E5 229  11100101   -e   <B>..                   (RETURN)
A0=
```

This is what happens:

Step 1: At the (A0=) prompt, enter DS 4000, indicating that you wish to see information at that location in memory. Press (RETURN).

Step 2: POWER displays the 4000 line with the following information - Hex C3, Decimal 195, Binary 11000011, Ascii -C, Enter <H>. This tells you all the different code equivalents at once for that byte, plus the information that the system is ready to accept entries in Hex.

You enter E5 E5, thus changing both this AND the following byte. BE SURE to seperate each entry by a space. Press (RETURN).

Step 3: Since you made two memory entries, one for 4000 and one for 4001, the next address POWER displays is 4002. You leave this address as it is and go on to the next by pressing (RETURN).

Step 4: You are now at address 4003. After the <H> indicator, you enter .A, which tells POWER that you wish to enter code in Ascii letters. Press (RETURN).

Step 5: You are still at address 4003 with the new <A> displayed. POWER is prepared to accept code in Ascii. You type T E S T in Ascii letters, BEING SURE TO SEPARATE EACH LETTER BY A SPACE. This uses four addresses i.e., four bytes.

Here, in mid-line, you change code by typing .H, and you can now enter code in Hex. Type E5 E5

Once again you change code in mid-line by typing .B to prepare for Binary entries. Press (RETURN).

Step 6: The next address POWER displays is 4009. This is because at the last address, 4003, you entered a total of six bytes, i.e., the four letters and the two E5's. POWER automatically altered each byte in sequence making entries up to 4008. POWER is now ready for the next entry at 4009.

At 4009, type the (TILDE), which reverses the direction of the Display/Substitute.

Step 7: You automatically move back to address 4008. Notice the MINUS (-) sign beside the address. This indicates you are moving in the reverse direction. Notice that the Hex number has been changed to E5 as per the alteration of Step 6. ALSO NOTICE THAT THE CORRESPONDING CONVERSIONS IN THE OTHER CODES AT THAT ADDRESS HAVE BEEN DONE FOR YOU AUTOMATICALLY BY POWER. Press (RETURN).

Step 8: You are now at address 4007. Notice that the Ascii letter is a T, as per the last letter of TEST that was entered in Step 6. Press (RETURN).

Step 9: You are now at address 4006. POWER is ready to accept code in Binary as per your entry at Step 5. You type in 01111111 and then the (TILDE), which toggles the direction once again.

Step 10: You have now moved automatically to 4007. Enter (DOUBLE DOT (..) (RETURN) to halt entries and return you to the POWER prompt. You can also enter (ESCape) or (Control C) for this function.

COMMANDS USED WITH THE DS ENTRY SYNTAX

.H <H> displayed on the screen indicates that the system is ready to accept code as Hex bytes separated by spaces. (See address 4000.) The .H instruction toggles the system to Hex.

.A <A> displayed on the screen indicates the system is ready to accept code as Ascii letters. NOTE that each Ascii letter entry must be separated by a space (see address 4003). The .A instruction tells the system to go into the Ascii mode.

.B <B> indicates the system is ready to fill memory address with individual bits (0's or 1's) in the Binary mode. The .B command changes the entry to the Binary mode. (See address 4003.)

.D <D> indicates the system is ready to accept code as Decimal entries. .D instructs the system to change to this mode. (There is no Decimal entry in the example above.)

(RETURN) steps through memory displaying the address contents line by line (see addresses 4002, 4008, and the first 4007). It is also used to terminate change of data (see addresses 4000, the second 4003 and the second 4007). When (RETURN) is used to terminate a change of entry mode, the display does NOT advance (see address at the first 4003), but rather shows the new entry mode and awaits your instructions. A second (RETURN) is needed to advance to a new memory address. NOTE that (LINE FEED), (Control M) and (Control J) are THE SAME AS (RETURN) and that entering any of these keys without other instructions will leave the addresses totally unchanged.

(TILDE) (~) toggles stepping direction forward or backward through memory The MINUS (-) at an address indicates reversed direction. It leaves memory unchanged and returns you to the previous address. (See addresses 4006 and 4009.)

(DOUBLE DOT) (..) ends Display/Substitute session and, with (RETURN), returns to POWER's main prompt.

NOTE: (TILDE) (~) and (DOUBLE DOT) (..) commands may be changed to suit your terminal (See CUSTOMIZATION.)

(CARET) (^) is used in the Ascii entry mode. (^) plus a (Control Character) will allow you to type in any of your computer's Control Characters for screen display or other functions rather than actually carrying out the command the Control Key normally issues. Do NOT press the (Control Key) along with the (Control Character) in this entry. NOTE Some terminals display (^) as an (up arrow).

POWER AUTOMATIC CODE EQUIVALENT COMPUTE FUNCTION

To find the equivalents in Hex, Decimal, Ascii or Binary code, Enter DS for an unused memory area. (80 Hex is usually an available address.) Enter known Binary, Hex, Decimal or Ascii information and (RETURN). Then hit the (TILDE) to re-display the first location with +your new entry now in the display. All the math conversions will have been instantly performed for you.

DUMP / DUMPX / DUMPH / DUMPA
DUMP FROM MEMORY TO VIDEO DISPLAY

USE: These four commands will type out the contents of selected areas of memory. You can work with files currently in memory, or files LOADed into memory. The information will automatically display to the screen, or you can include (CONTROL P) when entering the DUMP command, to have the information typed out to the printer.

These commands can be used to view the memory, find crashed files and isolate problems. In conjunction with the DISPLAY/SUBSTITUTE command, they can be used for patching. In conjunction with POWER's SAVE command, they can be used to recover crashed word processor text. See TIPS AND TROUBLESHOOTING.

DUMP is used only for Ascii letters (such as word processor produced text) that is currently in memory. If the file has been formatted with TABS, etc., it will display the text as formatted.

DUMPX is used to display the Binary code in memory as Hex and also Ascii lines you wish to see. The display can be formatted for 40, 64,or 80 character video. (See CUSTOMIZATION.) Display is in numbered lines of 16 Hex bytes each with associated Ascii letters displayed in Ascii.

DUMPH is used to display only Binary code in memory as a Hex listing. The display is in numbered lines of 16 Hex bytes.

DUMPA will display Ascii code in memory but without TABS, etc., formatting. Letters are shown in address lines of 16 letters each, as per the DUMPH display.

SYNTAX: A0=DUMP (address) (address) in Hex
or
A0=DUMPX " " " "
or
A0=DUMPH " " " "
or
A0=DUMPA " " " "

NOTE Before the DUMP command is used, information must be resident in memory. Disk files can be placed in memory using POWER commands LOAD, READ, or READGR.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=DUMP  Ø2ØØ Ø21Ø     (RETURN)

Ø2ØØ: 2Ø534156 452Ø4C4F 41442Ø52 45414420      SAVE LOAD READ
Ø21Ø: 57524954 452Ø5245 41444752 2Ø575249     WRITE READGR WRI

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter DUMP Ø2ØØ Ø21Ø, indicating that you wish to see the contents of memory at that location. Press (RETURN).

Step 2: POWER displays the contents of memory from Ø2ØØ TO Ø21Ø In this case, you have only requested 32 bytes - if you want to view large sectors of memory, it will be displayed a screenfull at a time. Information will fill the screen and then stop. Hitting (RETURN) will display another screenfull of information. The (SPACE BAR) will move you line by line. Any other key will start a continuous scroll. Speed of the scroll will be governed by hitting Ø to 9 during output, Ø being the fastest speed. DUMPing once started, will proceed automatically until you reach the second address you entered with the command.

Paging can be restored when you are scrolling by hitting the (SPACE BAR) to stop the display and then (RETURN) to bring up a new page in the normal paging mode.

Output page length can be formatted with CUSTOMIZATION of the byte at 1Ø5 Hex.

Output can be sent to the printer with the (Control P) toggle. Printer output with this function is always in a continuous scroll.

SUBSEQUENT DUMP COMMAND SYNTAX

After the first DUMP command has been issued, following DUMP commands may be used WITHOUT specifying the address in memory as follows:

DUMP (RETURN)
This command will DUMP 128 bytes of memory starting from the address used in the last DUMP command.

DUMPX ,5 (RETURN)
This command will DUMP five bytes from the address last used.

DUMPX ,, (RETURN)
This command will DUMP ØFFFFH bytes (entire memory) from the address last used.

DUMPX 1ØØ, (RETURN)
This command will DUMP 128 bytes of memory starting at the given address (in this instance 1ØØ).

DUMPX 1ØØ (RETURN)
This command will DUMP one byte from the given address.

DUMPX 1ØØ,ØF (RETURN)
This command will DUMP ØF Hex (15 Decimal) bytes from the given address.

ERA
ERASE FILES

USE: This command ERAses the files you choose from the currently logged drive or from a specified drive. Utilizing the POWER Numbered Menu for ease of selection, you can ERAse large numbers of files in one operation. After your selection, but before doing the ERAse, POWER will leave the names of all the files on screen, along with your instructions, and bring up a Y/N option question, so that you can double check the operation before activating it. Each filename will be displayed on-screen during the ERAse, giving you yet another opportunity to check what is happening and use the RECLAIM command if you discover a mistake. Further, you can use the [R] bracket Control Key to give you a Y/N choice for each ERAse.

SYNTAX: AØ=ERA

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=ERA      (RETURN)
AØ:   1= COLLEGE.TXT |  2= CUR/IO   .ASM |  3= DAISY   .COM*
AØ:   4= DEMO   .COM |  5= END      .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY    .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .CMD | 11=(SYSGEN   .COM)| 12= TRADE   .TXT


select?8 3   (RETURN)

erase  (Y/N)   Y

A: MONEY  .CMD
A: EMD    .BAK
```

This is what happens:

Step 1: At the (AØ=) prompt, you enter ERA which tells POWER that the you wish to ERAse a file or files. Because you have not designated a drive, POWER knows that Drive (A:), your currently logged drive, is to be used. Press (RETURN).

Step 2: POWER displays the Numbered Menu of files on Drive A:, and then displays the (select?) prompt, awaiting your selection.

Step 3: Enter 8 and 3, indicating that you wish to ERAse those two files. Press (RETURN).

Step 4: POWER asks for a confirmation before ERAsing your files by prompting with a Yes/No (Y/N). After double checking, you enter Y.

Once Step 4 has been initiated, POWER proceeds automatically to ERAse

each of the files selected and displaying each filename in turn as it is erased.

FILE BY FILE Y/N ERASE PROTECTION

A special feature of POWER is an option that allows you to decide file by file whether or not to ERAse. To activate this option, enter ERA [R] at the (AØ=) prompt.

IT'S IMPORTANT TO ENTER A SECOND [R] AFTER THE ERASE IS COMPLETE TO TURN OFF THE Y/N TOGGLE, AS IT WILL APPEAR DURING EVERY MANIPULATION OF THE FILES UNTIL IT IS TURNED OFF. See the LOG command.

CORRECTING ERRORS: If you inadvertently erase a needed file no harm is done as you can immediately RECLAIM it. See the RECLAIM command.

NOTE: It's important to use the RECLAIM function as soon as possible after ERAsing a file. If you write to the disk after the ERAse and overwrite the file, it can no longer be RECLAIMed.

For syntax variations, see CONVENTIONS.

*****

EXIT
EXIT FROM POWER

USE: This command should be used at the end of a session with POWER to provide an orderly EXIT and restore system parameters.

In addition, POWER contains an automatic memory test that is executed every time an EXIT command or a (Control C) is issued. If a "?" appears after you issue either of these commands, you should conduct a comprehensive memory test to locate the problem.

NOTE: (Control C), often used to exit CP/M programs, will NOT provide an exit from POWER, but will simply return you to the neutral POWER prompt (AØ=).

The EXIT command will restart CP/M.

SYNTAX: AØ=EXIT

*****

FILL
FILL COMPUTER MEMORY

USE: This command FILLs the computer memory from a starting address to an ending address with the byte you enter in Hex. It can be used to zero memory before patching programs or using other monitor functions. It is often useful to visually clear the memory by FILLing it with 2Ø Hex code (i.e., Ascii SPACE) before entering code or reading from the disk. The DUMPX command will then show clearly defined boundries where the code you entered begins and all else is a blank screen.

FILL is also useful in repairing glitched disks. By first FILLing the memory area with E5's, then using POWER'S READ/WRITE commands to write to the disk, you are able to isolate the malfunctioning part of the disk.

SYNTAX: FILL (address) (address) (byte in Hex)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ= FILL 2ØØØ 25ØØ 2Ø (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt you enter FILL 4ØØØ 45ØØ 2Ø, instructing POWER to FILL memory from address 4ØØØ to 45ØØ with the Hex character 2Ø. Press (RETURN).

NOTE: Addresses and bytes to be used as memory FILLer must be separated by one or more spaces.

Step 2: POWER will proceed to FILL the address in memory with 2Ø Hex.

*****

GO
ACTIVATE PROGRAM

USE: This command acts as a special form of RUN. It reads the named program from a specified disk drive, loads it to a specified address in memory and then jumps to the program's new address. It is useful for loading and running utilities, monitors or other special programs that operate at addresses other than CP/M's standard 1ØØ Hex. See also JumP/EXecute.

SYNTAX: AØ=GO (filename) (address in Hex)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=GO DOS.4KK 4ØØØ (RETURN)

or

AØ=GO B:DOS.4KK 4ØØØ (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt enter GO DOS.4KK 4ØØØ, indicating that you wish to load file DOS.4KK to address 4ØØØ in memory and then have it executed. Press (RETURN).

Step 2: POWER will load the file to the address given and execute. In the second example, the program will be loaded from disk (B:) rather than disk (A:).

For syntax variations, see CONVENTIONS.

*****

GROUP
LIST GROUPS

USE: This command lists the groups which compose a file. It enables the user to determine how a particular file is spread on a disk. If a particular file seems to be taking a long time to access, use the GROUP command to determine how the file is located on the disk. Once the allocation has been determined through the GROUP command, the user can COPY to a fresh disk and pull the file groups together.

SYNTAX:
```
AØ=GROUP
AØ=GROUP TEST.TXT
AØ=GROUP B:TEST.TXT
AØ=GROUP B:
```

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=GROUP TEST.TXT (RETURN)

A:TEST .TXT ØØ ØØ59 ØØ5A ØØ5B ØØ5C ØØ5D ØØ5E ØØ5F

This is what happens:

Step 1: At the (AØ=) prompt enter GROUP TEST.TXT, indicating that you wish to see which groups compose the file TEST.TXT. If you don't remember the exact file name, enter GROUP, and the POWER Numbered Menu will come up with the (select?) prompt. Press (RETURN).

Step 2: POWER responds with the group information for file TEST.

NOTE The first number after file name is the extent number. The rest of the numbers are CP/M's group locations in Hex. You can use the READGR command to READ any of the Groups to screen or to memory.

For syntax variations, see CONVENTIONS.

*****

JP EX
JUMP TO PROGRAM/EXECUTE PROGRAM

USE: These two commands allow the user to JumP to a program or utility that is already resident in computer memory at the specified address.

JP (JumP) runs the program at the specified address. When the program has completed, POWER will return to the CP/M system warm boot at Ø Hex.

EX (EXecute) runs the program at the specified address. When the program has completed, POWER regains control.

SYNTAX: **AØ=JP (address) (argument)**
AØ=EX (address) (argument)

Both of these commands allow the programmer to pass an argument (data entered from the keyboard) to the specialized routine that is being called. The routine can pick up the argument from POWER's input buffer. The address of the input buffer is stored at 3ØE - 3ØF Hex. See CUSTOMIZATION.

EXAMPLE (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=JP FØØØ (optional ARGUMENT) (RETURN)
or
AØ=EX FØØØ (optional ARGUMENT) (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt, enter either **JP FØØØ** or **EX FØØØ**, indicating that you wish to jump to the address FØØØ. Press (RETURN)

NOTE: THERE MUST ALREADY BE A WORKING PROGRAM AT THIS ADDRESS.

Step 2: With (JP), POWER will execute the program at the specified address and when completed will execute a warm boot of CP/M (reload the Command Processor).

With (EX), the computer will return to POWER when the program has completed its actions.

NOTE: The program you jump to MUST end with (RETURN) C9 in order to return to POWER at 1ØØ Hex. It may end with the BDOS function call #Ø or JMP Ø to warm boot directly.

*****

LOAD / SAVE
LOAD AND SAVE FILES

USE: These two commands, combined with the Display/Substitute (DS) command, give the user complete control of machine language CP/M programs. The user can load a disk file to any address in memory and save code from any address in the computer's memory. Files do NOT have be loaded to the addresses at which they normally reside, an invaluable aid in patching programs when that address has been glitched.

SYNTAX: **AØ=LOAD (full filename) (memory address in Hex)**
AØ=SAVE (full filename) (memory address in Hex) [sectors]

IMPORTANT: Before using the LOAD command, it's a good idea to use POWER's LOG command to note the Transient Programming Area (TPA), which is the memory area available for your file manipulation and program patching. This address will be listed at the bottom of the LOG command display.

Once this information has been determined, you use the SIZE command to obtain the current file size in Decimal sectors and number of K for the program you will be patching. Now you can determine whether or not the file will fit into the Transient Programming Area.

If the file is too large, you MUST BREAK IT UP INTO SMALLER SECTIONS, since LOADing the entire file will overwrite the memory area where the CP/M system is operating. Use the GROUP and READGRoup commands to obtain detailed file size information. The sector size information is useful in later writing the program back to disk with the SAVE command.

YOU MUST GIVE THE EXACT FILENAME WITH EXTENSION TO ACTIVATE THESE COMMANDS. POWER's Numbered Menu does not operate.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=LOAD TEST.COM 41ØØ (RETURN) Last Address* 7AFFH 116 Sectors

---

This is what happens:

Step 1: At the (AØ=) prompt, enter **LOAD TEST.COM 41ØØ** to indicate that you want to LOAD file TEST.COM (filename and .extension) from the disk on default Drive (A:) to the memory address 41ØØ. Press (RETURN).

NOTE that after the LOAD is completed, POWER automatically displays the end address and the number of sectors the file occupies. It's a good idea to jot this information down, as you may need it later.

HINT When LOADing a .COM file that normally runs at 1ØØ Hex - LOAD it for patching to an address K+1ØØ as in the example above. This keeps bytes to be changed in the same relative location and simplifies the math.

The SAVE command is the mirror image of the LOAD command:

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=SAVE TEST.COM 41ØØ (RETURN)

AØ=SAVE TEST.COM 41ØØ 4Ø

This is what happens:

Step 1: In this example you are SAVing the files back to the disk. The entry SAVE TEST.COM tells POWER that the file is being SAVEd to the same disk from which it was loaded AND THAT NO CHANGES WERE MADE THAT INCREASED ITS LENGTH. Consequently, no sector information is needed. POWER will obtain the correct length of the code area to save from the directory entry or the original disk AND WILL OVERWRITE the original disk file with the SAVEd file.

Step 2: In the second example, however, CHANGES WERE MADE that altered the length of the file. Consequently, the entry SAVE TEST.COM 41ØØ 4Ø MUST BE USED as it specifies the sector file length and creates a new file 4Ø sectors long. The file size is the number of Decimal 128 byte sectors used.

FILE SIZE MUST ALSO BE GIVEN WHEN YOU ARE SAVING THE SAME FILE UNDER A NEW NAME. As noted, the number of sectors in the original file was given as the last information on the display line when POWER originally LOADed the file.

WARNING: IT IS VERY IMPORTANT THAT YOU DO NOT USE ANY OF POWER'S NUMBERED MENU COMMANDS WHILE OPERATING THE LOAD/SAVE FUNCTIONS. IF YOU DO, POWER'S NUMBERED MENU WILL PROBABLY OVERWRITE YOUR PROGRAM IN MEMORY.

WARNING: NEITHER THE READ/ONLY NOR THE AUTOMATIC (CONTROL C) USER PROTECTION FUNCTIONS OPERATE HERE. THE SAVE COMMAND WILL OVERWRITE ANY EXISTING FILE.

PATCHING

Once you have LOADed information into memory, you can use a number of POWER'S monitor commands to alter it before SAVing it back to the disk. The DUMP commands will display the information on the video. The Display/Substitute commands will allow direct changes. The FILL command will allow you to fill any section of the memory with particular characters. The MOVE command will allow you to move the information to different sections of memory and the SEARCH command will allow you to search the information for particular bytes. See each command for further instructions.

*****

LOG
OPERATING INFORMATION

USE: This command displays POWER's Default settings for reading, writing, display, requests, etc. Other system Defaults for control characters, display, etc. can be changed by entering the proper bytes in the memory data area starting at location 1Ø5 Hex. See CUSTOMIZATION.

NOTE Some of these settings are toggles, and must be entered a second time during a session to change them back to the way they were. Others are one time only options, and will turn themselves off as soon as you move to a new operation.

To make Defaults permanent, have POWER save itself to disk in its revised form. See SAVE.

SYNTAX: AØ=LOG

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=LOG  (RETURN)

C          If file exists: A-overlay, B-back up, C-ask, D-skip
3          columns
P  (ON)    paging
R  (OFF)   request Y/N on current file     (Q-request new name)
V  (ON)    read after write
S  (ON)    show system files
T  (OFF)   stop if disk is full
M  (OFF)   Mark copied files
X          list drives A-P if on-line
U          list users Ø-15
$  (ON)    submit $$$.SUB - A:POWER
+/-        1-8 or (R)ead/write, (S)system/dir, e(X)tra
POWER      Ø1ØØH  - (addr)
TPA        (addr) - (addr)    (number) sectors

AØ=
```

This display shows POWER's current operating Defaults. You may change these Defaults at the (AØ=) prompt at the bottom of the LOG menu or anytime during the program when the (AØ=) prompt appears either before or after entering a command.

To change a Default setting, enter a bracket ([) followed by the appropriate letter or letters. NOTE that it is not necessary to enter a second (]), but it is useful for visual clarity.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=DIR  [DR2V]  (RETURN)
```

This is what happens:

Step 1: Placing the D inside the bracket:
changes Default C
FROM:
requesting user choice of (b)ackup, (o)verwrite, (s)kip file when a COPY operation encounters a file of the same name on the destination disk.
TO:
automatic skipping of any file transfer if a file of the same name exists.

Step 2: Placing the R inside the bracket:
changes the R toggle
FROM:
its current OFF Default where no Y/N appears for each operation.
TO:
ON.
If ON, a Y/N check is requested from the user before each file function. If OFF, the request is not made. This function is very valuable in the ERASE and RENname commands.

Step 3: Placing the 2 inside the bracket:
sets the display of disk directory listings
FROM:
3 columns
TO:
2 columns.

Step 4: Placing the V inside the bracket:
changes the V toggle
FROM:
its present ON Default where each COPied file is read back and compared with the original to verify a fault-free transfer.
TO:
OFF where no verify is made, but COPies are faster.

DEFAULT SETTINGS:

A During file COPYing, the [A] setting automatically Overlays (overwrites) any file that exists on the destination (receiving) disk when it has the same name as the original file. Used to destroy old files, overlaying them with new files from another disk.

B Automatically Renames file on receiving disk if one already exists with same name on the disk being COPied. Only the extension is renamed to (filename).BAK. Prevents accidental overwriting of files or programs.

C Automatically brings up the User Option choice "file exists, (B)ackup, (O)verwrite, (S)kip:" when a file of the same name is encountered on the Destination Disk during COPY.

D Automatically Skips COPYing any file if a file of same name already exists on the receiving disk. Prevents accidental overwriting of files or programs.

P Paging toggle. If set ON, then the video will page. If set OFF, video will keep scrolling.

Q If the Q is placed inside brackets at the COPY command, then POWER will request a new name for each file as it is being copied. This function is particularly helpful when you want to COPY a revised file and also keep a second copy of the original on the destination disk.

[Q] is a one-time only option, which will cease to operate when you move to another command.

S Toggle to permit the display or hide the display in directory listing of files marked as "SYSTEM" files.

Used both to protect system files from accidental manipulation from the Numbered Menu and to shorten directory searches.

T Toggle to control a series of file transfers during COPYing. If one of the files is too large to fit on the destination disk, it stops the entire COPY series, and awaits your instructions. If (T) is OFF, a transfer of the next smaller file in the series will be attempted.

M Toggle displays in the directory those files which HAVE BEEN COPIED (<) and those files which ARE COPIES (>). Note that this procedure only applies to marking particular files initially. Once a file has been marked, it stays marked on the disk and will show up in the directory regardless of whether the M toggle switch is ON.

Used to mark master copies of programs that may be changed and saved in several versions or to indicate which files are your back-ups.

IMPORTANT For the [M] option to work, the ORIGINAL disk cannot be Write Protected, because POWER has to write to it to place the marker. If you attempt a COPY from a Write Protected original disk with the M toggle ON, POWER will tell you "can't log", because the Marker cannot be placed.

X Used as a one-time only option with the DIRectory command to list the directory of all those drives (A - P or 1 - 9) which are already on-line. You make a drive "on-line" by accessing at least once. Can be used with [U] to list all directories of all User Areas on all on line drives.

See DIRectory and CUSTOMIZATION

U Used as a one-time only option with the DIRectory command to list all User Area directories that are currently activated and accessible. Can be used with [X] to list all User Areas directories of all on-line drives.

$ Toggle which indicates whether or not the Auto Restart of POWER is ON. If toggle is ON, the user will return to the POWER prompt (AØ=) after a program has been RUN rather than returning to CP/M. [$] enables the user to stay within the POWER system.

+/- This feature enables the user to set particular characters of a file name. Used to segregate certain files in the directory by setting the same character of each of those files. See SET command.

The R/O, R/W, SYS, and DIR file options can be SET with the (+) and (-) here as well as with the respective SET commands.

POWER ØlØØH - (addr) This is the location in memory occupied by POWER, which may be useful in Patching and repairing programs and files.

TPA (addr) - (addr) (number) sectors
This is the Transient Programming Area (TPA), its address and size. This is the size of the area of memory that is available for your manipulation.

*****

MOVE
MOVE MEMORY

USE: This command moves the contents of blocks of memory from one location to another.

NOTE MOVE is not limited to moves in one direction, but works non-destructively either up or down. MOVE boundaries DO NOT have to be on memory pages.

SYNTAX: **AØ=MOVE (start address) (end address) (new start address)**
[all addresses in Hex]

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=MOVE 1ØØ 3FFF 41ØØ (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt, enter **MOVE 1ØØ 3FFF 41ØØ**, indicating that you wish to MOVE the entire POWER program from its normal operating location of 1ØØ through 3FFF Hex to a new location starting at 41ØØ Hex.

NOTE You do not enter the second part of the final address, because POWER automatically computes the length between the first two addresses of the first section and with that number then calculates the second end address.

NOTE The original POWER program at 1ØØ to 3FFF is not disturbed while the new, duplicate image is created at memory location 41ØØ to 7FFF.

*****

PASS
PASSWORD

See separate section.

READ / WRITE

READ AND WRITE TRACK AND SECTORS FROM DISK TO MEMORY

USE: These commands, in combination with POWER's on-line monitor functions, give the user complete control over the contents of CP/M disks. You can READ any CP/M track and sector into the computer MEMORY at any location. You can modify memory at will with the DS (Display/Substitute) command. You can WRITE memory contents back to any track and sector on any disk. The READ and WRITE commands function without regard to CP/M's directory look-up procedure.

WARNING! The READ/WRITE commands can destroy your disk files if used improperly or without care. They should not be used by the casual user as incorrect code written to the first tracks on the disk will destroy your CP/M system, incorrect code written to the directory tracks will make it impossible to access or recover files or programs, and incorrect data written to a file will make the file unusable. Finally, if you initiate any disk directory activity while working with the READ and WRITE commands, the data in the buffer zone can be destroyed. DO NOT issue any commands that call up the Numbered Menu.

WARNING! THIS COMMAND CAN OVERWRITE ANYTHING ON THE DISK. POWER cannot protect the directory. Also, the Read Only protect does not function during operation of this command.

SYNTAX:

```
AØ=READ (track) (sector)
    or
AØ=READ (track) (sector) [memory address]
    or
AØ=READ (track) (sector) [memory address] [n sectors]

AØ=WRITE (track) (sector)
    or
AØ=WRITE (track) (sector) [memory address]
    or
AØ=WRITE (track) (sector) [memory address] [n sectors]
```

The READ/WRITE commands are mirror images of each other. Each can take three similar forms as illustrated in the examples.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=READ 2 18  (RETURN)
      or
AØ=READ 2 18 4ØØØ  (RETURN)
      or
AØ=READ 2 1Ø 4ØØØ 8  (RETURN)
```

This is what happens:

Step 1: At the (AØ=) prompt you enter READ 2 18 which instructs POWER to read the data from track 2 (Decimal) Sector 18 (Decimal). Press (RETURN). NOTE When you don't enter a designation address, POWER automatically READs to the memory buffer at 8Ø Hex.

NOTE Information read into POWER's buffer zone as in the first example will be overwritten if there is any disk activity following the command.

Step 2: At the (AØ=) prompt, enter READ 2 18 4ØØØ which instructs POWER to read the data from Track 2 (Decimal) Sector 18 (Decimal) to memory address 4ØØØ. Press (RETURN).

Step 3: At the (AØ=) prompt, enter EAD 2 1Ø 4ØØØ 8 which instructs POWER to read the data from eight sectors starting on Track 2 (Decimal) on Sector 1Ø (Decimal) to memory address 4ØØØ (Hex).

DISPLAY DURING READ COMMAND

Your console will display the Tracks and Sectors read, the Physical Sector location (PS), and the memory location At which POWER has now placed these sectors.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=READ 2 1Ø 4ØØØ 8
G=Ø1:Ø1 T=ØØ2 S=Ø1Ø PS=ØØ6 At:4ØØØ-407F
G=Ø1:Ø2 T=ØØ2 S=Ø11 PS=ØØ7 At:4Ø8Ø-4ØFF
G=Ø1:Ø3 T=ØØ2 S=Ø12 PS=ØØ8 At:4ØØØ-417F
G=Ø1:Ø4 T=ØØ2 S=Ø13 PS=Ø25 At:4ØØØ-41FF
G=Ø1:Ø5 T=ØØ2 S=Ø14 PS=Ø26 At:4ØØØ-427F
G=Ø1:Ø6 T=ØØ2 S=Ø15 PS=Ø27 At:4ØØØ-42FF
G=Ø1:Ø7 T=ØØ2 S=Ø16 PS=Ø28 At:4ØØØ-437F
G=Ø1:Ø8 T=ØØ2 S=Ø17 PS=ØØ9 At:4ØØØ-43FF
```

OTHER FORMS OF READ / WRITE COMMAND:

Any variation of the following commands can be entered at POWER's main prompt (AØ=) to initiate operation:

AØ=WRITE B:2 18 4ØØØ
Writes one sector from address 4ØØØ to Track 2 Sector 18 on Drive (B:) but stays logged on (A:).

AØ=:WRITE 2 18 4ØØØ 32
Changes logged drive to (B:) and then writes from address 4ØØØ to Track 2 Sector 18 for 32 Sectors of 128 Bytes each.

AØ=:WRITE A:2 18 4ØØØ
Changes logged drive to (B:) and then writes one sector from address

A0=:WRITE A:2 18 4000
Changes logged drive to (B:) and then writes one sector from address 4000 to Track 2 Sector 18 on Drive (A:).

NOTE: If no memory address is entered, then only one sector will be read or written to CP/M's buffer at 80 Hex.

BEFORE USING THESE COMMANDS it's a good idea to familiarize yourself with POWER's associated READGR and WRITEGR commands as well as the FILL, DUMP, DS (Display/Substitute), and MOVE commands.

*****

READ

READ TRACKS AND SECTORS FROM DISK TO SCREEN

USE: This variation of the READ command enables you to READ tracks and sectors directly to the SCREEN. It is used for quickly scrolling through disk data. All disk information is actually loaded to the buffer zone at 8Ø Hex. NOTE that you can READ more than one sector, but only one sector at a time will be in the buffer.

SYNTAX: AØ=READ (Track #)(Space)(Sector #)(Space)(Kind of READ) (Space)(# of Sectors to be READ)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=READ 34 1 XX 1 (RETURN)

```
G=ØØ8Ø:ØØ  T=Ø34  S=ØØ1  PS=ØØ1  At:ØØ8Ø-ØØFF

ØØ8Ø: 3ACE64CD 9364D8C3 666279BB 3FDØ3A2D     :.d..d..fby.?.:-
ØØ9Ø: 5957D5C5 E5D5CDFA 63D1CD81 21F5EBD4     YW......C...#...
ØØAØ: 1864F1E1 C1D1D22Ø 6378BADA 2C63CD77     .d..... cx..,c.w
ØØBØ: 2FD5DAED 625E2356 7AB3C2FØ 62113F63     /...b^#Vz...b.?c
ØØCØ: EBD1D5C5 3AF25ØCD 984347C5 E53AF45Ø     ....:.P..CG..:.P
ØØDØ: B7CAØ963 Ø6ØØC3ØB 63Ø6Ø43A A9639ØCD     ...c....c..:.c..
ØØEØ: 9F4B36ØØ E1EBCD18 64C188C1 D1DA3D63     .K6.....d.x...=c
ØØFØ: 54484953 2Ø49532Ø 412Ø3445 5354ØØØØ     THIS IS A TEST..

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter READ 34 1 XX 1, which tells POWER to display Track 34, Sector 1, in Hex and Ascii. Press (RETURN). NOTE The XX designation tells POWER two things - first that this information is not to be READ into memory and second how the information is to be displayed.

Step 2: POWER displays the Group number, Track, logical Sector location, Physical Sector location and address At which it is actually loaded. In this example, the only Ascii used as text appears at the bottom of the Ascii column at line ØØFØ.

ALTERNATE COMMAND SYNTAX

AØ=READ Ø 1 X - The same as the example requesting a READ X in Hex and Ascii. NOTE it is NOT necessary to enter both (XX) to activate this command, nor do you have to enter the (Number of Sectors to be READ), if only one Sector is required.

AØ=READ Ø 1 XH 2 - The same as above, except it reads only in Hex.

AØ=READ Ø 1 XA 2 - The same as above except it reads only in Ascii.

*****

READGR / WRITEGR
READ AND WRITE FILE GROUPS TO MEMORY

USE: The READ and WRITE GRoup commands allow you to read specific groups of a file to MEMORY, according to CP/M's internal file format. Once in memory you can manipulate the data using POWER's other monitor commands.

WARNING! The READGR and WRITEGR commands can destroy your disk files if used improperly or without care. They should not be used by the casual user as incorrect code written to the first tracks on the disk will destroy your CP/M system; incorrect code written to the directory tracks will make it impossible to access or recover files or programs; and incorrect data written to a file will make the file unusable. Finally, if you initiate any disk directory activity between the READGRoup and WRITEGRoup commands, the data in the buffer zone will be destroyed.

WARNING! THIS COMMAND CAN OVERWRITE ANYTHING ON THE DISK. POWER cannot protect the directory. Also, the Read Only protect does not function during operation of this command.

HINT: Before initiating a READGR/WRITEGR operation, use POWER's DISK command to obtain the sector size and number of groups per sector used by your own CP/M system. Determine the disk groups over which a particular file is spread using the GROUP command. Use these group numbers in the READGR and WRITEGR commands in the examples below to read the files into memory for manipulation.

SYNTAX: **AØ=READGR (start group #) (memory address) (sectors)**

AØ=WRITEGR (start group #) (memory address) (sectors)

NOTE: Group # and memory addresses are entered in Hex; sectors are entered in Decimal. Sectors are derived by multiplying the (sectors per group) obtained from the DISK command by the (number of contiguous groups) you wish to read.

If no memory address is given, then the group will be read to or written from CP/M's buffer at 8Ø Hex. Only one sector can be accommodated in this case, and if there is any disk directory activity between the READGR and WRITEGR commands, the data will be destroyed.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=READGR 1 4ØØØ 8 (RETURN)

```
G=Ø1:ØØ T=ØØ2 S=Ø1Ø PS=ØØ6 At:4ØØØ-4Ø7F
G=Ø1:Ø1 T=ØØ2 S=Ø11 PS=ØØ7 At:4Ø8Ø-4ØFF
G=Ø1:Ø2 T=ØØ2 S=Ø12 PS=ØØ8 At:4ØØØ-417F
```

```
G=Ø1:Ø2 T=ØØ2 S=Ø12 PS=ØØ8 At:4ØØØ-417F
G=Ø1:Ø3 T=ØØ2 S=Ø13 PS=Ø25 At:4ØØØ-41FF
G=Ø1:Ø4 T=ØØ2 S=Ø14 PS=Ø26 At:4ØØØ-427F
G=Ø1:Ø5 T=ØØ2 S=Ø15 PS=Ø27 At:4ØØØ-42FF
G=Ø1:Ø6 T=ØØ2 S=Ø16 PS=Ø28 At:4ØØØ-437F
G=Ø1:Ø7 T=ØØ2 S=Ø17 PS=ØØ9 At:4ØØØ-43FF
```

This is what happens:

Step 1: At the (AØ=) prompt you enter READGR 1 4ØØØ 8, indicating that you wish to read eight sectors of Group 1 to memory, starting at 4ØØØ Hex. Press (RETURN).

Step 2: As POWER READs the GRoup data into memory it displays on the screen the Groups read, the Track and logical Sector locations, the Physical Sector locations and the new memory location At which each sector is being loaded.

NOTE Tracks and Sectors are displayed in Decimal, other figures in Hex.

WRITEGR

WRITEGR is a mirror image of the READGR command.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=WRITEGR 1 4ØØØ 8  (RETURN)
```

This is what happens:

Step 1: At the (AØ=) prompt, enter WRITEGR 1 4ØØØ 8, indicating that you wish to write the data from address 4ØØØ to Group 1 of disk (A:) for eight sectors. Press (RETURN).

Step 2: POWER writes the data to the disk.

WARNING! Since this command writes directly to the disk without regard to any disk flags or directory protection devices, it must be used with extreme caution.

ALTERNATE COMMAND SYNTAX

AØ=READGR B:2 4ØØØ - READs one Sector of Group 2 from Drive (B:) to address 4ØØØ, but stays logged on (A:) NOTE Only one Sector will be READ because no (Number of Sectors) was designated.

AØ=B:READGR AØ 4ØØØ 48 - Changes logged drive to (B:) and READs 48 Sectors from Drive (B:) starting at group AØ (Hex) to address 4ØØØ.

AØ=B:WRITEGR A:12 4ØØØ 16 - Changes to (B:), then WRITEs 16 Sectors to (A:) starting at disk group 12 from memory address 4ØØØ

BEFORE USING THESE COMMANDS it's a good idea to familiarize yourself with POWER's associated READ/WRITE, FILL, DUMP, Display/Substitute, and MOVE commands.

READGR
READ FILE GROUPS FROM DISK TO SCREEN

USE: This variation the READGR command enables you to READ file GRoups to the SCREEN. You can rapidly scroll through the disk, locating file information and matching it to actual Track and Sector locations on the disk as POWER displays these locations for every 128 byte sector read.

Data from the disk is LOADed to the buffer zone at 8Ø Hex. NOTE that more than one sector can be included in the command to be displayed, but only one sector will be in the buffer at a time.

SYNTAX: AØ=READGR Ø XX 2

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=READGR 7 X (RETURN)

```
G=ØØØ7:ØØ  T=ØØ3  S=Ø49  PS=Ø17  AT:ØØ8Ø-ØØFF

ØØ8Ø: 3ACE64CD 9364D8C3 666279BB 3FDØ3A2D     :.d..d..fby.?.:-
ØØ9Ø: 5957D5C5 E5D5CDFA 63D1CD81 21F5EBD4     YW......C...#...
ØØAØ: 1864F1E1 C1D1D22Ø 6378BADA 2C63CD77     .d..... cx..,c.w
ØØBØ: 2FD5DAED 625E2356 7AB3C2FØ 62113F63     /...b^#Vz...b.?c
ØØCØ: EBD1D5C5 3AF25ØCD 984347C5 E53AF45Ø     ....:.P..CG..:.P
ØØDØ: B7CAØ963 Ø6ØØC3ØB 6306Ø43A A9639ØCD     ...c....c..:.c..
ØØEØ: 9F4B36ØØ E1EBCD18 64C188C1 D1DA3D63     .K6.....d.x...=c
ØØFØ: 54484953 2Ø495320 412Ø5445 53540ØØØ     THIS IS A TEST..

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter READGR 7 X, which tells POWER to display the first sector of Group 7 in Hex and Ascii. Press (RETURN).

Step 2: POWER displays the information requested. The heading indicates Group number, Track, Sector, Physical Sector location and the address At which the sector is being loaded. In this example, the only true Ascii in the sector appears at the bottom of the Ascii column at line ØØFØ. Dots are used to indicate Hex bytes that are not true Ascii.

ALTERNATE COMMAND SYNTAX

AØ=READGR Ø X - Reads only one sector because no sector designation was designated.

AØ=READGR Ø XH 2 - Reads only in Hex.

AØ=READGR Ø XA 2 - Reads only in Ascii.

*****

RECLAIM
RECLAIM ERASED FILES

USE: This command RECLAIMs previously erased files that you select from the either your currently logged drive or another specified drive. It displays the names of the previously deleted files one by one with a Y/N request for RECLAIMing. This is particularly helpful because you do not have to know the exact name of the file you want to RECLAIM in advance.

SYNTAX: **AØ=RECLAIM**

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=RECLAIM        (RETURN)

AØ:=MOVCPM    COM    recover (Y/N) ? N
AØ:=SANDVL    TXT    can not recover, file with bad extent
AØ:=STAT      COM    recover (Y/N) ? Y

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt you enter RECLAIM, indicating you wish to RECLAIM one or more of the files on your logged on drive (AØ:) which have been erased earlier. Press (RETURN).

Step 2: Only three files have been erased, and the POWER RECLAIM command lists ONLY THOSE THREE ERASED FILES. NOTE these files are listed one at a time. You work directly with the erased files by name, NOT with the Numbered Menu.

Step 3: As each file name is displayed, POWER asks if you wish to RECLAIM with the (Y/N ?) question. On the MOVCPM file you respond No. POWER tells you that part of the SANDVL file has already been overwritten, and can not be RECLAIMed. On the STAT file, you respond Yes.

Once initiated, RECLAIM will proceed automatically to display the name of ALL the files on the disk which have been ERAsed. This lets you know if a file is there, even if it has already been partially overwritten. If it has, but still must be saved, see TIPS AND TROUBLESHOOTING.

NOTE To STOP the search for erased files after you have found the one you need, hit (ESCAPE), and you will be returned to the AO= main prompt.

NOTE For safety's sake, POWER marks each RECLAIMed file READ ONLY. The RECLAIMed file should then be COPied to another disk before any changes are made. This makes certain that no files using the same disk space will be inadvertently changed. To remove the READ ONLY protect, see the SETRO/SETWR command.

WARNING! NEVER RECLAIM FILE $$$.SUB. THIS FILE SETS UP A CONTINUOUS NO-EXIT LOOP AND DESTROYS THE DISK. IF YOU REALIZE YOU HAVE INADVERTENTLY ANSWERED (Y)ES TO RECLAIMING $$$.SUB, AS SOON AS THE RECLAIM IS COMPLETE, SET $$$.SUB TO READ/WRITE (SEE THE SETRO/SETWR COMMAND), AND PROCEED TO ERASE $$$.SUB.

RECLAIMING FILES WITH SAME NAMES

POWER will not illegally create two files of the same name in the current directory, but will tell you that the file name already exists and that the RECLAIM can not be completed. When you want to RECLAIM the file anyway, enter the RENname command, and select the name of the original file from the normal directory for RENaming. Once that has been re-enter RECLAIM, and the ERAsed file can be RECLAIMed.

NOTE: You CANNOT RENAME a deleted file. You must hit (ESCAPE) and proceed with a normal RENAME from the AØ= prompt of the file in the working directory.

NOTE: THIS COMMAND WRITES TO THE DISK. Use (Control C) before setting up this command. If you forget, POWER will not perform an incorrect RECLAIM. It will prompt you to use (Control C) and start over.

*****

REN
RENAMES FILES

USE: This command RENames any number of files that you select from either your currently logged or any specified drive giving you the opportunity to change each file one by one you are prompted for the new NAME. RENAME gives you extraordinary flexibility . You can deal with files individually or in a series, and RENAME them one at a time or all at once with a new extent or prefix.

SYNTAX: AØ=REN

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=REN  (RETURN)

AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .CMD | 11=(SYSGEN  .COM)| 12= TRADE  .TXT

select?1  (RETURN)

AØ:COLLEGE.TXT = new NAME: CLGNEW .TXT(RETURN)
AØ:COLLEGE.TXT = CLGNEW .TXT
```

This is what happens:

Step 1: At the (AØ=) prompt you enter REN, indicating that you wish to REName a file or files on your logged on drive (AØ:). Press (RETURN).

Step 2: POWER displays the Numbered Menu of Drive and Area (AØ:) followed by the (select?) prompt.

Step 3: You enter 1 and press (RETURN), indicating that you wish to rename file COLLEGE.TXT. POWER responds by repeating the old name of the file and then printing (New Name:), waiting for you to type in the new name. You enter CLGNEW. TXT and press (RETURN).

Step 4: POWER displays the old name of the file followed by the new name. File COLLEGE.TXT has now been RENamed to CLGNEW .TXT and feedback verification of the action is displayed on the screen.

WILD CARDS AND AMBIGUOUS FILE NAMES

```
MOVCPM  .COM = new NAME: *.BAK
MOVCPM  .COM = MOVCOM.BAK
```

Entering the wild cards (? or *) after the (new NAME:) prompt is faster than typing it all out, and POWER will make the proper interpretation. In this case *.BAK renames MOVCPM.COM to MOVCOM.BAK.

SERIES RENAMING

If a series of menu numbers has been entered at the (select?) prompt, typing a colon (:) preceding your entry at the (new NAME:) prompt will result in the entire series being similarly renamed.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
A0=REN  (RETURN)

A0:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
A0:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
A0:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
A0: 10= PRINT  .CMD | 11=(SYSGEN  .COM)| 12= TRADE  .TXT

select?1 2 4 9  (RETURN)

A0:COLLEGE.TXT = new NAME: :*.BAK (RETURN)
A0:COLLEGE.TXT = COLLEGE.BAK
A0:CUR/IO .ASM = CUR/IO .BAK
A0:DEMO   .COM = DEMO   .BAK
A0:MOVCPM .COM = MOVCPM .BAK
```

The (:) before *.BAK causes the extension in all files in series to be AUTOMATICALLY renamed as .BAK without any further typing on your part.

POWER recognizes both the CP/M wild cards (? and *.*) and the POWER wild cards (** and ***) in this function.

NOTE [Q] automatically allows RENaming with the COPY command. [Q] allows COPYing of the same file in the same User Area on the same disk.

For Syntax Variations, See CONVENTIONS.

THIS COMMAND WRITES TO THE DISK! Use (Control C) before setting up the command. If you forget, POWER will not perform an incorrect write. It will prompt you to use (Control C) and start over.

*****

RESET
RESETS INDIVIDUAL DRIVES

USE: This command enables you to RESET any drive without having to issue a (Control C). It is used to log onto a single drive in which you have just placed a new disk, without forcing the computer to log onto all drives. When you have several drives on line, the RESET will update CP/M 's information on the new disk much faster than waiting for (Control C) to do all the drives.

This function is also used when attempting to save a dusk with a glitched directory. See TIPS AND TROUBLESHOOTING.

NOTE This function is available only in CP/M version 2.xx and later.

SYNTAX: **RESET B:**

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=RESET B: (RETURN)

AØ=

This is what happens:

Step 1: You are logged on Drive (A:) and wish to copy files from that Drive to Drive (B:). However, you have just placed a new disk in Drive (B:) and thus need to update CP/M's information on that drive. You enter RESET B: and press (RETURN).

Step 2: The POWER prompt appears, indicating that the new information on Drive (B:) has been acknowledged. You can now proceed with any function you wish to Drive (B:). With the RESET command there is no need to use a (Control C).

*****

RETOOL
PROGRAM TO ALTER COMMANDS

See separate section.

RUN
LOAD AND EXECUTE PROGRAM

USE: This command RUNs any program (.COM file) from either the currently logged drive or a named disk drive. It can be used with POWER's Numbered Menu, which is specially selected for you on the RUN command, or by directly naming the program. If you name the program, you can also give any program auxiliary name that you want to work with. This allows you to log directly into whatever project you want.

SYNTAX:
```
AØ=RUN
   or
AØ=RUN WS
   or
AØ=RUN WS Letter
```

NOTE If no program name follows the RUN command, then POWER will display the Numbered Menu of programs from the drive indicated by the POWER prompt or the drive entered in conjunction with the RUN command. For syntax variations, see CONVENTIONS.

NOTE ONLY executable programs (.COM files) will be displayed on POWER's Numbered Menu. POWER pre-selects these for you, as these are the only files that can be RUN.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=RUN B:  (RETURN)

BØ:   1= COLLEGE.COM |  2= CUR/IO  .COM |  3= DAISY  .COM*
BØ:   4= DEMO   .COM |  5= END     .COM |  6= INQUIRE.COM
BØ:   7= LPRINT .COM |  8= MONEY   .COM |  9= MOVCPM .COM

select?4  (RETURN)
```

This is what happens:

Step 1: At the (AØ=) prompt you enter RUN B:, indicating that you wish to RUN a .COM file from Drive (B:). Press (RETURN).

Step 2: POWER responds with Numbered Menu of the .COM files on Drive (B:) User Area (Ø:) followed by the (select?) prompt.

Step 3: You enter 4, indicating that you want to RUN the program DEMO. Once you press (RETURN), POWER will load the DEMO program and then start its execution.

PROGRAMS AND AUXILIARY FILES

When the RUN command is issued followed by the specific name of a program to be RUN, it may in turn be followed by the file name which the program will then be loading and using. For example:

RUN WS Letter

will put you directly into the text file ("Letter") in Word Star.

KEEPING POWER IN CONTROL

POWER is equipped with an AUTO RESTART (SUBMIT) function. You will see from the LOG display that this SUBMIT function can be turned ON or OFF with the [$] command. If it is ON, POWER will be automatically reloaded into memory and give you control of CP/M after you have RUN any program. POWER does this by creating a CP/M SUBMIT file on your disk before it RUNs the program you have selected from the RUN menu. When the program ends, CP/M will execute the POWER SUBMIT file and restart POWER.

Because POWER must create a SUBMIT file on your disk, you must be sure that your disk is NOT WRITE PROTECTED if you choose to have the [$] option ON. The disk that POWER uses for the SUBMIT file can be defined in the CUSTOMIZATION section. It is currently set for the default Drive.

NOTE In order for this function to operate, there must be a copy of POWER on the disk. If you have renamed POWER, you must also change the Ascii letters stored in the program as explained in the CUSTOMIZATION section. The stored name is displayed in the LOG display list as [$] (ON) (submit $$$.SUB - A:POWER).

*****

SEARCH
SEARCHES MEMORY

USE: This command displays the location or locations in computer memory holding Ascii or Hex characters or combinations of both. You may type "?" as a wild card for those sections of code you're not certain about. Sequences of code of up to 128 bytes long are possible.

POWER will display both the memory locations of the code or Ascii searched for and the characters found in each location. If you proceed and follow the characters sought with a number of "?" wild cards, POWER will display the found code IN CONTEXT. This gives you a better indication whether or not a particular sequence is the exact one you hope to find. This feature is one of the most sophisticated monitor functions available on a microcomputer.

SYNTAX: **AØ=SEARCH (start address) (end address) (byte) (byte)**

In the normal operating mode, the SEARCH command looks for Hex bytes. This can be altered to allow for Ascii character SEARCH, which is toggled by enclosing the particular characters in quotes. It is possible to indicate Ascii letters and Hex code on the same line by enclosing letters with quotes for the Ascii characters and then indicating Hex groups of characters by separating them with a space. (??) can be used as wild cards.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=SEARCH 4ØØØ 6ØØØ "???TEST" C3 ? ?  (RETURN)

4434  "CPMTEST" C3 ØØ Ø1
4568  "<ØD><ØA><ØA>TEST" C3 11 A2
5ØØØ  "N<FF><FF>TEST" C3 ØØ ØØ
6ØØØ  "NEWTEST" C3 1Ø 1Ø

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter **SEARCH 4ØØØ 6ØØØ "???TEST" C3 ? ?** This instructs POWER to search memory from **4ØØØ 6ØØØ**, where you have already LOADed the data that you wish to SEARCH. You are looking for TWO strings of characters: (a) the word TEST with three unknown characters coming before it (either Hex or Ascii) as indicated by the three question marks and (b) the Hex character C3 followed with two unknown Hex characters. Press (RETURN).

NOTE When SEARCHing for Ascii characters, begin and end the text you want with QUOTATION MARKS (") and use the QUESTION MARKS without separating by a space. When SEARCHing for Hex characters, do not indicate the data by QUOTATION MARKS but do separate any QUESTION MARKS by a space.

Step 2: POWER displays the information sought and the corresponding memory addresses. NOTE Because you have surrounded your entry with QUESTION MARKS, POWER also displays the information sought IN CONTEXT for you.

Addresses 4434, 4568, 5000 and 6000 contained the specific information searched for. After POWER has finished SEARCHing, it returns to the (A0=) prompt. If POWER had not found code in the search area that matched the entered bytes, it would have returned to the POWER prompt (A0=).

OTHER EXAMPLES:

(1) A0=SEARCH 100 4000 C3 00 E8
SEARCHes memory from 100 to 4000 for jumps to the address E800 as designated by "C3 00 E8". NOTE: Hex bytes must be separated by spaces and entered exactly as represented in memory with addresses in reverse order (Low byte before High byte).

(2) A0=SEARCH 100 4000 C3 ? E8
Searches memory from 100 to 4000 for jumps to ANY address in the E800 block. The ? represents a wild card for ANY low byte of the address.

(3) A0=SEARCH 2000 4000 ? ? ? ? 00 E8 ? ? ?
Searches memory from 2000 to 4000 for ANY reference to E800 (C3, CD, CNZ, CZ, etc.) Will display four bytes before E800 and three bytes after E800 as represented by ? wild card.

(4) A0=SEARCH 5000 6000 "TEST???"
Searches memory from 2000 to 4000 for the character string "TEST"+ any three other bytes of either Ascii or Hex code. The lead marker (") toggles the search from normal Hex code to Ascii. NOTE: The Ascii string is typed WITHOUT spaces exactly as it appears in memory. Similarly the wild card question marks are entered without spaces.

(5) A0=SEARCH 5000 6000 "??TEST" D0 F0 ? ? "NEW"
Searches for a combination of Ascii letters and Hex code. Toggle (") encloses the Ascii characters including the two unknown bytes (??) followed by the letters (TEST). The end quote toggles the search back to Hex code for bytes D0 and F0. and two unknown bytes (separated by spaces for Hex code). The next toggle (") switches the SEARCH back to Ascii for the letters "NEW".

*****

SET
SET FILES FOR INCLUSION/EXCLUSION SYSTEM

USE: This command allows you to group any number of files you want by SETting the same character in their file names. This is particularly helpful when working with large numbers of similar files on 8" or hard disks, as you can isolate just the files you want and then work with them via POWER's Numbered Menu commands.

SYNTAX: AØ=SET [-number.character]

Filename characters are SET by entering a -1 through -8 or a -S, -R or -X inside the bracket [] designation.

The numbers 1 through 8 represent the 8 character positions of the the filename section of the directory entry.

In the .extension section of the directory entry, [-S]ystem SETs the 9th character, [-R]ead/Write SETs the 1Øth character, and E[-X]tra SETs the 11th character.

See the SETDIR/SETSYS and the READ/WRITE commands for more instructions.

NOTE Any character can be SET in the directory, even if no text appears in that position in the name of the file.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=SET [-5]   (RETURN)

AØ:    1= COLLEGE.TXT |  2=(CUR/IO   .ASM)|  3= DAISY   .COM*
AØ:    4= DEMO    .COM |  5= END      .BAK |  6= INQUIRE.TXT
AØ:    7= LPRINT .COM |  8= MONEY    .CMD |  9= MOVCPM .COM

select?7 8   (RETURN)

AØ: LPRINT   .COM
AØ: MONEY    .COM

AO=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter SET [-5] indicating to POWER that you wish to SET the fifth character on a file or group of files. Press (RETURN).

NOTE In this directory, file (CUR/IO .COM) has already been marked as a [S]ystem file and DAISY .COM* has been marked as a [R]ead Only file. For more information on these entries, see the SETDIR/SETSYS command and the SETRO/SETWR command, respectively.

Step 2: POWER displays the Numbered Menu followed by the (select?) prompt. You type 7 8, indicating that you wish to SET the fifth character on files LPRINT and MONEY. Press (RETURN)

Step 3: POWER displays each of the files as they are being SET, then returns to the (AØ=) prompt. The two files have now been SET.

USING SETTINGS

The SET exclusion system can be used in conjunction with POWER's other commands in the following manner:

```
AØ=COPY  [-5]  (RETURN)

AØ: 1= LPRINT    .COM     2= MONEY   .COM

select?
```

NOTE Issuing a command in conjunction with [-number] instructs POWER to display ONLY those files with the fifth character SET. On large directories, you can cut your time visually searching for a file in half by excluding files through the SET system and letting POWER pre-select for you.

CHECKING SETTINGS

If you're not certain how files are currently SET, issuing the SET command alone will display how each of the files are SET.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=SET   (RETURN)

AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM

select?6 7 (RETURN)

AØ: INQUIRE   --------.---
AØ: LPRINT    ----I---.---
```

This is what happens:

Step 1: At the (AØ=) prompt, enter SET and press (RETURN).

Step 2: POWER displays the Numbered Menu. At the (select?) prompt you enter 6 7 (RETURN). NOTE You can display all of the entries by entering AØ=SET *** or 1- after (select?).

Step 3: POWER displays the SETtings for files INQUIRE and LPRINT. The first one has no SETting, the second is SET on the fifth character.

CLEARING SETTINGS

At the AØ= prompt, enter SET [+5]. The POWER Numbered Menu will display ONLY the files SET to [-5], because they are the only files that can be unSET. Enter whichever ones you no longer want to include in the group, and POWER will proceed to unSET them.

NOTE The SET function is available only in CP/M 2.xx and later.

For Syntax Variations, See CONVENTIONS.

WARNING! THIS COMMAND WRITES TO THE DISK WITHOUT REGARD FOR THE POWER CONTROL C PROTECT OR THE READ ONLY PROTECT! BE SURE TO USE A (CONTROL C) BEFORE ISSUING THE COMMAND.

*****

SETDIR/SETSYS
SET FILES TO SYSTEM

USE: SETSYS SETs files as SYStem files so that they will be removed from the directory display when the [S] toggle is OFF, although they are still present on the disk and can be accessed normally by POWER, CP/M or any other program. (SETSYStem) SETs files as SYStem and (SETDIRectory) unSETs them.

You can use this command to remove from the directory any files which you particularly want to protect from accidental manipulation. It can also be used for standard programs you know exist on a particular disk that you don't want to have cluttering your directory.

NOTE If you want to see these files, you can do so by turning ON the [S] toggle. (See LOG.) If you still want to keep them out of the list you are generally working with, the SORT commands can list the SYStem files last on the Directory.

SYNTAX: AØ=SETDIR or AØ=SETSYS

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=SETSYS (RETURN)

```
AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
```

select?4 5 (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt, enter SETSYS, indicating that you wish to SET particular files on disk (A:) to be SYStem files. Press (RETURN).

Step 2: POWER displays the Numbered Menu. NOTE that in this example, although the [S] toggle is SET ON, the directory will not list previously SET SYStem files with their parenthesis markers because they are no longer candidates for SYStem designation.

Step 3: At the (select?) prompt, enter 4 and 5. Press (RETURN).

Step 4: POWER will automatically SET files DEMO and END to SYStem. If you now issue the DIRECTORY command, and the [S] toggle is SET ON, you will see DEMO and END in parentheses. If the [S] toggle is OFF, files DEMO and END will be invisible. See the SORT command for ways to SORT the directory to list SYStem files last.

REMOVING SETSYS

You can remove the SETSYS designation by following the same procedure with the SYSDIR command.

NOTE The SET function is available only in CP/M 2.xx and later.

For Syntax Variations, See CONVENTIONS.

WARNING! THIS COMMAND WRITES TO THE DISK WITHOUT REGARD FOR THE DIRECTORY OR THE READ ONLY PROTECT! BE SURE TO USE A (CONTROL C) BEFORE ISSUING THE COMMAND.

*****

SETRO/SETWR
PROTECTS FILES

USE: SET Read Only protects files so that they can NOT be written to, while SET WRite opens files for writing. This allows you to SET aside master files that you want to protect against accidental changes.

SYNTAX: AØ=SETRO or AØ=SETWR

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=SETRO (RETURN)

```
AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .COM | 11=(SYSGEN  .COM)| 12= TRADE  .COM
```

select?4 5 (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt, you enter SETRO, indicating that you wish to SET files on disk (A:) to Read Only. Press (RETURN).

Step 2: POWER displays the Numbered Menu. NOTE In this example, only those files which can be changed are displayed. When the SETWR command is issued, only those files that have already been SET to READ ONLY will be displayed.

Step 3: At the (select?) prompt, you enter 4 and 5 then press (RETURN). POWER will proceed to SET files DEMO and END to READ ONLY.

SETWR

The SETWRite command is the mirror image of SETRO. When issued, it calls up a Numbered Menu of ONLY THOSE FILES PREVIOUSLY MARKED WITH SETRO, because these are the only files that can be unmarked.

WARNING! THIS COMMAND WRITES TO THE DISK WITHOUT REGARD FOR THE POWER DIRECTORY PROTECT OR THE READ ONLY PROTECT! BE SURE TO USE A (CONTROL C) BEFORE ISSUING THE COMMAND.

WARNING! NEVER SET FILE $$$.SUB TO READ ONLY. THIS FILE SETS UP A CONTINUOUS NO EXIT LOOP AND DESTROYS THE DISK. IF YOU REALIZE YOU HAVE INADVERTENTLY SELECTED $$$.SUB FOR READ ONLY DESIGNATION, ISSUE AØ=SETWR $$$.SUB IMMEDIATELY AND PROCEED TO ERASE $$$.SUB.

NOTE The SET function is available only in CP/M 2.xx and later.

For Syntax Variations, See CONVENTIONS.

*****

SIZE
FILE STATISTICS

USE: This command provides statistics on the SIZE of any disk file. The displayed information shows the Decimal number of sectors that CP/M has allocated for the file, the number of allocated sectors not yet used by the file, the SIZE of the file in kilobytes and, lastly, a RUNNING, CUMULATIVE TOTAL of all the kilobytes utilized by all the files you have selected.

Used with the STATistics command, SIZE is particularly valuable when COPYing, as it tells you whether or not a file or a group of files will fit on the new disk. SIZE is also helpful when you want to check a file to see if it is getting too large to edit easily. You may also need to use the SIZE command before PATCHING and SAVing programs.

SYNTAX: AØ=SIZE

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=SIZE B:   (RETURN)
BØ:   1= COLLEGE.COM |  2= CUR/IO  .COM |  3= DAISY  .COM*
BØ:   4= DEMO   .COM |  5= END     .COM |  6= INQUIRE.COM
BØ:   7= LPRINT .COM |  8= MONEY   .COM |  9= MOVCPM .COM

select?1-3  (RETURN)

BØ: COLLEGE.COM     33 sectors   15 empty    6K   6K
BØ: CUR/IO .COM    253 sectors   12 empty   55K  61K
BØ: DAISY  .COM    23Ø sectors    9 empty   45K 1Ø6K

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter SIZE (B:), indicating that you want SIZE information on the files of drive (B:), but you wish to stay logged on drive (A:). Press (RETURN).

Step 2: POWER responds with the Numbered Menu of files on drive (B:). At the (select?) prompt, enter 1-3 indicating that you wish SIZE information on files COLLEGE, CUR/IO and DAISY. Press RETURN)

Step 3: POWER displays SIZE information, i.e., the first file, COLLEGE.COM occupies 33 sectors, but 15 sectors are empty in the block. The file holds 6K and 6K is the total that has been SIZED at this point.

This second 6K figure represents THE CUMULATIVE RUNNING TOTAL of the files being SIZEd. It is needed when determining whether or not a GROUP OF FILES WILL FIT on another disk. In this example, the running total of the three files is 1Ø6K.

For Syntax Variations, See CONVENTIONS.

USING SIZE AND STATistics WITH THE COPY COMMAND

To COPY these three files to another disk, enter the STATistics command with the new drive designation to obtain the available space on the new disk and find out if there is space for the 1Ø6K COPY.

NOTE If the group size is different on the destination disk, the file size will not be valid, and the COPY may not fit. If you are unsure about file size on the destination disk, run a SIZE on a file on that disk to check.

NOTE When initiating a series of COPies, it's a good idea to check the LOG command to find out what POWER will do when a file is too large to fit on the destination disk. The [T] toggle turned ON will abort the COPY if the disk is full. NOTE If you want the entire group of files together on one Destination Disk, then the [T] toggle should be ON. POWER will abort as soon as it hits a file that won't fit. You should then ERAse the COPied files on the Destination Disk and enter a new Destination Disk with enough space for the entire file group.

*****

SORT
SORTS THE DIRECTORY

USE: This command will SORT the directory alphabetically in four different ways so that you can tailor your directory display to whatever special visual scanning search you need. The selected SORT method can be altered any time POWER's main prompt appears. NOTE To make the SORT permanent from one use of POWER to the next, use the SAVE command to write your changed version of POWER to the disk.

SYNTAX: AØ=SORT 1 - SORT by file name
or
AØ=SORT 2 - SORT by file name but SYSTEM files will be last
or
AØ=SORT 3 - SORT by file type (extension)
or
AØ=SORT 4 - SORT by file type but SYSTEM files will be last
NOTE AØ=SORT Ø will give you an unSORTed directory

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=SORT 1 (RETURN)

AØ=DIR (RETURN)

```
AØ:  1=CON64   .ASM |  2=DDT      .COM |  3=GET      .COM
AØ:  4=LPRINT  .COM |  5=MBIOS64  .ASM |  6=MENU     .MNU
AØ:  7=PUT74   .ASM |  8=PUT64    .HEX |  9=SC       .OVL
```

AØ=SORT 3 (RETURN)

AØ=DIR (RETURN)

```
AØ:  1=CON64   .ASM     2=MBIOS64  .ASM     3=PUT64   .ASM
AØ:  4=DDT     .COM     5=GET      .COM     6=LPRINT  .COM
AØ:  7=PUT64   .HEX     8=MENU     .MNU     9=SC      .OVL
```

This is what happens:

1. At the (AØ=) prompt, you enter SORT 1, indicating that you want all the files in the directory sorted alphabetically by name. Press (RETURN). You then enter AØ=DIR (RETURN), and POWER displays the files as in the first example above, by file name. NOTE Any of the commands that call up POWER's Numbered Menu will continue to SORT 1. The SORT will remain the same on all the Drives accessed during the operation.

2. You then decide you want to see all the files of each type grouped together. This is particularly helpful if you want to manipulate a group of certain types of files. You enter SORT 3 (RETURN) at the next (AØ=) prompt, and POWER will then display the reSORTed directory by file types.

*****

SPEED
SETS SCROLLING SPEED

USE: This command sets the speed at which display will scroll on any type of console (hardware independent). This command is particularly useful when working with long directories or with the various TYPE and DUMP commands. It may be changed any time the main AØ= prompt occurs or during any scrolling action. 0 is the highest speed and 9 is the slowest.

SYNTAX: AØ=SPEED 5

Scrolling can be stopped at any time in operation by hitting the (SPACE BAR) - an easier procedure than CP/M's required (Control S). With POWER, hitting the (SPACE BAR) again will proceed line by line. Hitting (RETURN) after the space bar will stop the scrolling and instruct POWER to proceed page by page. Hitting (ANY OTHER KEY) will return to continuous scrolling.

The speed of the output to the screen can be changed during scrolling by once again hitting any of the number keys.

NOTE: SPEED does not operate with output going to the printer.

*****

STAT
DISK STATISTICS

USE: This command provides STATistics as to the space available and the space used for any disk. NOTE stat also tells you whether or not that particular disk has been set to Read Only (RO) because no (Control C) has been entered. STATistics will not be accurate in this case, so YOU MUST ISSUE A (CONTROL C) AND REISSUE STAT.

This command is invaluable when you know you're going to need a large space for a file - either because you know you're going to be creating a long file or because you want to copy or transfer a large file to a new disk or User Area in any logged on drive. NOTE STATistics AUTOMATICALLY displays the information requested for ALL DRIVES THAT ARE ON-LINE, i.e., that have already been accessed at least once.

See also the COPY, DISK, RECLAIM, SAVE and SIZE commands for uses in conjunction with STATistics.

SYNTAX: **AØ=STAT**

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=STAT B: (RETURN)

```
AØ: R/W  Used:   66K,  Free:  53ØK,  Capacity:  6ØØK
BØ: R/O  Used:  12ØK,  Free:  476K,  Capacity:  6ØØK

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt, enter **STAT B:**, indicating that you want the current STATistics of the disks on Drive (A:) (which is automatically assumed by POWER) AND on Drive (B:). Press (RETURN).

Step 2: POWER displays the information on both disks. On (A:), the R/W indicates that you can WRITE to the disk. There is a total capacity of 6ØØK, 66K are used, leaving 53ØK free and available for use.

On (B:), the R/O indicates that the disk is READ ONLY. Here there is also a 6ØØK capacity, but on this disk 12ØK have already been used, leaving 476K available for use.

NOTE The number of K's free on the disk will never equal (disk capacity) minus (K's used) because there are a number of K's devoted to the directory and the system which are thus unavailable for your use. The number of K's devoted to the directory and system varies from format to format. See DISK command.

*****

TEST
DISK TEST

USE: A non-destructive disk TEST which reads the entire disk, including the system tracks, display the unique 16 bit CRC checksum value for the disk as it reads, and then isolate any Bad Sectors for you to decide how to deal with them in order to salvage your disk.

The TEST function permits safe use of otherwise defective disks by keeping track of any bad blocks found on the disk surface. These will be locked out of the system. The good blocks on the remainder of disk can then be used normally.

The "bad block" directory entry is marked as a SYSTEM DIRECTORY ENTRY in CP/M 2.XX and later. It is not seen by the user unless the SETSYS command is set ON by the [S] toggle shown in the LOG command. In that case, all the Bad Sectors are displayed in the file AØ:(=========.===)

It's valuable to use the TEST function on new disks before they are put into service so that you are certain any possible bad blocks have been isolated and will not give you trouble later.

TEST is also a good tool to use on glitched data or text files that otherwise are inaccessible, because all but the Bad Sectors can be saved. This means you haven't lost four hours of work - only the part that is actually ruined will be cut out.

Further, it's a good idea to TEST "suspect" disks that seem to have an erratic problem of one kind or another. That way, you can locate exactly where the problem is and weed it out if it's not an essential part of a file.

TEST will report the location of all bad blocks found to the console. The function will abort if bad blocks are located on the directory tracks since such a disk will never be directly usable, but will have to be reconstructed with the READ or READGR commands. See those commands and TIPS AND TROUBLESHOOTING.

SYNTAX: AØ=TEST

EXAMPLE: NOTE: (Screen Display=light type/Your Command=BOLD FACE)

AØ=TEST (RETURN) - disk checksum & test

```
**********************************************************************
**********************************************************************
-bad sector on G=ØØØ3:Ø2 T=ØØ3 S=Ø34 PS=12Ø
**********************************************************************
**********************************************************************
```

Save? (Y/N) Y

Show bad files (Y/N) Y

REPORT2 .TXT

Repair (Y/N) Y

Disk has 1 bad block

Checksum 54BD

This is what happens:

Step 1: At the (AØ=) prompt enter TEST (RETURN), indicating that you want to TEST the disk of the logged on Drive (A:). POWER responds that it is carrying out a "disk checksum & test", and begins going through line by line, displaying *****'s each line. The TEST will take some time, as an attempt will be made to read every Track and Sector on the disk except the system tracks. See below for information on TESTing the system tracks and on displaying head location addresses instead of ***** as the TEST is being conducted.

Step 2: During disk activity, POWER keeps track of the exact location of the disk head, displaying either *****'s Track and Sector location so long as it is TESTing without finding a problem. In the above example, POWER is displaying *****'s until the Bad Sector turns up. POWER then indicates the following with screen display:

G=ØØØ3:Ø2
This means the head is at CP/M's logical location in Group 2.

T=ØØ3 S=Ø34
This means the head's real location is Track 3, Sector 34.

PS=12Ø
This indicates the actual Physical Sector location.

Step 3: Any Bad Sectors will be reported by Group, Track and Sector locations. It is not necessary to note these locations, as POWER keeps track of them and creates a special file of any bad areas for you at the end of the TEST.

Step 4: After all the glitched sectors are found, you are asked if you want to Save the file by isolating the Bad Sectors in a special directory file entry and fooling CP/M into thinking that those parts

of the disk have already been used. You answer (Y)es, and POWER creates the Bad Sector file in the directory so that CP/M will never again attempt to write to the glitched part of the disk. The balance of the "bad" disk is now usable as normal, although the specific file affected is still glitched.

Step 5: The next prompt asks if you wish see if the bad blocks are currently used by any existing files. You answer (Y)es, and POWER gives you the name of the damaged file.

Step 6: You are now asked if you want to try to repair the file and you respond (Y)es. POWER now attempts to zero out the bad areas inside your file. You have nothing to lose by this zeroing out process. As you know, a file with a Bad Sector will not be loaded by the computer so the entire file will be lost to you. If you zero the Bad Sectors by answering (Y)es to Repair, you will only lose 128 byte hunks of your data. The rest of the file will then be left for you in a readable form. This is true for both text and data files.

NOTE If you have glitched areas in an executable program (.COM file), there is nothing you can do to Repair it.

If your disk TEST is perfect, POWER will return you to the AØ= prompt after the last row of *****'s is typed to the screen.

Step 7: The last information printed by this command is the total checksum for the entire disk.

NOTE If you wish to TEST system tracks, you MUST enter TEST S as the command. The system tracks have been excluded from the normal TEST function, because various manufactures implement the system tracks differently, and TEST may not work properly on all system track installations.

NOTE You can display every Sector and Track location as they are read by changing the byte at location 1ØC Hex. See the CUSTOMIZATION section. The location listing takes more time than the *****, but lets you know exactly where you are in the TEST.

*****

TYPE / TYPEX / TYPEH / TYPEA
DISPLAYS FILE CONTENTS FROM DISK

USE: These four commands give you instant scanning of all the files on your disk for quick review. You can TYPE out Binary programs (.COM files) as well as text. With TYPE you do not have to boot up your word processor in order to view text files page by page.

In POWER, you're not limited to viewing one file at a time with TYPE, but can look through the Numbered Menu and select a series. More importantly, POWER presents the output a screenfull at a time, and gives you control over how fast the display proceeds. See the SPEED command and SCROLLING CONTROL KEYS. Output is normally typed automatically to the screen, but can be directed to the printer by hitting (Control P) before (RETURN).

NOTE for very fast checks to see if files are the same, see the CHECK and the Compare Memory commands.

TYPE is used only for word processor produced text or Ascii data files. If the file has been formatted with TABS, etc., this command will display the text as formatted.

TYPEA will display disk Ascii text files, but without imbedded formatting. Instead, letters are shown in numbered lines of 16 letters, as per the TYPEH display.

TYPEH is used for Binary programs (.COM files). It displays the Binary code as a Hex listing. The display is in numbered lines of 16 Hex bytes.

TYPEX is also used for program files (.COM) that are recorded as Binary code but also contain Ascii command lines that you wish to see. The display can be formatted for 40, 64 or 80 character video by changing the byte at 118 Hex. (See CUSTOMIZATION.) Display is in numbered lines of 16 Hex bytes each, with applicable Ascii letters on the right.

SYNTAX: A0=TYPE or TYPEX or TYPEH or TYPEA

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
A0=TYPE   (RETURN)
A0:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
A0:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
A0:   7= LETTER .TXT |  8= MONEY   .CMD |  9= MOVCPM .COM
A0:  10= PRINT  .COM | 11=(SYSGEN  .COM)| 12= TRADE  .COM
```

select? 7 (RETURN) 4
AØ: LETTER .TXT

Dear Mr. Jones,

This is to confirm our meeting next Wednesday, at 1Ø:ØØ a.m., to go over our agreement. I look forward to meeting you.

This is what happens:

Step 1: At the (AØ=) prompt enter TYPE, indicating that you want to TYPE out one or more files on the disk in Drive (A:) to the screen. Press (RETURN).

Step 2: POWER displays the Numbered Menu of files on Drive (A:), then the (select?) prompt.

Step 3: You select file 7, indicating that you want Letter to be TYPEd to the screen. If you want the output directed to the printer, enter (Control P) now. Press (RETURN).

Step 4: POWER TYPEs out the contents of the file "LETTER" in Ascii.

NOTE If you enter a series of file numbers, POWER will page each file in turn on the screen.

For Syntax Variations, See CONVENTIONS.

TYPING SCROLL CONTROL KEYS

TYPing, once started will proceed automatically through the list of numbers you have entered. The name of each file being TYPEd will appear on screen before the file is output. You may stop TYPing at any time by hitting (Escape) or (Control C). A (Control K) will skip TYPing the current file in a series and proceed to the next file without aborting the series. (SPACE BAR) will halt paging and single step output lines to screen. (RETURN) will advance to next page. Any other key hit during output will cause continuous scrolling for faster viewing.

NOTE: After stopping the scroll with the (SPACE BAR) it is possible to direct the output for subsequent files to the printer with (Control P) if you want hard copies for only a part of the file.

Once the (P)rinter is toggled to ON, the paging will be disabled until the (P)rinter is toggled OFF.

Output can be formatted in pages as customized by byte 1Ø5 HEX. See CUSTOMIZATION.

*****

USER / XUSER

DESIGNATES SELECTED USER AREA/SETS UP DESTINATION USER AREAS

USE: USER opens special disk Areas for current operations. XUSER allows transferring of files from one USER Area to another. Normally it is difficult to COPY from one USER Area to another. POWER makes this inter-USER Area file copy easy, even on the same disk.

SYNTAX: AØ=USER (user number)
or
AØ=XUSER (destination user number)

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=USER 1 (RETURN)
A1=XUSER 2 (RETURN)
A1-2=COPY  (RETURN)

A1:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
A1:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
A1:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
A1:  1Ø= PRINT  .COM | 11=(SYSGEN  .COM)| 12= TRADE  .COM

select? 1Ø-  (RETURN)

destination drive: A

(C)opy or (M)ove:C

PRINT  .COM
SYSGEN .COM
TRADE  .COM

A1-2=
```

This is what happens:

Step 1: At the (AØ=) prompt enter USER 1, indicating to POWER that you want to access USER Area 1. Press (RETURN).

Step 2: POWER has now placed you in USER Area 1, and this indicated by the new prompt (A1=). Enter XUSER 2, indicating that you want to transfer files from USER Area 1 to USER Area 2. Press (RETURN).

Step 3: The POWER prompt (A1-2) indicates that it is ready to transfer files from USER Area 1 to USER Area 2. Now type in COPY and press (RETURN).

Step 4: POWER displays the Numbered Menu of files on Drive A USER Area 1. If there were no files in that USER Area, POWER would respond with (No files ????????.??? on A:). At the select prompt enter 1Ø- indicating that you want to copy files from number 1Ø to the end of the disk. Press (RETURN).

Step 5: POWER asks your destination drive. Enter (A) as you wish to transfer files ON THE SAME DISK.

Step 6: POWER now asks if you want to (C)opy or (M)ove a file. You choose (C)opy, and POWER proceeds using the normal COPY routine to duplicate the file. NOTE A (M)ove selection places the file name in the USER Area 2 directory AND REMOVES it from the directory in USER Area 1. In this way you can isolate and group particular files within different Areas.

NOTE You can COPY between User Areas on different disks as well as from Area to Area on the same disk, BUT YOU CAN ONLY (M)OVE FROM AREA TO AREA ON THE SAME DISK.

Step 7: POWER displays each file as it is copied.

To EXIT from the (A1-2=) prompt, simply type USER Ø and (RETURN) and you will be back to the Default USER Area Ø with the (AØ=) prompt.

OPTIONS WHEN CHANGING USER AREAS

Listing the directories of all the USER Areas of a disk at the same time is accomplished by entering AØ=DIR [U]. Each USER Area that contains files will be displayed with the appropriate prompt, i.e., A1=, A2=. A3=, etc. If no USER Area besides Area Ø contains files, then only the files in Area Ø will be displayed.

The DIRectory command can also include [X] to list all directories of all drives that have already been accessed and are on-line. [UX] can be issued together to list all USER Areas and all disk directories. This is particularly helpful if you are using POWER's wild card facility. For example, (AØ=DIR [UX] **TXT) will bring up locations of all of your text files on all Drives and all USER Areas.

CHANGING DISKS: You can swap disks in the drives at will, but remember that CP/M requires a (Control C) to reset its disk directory. The COPY and MOVE commands are disk write functions, but POWER will not allow you to make an improper disk write. It will advise you to use (Control C) if you have changed disks.

NOTE USER and XUSER functions are available only in CP/M 2.xx and later.

*****

UR1 / UR2 / UR3 / UR4
CUSTOMIZATION COMMANDS

USE: These four customization commands are provided within POWER to permit jumps to any special routines that the UseR may wish to add to the program. The addresses that the UseR wishes to enter to use these will be SAVEd internally with POWER, if the modified program is SAVEd to disk. The additional length of a customized, expanded version of POWER is given as the optional parameter in the SAVE command. (See SAVE and CUSTOMIZATION.) The commands can be renamed to suit the UseR.

SYNTAX:
```
AØ=UR1
   or
AØ=UR2
   or
AØ=UR3
   or
AØ=UR4
```

NOTE: UR1 is currently Default set to perform a RETurn (C9).

If the UR command is customized to jump to your routine, POWER pushes the standard CP/M program start address (1ØØ Hex) on the stack and the HL register will point to the input buffer so that the UseR routine can use the input parameters entered with the UR command.

Space for entering custom jumps begins at the origin of POWER + 4Ø Hex. Eight bytes are provided for each UR command.

```
UR1.....Ø14Ø-Ø147 Hex
UR2.....Ø148-Ø14F Hex
UR3.....Ø15Ø-Ø157 Hex
UR4.....Ø158-Ø15F Hex
```

NOTE POWER's normal ORG is 1ØØ Hex.

(See CUSTOMIZATION for details on entering custom routines, jumps, or changing command names.)

*****

TIPS AND TROUBLESHOOTING

The following section is intended for those who wish to go beyond POWER's timesaving day-to-day commands and use the exceptionally versatile advanced commands that allow you entry into the heart of applications programs and CP/M itself. It provides you with some hints and ideas for using POWER when a disaster has occurred or when you want to make changes inside a particular program through patching.

FIXING GLITCHED DISK DIRECTORIES

As you probably already know, CP/M never allows logging on to a disk which has a glitched directory, even though the rest of the disk and its data is unharmed. When CP/M finds the directory checksums do not work out properly, it will not allow any further use of the disk.

When you have difficulty logging on a disk, and the data contained is valuable, the following procedure should allow you to save it. POWER's RESET command will log in the drive without actually accessing the disk. In many implementations of CP/M, typing RESET will permit you to use the direct READ/WRITE commands to fix the directory as outlined below. If the simple RESET doesn't work on your disk, you'll need an additional bit of ingenuity to get the job done.

Begin by running POWER. Then put a good working disk in Drive B: and log on to the working disk with POWER's (Control C) command.

If you haven't fixed directories before or you're not certain about the procedure, it's recommended to examine the good disk before beginning work on fixing the glitched disk. You'll want to use the DISK command to check to see how many sectors your directory takes up (remember that there are eight 128 byte sectors to each K). Then issue an (READGRoup Ø XX 32) command on the good disk to take a look at how a good directory is formatted. (The 32 used in this example is the directory length in sectors obtained from the DISK command, and may be different in your system.)

You will see the Hex and Ascii contents of the directory on your screen. Take notes on the repetitive structure used by CP/M for its directory. Better yet, use (Control P) to produce a hard copy guide of a functioning directory. You are now ready to attempt to repair your glitched directory.

Remove the good disk from Drive B: and insert the bad disk with the glitched directory. DO NOT USE (CONTROL C) AT THIS POINT. It is important that you do not use (Control C), since we are attempting co fool CP/M into thinking that the disk has not been changed and that there is still a good disk in Drive B:

Type RESET B: to log the drive but not the disk.

DO NOT USE ANY OF POWER'S MENU COMMANDS, SUCH AS DIR, AFTER YOU HAVE PUT THE "BAD" DISK IN THE DRIVE, because any instructions to display or work with the directory will alert the system to the fact that there is a glitch, and the procedure will crash. ONLY POWER'S DIRECT READ/WRITE COMMANDS CAN CONTINUE TO WORK WITH THE DISK.

With the glitched disk substituted for the working disk in Drive B: issue the READGRoup command, (AØ=READGR B: Ø 4ØØØ 32) You use READGR B: to stay logged on (A:) bur read from Drive (B:). You use Ø because the directory is always at CP/M's Group Ø, use 4ØØØ as the free memory address above POWER's running location where you can insert the glitched directory, and 32 as the number of sectors you wish to read into memory.

As soon as you enter the READGR command, POWER will give you a line by line display of the addresses it is filling in the directory.

NOTE The number of sectors you need to write in will vary according to the number normally taken up by your directory. 32 is large enough to accommodate nearly any floppy disk directory.

POWER's READGRoup command will direct the computer's disk head to go to the directory on the disk and read that into memory thinking that it has a perfectly good disk in the drive.

DUMP the memory area you have just seen listed on the screen with the DUMPX command (DUMPX 4ØØØ 4FFF) with 4ØØØ being the beginning address where you wrote the information, and 4FFF being the last address POWER displayed to you at the end of the READGR entry.

You can now search for the problem. You'll be looking for areas of the directory that have garbage in them where there should be Ascii letters for program titles or for something that does not follow the normal two-line directory entry format that you saw when you studied the good disk directory.

A really badly glitched directory may halt the READGR command mid-stream, but POWER will report the Track and Sector numbers where the directory cannot be read. You should jot that address down then skip that Sector and try to read what you can starting at higher sectors on the disk with the direct track READ command. For example, if your READGRoup got as far as Track 2, Sector 6 and then stopped, make your next try at READ: 2 7 5ØØØ 32. If Track 2, Sector 7 is also unreadable, you'll have to try sector 8 and so on, until you again reach a readable area of the directory track.

There are now many choices available to you to deal with the bad sector via POWER's DISPLAY/SUBSTITUTE command. You can zero out a defective file by substituting E5 Hex for the first entry in the program name line on the display. Or you can independently make notes of the groups occupied by a particular file and later use the READGRoup command to load those groups into a free area of memory and save the same memory area back out to a different disk as a temporary file. Bit by bit you will be able to reconstruct the disk data in this way.

If you have text located on a disk with a glitched directory, you can use POWER's READGRoup XA or READ XA commands to display the disk contents on your screen so you can look at the text or data on each of the disk's Tracks, READ from the Groups after the directory (usually somewhere in Track 2) and go through the entire disk, until you find the material you are looking for. You can do this in bigger chunks than your computer's memory since you are only reading to the screen for scanning purposes. Try READ: 3 XA 5ØØ to get a feel for the procedure. You will be reading 5ØØ sectors from your disk.

Once you have found the gliched information, make a note of the Track and Sector information that POWER prints above each 128 byte sector on the screen. This will tell you where the text starts and where it ends. At this point use the READ or READGRoup to memory command and place the text in memory. Once in memory you can use the SAVE command, give the file a name, and SAVE it to a good disk. In this way, you can rescue your text from an otherwise inaccessible disk.

RESCUING A FILE WITH BAD BLOCKS

If your directory is ok, but you have glitched a sector in a text or data file, your word processing or accounting program will not let you access any of your data, even the perfectly recorded parts.

Don't despair, POWER will let you save the good data.

Use the TEST command to TEST the entire disk. POWER will locate the Bad Sectors, tell you which data file is affected, and then request permission to zero the offending Sectors out so that your computer can reload the balance of the file.

SAVING DATA WHEN THERE'S A PROGRAM CRASH

Program crashes are not necessarily a total disaster if you use POWER to reclaim the data your program created in the computer's memory before the crash. POWER can save this data to disk as a special file and you can then attempt to edit or restore the information.

Text files are the best candidates for this type of salvage operation, but accounting or other data files may also be saved.

Wordstar* presents a typical example of recovering from a program crash. If you are editing text on a unreliable disk, or saving your work on an over filled disk and your console suddenly flashes you a BDOS ERROR, don't despair. A major portion of your work may still be intact in memory even though Wordstar has lost control of the computer and left you hanging at the CP/M A> prompt.

Because POWER is a compact program, you can run it in the memory area that Wordstar once occupied without disturbing the Wordstar text

storage area. To recover your text, RUN POWER, and use the SEARCH for Ascii command to find your text (usually beginning at 75ØØ Hex). Use POWER's SAVE command to write the text from 75ØØ Hex in memory for 15Ø sectors to a disk file. Then re-RUN Wordstar and use it to edit the saved file. You will find that you'll have to delete "garbage" from the beginning and end of the file, but the main portion of your work will still be OK.

This idea will work with most other word processors and also with most data creating programs, though the memory address to start your SAVE from will show up differently in the SEARCH command.

* Wordstar is a Registered Trademark of MicroPro Inc.

REGROUPING A SLOW LOADING FILE

If a particular file is loading or being accessed slowly, by using the GROUP command you can determine if CP/M has scattered the file on the disk. If you find that the group numbers are not contiguous then the file is indeed spread all about the disk. You can improve its accessibility time by COPYing it to a clean disk. In this manner it will load in consecutive order, thus keeping the groups near each another so the disk head will not have scurry about in loading the file.

FINDING FILES FAST

When you want to copy, rename, manipulate or search through a number of similarly named files, use POWER's (**) Wild Card or the (***) Master Wild Card. POWER eliminates the upshift, downshift, upshift sequence for the *.* and permits ** alone, speeding up keyboard entry considerably. DIR P**, for example, displays the Numbered Menu of all the files beginning with "P". The ** can also be used with extensions to manipulate all the files at once. For example, AØ=COPY **TXT will copy all your text files but not touch any of the .COM or other files on the origination disk.

The *** Master Wild Card used with any Numbered Menu command alone, will initiate action on ALL files on the logged on Drive and User Area For example, AØ=COPY*** COPies all the files on Drive A: User Area Ø. Used with any Numbered Menu command and a designation, *** initiates action on all those files without calling up the select? prompt, but still showing you the names of the files it is manipulating. AØ=COPY P***, for instance, will COPY only all the files starting with P.

PATCHING PROGRAMS

To PATCH a program, first determine through the LOG command the highest address used by POWER. For example, the beginning of your available free memory (TPA address) is probably under 4ØØØ, so LOAD the program you wish to patch to 41ØØ. This will keep the math simple since all CP/M programs start at 1ØØ. You'll only have to add 4ØØØ to any of the original program addresses that you want to change with the DISPLAY/SUBSTITUTE command. When you've made your revisions, SAVE the revised program back to the disk from the 41ØØ address.

EXAMPLE: Say you want to patch WORDSTAR, because the page format doesn't fit your particular console. First you need to determine through the WORDSTAR manual the addresses for customizing consoles, You will change the line-length byte and the number-of-lines byte. THESE ADDRESSES CHANGE FROM VERSION TO VERSION, but for this example you find that for your version 4248 stands for the # of lines and 4249 for # of characters per line.

Now, enter LOAD WS.COM 41ØØ and press (RETURN). Once WORDSTAR is loaded into memory, POWER prints the files, starting and ending memory addresses, and the file length in sectors. Make a note of the address you'll be working from and number of sectors LOADed for future reference.

Next, enter the Display/Substitute command DS 4248 (RETURN). Type in POWER'S .D for Decimal entry. At the next display, enter the number of lines you want to be displayed on your screen. Press (RETURN).

You have altered the byte at address 4248 and are now automatically ready to change the byte at address 4249. Your entry mode is already at Decimal. Enter the characters per line that you want displayed on your console. Press (RETURN).

You now have the proper size WORDSTAR display for your console in memory, and you'll want to SAVE it back to the disk in its revised form. Enter SAVE WS.COM to overwrite the original WORDSTAR program with your new version.

If you want to retain the original while working with the new one or if you want different versions of WORDSTAR for different consoles or for specific files with special formats, don't overwrite the original. Instead give the revised version a new name and SAVE it to the special disk or User Area you've reserved for this operation. Remember, to save a newly named version, you must be sure to include the length of the program in sectors so that POWER can create a new file of the proper length on your disk. Use your notes on the file sector length that you got when you first executed the LOAD command.

*****

COMMON ERROR MESSAGES AND THEIR CAUSES

When the message is:

Can not LOG on B:

Disk Log ERROR on B:, logging to drive only

Check the following:

1. Is drive B: empty?
2. Is the door closed correctly on B:?
3. Is there a problem with the disk or the disk directory on B:?
4. Are you COPYing or initiating another write-to-disk action to a Write Protected disk on B:?
5. Are you trying to read from a newly inserted disk without pressing (Control C)?
6. Are you trying to COPY FROM a Write Protected disk with the [M]ark (><) Default ON so that POWER canNOT place the marker? (See LOG.)
7. Are you trying to RUN a program on a Write Protected disk ON THE DEFAULT DRIVE with the [$]Submit Auto Restart default ON so the Submit function canNOT complete its attempt to create a new POWER file write to the disk? (See LOG.)

When the message is:

incorrect, for list of commands enter: ?

Check the following:

1. Are you entering a valid POWER command at the AØ= prompt?
2. Have you mistyped the command?
3. Have you forgotten to enter RUN before entering an executable program name?

When the message is:

invalid argument

Check the following:

1. Have you forgotten to enter the needed memory addresses or other information following a command?

2. Have you entered a letter where numbers are required?

3. Have you attempted to SAVE a new file giving only the starting memory address and not the length?

When the message is:

Press ^C, disk is $R/O on B:

Check the following:

1. Have you changed a disk without pressing (Control C)?

2. Have you attempted to write to a disk that is Write Protected?

3. Have you attempted to write to a newly inserted disk without pressing (Control C)?

When the message is:

Disk full on B:

Check the following:

1. Have you been COPYing a series and filled up your Destination Drive disk? NOTE if the [T] default is OFF, COPY will continue attempting to fit the rest of the series onto Drive B:, so you may get a series of the "Disk full" messages, but still get several smaller files transferred.

2. Have you issued the RUN command on a full disk when the [$]Submit Default is ON and POWER is trying to create a submit file when there is no room? (See LOG.)

When the message is:

file is $R/O

Check the following:

1. Have you tried to change a file that has been set to Read Only with POWER's SETRO command, and need to change that

designation? (See the SETWR command to remove the R/O protection.)

2. Have you recently RECLAIMED this file and not transferred it to a new disk and/or removed the Read Only protection with the SETWR command?

3. Have you tried to change a file on a Write Protected disk and need to remove the Write Protection tab?

When the message is:

Bad Sector on Read Abort (y/n)

Check the following:

1. Have you got a Bad Sector on a file you want to salvage? If so, this is your opportunity to override CP/M's automatic Abort and carry on saving the parts of the file that do not contain Bad Sectors, so that all you have to fill in is the part that has been ruined. (See TIPS AND TROUBLESHOOTING.)

When the message is:

No files ????????.??? on A:

Check the following:

1. Are you asking for a DIRectory listing of an empty disk?

2. Are you asking for a DIRectory listing of an empty User Area?

*****

CUSTOMIZATION

POWER has been designed to give the user complete control over his CP/M computer. This CUSTOMIZATION section is intended to assist in that goal by allowing flexible customization of the POWER program to fit the user's needs. Almost all of the commands, the character keys, the video display, etc., can be self-tailored. Listed in this section are the particular changes (or patches) which the user can make and the location in POWER where this can be done.

GENERAL CUSTOMIZATION PROCEDURE

(1) Before you begin CUSTOMIZATION, use POWER's SIZE command and write down the Sector length of your version of the POWER .COM file, as you will need it later when SAVing your revised versions.

(2) Find the particular byte or bytes that need to be changed by looking through this section. CUSTOMIZATION is broken down into KEYBOARD CUSTOMIZATION, VIDEO DISPLAY CUSTOMIZATION, COMMAND CUSTOMIZATION, GENERAL CUSTOMIZATION and ADVANCED PROGRAMMER OPTIONS.

(3) Once you have determined which byte to change and its address, use the POWER's Display/Substitute command to make the changes. For instance, if you want to change the POWER prompt (=) to some other character, enter:

```
AØ=DS Ø1Ø7 (RETURN)
addr:Hex Dec  Binary Ascii Enter
Ø1Ø7: 3D  61 ØØ111101   =   <H>   .A  *   (RETURN)
```

Following the DS command, the information at address Ø1Ø7 is displayed showing the POWER prompt in Ascii as (=) and its Hex, Decimal and Binary equivalent. You alter it by entering (.A) to change to the Ascii entry mode so that you can enter the character exactly as it will appear on your screen. Then you type in the character you want. In the example above, the new prompt is (*). Press (RETURN), and the prompt change is complete.

Byte changes can be made at a number of different addresses, as you'll see in this CUSTOMIZATION section. Once you have made all the alterations you want, you can double check your work by pressing (TILDE) to go back over the entries and be sure they are correct. Then press (DOUBLE DOT) or (ESCAPE) to end the Display/Substitute session and enter the LOG command to see that the revision is just the way you want it.

You can now SAVE your new version to the disk in its revised form.

To OVERWRITE the ORIGINAL and SAVE only your new version, enter AØ=SAVE POWER.COM 1ØØ (RETURN). To SAVE your new version WITHOUT OVERWRITING the ORIGINAL, enter AØ=SAVE 1POWER.COM 1ØØ (program length in Sectors) (RETURN). Remember that to SAVE without overwriting, you must enter a new name and the number of sectors of the file to be saved.

You can use any New Name for the new version that you want. Remember, however,to be sure to enter the New Name at location Ø2F1 and Ø2EF if you intend to use the [$] AUTO RESTART function with the new version.

OVERLAYS

Another option is to SAVE many different versions of only the customizations, each one set up for a particular need. This is also done using the SAVE command, but in a slightly altered format. Enter AØ=SAVE CUSTOM2 1ØØ 4 (RETURN). This will SAVE only the first four sectors of POWER, which contains only the revised CUSTOMIZATION area. You can use any name you wish for these customized overlays of POWER. To later reconfigure POWER with one of these customized overlays, first have POWER RUNning, and then reLOAD the required version into memory at 1ØØ by entering GO CUSTOM2 1ØØ (RETURN). Your altered version will OVERLAY the data area of the POWER program and cause it to operate in the altered mode.

CUSTOMIZATION INDEX

The following are the customization operations, changes and addresses which can be used to self-tailor POWER. Addresses appear at the end of the paragraph describing what can be done at each address. They are all given in Hex code, as that is the way addresses are entered in conjunction with the Display/Substitute command.The changes are usually given in Hex code, but can also be entered in Ascii, Decimal or Binary, once the proper entry mode has been initiated with .A, .B or .D

NOTE North Star Computer users should check to see if they want an optional density test as described under AUTO MEMORY TEST before doing other alterations.

KEYBOARD CUSTOMIZATION

The following modifications will personalize your keyboard. This is useful when you are already accustomed to using a particular key for a command that is different from the one POWER uses, or your keyboard does not have the particular key that POWER uses.

SKIP — When you wish to abort a TYPE process and skip to the next file in a series, this keyboard character will do it. It is now set to Hex ØB (CONTROL K).....Ø1Ø6

CODE CHANGING KEY With the DISPLAY/SUBSTITUTE command, this control character tells the computer that the user will be changing code (either Ascii, Hex, Decimal or Binary). It is now set to Hex 2E (DOT).....Ø1Ø8

DIRECTION CHANGING KEY With the DISPLAY/SUBSTITUTE command, this character will change the direction of stepping through memory. It is now set to Hex 7E (TILDE).....Ø1Ø9

ABORT This character is used to cancel any process in POWER and return the user to the main POWER prompt AØ=. It is now set to Hex 1B (ESCAPE).....Ø1ØB

SCROLLING HALT KEY This character will stop the scrolling display of information to the screen. (NOTE (Control S) and (SPACE BAR) also halt scrolling.).....Ø1ØF

VIDEO DISPLAY CUSTOMIZATION

POWER PROMPT This flag indicates that you are operating in USER Area Ø, by displaying the ØØ Hex after the Drive Designation at the POWER prompt (AØ=). It is currently set to Hex FF, which activates this display. Setting it to Hex Ø will disable the Ø, and result in the simple (A=), BUT WILL STILL DISPLAY THE APPROPRIATE NUMBER PROMPTS FOR ALL OTHER USER AREAS (A2=, A3=, etc.).....Ø11C

POWER PROMPT This character displayed after the prompt indicates that you are operating in POWER and not CP/M. It is now set to Hex 3D (EQUAL SIGN).....Ø1Ø7

SCREEN LINE LENGTH This byte sets the number of characters to fit on your video screen line during TYPEX or DUMPX commands. Setting the Hex byte to FF will format for 64 characters, ØØ Hex will format for 8Ø characters and Ol Hex will format for 4Ø characters. The 4Ø character setting places the Ascii letters directly under the corresponding Hex bytes. You may wish to try this setting, even if you have a wider screen.....Ø118

SCROLL PAGING This byte sets the page length for paging through all output to the screen. Change to the Decimal entry mode, and enter the number of lines for your screen in Hex. NOTE Entering ØØ results in NO paging. Ø1Ø5

CURSOR POSITION This character determines where the cursor stops when paging. If set to Hex ØA, cursor will stop at left side of screen over a character, which is useful on computers that scroll sideways. If set to Hex ØD, the cursor will stop after last character of the line.....Ø11F

BAD BLOCK FILE NAME INDICATOR Directory entries for any bad blocks found by the TEST command will be composed of this character. It is presently set at Hex 3D (=).....Ø1ØA

POWER also sets the Bad Block file as a SYSTEM file. When the [S] Default toggle is OFF, the file will not appear in the directory. This prevents the possibility of your accidently attempting to write to the Bad Block file. See the SETSYS command for further information.

ERROR BELL Setting this byte to Hex ØØ sounds your console bell when an error occurs. Hex FF does not sound the bell...Ø112

DIRECTORY FORMAT This customization allows the user to format the file directory in one of three ways:

Set to Hex ØØ displays the standard CP/M format
Set to Hex Ø1 " " POWER format (no numbers)
Set to Hex FF " " " " with numbers

Memory address for this setting.....Ø1ØE

DIM FIELD If the user's terminal can accommodate DIM FIELD, this is how it is set:

a. First determine from your particular computer manual the sequence of characters which will activate this feature. Type in the total of the number of characters of the sequence or ØØ Hex, if you choose not to use Dim Field.....Ø17Ø

b. At this location you will now enter the sequence characters themselves (xx xx xx xx).....Ø171-Ø177

Once you have set the DIM FIELD you need to set the BRIGHT FIELD to compliment it:

c. At this location, enter the total of the number of characters your manual gives for de-activation.....Ø178

d. At this location, enter the sequence of characters themselves (xx xx xx xx).....Ø179-Ø17F

DISPLAY DURING TEST, READ, READGR, WRITE, and WRITEGR commands. The setting of this byte will govern how the Group, Track, Sector, Physical Sector, and memory locations involved in the data transfer will be displayed as your disk drive head moves across the disk.

Setting this byte to ØØ will display NO information on any of the commands. Setting this byte to Ø1 will print Track and Sector information for the various READ and WRITE commands BUT WILL ONLY PRINT AN "*" FOR EACH SECTOR DURING TEST and will considerably speed up that command's operation. Setting this byte to FF will display Track and Sector information on ALL of the commands above.....Ø1ØC

COMMAND CUSTOMIZATION

COMMAND NAME CHANGING (See also the RETOOL PROGRAM information section.) The names of POWER's commands are located in this area of memory. When entering changes, always include a space or Hex 2Ø between each command and enter a Hex ØØ at the end of the list. You must also be sure that the ORDER of the commands remains the same and that the total length of all the commands INCLUDING THE FINAL ØØ do not exceed address 2EF. If you wish to disable a command, setting the first byte of the command name to Hex FF will do it. Any letter of any command entered in lower case will set that command into the second tier command list only called up by ? ?, and will restrict and protect the use of that command. NOTE To PASSWORD protect commands, you MUST use the RETOOL program.....Ø1DØ-Ø2EF

POWER AUTO RESTART The byte at this address controls the AUTO RESTART ($$$.SUBmit) function. If the byte is set to Hex ØØ, POWER will run AUTO RESTART on the Default Drive. If set to Hex FF, AUTO RESTART will be disabled. Any other number entered in the Decimal mode will indicate to POWER the drive where the RESTART file can be found, with designations A:=1, B:=2, etc.

NOTE for MP/M86 users. AUTO RESTART is not for MP/M. Use (Control D) (DETACH) instead. See the MP/M manual.

Address for this setting.....Ø2FØ

POWER AUTO RESTART IF POWER HAS BEEN RENAMED This address stores the name of the file which the AUTO RESTART will search for and RUN.

The name entered here is used by POWER to create the AUTO RESTART ($$$.SUBmit) file. Hence, if you have RENamed POWER on your disk, you must also enter at this location the Ascii letters for the new name followed by Hex ØØ (See also the RENAME command.)

The name entered here is normally POWER and it will be used to return to POWER after you have used the RUN command if the [$] option is on (see LOG). Since this permits POWER always to regain control automatically, the user is always insulated from CP/M.

Further. you can automatically RUN any program with this AUTO RESTART function. Use CP/M's autostart facility to RUN POWER! when you initially turn on your computer. From POWER! you can run any application program you wish. When the first program has terminated POWER's AUTO RESTART file will chain the second application program. You need only enter the second program's name in the POWER buffer here to make the chain work.

Address where AUTO RESTART NAME is stored.....Ø2F1-Ø2EF

GENERAL CUSTOMIZATION

AUTOMATIC CONTROL C By setting this byte to Hex Ø1, POWER will do an Automatic (Control C) System Reset as a part of any disk command. This makes it unnecessary for the user ever to type in a (Control C). It is also time consuming, however, because the computer must go through the System Reset upon every command, whether or not a new disk has been placed into any Drive. NOTE If this byte is set for the Automatic (Control C), ONLY TWO DRIVES CAN BE ON-LINE..Ø116

BAD SECTOR OPTIONS If Bad Sectors are discovered during the COPY or LOAD operations, POWER will take the following actions depending upon how this Hex flag is set:

ØØ= when it encounters the Bad Sector it will stop and return to the main POWER prompt (AØ=)

Ø1= when it encounters the Bad Sector it will stop and ask if the user wishes to continue the operation

FF= when it encounters the Bad Sector it will not tell the user but will continue the COPY or LOAD operation

Address for this setting.....Ø11A
NOTE See DISK REPAIR FILLER below.

DISK REPAIR FILLER After a disk TEST has discovered Bad Sectors and asks the user if it should attempt a repair, whatever character is at this byte will FILL the Bad Sectors. It is now set to E5.

If POWER reports a Bad Sector in a disk read during a COPY or LOAD function, you can choose to continue the operation. (See BAD SECTOR OPTIONS above.) The Bad Sector in the file will then be automatically FILLed with the byte entered here wile it is being COPied to the destination disk or LOADed to the destination memory address.....Ø11B

COMMAND LINE LENGTH This byte sets the number of characters that you can type on any command line. It is presently set to Decimal 128 characters which is Hex 7F. NOTE The maximum number of characters you can change this to is Decimal 255, Hex FF.....Ø11D

AUTO MEMORY TEST This flag provides for a quick memory test after every (Control C) or (EXIT) command, so that a (?) appears when problems in the memory are discovered. The byte is currently set to Hex ØØ. Changing this to Hex C9 will disable this function.....Ø12Ø

NOTE for NORTH STAR users: this memory test takes the place of the density checking routine. If you prefer the density routine, you include it by placing file PW/NSTAR.OVR into the POWER program. This is done using either of POWER's commands, LOAD or GO:

AØ=LOAD PW/NSTA{.OVR 1ØØ (RETURN)
or
AØ=GO PW/NSTA{.OVR 1ØØ (RETURN)

NOTE To make the North Star density checking routine a permanent feature of POWER, you must save the modified version to disk with the SAVE command.

BE AWARE that this customization should be done BEFORE the user has personalized the keyboard since it will alter many of the bytes already set.....Ø12Ø-Ø13F

DRIVE DIRECTORY ACCESSIBILITY When the DIR [X] command is issued, this byte tells the computer how many drives to list. If set to Ø, POWER will list all drives on-line. If set to Ø1, it will list only Drive (A:), 2 will list BOTH Drive (A:) and Drive (B:) and so on. CAUTION: It is recommended that you set the byte to ØØ Hex since any drive set to be read which is not on-line at the moment the command is issued will cause the system to crash if the BDOS error trap at address Ø1ØD is set OFF. (See BDOS ERROR TRAP below.)
.....Ø16Ø

AUTO FILENAME UPPER CASE This byte is currently set to ØØ Hex, which translates lower case filenames to upper case. If set to Hex FF, filenames will be used exactly as entered.
.....Ø16C

AUTO .BAK OVERWRITE If the LOG function is set to create a BAK-UP file during COPYing, and the same BAK-UP filename already exists, the byte at this address will determine whether POWER will give you a Y/N option before overwriting (Hex FF) or proceed with an automatic overwrite (Hex Ø).....Ø16E

BDOS ERROR TRAP Setting this byte affects POWER's trapping of the BDOS error in the following ways:

Setting this byte to Hex FF will trap the BDOS error, stay in POWER and permit the listing of the maximum number of drives as when you use the [X] option with the DIR command. Except for North Star disks, all POWER disks are furnished with this byte set at Hex FF. NORTH STAR disks are set to Hex ØØ as below.

Setting the byte to Hex Ø1 will not trap the BDOS error, but will enable the listing of all drives with the DIR [X]. See DRIVE DIRECTORY ACCESSIBILITY above.

Setting the byte to ØØ will not trap the BDOS error but will list all those drives that are on-line.

NOTE for MP/M86 users: Setting this byte to Hex FE will activate the same function as the Hex FF byte setting in CP/M, except the error message WILL be printed.

NOTE For CP/M86 users: BDOS errors are not trapped.

Address for this byte entry.....Ø1ØD

ADVANCED PROGRAMMER OPTIONS

TRANSIENT PROGRAM AREA SIZE You can change the amount of memory space that POWER will use for file manipulation by entering a maximum Hex address here. Any memory above this address will be protected. If set to Hex ØØ ØØ, POWER will use the entire memory below CP/M.....Ø114-Ø115

BUFFER ZONE This customization enables the user to alter the method with which CP/M's internal disk buffer is written to the disk. If set to Hex ØØ, it will continue in normal operation which allows information to accumulate before sending to disk. If set to Hex FF, it will force the computer to write data immediately to the disk with no time in the buffer zone.....Ø116

RESTART This is the RESTART location that POWER will use in the case of an untrappable BDOS error. See any standard programming text for use of the 8Ø8Ø or Z8Ø RESTART instructions. Cannot be used with CP/M86 or with MP/M86 (CF=1,D7=2,DF=3,E7=4,EF=5,F7=6,FF=7).....Ø117

ABORT PRE-READ Sectors to write without pre-read Ø119

JUMPS These data bytes should be dynamically checked by any custom program coupled to POWER.
jump to KEYSTAT.(C3 xx xx).....Ø3ØØ-Ø3Ø2
jump to CINPT...(C3 xx xx).....Ø3Ø3-Ø3Ø5
jump to PRINCHA.(C3 xx xx).....Ø3Ø6-Ø3Ø8
jump to INBUFFER(C3 xx xx).....Ø3Ø9-Ø3ØB
end of PGM (-1 = stack).....Ø3ØC-Ø3ØD

INPUT BUFFER ADDRESS (NOTE the Buffer location dynamically changes.)
.....Ø3ØE-Ø3ØF

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*****

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*****

IMPORTANT

PLEASE remove these pages of security information from the manual and store in a secure place, together with your disk containing the special PASS and RETOOL programs (.COM files).

PASSword
PROGRAM TO CHANGE PASSWORD

USE: The PASSword enables you to enter into User areas that are hidden from normal CP/M operation and even from normal POWER operation. The PASSword command can be extremely valuable in hiding those special files you wish only selected people to see.

Once files have been placed in the protected User Areas, only those knowing the PASSword can gain access to them. Those who try to gain access without the correct PASSword will be unsuccessful. Those who try to change the PASSword in an incorrect manner will find the message "Fatal ERROR" appearing and the keyboard locking.

It is extremely important when using the PASSword command to follow the syntax EXACTLY. For example, if the PASSword is all in capital letters, enter it all in capital letters, or the PASSword will not be accepted.

The PASSword encoded into the program as furnished is "POWER". You may encode any other PASSword by using the instructions below.

SYNTAX: AØ=PASS (CURRENT PASSword) (RETURN)

NOTE The PASSword is used in conjunction with the USER and XUSER commands to place files into the PASSword locked Areas.

PLACING FILES IN PASSWORD PROTECTED AREAS

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=PASS POWER
AØ=XUser 25 (RETURN)
AØ-2=COPY  (RETURN)

AØ:   1= COLLEGE.TXT |  2= CUR/IO  .ASM |  3= DAISY  .COM*
AØ:   4= DEMO   .COM |  5= END     .BAK |  6= INQUIRE.TXT
AØ:   7= LPRINT .COM |  8= MONEY   .CMD |  9= MOVCPM .COM
AØ:  1Ø= PRINT  .COM | 11= SYSGEN  .COM | 12= TRADE  .COM

select? 1Ø  (RETURN)

destination drive: A

(C)opy or (M)ove:M

A:=A:PRINT   .COM
A:=A:SYSGEN  .COM
A:=A:TRADE   .COM

AØ-25=USER Ø (RETURN)
AØ=PASS (RETURN)
```

This is what happens:

Step 1: At the (AØ=) prompt, enter PASS(SPACE)POWER to unlock the PASSword protected User Areas. NOTE If you enter any other word or character after PASS (SPACE), you will activate the "bad password" error message, and POWER will not allow access to the files. NO "BAD PASSword" MESSAGE MEANS THAT POWER HAS ACCEPTED THE PASSword AND YOU CAN PROCEED TO ACCESS THE PROTECTED FILES. POWER gives you NO prompt message at this time, because the program is waiting for you to continue with the exact and correct syntax.

Step 2: At the second (AØ=) prompt, enter XUSER 25, indicating to POWER that you want to transfer files from the Default User Area Ø to the PASSword protected User Area 25. NOTE You can access any User Area 15 through 31 with the PASSword. 25 has been arbitrarily selected here as an example. Press (RETURN).

Step 3: The POWER prompt (AØ-25=) appears, indicating that POWER is ready to transfer files from User Area Ø to User Area 25. Enter COPY (RETURN)

Step 4: POWER displays the Numbered Menu of files on Drive A User Area Ø (AØ:). At the (select?) prompt, enter 1Ø- indicating that you want to copy files number 1Ø through the end of the disk. Press (RETURN).

Step 5: POWER asks your (destination drive:). Enter (A) as you wish to transfer files ON THE SAME DISK.

Step 6: POWER now asks if you want to (C)opy or (M)ove a file. You enter (M)ove in order to PLACE THE FILENAME IN THE USER AREA 25 directory AND REMOVE it from the directory in User Area 1. In this way you isolate your secret files totally from any knowledge of their existence in the normal Ø through 15 User Area directories. If you had selected the (C)opy option, you would have duplicated the file into the protected User Area, but left the original unprotected file in User Area Ø. See "IMPORTANT WHEN USING PASSword" information on the (M)OVE command below.

Step 7: POWER displays each filename as it is (M)OVEd. The (M)OVE is complete when the (AØ-25=) prompt returns.

DISABLING THE PASSword ACCESS

You now proceed to RELOCK the files, so that no one can access them with a simple USER/XUSER command.

Step 8: To EXIT from the (AØ-25=) function, enter User Ø (RETURN). You will be back in the Default User Area Ø with the (AØ=) prompt.

Step 9: Then, to LOCK THE SECRET USER AREAS re-enter AØ=PASS, but this time do NOT enter the correct PASSword. Instead, simply hit (RETURN). Without the PASSword, the PASS command is disabled and the files in User Areas 16-31 are no longer accessible.

NOTE When you finish operation with the Secret Files and remove the disk from the computer, POWER AUTOMATICALLY RELOCK the protected User Areas for you. If you continue running POWER, however, the program can still enter protected User Areas on any disk being used. To disable this ability, you must issue either the AØ=PASS (RETURN) command or the EXIT command.

USING FILES IN PASSword PROTECTED AREAS

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

```
AØ=PASS POWER
AØ=USER 25
A25=XUser Ø (RETURN)
A25-Ø=COPY  (RETURN)

AØ:  1 PRINT  .COM | 2 = SYSGEN  .COM |  3 = TRADE  .COM

select? 3  (RETURN)

destination drive: A

(C)opy or (M)ove:M

A:=A:TRADE   .COM

A25-Ø=USER Ø (RETURN)
AØ=RUN TRADE
```

This is what happens:

Step 1. Once again you enter PASS(SPACE)POWER(RETURN) at the (AØ=) prompt.

Step 2. This time, however, you want to go to User Area 25 to get the locked programs residing there. You therefore enter AØ=USER 25 (RETURN)

Step 3. The (A25=) prompt appears, telling you that you are now operating on Drive A in User Area 25. To prepare to transfer the files back to User Area Ø, enter A25=XUSER Ø.

Step 4: Enter COPY (RETURN), and the file directory of (A25:) appears, followed by the select? prompt.

Step 5: You select only one file, TRADE .COM, and enter it's number 3. Again you elect only to (M)OVE the file.

Step 6: You then return to User Area Ø by entering AØ=USER Ø and proceed with RUNning your file. NOTE At this time you do NOT lock the PASSword protected files, because you want to return your file to User Area 25 after you have finished working with it.

IMPORTANT WHEN USING PASSword

THE (M)OVE COMMAND You can (C)opy into protected User Areas on different disks as well as from Area to Area on the same disk - the function is exactly the same as an ordinary COPY function. However, YOU CAN ONLY (M)OVE FROM AREA TO AREA ON THE SAME DISK. This is because a (M)ove simply relist the filename to another User Area, but the file itself remains unchanged on the same actual location on the disk.

If you want to collect secret files from several disks into one User Area on one disk, therefore, you will have to (C)OPY them, and then return to the original disk and ERAse the original files.

This will, of course, leave that file in the ERAsed directory, and it will be accessible with the RECLAIM command. It is RECOMMENDED to create all secret files ON THE SAME DISK AS THE ONE YOU STORE THE FILE ON SO THERE IS NO FILENAME TO BE RECLAIMED. Further, ERAsing files INSIDE USER PROTECTED AREAS places them as COMMON DELETED FILES IN THE DIRECTORY ON THAT DISK. If you want to ERAse sensitive data in the PASSword protected User Areas, it is better to garble it somewhat with the original program that created it and then perform the ERAse function.

(M)OVING SECRET FILES BACK TO USER AREA Ø TO WORK WITH THEM In order to manipulate files, RUN programs (.Com files), or work with data or text files created by auxiliary programs, you will probably find it easier to (M)ove them back to User Area Ø, work with them, then put them back into the PASSword protected User Area. This is particularly true if you are working with a Systems Disk in Drive AØ:, while your secret files are on Drive B25: CP/M AUXILIARY PROGRAMS CANNOT ACCESS FILES FROM DRIVE TO DRIVE IF THEY ARE NOT IN THE SAME USER AREA.

The alternative is to put copies of your file creating programs into the PASSword protected User Areas along with your files.

CHANGING DISKS: You can swap disks in the drives at will, but remember that CP/M requires a (Control C) to reset its disk directory. The COPY and MOVE commands are disk write functions, but POWER will not allow you to make an improper disk write. It will advise you to use (Control C) if you have changed disks.

ACCESSING USER AREA DIRECTORIES The DIR [U] and the DIR [X] commands to search all directories and User Areas do not work with User Areas 15 through 31 as long as the maximum User Area number directory search byte is set at 15. (See CUSTOMIZATION.)

If there are no files in a requested User Area, POWER will respond with the message "No files ????????.??? on A:". As long as you have already unlocked the PASSword, you can then proceed to search other file directories by entering the USER destination number and then issuing the DIR command.

NOTE PASSword protection is available only in CP/M 2.xx and later.

CHANGING PASSword

USE: POWER enables you to change the PASSword as often as you wish with this special program. You can either overwrite POWER with your new PASSword each time you change it, or you can designate specific PASSwords for different disks belonging to different people or having different information.

NOTE For this program to operate, you must have POWER and the program called "PASS" on the disk where you are creating the new PASSword.

SYNTAX: A=GO PASS 5ØØØ(RETURN)POWER(RETURN)NEWPASSword(RETURN)

NOTE: This command must be typed EXACTLY as shown with three carriage returns and no spaces between (RETURN) and the PASSword.

WARNING!!! Failure to use the exact syntax will result in the error message "Fatal ERROR", and the keyboard "locks up". You will have to restart the entire computer operation to recommence operations.

EXAMPLE: (NOTE: Screen Display=light type/Your Command=BOLD FACE)

AØ=GO PASS 5ØØØ(RETURN)POWER(RETURN)PW2(RETURN)

AØ=SAVE POWER.COM 1ØØ (RETURN)

This is what happens:

Step 1: At the (AØ=) prompt, enter GO PASS 5ØØØ then press (RETURN).

Step 2: The cursor will move one space. This indicates that POWER has accepted the command so far and proceeded with loading the PASS file to encrypt your new PASSword. You now enter the current PASSword which is initially POWER. Press (RETURN) IMMEDIATELY after typing POWER.

Step 3: The cursor again will move one space and stop, waiting for your entry of the new PASSword. At this point you can enter any name you wish in capitals or small letters. YOU MUST REMEMBER, HOWEVER, EXACTLY HOW IT WAS ENTERED. In the above example, PW2 is entered as the new PASSword. Press (RETURN) and you return to the POWER prompt. You have now changed the PASSword from POWER to PW2..

Step 4: You now enter AØ=SAVE POWER.COM 1ØØ (RETURN) in order to SAVE the new version of your POWER program containing the new encoded PW2 PASSword to the disk.

NOTE This syntax OVERWRITES your old version of POWER and obliterates "POWER" as the PASSword. You can create several versions of POWER with different PASSwords by issuing the AØ=SAVE (NEWPOWERNAME) (ADDRESS) (FILE LENGTH) command, but be careful that you don't end up with TWO OR MORE PASSwords on the same disk that can all access the secret User Areas.

PWRETOOL
PROGRAM TO ALTER COMMANDS

USE: This program allows the user to rename the POWER commands. Selected commands can also be disabled if they are not needed or PASSword protected for special user environments.

SYNTAX: AØ=RUN PWRETOOL POWER.COM
or
AØ=RUN PWRETOOL (DR:) POWER.COM
or
AØ=RUN PWRETOOL (DR:) POWER.COM (DR:) NEWNAME.COM [PASSword]

With the first syntax you alter an existing POWER program located on the Default Drive.

With the second syntax, you alter an existing POWER program located on another Drive, which you identify before you type POWER.COM

With the third syntax you create a new POWER file on a new Drive, and you also want to use the PASSword protection.

NOTE This program is a .CON file and can also be run from CP/M with the A>RETOOL POWER.COM syntax.

EXAMPLE (NOTE: Screen Display=light type/Your Command=BOLD FACE)

A=RUN PWRETOOL B:POWER.COM A:POWER2.COM [POWER] (RETURN)

PWRETOOL FOR POWER 3

```
DIR.....................D          (RETURN)
COPY....................CO         (RETURN)
REN.....................            (RETURN)
ERA.....................:           (RETURN)
TYPE....................            (RETURN)
TYPEX...................#           (RETURN)
TYPEH...................#           (RETURN)
TYPEA...................#           (RETURN)
RUN.....................            (RETURN)
EXIT....................LEAVE       (RETURN)
```

DONE (Y/N,CTR C)? N

NOTE TO MANUAL READERS - THIS IS AN ABBREVIATED LIST OF COMMANDS. POWER'S ACTUAL LIST IS MUCH LONGER.

```
D.....................(RETURN)
CO....................(RETURN)
REN...................(RETURN)
(ERA).................(RETURN)
TYPE..................(RETURN)
#.....................(RETURN)
#.....................(RETURN)
#.....................(RETURN)
RUN...................(RETURN)
LEAVE.................(RETURN)

DONE  (Y/N,CTR C)? Y

AØ=
```

This is what happens:

Step 1: At the (AØ=) prompt enter AØ=RUN PWRETOOL B:POWER.COM A:POWER2.COM [POWER]. You have now instructed POWER to RUN the PWRETOOL program, which is on the default Drive (A:). You then enter the name of the version of the program you wish to alter, including the drive it is on and its extension, i.e., B:POWER.COM. Next, you enter the Drive where you wish to write the new program and the new name you wish to give it, i.e., A:POWER2.COM.Lastly, since you want to PASSword protect some of the commands, you enter the existing PASSword EXACTLY as it is written and press (RETURN).

Step 2: POWER displays the PWRETOOL FOR POWER 3 heading, then immediately lists the first command DIR, with the dotted line and the cursor waiting alteration.

Your choices are:

a) Enter a (NEW NAME). Press (RETURN).

b) Do NOT ALTER the command, simply hit (RETURN).

c) Enter the (#) symbol to DISABLE the command and press (RETURN).

d) Enter the (:) which will PASSword PROTECT the command. Press (RETURN).

e) Enter (:) and the (NEW NAME). This will change the name of the command AND PASSword protect it. Press (RETURN.

f) Enter (:) and (#), which will disable the command AND PASSword protect it. Press (RETURN).

In this example you change the DIR command to D Press (RETURN).

Step 3: POWER has now changed the name of the Directory command. NOTE You will not see this change until you have finished with all of the commands.

Step 4: After the dotted line at the COPY command, enter CO which indicates that you are changing the COPY name to CO. Press (RETURN).

Step 5: POWER displays each of the commands, awaiting your choice. You skip making any changes to RENname by simply hitting (RETURN).

Step 6: The next command you alter is ERAse. After the dotted line enter (:), indicating that you wish to PASSword protect the command. Press (RETURN).

Step 6: At the TYPEX, TYPEH and TYPEA commands enter # to DISABLE these commands entirely.

Step 7: At the EXIT command enter LEAVE, indicating that you wish to change the command name to LEAVE. Press (RETURN).

Step 9: POWER will normally display ALL of the commands one at a time and await your choice. THIS EXAMPLE GIVES ONLY PART OF THE LIST. After all of the commands have been listed, the POWER prompt DONE (Y/N,CTR C)? will be displayed. At this point you have the choice of (Y)es, which will then proceed to AUTOMATICALLY MAKE THE ALTERATIONS you requested and end the program, or (N)o, in which case you will return to the first command on the list with your alterations displayed,or (CONTROL C), which will abandon the whole process.

Step 1Ø: You enter (N)o so that you can see the alterations you have made, and verify if you want it just the way you've done it. Press (RETURN).

POWER returns to the first command which now is D, since it was altered in Step 2. Each time you press (RETURN) it moves to the next command, keeping the new command unchanged. Notice that COPY has been changed to CO, that ERAse has been PASSword protected and therefore shows only in parenthesis, and that TYPEX, TYPEH, and TYPEA are all shown as #, indicating that they have been disabled.

Step 11: Once you have gone through all of the commands, the prompt DONE (Y/N, CTR C)? is again displayed. Now enter (Y)es and POWER will proceed AUTOMATICALLY TO SAVE this new version of POWER as POWER2.COM.

If you check the directory on Drive A: you will now find a file called POWER2.COM. RUNning that program will give you all the alterations you have made.

CAUTION WHEN WORKING WITH RETOOL

PWRETOOL requires complete filename syntax to begin its operation so that you do not casually disable commands in a working customized copy of POWER.

Also, once you have made your choices, POWER gives you the opportunity to double check and go back over the changes before the changes are SAVEd to the disk. IF YOU CHANGE YOUR MIND AT ANY TIME WHILE ENTERING THE CHANGES OR WHILE DOUBLE CHECKING WHAT CHANGES HAVE BEEN MADE, YOU CAN ABORT THE ENTIRE ACTION BY ENTERING (CONTROL C).

However, once the changed file has been SAVEd to the disk by entry of the (Y)es response at the end of the command list, the DISABLED commands disappear from the directory, and are VERY DIFFICULT TO RE-ENABLE.

IT IS THEREFORE IMPORTANT TO ALWAYS KEEP YOUR ORIGINAL MASTER DISK UNCHANGED. If you then decide that you want to re-activate a command or make other changes, you can start from a fresh copy.

*****