

THE WANG PROFESSIONAL COMPUTER

Utility
Programs
User Guide

WANG

Utility Programs User Guide

The Wang Professional Computer Utility Programs User Guide

1st Edition — November 1983
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700-8389

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PREFACE

The Wang Professional Computer Utility Programs User Guide explains how to use the utility programs provided with the Wang PC and the Wang PC Editor. Utility programs include both the options on the System Utilities Menu and programs run through the DOS Command Processor. The guide contains a chapter on the input the user supplies in order to handle files with the utilities.

This guide is intended for all users of the Wang PC. To use this guide, you should have read The Wang Professional Computer Introductory Guide (700-8020) or be otherwise familiar with basic computer concepts and terminology.

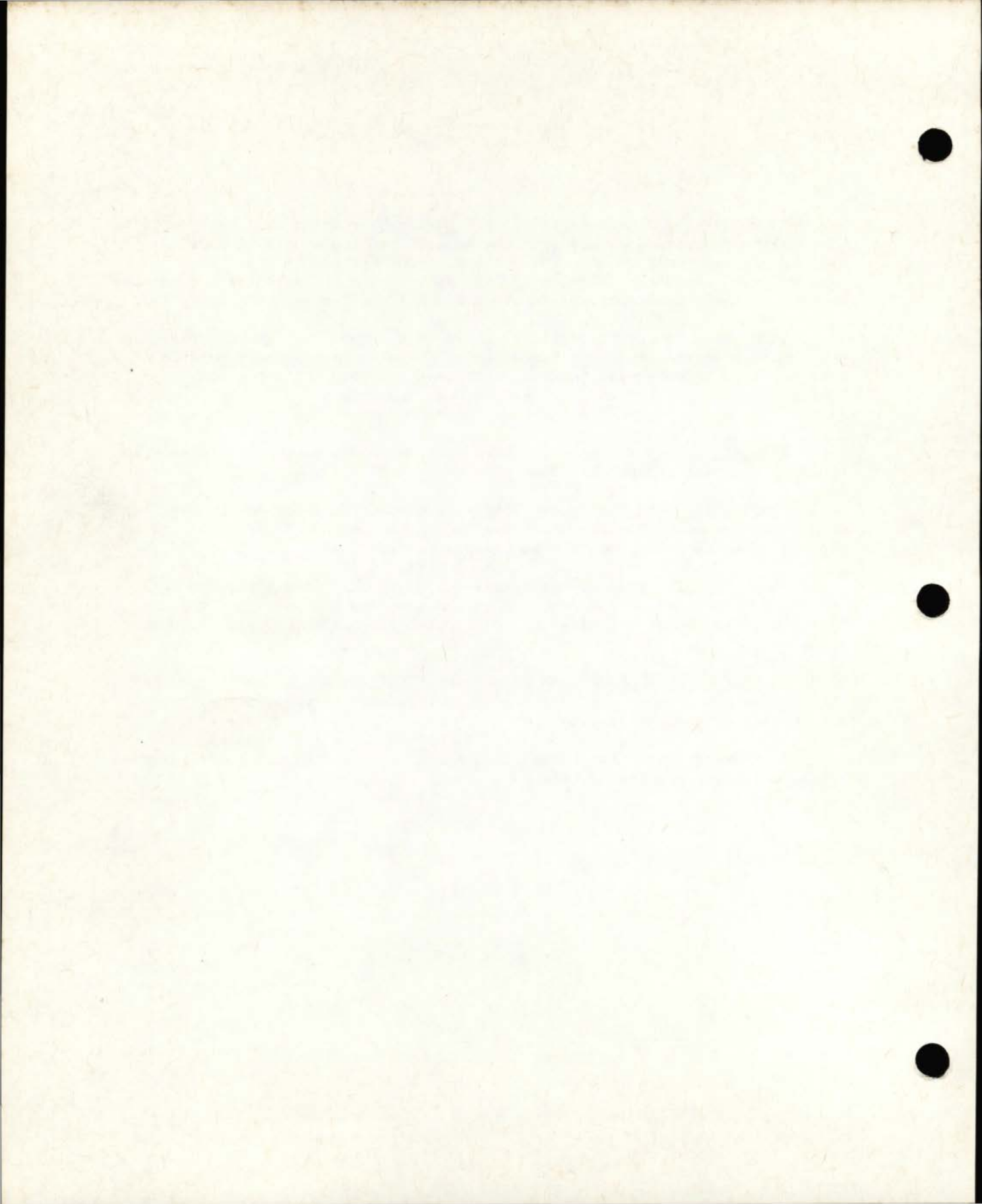
Chapter 1 File Management: Presents the concepts you need to know in order to name and manipulate files on disk.

Chapter 2 Using the System Utilities Menu: Describes how to use each menu selection on the System Utilities Menu. You can use these utilities to copy, delete, rename, or otherwise manipulate disk files.

Chapter 3 The Editor: Describes the Editor. This utility can create and modify source files for programs in the compiled languages and the Assembler. It can also create and modify text files such as memos, reports, and lists.

Chapter 4 The DOS Command Processor: Explains how to enter commands through the DOS command processor and describes each of the DOS utilities. It also explains batch processing.

The Appendices: List and explain the error messages and codes returned by the utilities and the Editor.



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1

FILE MANAGEMENT

Introduction

Overview of File-Management Parameters

The Drive Designation Parameter

The File Name and Extension Parameters

The Path Name Parameter

The Volume Identifier Parameter

Creating and Modifying Files

Hidden Files

CHAPTER 1 FILE MANAGEMENT

1.1 INTRODUCTION

Almost all of the operations performed on the Wang Professional Computer involve reading from or writing to files on disk. You tell the computer which files to use by supplying parameter values that allow it to locate the files on the disk. This chapter explains file management on the Wang PC by explaining the parameters used to manage files. When you understand the file-management parameters, you have a basic grasp of how Wang PC file management works.

The manuals for Wang PC Multiplan and Wang PC Word Processing, two commonly purchased applications, contain sufficient information on parameters to allow you to start using those programs without reading this chapter. Eventually, however, if you are using Multiplan or Word Processing, you should read at least through Section 1.4. You will need the information contained through Section 1.4 in order to take full advantage of the Wang PC's capabilities.

1.2 OVERVIEW OF FILE-MANAGEMENT PARAMETERS

There are two levels of file management on the Wang PC. The first level is the identification of the file according to four different parameters, described below. The second level makes use of a parameter known as a path name. You should use this level of file management only if your system has a Winchester disk. Section 1.5.2 explains how to use the path name parameter.

Four parameters control I/O on the first level. They are as follows:

- a drive designation
- a file name
- an extension to the file name
- a volume identifier (volume ID)

Drive Designation

A drive designation is a letter of the alphabet designating a disk drive. This parameter tells the computer which drive has the disk that contains the file you wish to access.

File Name

A file name is one to eight characters long. A file name may or may not have an extension, which is one to three characters long and is preceded by a period.

File Extension

An extension allows you to give several files the same file name. For example, you may write several files named RESUME and distinguish them by extensions as in RESUME.#1, RESUME.#2, and so on.

Volume ID

The volume ID is one to eleven characters long and is used to identify the disk that files reside on.

Using File Identifiers and File Specifications

You must often use the file-management parameters in combination with one another. The terms "file identifier" (file ID) and "file specification" (file spec) refer to different combinations of parameters. Understanding these terms is necessary for understanding many of the subsequent explanations of programs in this and other Wang PC manuals.

Many of the file-management programs on the Wang PC System Utilities Menu prompt you for a file ID. A file ID is a file name optionally preceded by a path name and optionally followed by an extension. Thus, if an instruction requires you to supply a file ID, you must at least supply a file name, and sometimes you must also supply a path name and/or an extension. Whether or not you supply the optional parameters depends on two conditions: whether they have been previously specified for the file; and whether the program that is being used requires the optional parameters.

The descriptions of many of the programs supplied with the Wang PC refer to file specifications. A file specification is a file ID with the optional addition of a drive designation as the first parameter. If the file you wish to access is on the default drive, you do not have to supply a drive designation in the file specification. Otherwise, a file specification requires a drive designation. However, you never include a drive designation in a file ID.

The following example illustrates the use of the drive designation, volume ID, file name, and extension parameters in the FILE DELETE system utility.

SYSTEM UTILITIES - FILE DELETE	
Default Pathname:	A: / _____
File:	
Drive: A	Volume ID: _____
File ID:	TAXES.FDL _____

These parameters instruct the computer to delete a file with the extended file name TAXES.FDL from a disk with the volume ID 1 on Drive A.

NOTE:

In most cases, you can use any combination of uppercase and lowercase letters when entering alphabetic file parameter values. Thus, even where the examples use uppercase letters, you can use lowercase letters, or any combination of the two.

The following sections explain each of the file-management parameters in detail. Section 1.7 discusses the creation and modification of files. Section 1.8 explains the concept of hidden files.

1.3 THE DRIVE DESIGNATION PARAMETER

When a command requires the computer to access a disk, the computer must know which drive the disk is on. To specify which drive a disk is on, you give the computer a drive designation. This is true even for systems with only one disk drive. The discussion that follows first explains how to use drive designations with dual-drive systems. It then explains how to use drive designations on single-drive systems.

A drive designation can be any letter from A to Z. The letters A and B are reserved for the first and second diskette drives, respectively. Other drives purchased for your system will be designated sequentially from C. Currently, the Winchester drive is the only other drive option available. In practice, therefore, C designates the Winchester drive. In the future, however, other drive options may become available.

The RAMDISK utility, although not another physical disk drive, simulates use of memory space as another drive (see The Wang Professional Computer Introductory Guide). When you use RAMDISK, you refer to that space as if it were another drive. All files stored on it include a separate disk drive designation in their file IDs or specifications. If you have a one or two disk drive system, you reference RAMDISK space as Drive C. If you have a Winchester drive, which is by default Drive C, then you would reference RAMDISK space as Drive D. When other disk drive options become available, RAMDISK space would assume the alphabetic letter just after the last one specified.

The following prompt, which appears when you select the CHECK DISK option from the System Utilities Menu, illustrates the use of the drive designation:

SYSTEM UTILITIES - CHECK DISK

Default Pathname: A:/_____

Drive: B Volume ID: _____

File ID: _____

Error fix-up? (Yes/No) N

Trace? (Yes/No) N

The CHECK DISK utility analyzes the contents of the disk in the designated drive. When this prompt appears on the screen, it displays the designation for the default drive, the drive the computer uses if you do not enter a different designation. At start-up, the default drive is the drive from which the computer loaded the system files. In this example, the default drive is A. (For descriptions of ways to change the default drive, refer to Sections 2.3 and 4.2.)

You respond to a drive designation prompt by leaving the default designation unchanged or by typing in a new designation. If you are using the DOS Command Processor or Other option, you enter a drive designation by typing a letter followed immediately by a colon, for example:

B:

The following might be a response to the prompt displayed if you select the DOS Command Processor option from the Main System Menu:

TYPE B:PAYFILE.SAL

This TYPE command instructs the computer to display on the screen the contents of a file on Drive B named PAYFILE.SAL. When using the DOS Command Processor or Other options, you need not supply a drive designation if the file you are accessing is on the default drive.

Note that the default drive is not necessarily the last drive used. In most cases, instructing the computer to use a drive other than the default drive does not change the default drive. When the computer completes executing an instruction on a drive other than the default drive, it resumes using the default drive until you instruct it otherwise.

1.3.1 The Drive Designation Parameter on Single-Drive Systems

Often the instructions you give the computer involve the use of more than one disk. For example, you can instruct the computer to copy a file from one diskette to another. On a single-drive system, you instruct the computer to perform an operation involving more than one diskette just as you do a dual-drive system: by supplying different drive designations for the diskettes. Thus, when the execution of a command requires you to change the diskettes in the drive, you must think of the system as having two diskette drives: Drive A and Drive B.

For example, you can use the FILE COPY option on the System Utilities Menu to copy a file from one diskette to another. While the default drive is A, you could respond to the prompt returned by the FILE COPY option in the following way:

SYSTEM UTILITIES - FILE COPY	
Default Pathname: A:_____	
Input File:	
Drive: A	Volume ID: _____
File ID: RESUME.#1_____	
Output File:	
Drive: B	Volume ID: _____
File ID: _____	

These responses instruct the computer to find the file named RESUME.#1 in the diskette in the default drive and make a copy of it on a second diskette. When you press the EXEC key, the following prompt appears: "Insert diskette for Drive B: and strike any key when ready". If the default drive was B, the message would tell you to insert a diskette in Drive A.

When the last drive used is not the default drive, the next command you issue which uses the default drive causes the computer to prompt you to insert a diskette in the default drive. For example, when A is the default drive and B is the drive last used, the next command you issue which uses Drive A causes the computer to return the following prompt: "Insert diskette for Drive A: and strike any key when ready".

1.4 THE FILE NAME AND EXTENSION PARAMETERS

A file name of up to eight characters must be given to every file. You can also give the file name an optional extension of up to three characters. When you create a file, the computer logs each file name and extension in one of the directories on the disk. File names and extensions appearing in a directory must be composed of characters, in any combination, from the following list:

A-Z	0-9	\$	&	#	@	!
%	'	(	)	-	<	>
\	^	+	_			

Note that the computer reads any other character it finds in a file name or extension as a delimiter terminating the file name. The computer ignores all characters subsequent to a delimiter.

1.4.1 File Name Extensions

Extensions to file names can have a variety of functions, but most often they serve to classify files by specific types. For example, the extension .BAS indicates that a file is written in the BASIC programming language.

Several of the programs available with the Wang PC use specific extensions for predefined purposes. Therefore, you should use care when assigning these extensions to any of your files. The following is a list of predefined extensions, together with the titles of the manuals where they are explained, for some of the most commonly used programs.

Extension	Program	Where Explained
.ASM	Assembler	Program Development Guide
.BAK	Editor	This manual, Chapter 3
.BAS	BASIC	BASIC Language Guide
.BAT	DOS	This manual, Section 4.6
.CHK	Check Disk	This manual, Section 2.3
.COM	DOS	Program Development Guide
.DOC	Word Processing	Word Processing Reference Guide
.EXE	Linker	Program Development Guide
.GL	Word Processing	Word Processing Reference Guide
.HEX	Debugger	Program Development Guide
.LIB	Library Manager	Program Development Guide
.MAP	Linker	Program Development Guide
.OBJ	Linker	Program Development Guide
.SYS	DOS	Introductory Guide
.TMP	Linker	Program Development Guide

CAUTION:

Do not use the extension .BAK for any file. The Editor creates a backup file with that extension every time a file is re-edited. The next time it edits a file, the Editor deletes the previous backup file and creates a new one.

1.4.2 Reserved File Names

Certain 3-letter file names, optionally followed by a colon, are reserved for the names of devices. These are as follows:

AUX or AUX:	Used when referring to input from or output to a device attached to the asynchronous serial communications port.
CON or CON:	Used when referring to either keyboard input or to output to the terminal screen.
PRN or PRN:	Used when referring to the printer.
NUL or NUL:	Used when you do not want to create a particular file, but the syntax of a command requires an input or output file name. For example, certain system utilities require you to supply the names of files to be created during execution. If you do not want to create the required file, you can use NUL for the file name. Then, the file itself is not produced and the file name requirement is fulfilled.

One place where you might use a reserved file name would be the FILE COPY utility. The prompt for the FILE COPY utility asks you for the name of an input file (the file to be copied) and an output file (the copy to be produced). By supplying PRN as the name of the output file, you instruct the computer to print the input file. That is, instead of creating another copy of the file on disk, the computer creates a printed copy of the file. If you gave CON as the name of the output file, the computer would display the input file on the screen. If the name of the output file were AUX, the computer would send the input file to your communications device.

NOTE:

Unless they have been modified by the user, all Wang PCs also accept the above reserved names when they are preceded by the characters /DEV/. For example, wherever you can use the reserved name PRN, you can use /DEV/PRN instead. It is possible to modify the operating system so that the reserved name must always be preceded by /DEV/. (Refer to the discussion of the file CONFIG.SYS in The Wang Professional Computer Program Development Guide.) If you modify the operating system in this way, the computer interprets a reserved name without /DEV/ as the name of a file, not a device. As shipped by Wang Laboratories, Inc., however, the operating system does not allow you to use these reserved file names for any purposes other than those listed in this guide.

In certain cases, you can replace the drive designation with a reserved file name. When you use a reserved file name in this way, you must type a colon immediately following the name. The colon tells the computer the reserved file name is replacing a drive designation.

1.4.3 All-purpose File Name Characters

The question mark and the asterisk are all-purpose characters that provide a shorthand notation for referencing several files in one file ID. When a question mark occurs in a file ID, the computer accepts as a match for the question mark any single character it finds in the same position in any file name or extension.

For example, you can use the FILE DELETE utility to delete several files at once. In response to the file ID prompt, you might supply the following file name for the file you wish to delete:

AB?DE

This response tells the computer to delete all files with five-letter names beginning with AB and ending with DE. In other words, the computer would delete the following files:

ABCDE
ABODE
ABIDE

The asterisk stands for enough question marks to fill the file name or extension field. Thus, the asterisk indicates that its position and any positions subsequent to it can be occupied by any character or by no character. For example, you might supply the following as the file ID for FILE DELETE:

AB*

This response tells the computer to delete all files whose names begin with AB, regardless of the length of the file name. Therefore, the computer would delete the following files:

- AB
- ABCDE
- ABXDE
- ABDEXYZ

Here are some other examples that use asterisks with equivalents in question mark characters:

<u>Asterisk</u>	<u>Question Mark Equivalent</u>	<u>Meaning</u>
TESTFILE.*	TESTFILE.???	The I/O instruction applies to all files named TESTFILE regardless of extension.
*.EXT	?????????.EXT	The I/O instruction applies to all files with the extension .EXT.
ABC*.E*	ABC?????.E??	The I/O instruction applies to all files whose names begin with ABC and that have an extension beginning with E.

Some system utilities such as FILE COPY and RENAME FILE have special uses for all-purpose characters. The utility descriptions in Sections 2.3 and 4.5 explain those purposes.

1.5 THE PATH NAME PARAMETER

When you instruct the computer to operate on a file, the computer uses the information in a disk's directories to locate the file. Every formatted disk has at least one directory, put there by the formatting process. This directory is called the disk directory. The Winchester's disk directory has room for 128 entries. However, the disk itself can hold thousands of files, depending upon the lengths of the files.

You can create directory entries for more than 128 files on the Winchester disk by using multilevel directories. This section explains multilevel directories and the path name parameter by which you make use of this feature. Multilevel directories are not recommended for diskettes. However, as you put your own files on the Winchester, you should create a multilevel directory structure for them. Otherwise, the Winchester's disk directory could soon be filled to capacity.

1.5.1 Multilevel Directories

In a multilevel directory structure, the entries in a directory can refer you both to ordinary files and to subdirectories. The entries in the subdirectories, in turn, can refer you to ordinary files or to further subdirectories. For example, the first directory on a disk may contain two entries: an entry for an accounts receivable file called RECEIVE and an entry for an accounts payable file called PAYABLE. Each of these files, in turn, could be a directory containing the names and locations of other files. For instance, each entry in RECEIVE could contain the name and location of a file for one of your customers.

The files referenced by PAYABLE, on the other hand, could be further directories. PAYABLE might have an entry for a tax-due file called TAXFILE and an entry for a file called VENDORS containing entries for other payments due. TAXFILE might contain entries for four files named CITY, COUNTY, STATE, and FEDERAL. Figure 1-1 illustrates these relationships.

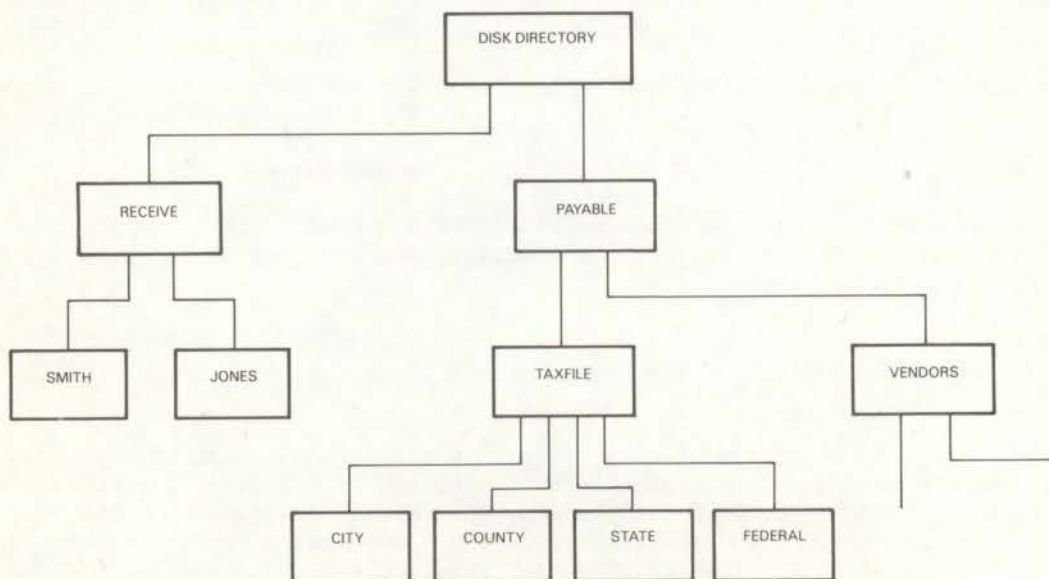


Figure 1-1. Multilevel Directories

This example shows that the ability to organize files is an advantage of multilevel directories in addition to increasing the number of directory entries. As another example of organization, the first directory of a disk might contain entries for subdirectories named TOM, DICK, and HARRY. Each subdirectory could contain only files belonging to the person with that name.

Multilevel directories also allow the use of duplicate file names. Each entry in a directory must be unique within that directory. For example, only one entry in a directory can be named TAXFILE. However, other directories can have entries with this name, as long as the name is unique within each directory.

The number of subdirectories you can enter in the disk directory is limited to 128. For other directories, the number of subdirectories and the number of entries in subdirectories are limited only by the physical capacity of the disk. However, it is not a good idea to make a multilevel structure too complicated. The more levels you have, the more directory names you have to remember and the more opportunities there are for you to make mistakes when entering a path name.

1.5.2 Specifying a Path Name

When you instruct the computer to access a file in a multilevel structure, the computer must know how to go from directory to subdirectory to get to the file. For example, to use the file CITY in our previous example, you must tell the computer to go to the disk directory and find the entry for the subdirectory named PAYABLE. The computer must then go to PAYABLE and find the entry for the subdirectory named TAXFILE. It must then go to TAXFILE and find the entry for the file named CITY. Then it goes to CITY.

The path name parameter gives the computer the information it needs to search a multilevel directory structure for a file. A path name consists of a name of a directory or a series of directory names, separated by slashes and optionally preceded by a drive designation. For example you would specify a pathname as follows:

PAYABLE/TAXFILE

If a path name contains a series of directory names, each successive name must belong to the next level of the structure. That is, you cannot skip any levels of the structure when you specify a path name.

The disk directory does not have a name since there is no previous directory to reference that name. If the path name you are specifying begins at the disk directory, you indicate this by placing a slash in front of the first name in the path. For example:

/PAYABLE/TAXFILE

When a path name is part of a file specification or file ID, a final slash separates the path name from the name of the file to be worked on. In this case you would specify the complete pathname as follows:

/PAYABLE/TAXFILE/CITY

The name following the final slash in a file ID can be the name of a directory since you may be trying to access a directory rather than an ordinary file.

A directory name must conform to the rules for file names given in Section 1.4. In particular, a directory name must consist only of characters allowable in file names and of no more than eight characters. However, a directory name cannot have an extension, and you cannot use all-purpose characters when referencing a directory.

As shipped by Wang Laboratories, Inc., the default path for file searches is the disk directory. You can use the PATH\-\CHANGE DIRECTORY option on the System Utilities Menu (refer to Section 2.3) or the CHDIR command from the DOS Command Processor (refer to Section 4.5) to change the default path.

The last entry in the default path name is the default directory. When you reference an entry in the default directory, you do not have to include the default path name in the file ID, file specification, or path name you supply. For example, if the default path name is /PAYABLE/TAXFILE and you wish to access the file CITY, you need only enter the following as the file ID:

CITY

Whenever a file ID, file specification, or path name does not begin from the default directory, it must start at the disk directory.

If there are subdirectories between the default directory and the file you want, the path name you supply must include the names of those subdirectories in the proper order. For example, if the default path name is /PAYABLE and you wish to access CITY, you must enter the following file ID:

TAXFILE/CITY

If you execute a program not on the default path, the path name you supply for that program becomes the default path name while that program is executing. For example, if the default path name is /PAYABLE and you want to access the file SMITH, contained in the directory RECEIVE, you can use the following file ID:

/RECEIVE/SMITH

The new path name overrides the default path name for the duration of the program. When the program terminates, the previous default path again takes effect.

In addition to the default path name, you can specify default alternate path names. An alternate path name defines a directory the computer searches when it does not find a referenced file in either the default directory or in the directory designated in the file specification. As shipped by Wang Laboratories, Inc., the computer uses /BIN as the default alternate path name. Thus, if you specify a file named CITY on a path named /PAYABLE/TAXFILE, and CITY does not exist in the directory named TAXFILE, the computer automatically searches for CITY in the subdirectory named BIN. If an alternate path was not specified, the computer would look for CITY in the disk directory.

NOTE:

The easiest way to make use of the multilevel directory feature is to put the application files you write into the subdirectory BIN when you copy them to or create them on the Winchester disk. As soon as you have formatted the Winchester, create subdirectory BIN by using the PATH - MAKE DIRECTORY system utility or the MKDIR DOS Command Processor command. Then, when you write an application, precede its file name with /BIN/. As long as /BIN/ is the default alternate path name, you need not include the /BIN/ when you subsequently reference the file. The computer automatically looks for the file whose name you supply first in the disk directory and then in BIN. The entries you put in BIN can be subdirectories.

Certain programs search alternate paths only for files with the extensions .COM, .EXE, and .BAT. This limitation is true when you are using the DOS Command Processor or running Multiplan or Wang PC Word Processing.

You can instruct the computer to use alternate paths other than the default alternate path established at system start-up. To do this, use the PATH - SELECT ALTERNATES option on the System Utilities Menu (refer to Section 2.3) or the PATH command from the DOS Command Processor (refer to Section 4.5). The discussion of the PATH - SELECT ALTERNATES system utility in Section 2.3 also explains how to change the default alternate path.

A path name can move in both the downward direction (the direction away from the disk directory toward its subdirectories) and the upward direction (from a subdirectory toward the disk directory). To specify the upward direction, you use a special symbol (..) that designates the directory immediately preceding. You use this symbol only when you have specified a default directory. The first occurrence of (..) in a path name indicates the directory that references the default directory. The next occurrence indicates the directory that references the directory preceding the default directory, and so on.

For example, if the default directory is TAXFILE and you want to enter a file ID for a file under RECEIVE, the file ID could use the path name:

../../../../RECEIVE

The first entry in this path name designates the directory that references TAXFILE, which is PAYABLE. The second entry designates the directory that references PAYABLE, which is the disk directory. Thus, this path name instructs the computer to go from the default directory back to the disk directory and then from the disk directory to another subdirectory.

If the default directory is PAYABLE, you could use either of the following path names in a file ID referencing a file under RECEIVE:

../RECEIVE or /RECEIVE

The first path name tells the computer to go from the default directory to its predecessor, the disk directory, and from there to RECEIVE. The second path name tells the computer to ignore the default path name for the duration of the instruction and use the specified path name, which begins at the disk directory.

1.5.3 Creating and Modifying a Directory Structure

To create a multilevel directory structure, you can use the PATH - MAKE DIRECTORY option on the System Utilities Menu (refer to Section 2.3) or select the DOS Command Processor and use the MKDIR command (refer to Section 4.5).

To remove a directory from a disk, use the PATH - REMOVE DIRECTORY option on the System Utilities Menu (refer to Section 2.3) or select the DOS Command Processor and use the RMDIR command (refer to Section 4.5). Before you can remove a directory, you must remove all files from it. To do this, use the FILE DELETE option on the System Utilities Menu or the DEL command from the DOS Command Processor.

1.6 THE VOLUME IDENTIFIER PARAMETER

The DISK FORMAT system utility allows you to give each disk an identifying label called a volume ID. A volume ID is a string of one to eleven characters. DISK FORMAT writes the volume ID on the disk, where it remains until you reformat the disk.

The volume ID is a security device that allows you to verify that you have mounted the right disk for the command you have entered. For example, different disks can have files of the same name. You may wish to delete a file named PAYDATA from one disk but not from another. The prompt for the FILE DELETE utility allows you to specify a volume ID. If you supply a value for this parameter, FILE DELETE does not erase PAYDATA unless the specified disk is in the drive.

Several of the system utility prompts contain a volume ID field. When you select one of these utilities, that field is blank. You can leave the field unchanged or enter a volume ID. When you execute the utility, the computer compares the specified volume ID with the disk in the drive you designated for the command. If you specified a volume ID and the IDs do not match, a message appears to inform you of this. At that point, you can continue the execution of the command by mounting a new disk and pressing any key except CANCEL.

When you give a diskette a volume ID, you should write the ID on the label of the diskette, using a felt-tip pen. If for some reason the volume ID is not on the label, you can use the CHECK DISK or DIRECTORY DISPLAY system utilities to display the volume ID. (Refer to Section 2.3.) You can also select the DOS Command Processor option from the Main System Menu and use one of the following commands: CHKDSK, DIR, or VOL. (Refer to Section 4.5.)

1.7 CREATING AND MODIFYING FILES

You usually create files from within an application program like Multiplan or a program development tool like interpretive BASIC. The programs from which you can create files have their own rules for file creation. The manuals describing these programs explain the rules.

Once you have created a file, you usually want to modify it. Sometimes you can modify files from within the program in which you created them—for example, Multiplan or BASIC. At other times, you modify files by using the Editor program described in Chapter 3. You can also create files using the Editor.

The Editor is principally designed for files containing source programs in the compiled languages and the Assembly language, and for files containing data for these programs. However, you can also use the Editor for files containing text to be printed or displayed on the screen—memos, lists, and so on. It is easier, however, to use PC Word Processing, if you have it on your system, to create files containing text of that kind.

The FILE COPY system utility and the COPY and WANGCOPY DOS utilities provide other ways to create files, although you cannot use these utilities to modify files. To modify files created by these utilities, you must use the Editor. For an explanation of creating files with these utilities, refer to FILE COPY in Section 2.3 and COPY and WANGCOPY in Section 4.5.

1.8 HIDDEN FILES

A disk can contain files that are not listed in any of its directories. These are called "hidden" files. Files are hidden for reasons of security. The FILE DELETE system utility can delete any file listed in a directory. In addition, using the asterisk all-purpose character with FILE DELETE allows you to delete all files listed in directories with one command. However, the FILE DELETE utility cannot delete hidden files.

If you want to delete hidden files, you must reformat the disk using the DISK FORMAT utility. The DISK FORMAT utility erases everything on the disk. In other words, you can remove hidden files only if you remove all other files.

Although the DIRECTORY DISPLAY utility does not display entries for hidden files, the CHECK DISK utility tells you how many hidden files a disk contains. The Wang Professional Computer Program Development Guide explains how a file becomes hidden.

2

USING THE SYSTEM UTILITIES

Introduction

The System Utilities Menu

System Utility Descriptions

CHAPTER 2 USING THE SYSTEM UTILITIES

2.1 INTRODUCTION

This chapter explains how to use the Wang PC system utilities. System utilities are general purpose programs that support the use of the computer for business or personal applications. Although a system utility program itself may have no direct business or personal application, it is necessary for other uses of the computer that do have such applications. For example, a system utility called FILE COPY enables you to make backup copies of your files. Although the files you copy can have any kind of business or personal application, FILE COPY, alone, usually does not.

2.2 THE SYSTEM UTILITIES MENU

This section lists the options on the System Utilities Menu and briefly describes the function of each. Figure 2-1 shows that menu.

```

mm/dd/yy           Wang Professional Computer           hh:mm:ss
                   SYSTEM UTILITIES MENU
                   Release 1.20

Select an Item and Proceed

- Check Disk
- Directory Display
- Disk Copy
- Disk Format
- File Compare
- File Copy
- File Copy with Append
- File Delete
- File Display
- File Rename
- Modify System Menus
- Path - Change Directory

- Path - Make Directory
- Path - Remove Directory
- Path - Select Alternates
- Set Date
- Set Default Drive
- Set Keyboard Options
- Set National Defaults
- Set Time
- Winchester Backup
- Winchester Restore
- Write Verify
- Other

SPACE BAR - Item Select
EXECUTE   - Proceed
CANCEL    - Previous Menu
  
```

Figure 2-1. The System Utilities Menu

The following list gives the function of each option on this menu:

<u>Utility</u>	<u>Function</u>
CHECK DISK	Analyzes the contents of a disk, checks for inconsistencies between the directories and the File Allocation Table (FAT), and reports the number of bytes available on disk and in memory; optionally restores consistency, reports the number of noncontiguous allocation units per file or per disk, and prints files and directories as they are being processed.
DIRECTORY DISPLAY	Displays on the screen an entire directory, specific directory entries, or the file names in a directory.
DISK COPY	Copies the entire contents of one diskette onto another and reformats the destination diskette if necessary.
DISK FORMAT	Prepares a disk to accept files by initializing the disk directory, File Allocation Table, and other areas of the disk; also analyzes the disk for any defective tracks.
FILE COMPARE	Compares the contents of two files, displays their differences, and tabulates the number of differences.
FILE COPY	Makes duplicate copies of one or more files; can also create files.
FILE COPY WITH APPEND	Makes a combined file by appending one or more files to another file.
FILE DELETE	Deletes a file or a group of files from a disk.
FILE DISPLAY	Displays the contents of a file on the screen and/or prints the file.
FILE RENAME	Changes the name of a file.

<u>Utility</u>	<u>Function</u>
MODIFY SYSTEM MENUS	Modifies existing menus or help screens and creates new menus.
PATH - CHANGE DIRECTORY	Specifies or changes the default directory used by the computer for file searches.
PATH - MAKE DIRECTORY	Creates a new subdirectory.
PATH - REMOVE DIRECTORY	Removes an empty subdirectory from a disk.
PATH - SELECT ALTERNATES	Defines the directories that are searched when a referenced file is not found in either the default directory or in the directory designated in the file specification; optionally, displays the current alternate path names.
SET DATE	Displays the current date, as known to the computer, and allows you to change it.
SET DEFAULT DRIVE	Changes the default disk drive.
SET KEYBOARD OPTIONS	Sets the volume for the keyboard click and speaker.
SET NATIONAL DEFAULTS	Sets the default values for various parameters as they are used in different countries.
SET TIME	Displays the current time, as known to the computer, and allows you to change it.
WINCHESTER BACKUP	Creates a backup copy of the Winchester disk or a portion of the Winchester disk; also formats nonformatted diskettes used for the backup.
WINCHESTER RESTORE	Copies files created by the WINCHESTER BACKUP utility from a diskette onto the Winchester disk.
WRITE VERIFY	Compares input to output when the computer creates, modifies, or copies files.

2.2.1 Internal and External Utilities and Files

There are two types of system utilities and files: internal and external. Internal utilities and files are always available in memory when the System Utilities Menu appears. External utilities and files reside on disk, and the computer must read them from a disk before it can execute them. Therefore, you cannot load an external utility or file unless a disk containing that utility (or file) is in a drive. The list below and the descriptions of each system utility in Section 2.3 tell you whether each utility and file is internal or external.

The external utilities and files are listed as follows, by menu:

- Applications Menu
 - Convert Document to Text
 - Convert Text to Document
- Communications Menu
 - Set Serial Port #1 Options
- Program Development Menu
 - BASIC
 - Editor
- System Utilities Menu
 - Check Disk
 - Disk Copy
 - Disk Format
 - File Compare
 - File Copy
 - File Copy with Append
 - Modify System Menus
 - Winchester Backup
 - Winchester Restore

The external utilities and files that Wang provides with the system software are all located on System Diskettes II and III. When you load these external utilities and files, you need to place System Diskette II or III into the default drive. The system then loads the external utility or file. After you run the utility or use the file, replace System Diskette II or III with System Diskette I. The system then reloads the System Utilities Menu.

If you have a dual diskette drive system, you could modify the external utilities and files with the MODIFY SYSTEM MENUS utility (see Section 2.3.12) to use Drive B. Then, when you need to load an external utility or file, you could place System Diskette II or III into Drive B and leave System Diskette I in Drive A. This technique minimizes switching of diskettes while using external utilities.

If you have a single diskette drive system or if you have not inserted the correct diskette in the default drive, the system prompts you to switch diskettes when you select an external utility or file. For example, if you load the System Utilities Menu and select the external utility FILE COPY, the system prompts you with a message that the FILE COPY utility was not found. At this point, remove System Diskette I from the drive and insert System Diskette II. Press EXEC to initiate the loading of FILE COPY and the system then loads it.

When you exit from an external utility or file, the system prompts you with a message to replace System Diskette I in the default drive. Remove System Diskette II or III from the drive, and insert System Diskette I. The system automatically reloads the System Utilities Menu.

2.3 SYSTEM UTILITY DESCRIPTIONS

This section presents a detailed explanation of each system utility, in alphabetical order. The explanations include a statement of the function of the utility, its type (internal or external), the prompts displayed when you select the utility, and examples, where appropriate. The explanations assume a familiarity with the discussion of file-management parameters in Chapter 1.

2.3.1 CHECK DISK Utility

Function

This utility analyzes the contents of a disk, checks for inconsistencies between the directories and the File Allocation Table, and reports the number of bytes available on disk and in memory. Optionally, it restores consistency, reports the number of noncontiguous allocation units per file or per disk, and displays the names of files and directories as they are being processed.

Type

External, on System Diskette II

Prompt

SYSTEM UTILITIES - CHECK DISK

Default Pathname: A:/

Drive: A Volume ID: _____

File ID: _____

Error fix-up? (Yes/No) N

Trace? (Yes/No) N

EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field

Drive	a letter of the alphabet designating a drive
Volume ID	optional; 1 to 11 characters
File ID	optional; a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. You should run this utility occasionally on each disk to ensure the integrity of the directories, since it is possible for a directory to become inconsistent with the contents of the File Allocation Table (FAT).

A directory entry contains the number of the starting allocation unit (i.e., the physical location of the file on the diskette) for each file. Most files are not stored within one unit. Therefore, to direct the system to the allocation unit of the next portion of a file, the computer uses the FAT. The FAT has an entry for each allocation unit on the disk. The entry contains the number representing the next allocation unit of the file that is being accessed (i.e., essentially, a linked list of a file's allocation units).

The general procedure for using FAT is that the computer reads the starting allocation unit for a file from the file's directory. It then goes to that allocation unit on the diskette and reads the file information. If the file continues, the computer goes to the FAT entry for the allocation unit it is currently in. The entry contains the allocation unit for the next portion of the file. The system then proceeds to that portion of the diskette, reads the information, and so on.

The FAT entry for a file's second allocation unit contains the number of the third, and so on. The entry for a file's last allocation unit has an end-of-file indicator. An allocation unit whose FAT entry is zero is not allotted to any file.

An accident, such as a power failure or the inadvertent removal of a diskette from a drive while the diskette is being accessed, can cause an I/O operation to abort after the system has updated the directory but before it has finished writing a file to disk. As a result, a directory may indicate that an allocation unit is used even though the FAT indicates that it is not.

2. The CHECK DISK utility produces a report like the following:

```
160256 bytes in total disk space
38400 bytes in 2 hidden files
1024 bytes in 2 directories
82432 bytes in 8 user files
38400 bytes available on disk

131072 bytes in total memory
91856 bytes free
```

3. Responding Y to the Error fix-up option allows you to correct inconsistencies between the FAT and the directories. The FAT may indicate that an allocation unit is in use even though it is not assigned to a file named in some directory. If you request an error fix-up and CHECK DISK finds unassigned units, CHECK DISK asks you whether you want the inconsistency corrected by freeing or recovering these units. Freeing the units sets their FAT entries to zero, indicating that the units are unused. Recovering the units allows you to inspect their contents to see if they contain valuable data.

When you instruct the computer to recover the units, it puts the unassigned units into files with a file name of the form FILEnnnn and the extension .CHK. (nnnn represents a number. The first FILEnnnn.CHK file has the number 0001. The number increases by one for each additional file CHECK DISK creates.) Each FILEnnnn.CHK file contains allocation units whose FAT entries are linked. CHECK DISK enters the FILEnnnn.CHK files in the disk directory. If there is not enough room in the disk directory, CHECK DISK leaves the unrecovered units in the FAT. After inspecting these files and rescuing valuable data, you can remove some entries from the disk directory and use CHECK DISK again to create additional FILEnnnn.CHK files. Be aware that the creation of these files is a very slow process.

4. If you specify a file ID, CHECK DISK reports the number of noncontiguous allocation units (called extents) in the file by displaying the message:

3 extents found in files specified

To find the number of noncontiguous allocation units in all the files on the disk, enter the following for the file ID:

.

If the space on the disk is not efficiently distributed, I/O operations will take longer than necessary. The more noncontiguous allocation units there are assigned to files, the longer it takes to access them. CHECK DISK can help you decide whether to rewrite some or all of the files to the disk for more efficient use of space.

5. If you respond Y to the Trace prompt, CHECK DISK displays the names of directories and files as it processes them. Thus, if you request an error fix-up, the Trace function tells you where the inconsistency occurred by displaying the name of the directory or file in which it is working.

6. The volume ID field displays the volume ID of the disk that is in the default drive at the time you selected CHECK DISK. If this is not the disk you want to check, you can enter another volume ID. If the volume ID of the disk in the specified drive does not match the volume ID in the prompt, CHECK DISK returns a message informing you of the inconsistency. You can then either mount another diskette or enter another volume ID and press EXECUTE.

7. On a single-drive system, specify the nondefault drive in the Drive field of the CHECK DISK prompt. When you press EXEC, the computer prompts you to insert a disk in the nondefault drive. At that point, you insert the disk you want checked in your drive.

NOTE:

This utility makes the specified drive the default drive for the duration of the execution of the utility. Therefore, if the utility terminates prematurely (e.g., if you press CANCEL after an error message appears), the drive that the CHECK DISK utility was checking remains the default drive.

Example

```
Drive: B           Volume ID: _____  
File ID: _____  
Error fix-up? (Yes/No) N  
Trace? (Yes/No) N
```

In this example, CHECK DISK checks the disk in Drive B to ensure that the directories are consistent with the FAT.

2.3.2 DIRECTORY DISPLAY Utility

Function

This utility displays an entire directory, specific directory entries, or the file names in a directory. The display for each directory entry can include a file name and extension, the file's size (in bytes), and the time and date the file was last modified.

Type

Internal

Prompt

SYSTEM UTILITIES - DIRECTORY DISPLAY

Default Pathname: A:/

File:

Drive: A Volume ID: _____

File ID: _____

Page Display? (Yes/No) Y

File Names Only? (Yes/No) N

EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field

Drive	a letter of the alphabet designating a drive
Volume ID	optional; 1 to 11 characters
File ID	optional; a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. A directory display appears as follows:

RESUME	#2	855	10-28-83	15:01p
RESUME	#3	1027	11-30-83	3:13a
JOBFILE	<DIR>		9-12-83	8:00a
COVERLET	TER	256	9-12-83	8:13a

The first item in each row is a file name and extension. The second item is either the number of bytes in the file or the characters <DIR> indicating that the file is a directory. The third item in each row is the date the file was created or last modified. The last item is the time the file was created or last modified.

2. This utility does not display directory entries for hidden files. (Refer to Section 1.8.) Excluding hidden files from directory searches protects them from accidental deletion or overwriting by a FILE COPY WITH APPEND command.
3. To display all files except hidden files in a directory, leave the file ID field blank.
4. If the only value you enter for the file ID is a file name or extension, DIRECTORY DISPLAY lists all the entries in the default directory for files with that file name or extension, with the exception of hidden files.
5. If you enter both the file name and extension, DIRECTORY DISPLAY lists only the entry in the default directory for that file, unless the file is hidden.
6. If you include a path name in the file ID, the path name may be followed by a file name only, an extension only, or a file name with extension. If the path name is followed by a file name or extension, DIRECTORY DISPLAY lists all the entries in the specified directory for files with that name or extension. If the path name is followed by a file name and extension, only the entry for that file appears.
7. You can use the all-purpose characters (? and *) for the file name and extension parameters, as explained in Section 1.4.3. For example, supplying ?FILE for the file name and EXE for the extension could produce a display like the following:

AFILE.EXE	100	12-03-83	3:17a
BFILE.EXE	94755	12-10-83	17:34p
CFILE.EXE	3846	12-11-83	15:15p

8. This utility can produce more output than the screen can hold at one time. This causes the information displayed on the screen to scroll upward until the execution of the utility is complete. Scrolling upward means the top line is erased from the screen and all other lines move up by one position, making room for a new bottom line. If you respond to "Page Display?" with Y, the scrolling pauses each time the screen is full. To resume the scroll, press any key.

If you respond to "Page Display?" with N, you can stop the scrolling without terminating the display by pressing CONTROL + S. To continue the scroll, press CONTROL + Q.

9. If you respond to "File Names Only?" with Y, only file names and extensions appear, not the full directory entries. Five entries appear for each line of display.

Example

File ID:/MY-INDEX/*.TAX

Specifying this file ID causes DIRECTORY DISPLAY to list the entries in the directory named MY-INDEX for files that have the extension .TAX.

2.3.3 DISK COPY Utility

Function

This utility copies the entire contents of one diskette onto another and reformats the destination diskette if necessary.

Type

External, on System Diskette II

Prompt

```

                                SYSTEM UTILITIES - DISK COPY

Default Pathname: A:/

Input
  Drive: A

Output
  Drive: A

Define Input for NON-DOS Diskettes

  _ 360KB      _ 320KB      _ 180KB      _ 160KB

EXECUTE - Proceed
CANCEL  - Return to Menu
RETURN  - Go to Next Field
  
```

Drive a letter of the alphabet designating a drive

Comments

1. This utility makes an exact duplicate of the diskette on the input drive, including the diskette format, hidden files, empty space, and the volume ID. Therefore, the newly written diskette has the same volume ID as the input diskette.

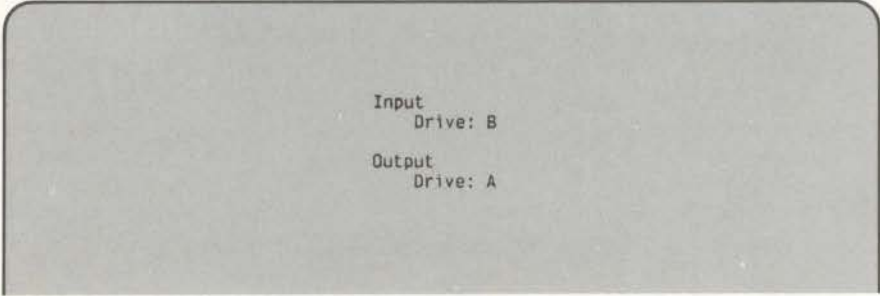
2. If the input diskette was created under an operating system other than MS-DOS, you must specify the format of the diskette by selecting one of the options for NON-DOS diskettes. The utility cannot copy a diskette that does not have one of these formats. The utility ignores these options for diskettes created under MS-DOS.

3. If the output diskette does not have the format of the input diskette, the utility formats the output diskette as it copies the input diskette.

4. On a single-drive system, the utility reads a portion of the input diskette into memory, then prompts you to insert the output diskette. It then writes the portion in memory to the output diskette, and prompts you to re-insert the input diskette to continue the process.

5. This utility is designed for use with diskettes only. Do not use it to copy diskettes onto the Winchester disk, or to copy Winchester disk files onto a diskette. Use the special Winchester utilities, WINCHESTER BACKUP and WINCHESTER RESTORE, to complete these actions.

Example



```
Input
Drive: B

Output
Drive: A
```

The utility copies the contents of the diskette in Drive B to the diskette in Drive A.

2.3.4 DISK FORMAT Utility

Function

This utility prepares a disk to accept files by initializing the disk directory, File Allocation Table (FAT), and other areas of the disk and by analyzing the disk for any defective tracks.

Type

External, on System Diskette II

Prompt

```

                                SYSTEM UTILITIES - DISK FORMAT

Input
  Drive: A

                                Define Disk Storage Capacity

_ 360 KB      _ 320 KB      _ 180 KB      _ 160 KB      _ Winchester

                                EXECUTE - Proceed
                                CANCEL  - Return to Menu
                                RETURN  - Go to Next Field
  
```

Drive a letter of the alphabet designating a drive

Volume ID optional; 1 to 11 characters

Comments

1. You must format a disk in order for the computer to store information on it in a retrievable form. For example, the disk directory and FAT must be written according to a specific format.
2. You can use this utility on a disk that has already been formatted. However, you must do this with caution since formatting destroys all previously existing data on the disk.

CAUTION:

Do not reformat a disk unless you have made backup copies of the files you wish to retain.

3. When you have entered the parameter values for the DISK FORMAT utility and pressed the EXEC key, the computer returns the following message:

Insert new disk for drive _ :
and strike any key when ready

You may have already inserted the disk you want to format, but this message gives you a chance to change the disk in case you inserted the wrong one. Striking any key executes the DISK FORMAT utility. While the utility is executing, the computer displays the message, "Formatting..."

CAUTION:

On a single-drive system, make sure that you change the disk in the single drive when the computer prompts you to insert the disk to be formatted. Otherwise, disk formatting destroys all files on the disk already in the drive.

4. The "Diskette Storage Capacity" prompt allows you to select from five different formats. To format a dual-sided, double-density diskette with nine sectors per track (the default), position the acceptance block at 360. To format a dual-sided, double-density diskette with eight sectors per track, position the acceptance block at 320. To format a single-sided, double-density diskette with nine sectors per track, position the acceptance block at 180. To format a single-sided, double-density diskette with eight sectors per track, position the acceptance block at 160. To format the Winchester disk, position the acceptance block at Winchester.

5. When the utility has finished formatting, the message, "Volume label (11 characters, RETURN for none)?", appears. The Volume label is the Volume ID. Enter up to 11 characters and press RETURN, or press RETURN alone if you do not want a Volume ID. If you specify a volume ID, DISK FORMAT writes the characters you supply on the disk. The disk retains that volume ID until you format it again.

6. When you have responded to the Volume label prompt, the computer displays the message:

```
Format completed...
nnnn bytes total disk space
nnnn bytes available on disk
Format another (Y/N)?_
```

Press Y to format another disk or N to cease formatting.

7. If DISK FORMAT encounters any defective sectors while formatting a disk, it indicates that the sectors are bad in the FAT. This prevents the computer from allocating defective sectors to any files.

8. To find out whether a disk has any defective tracks, use the CHECK DISK utility after you have formatted the disk. The CHECK DISK report gives the number of bytes, if any, in bad sectors.

Example

```

Input
Drive: A

Define Disk Storage Capacity

_ 360      _ 320      _ 180      _ 160      _ Winchester
  
```

This example causes DISK FORMAT to format the disk in Drive A as double-sided, dual-density with nine sectors per track.

2.3.5 FILE COMPARE Utility

Function

This utility compares the contents of two files, displays their differences, and tabulates the number of differences.

Type

External, on System Diskette II

Prompt

```

                                SYSTEM UTILITIES - FILE COMPARE

Default Pathname: A:/

File #1
  Drive: A                      Volume ID: _____
  File ID: _____

File #2
  Drive: A                      Volume ID: _____
  File ID: _____

Error Limit: __

RETURN - Next Field           EXECUTE - Proceed
BACKTAB - Prior Field        CANCEL - Previous Menu

```

Drive	a letter of the alphabet designating a drive
Volume ID	optional; 1 to 11 characters
File ID	a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. When you have responded to the first prompt, the following prompt appears on the screen:

```

Default Pathname: A:/

      _ Screen      Output      _ File
      _ Printer

Drive: A           Volume ID: _____

File
ID: _____

Error Limit: 00

```

Your response to the Output prompt determines where the utility sends the results of the comparison. You can display the results on the screen, print them, or store them in a file. If you select the file option, you must supply a file ID and may supply a drive designation and volume ID.

2. This utility displays the differences between two files as follows:

```

File #1: Filename
File #2: Filename

File #1      00020H      00032
#2           HH         D
           HH         D

File #1      000FFH      255
File #2      HH         D
           HH         D

Error Counter ---

Press Any Key to Continue      CANCEL - Abort Compare

```

At the head of the middle and right-hand columns is the number of a byte where the two files differ. The contents of that byte in each of the two files appears below the byte number. In the middle column the contents are represented by hexadecimal (base 16) numbers, indicated in the illustration by HH. The values in the right-hand column, indicated in the illustration by D, are the ASCII code equivalents of those in the middle column.

3. The Error Limit prompt allows you to set a specific number of differences after which you can terminate the comparison. As soon as FILE COMPARE reaches that limit, a prompt appears that allows you to terminate the utility or continue processing. There is no default error limit.

4. During the comparison, the message "Comparing Files" appears.

Example

File #1	
Drive:A	Volume ID: _____
File ID: TAXES	_____
File #2	
Drive:B	Volume ID: _____
File ID: TAXES	_____

The utility compares the files named TAXES on the diskettes in Drives A and B.

2.3.6 FILE COPY Utility

Function

This utility can make a copy of a file, with or without changing the file name, and can create files.

Type

External, System Diskette II

Prompt

SYSTEM UTILITIES - FILE COPY
Release 1.20

Default Pathname:

Input File:
Drive: A Volume ID: _____

File ID: _____

Output File:
Drive: A Volume ID: _____

File ID: _____

Please Mount Disks to be Copied . . .

RETURN - Next Field
CANCEL - Return to Menu
EXECUTE - Proceed

Drive a letter of the alphabet designating a drive

Volume ID optional; 1 to 11 characters

File ID a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. When you select FILE COPY from the System Utilities Menu, only the prompt for the input file appears. Enter the parameter values for the input file and press EXEC. The output file prompt then appears below the input file prompt. The parameter values entered for the input file prompt appear in the output file prompt as default values.

Two files cannot have the same file specification, but files on different disks can have the same file ID (path name, file name and extension). Therefore, you can copy a file without changing the file ID, but only if you copy it to a different disk. You can copy a file to the same disk only if you change at least one of the components of the file ID.

2. If a file on the disk designated for the output file has the same file ID as the output file, the utility returns a prompt asking you whether you want to specify a new file ID for the output file or overwrite the old file. If you do not specify a new file ID, the old file is destroyed when the utility creates the new file.

3. In order to create a disk file from the keyboard, supply CON as the file ID of the input file and any legal file ID you wish for the output file. Recall that CON (for console) is the reserved file name for the terminal. By using this name, you send whatever you type after EXECUTE to the disk under the output file ID. You must terminate the last line in the file by pressing RETURN, then press CONTROL + Z followed by another RETURN. Before you press CONTROL + Z, you can delete the file by pressing CONTROL + C.

4. You can use the all-purpose file name characters ? and * for the file name and extension parameters of both the input and output files. (Refer to Section 1.4.3.) However, you cannot use the all-purpose file name characters within the path name. To copy all files from one diskette to another diskette, or from a diskette to the Winchester disk, use the *.* all-purpose characters.

The following example copies all the files with extension ABC from the disk in Drive A to the disk in Drive B with no change in file names.

```

Input File:
  Drive: A                               Volume ID: _____
  File ID: *.ABC_____

Output File:
  Drive: B                               Volume ID: _____
  File ID: *.ABC_____
  
```

The following example copies the file AFILE.ABC from the disk in Drive A to the disk in Drive B, naming the copy BFILE.ABC.

```

Input File:
  Drive: A                      Volume ID: _____
  File ID: AFILE.ABC_____
Output File:
  Drive: B                      Volume ID: _____
  File ID: BFILE.*_____

```

The following example copies all files on the disk in Drive B with a 1-character file name and the extension EXE to the disk in Drive A. The file name and extension remain the same.

```

Input File:
  Drive: B                      Volume ID: _____
  File ID: ?.EXE_____
Output File:
  Drive: A                      Volume ID: _____
  File ID: ?.EXE_____

```

5. When you use all-purpose characters, the file names you specify for the output files may already exist on the disk you are writing to. Creating the output file would overwrite the existing file, and you could lose a file you wanted to keep. To prevent this from happening, the computer displays a prompt with the following options whenever you use an all-purpose character in the output file name:

Options for Processing Existing Files

```

Automatically Bypass All Existing Files
Automatically Copy Over All Existing Files
Prompt for Each File Individually

```

```

SPACE BAR - Select Option
EXECUTE   - Proceed
CANCEL    - Return to Menu

```


If you select the Automatically Bypass All Existing Files option, FILE COPY does not make copies when the output files would overwrite existing files. Instead, FILE COPY makes copies of only those output files whose names do not already exist on the disk. If you select the Automatically Copy Over All Existing Files option, FILE COPY overwrites the existing files with the duplicate names. If you select the Prompt for Each File Individually option, FILE COPY displays each duplicate file name and allows you to decide for each one individually, whether to write the output file and destroy the existing file.

6. Before copying a file, FILE COPY prompts you to insert the correct diskettes with the message:

Please Mount Disks to be Copied . . .

Then, the FILE COPY utility checks the disk to make sure it has enough space to hold the copy. If there is not enough space on the disk for the file, the system displays a message. If you copy multiple files, the system checks the available disk space before copying each file. If there is not enough room, the system displays the following message:

Insufficient Space for Output File
Press RETURN to Continue

When you press RETURN, the utility checks the next specified file to see if it can fit on the disk.

7. You can use all reserved file names (refer to Section 1.4.2) for the original and duplicate files of FILE COPY commands.

8. While in progress, FILE COPY displays the message:

One Moment Please --- File Copy in Progress

It also displays the files as it is copying them. You can press CANCEL at any time to terminate FILE COPY.

Example

Input File:		Volume ID: _____
Drive: A		
File ID: CON	_____	
Output File:		Volume ID: _____
Drive: A		
File ID: RESUME.#1	_____	

This example instructs the computer to create a file on Drive A called RESUME.#1.

2.3.7 FILE COPY WITH APPEND Utility

Function

This utility makes a combined file by appending one or more files to another file. Separate copies of the original files can be retained.

Type

External, System Diskette II

Prompt

```

SYSTEM UTILITIES - FILE COPY WITH APPEND

Default Pathname: A:/

Input File # 1:
  Drive: A                               Volume ID: _____
  File ID: _____

File Type? (ASCII/Binary) A

Input File # 2:
  Drive: A                               Volume ID: _____
  File ID: _____

File Type? (ASCII/Binary) A

More Input Files? (Yes/No) N

EXECUTE - Proceed
CANCEL   - Return to Menu
RETURN   - Go to Next Field

```

Drive	a letter of the alphabet designating a drive
Volume ID	optional; 1 to 11 characters
File ID	a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. When you select FILE COPY WITH APPEND, the prompt for two input files appears. If you want to combine more than two files, enter Y in response to the prompt "More Input Files? (Yes/No)" and two more input file specification prompts appear. You can combine any number of files.
2. When the response to the "More Input Files?" prompt is N, the computer displays the output file prompt. The parameter values you supplied for the first input file appear in the output file prompt as the default values. If you make no change in these values, a separate copy of the first input file is not retained since two files on the same disk cannot have the same file ID. To retain a separate copy of the first input, you must give the output file a new file ID, drive designation, or both. In all cases, you retain separate copies of the input files other than the first.
3. If the response to the "More Input Files?" prompt is Y, the computer displays two more file specification prompts in which you can supply the file specifications you want the combined file to have. For additional files, you have to enter all the file specification information, whether parts of it are the same as the previous input file or not.
4. You can use the all-purpose file name characters (? and *) to combine several files into one. For example:

Input File # 1:		
Drive: A	Volume ID: _____	
File ID: *.ABC	_____	
Input File # 2:		
Drive: A	Volume ID: _____	
File ID: _____		

This example combines all files with the extension ABC. Unless you provide another file ID for the output, the output file will have the same file ID as the first file that the computer finds in the directory with extension .ABC. A separate copy of the first .ABC file is not retained.

The following example combines all files matching *.LST, then all files matching *.REF into one file named LST-REF.

```

Input File # 1:
  Drive: A                               Volume ID: _____
  File ID: *.LST_____

Input File # 2:
  Drive: A                               Volume ID: _____
  File ID: *.REF_____

Output File # :
  Drive: A                               Volume ID: _____
  File ID: LST.REF_____

```

5. All-purpose file name characters also allow you to issue one FILE COPY WITH APPEND command that has the effect of several individual commands. For example:

```

Input File 1:
  Drive: A                               Volume ID: _____
  File ID: *.ABC_____

Input File 2:
  Drive: A                               Volume ID: _____
  File ID: *.DEF_____

Output File:
  Drive: A                               Volume ID: _____
  File ID: *.GHI_____

```

The difference between this example and the second example in Comment 4 is that no file name is specified for the output file. As a result, each pair of .ABC and .DEF files that have the same file name are combined into one file. Thus, if there are five .ABC files whose names match those of .DEF files, five output files with those names and the extension .GHI result.

CAUTION:

Using all-purpose file name characters in a FILE COPY WITH APPEND command can cause the accidental deletion of a file. It is possible to unknowingly specify a name for the output file that is the same as one of the files to be combined. For example, assume that a file named ALL.LST already exists and that you use an asterisk in the first file name prompt to instruct the computer to combine the .LST files into one. Then you give the output file the name ALL.LST thinking that it is a new name. The command causes the computer to create a new file called ALL.LST and then search for the input

files, comparing their names with ALL.LST as it searches. When the computer finds a match for ALL.LST, it deletes that input file and displays the "Content of destination lost before copy" message. If you already know ALL.LST exists, you can combine all .LST files into a file named ALL.LST by entering ALL.LST in the prompt for the first file ID, *.LST in the prompt for the second, and nothing for the output file. Then the computer simply searches for the existing ALL.LST file and appends all other .LST files to it.

6. You do not need to address the "File Type?" prompt unless you are a programmer using files created by the Linker (refer to the Wang Professional Computer Program Development Guide), the Assembler, or one of the compilers (refer to the appropriate language manual). All other users can leave the default response unchanged. Refer to the COPY + utility in Section 4.5 for specific information on the file type.

2.3.8 FILE DELETE Utility

Function

This utility deletes a specified file or group of files from a disk.

Type

Internal

Prompt

SYSTEM UTILITIES - FILE DELETE

Default Pathname: A:/

File:

Drive: A Volume ID: _____

File ID: _____

EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field

Drive	a letter of the alphabet designating a drive
Volume ID	optional; 1 to 11 characters
File ID	a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. When you press EXEC, the utility immediately deletes the file or files you selected. In most cases, the utility does not first display a prompt asking you to verify whether the parameter values you entered are correct. (Comment 4 discusses an exception to this rule.)

CAUTION:

Before you press EXEC, always check to make sure you have entered the correct drive designation, file ID, and/or volume ID for what you wish to delete. Otherwise, you can delete files you did not intend to delete.

2. This utility does not delete directories. To delete a directory, use the PATH - REMOVE DIRECTORY utility. (Refer to Section 2.3.14.)
3. To delete more than one file at a time, use the all-purpose characters (? and *) in the file name or extension. (Refer to Section 1.4.3.) For example, supplying the following file ID deletes all files with 1-character or 2-character file names and the extension .ABC:

?? .ABC

CAUTION:

Be very careful when using all-purpose characters with the FILE DELETE utility because you may delete a file you wish to retain.

4. To delete all files on a disk, with the exception of hidden files, enter the following file ID:

.

The computer responds with the prompt, "Are you sure? (Y/N)_" A response of Y deletes all files as requested.

Example

File:

Drive: B Volume ID: _____

File ID: TESTFILE.* _____

This example deletes all files on Drive B with the file name TESTFILE, regardless of extension.

2.3.9 FILE DISPLAY UtilityFunction

This utility displays the contents of a file on the screen and/or prints the file.

Type

Internal

Prompt

```

                        SYSTEM UTILITIES - FILE DISPLAY

Default Pathname: A:/

Drive: _                               Volume ID: _____
File ID: _____

Output:
  _ Screen          _ Printer          _ Both

EXECUTE - Proceed
CANCEL  - Return to Menu
RETURN  - Go to Next Field
  
```

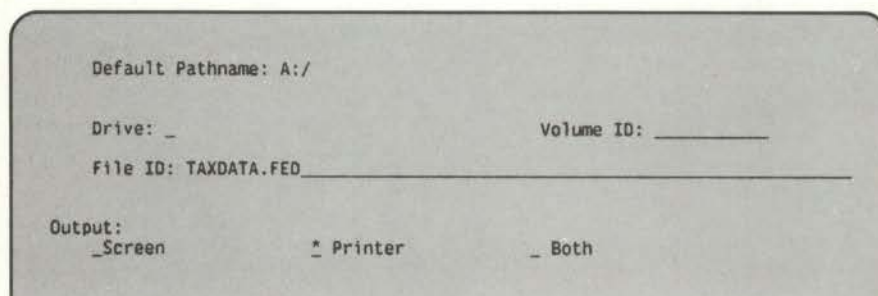
Drive a letter of the alphabet designating a drive

Volume ID optional; 1 to 11 characters

File ID optional; a 1-character to 8-character file name,
 optionally preceded by a path name, optionally
 followed by a 1-character to 3-character extension;
 a maximum of 50 characters, including punctuation

Comments

1. If you select Screen for the output, the utility sends the contents of the file to the screen only. If you select Printer for the output, the utility sends the contents of the file to the printer only. If you select Both for the output, the utility sends the contents of the file to both the screen and the printer.
2. When the utility displays the file on the screen, it displays one screenful at a time and waits for you to press any key before displaying the next screen. You cannot view previous screens. After the last screen press any key to return to the FILE DISPLAY menu.
3. You must have previously saved the file in ASCII format for proper display on the screen or printer.

Example

Default Pathname: A:/

Drive: _ Volume ID: _____

File ID: TAXDATA.FED _____

Output:
_Screen * Printer _ Both

This example causes the file TAXDATA.FED on the default drive to be printed.

2.3.10 FILE RENAME UtilityFunction

This utility changes the name of a file.

Type

Internal

Prompt

SYSTEM UTILITIES - FILE RENAME

Default Pathname: A:/

Current File Spec	Volume ID: _____
Drive: A	
File ID: _____	
New File Spec	Volume ID: _____
Drive: A	
File ID: _____	

EXECUTE - Proceed	TAB - Go to New
CANCEL - Return to Menu	BACKTAB - Go to Current
RETURN - Go to Next Field	

Drive a letter of the alphabet designating a drive

Volume ID optional; 1 to 11 characters

File ID a 1-character to 8-character file name, optionally preceded by a path name, optionally followed by a 1-character to 3-character extension; a maximum of 50 characters, including punctuation

Comments

1. This utility does not copy the file to another disk. If the disk containing the file to be renamed is not on the default drive, you must supply a drive designation.
2. After this utility has executed, the directory referencing the file no longer contains the original file name. If you want to rename a file while retaining a copy under the original name, use the FILE COPY utility.
3. You can use the all-purpose file name characters (? and *) in the file names and extensions. (Refer to Section 1.4.3.) In most cases, using all-purpose characters with the FILE RENAME utility has the same effect as with other utilities. For instance, the following example causes all files in the default directory with the file name TEST to be renamed TESTFILE, with their extensions remaining the same.

Current File Spec	
Drive: A	Volume ID: _____
File ID: TEST.*	_____
New File Spec	
Drive: A	Volume ID: _____
File ID: TESTFILE.*	_____

4. The FILE RENAME utility also has a special use for all-purpose characters. With them, you can select certain characters from the first file name or extension to be copied to the same position in the second. You do this by including all-purpose characters in the second file name or extension at positions occupied by the characters you want in the first. FILE RENAME then fills the positions occupied by the all-purpose characters with the characters occupying the corresponding positions in the first file name or extension. For example,

Current File Spec	
Drive: A	Volume ID: _____
File ID: TESTFILE.1ST	_____
New File Spec	
Drive: A	Volume ID: _____
File ID: *.2nd	_____

2.3.11 MODIFY SYSTEM MENUS UtilityFunction

This utility modifies existing menus or help screens and creates new menus.

Type

External, System Diskette II

Prompt

```
Wang Professional Computer
Interactive Menu Design Utility
Release 1.20

Select desired option

- Create new menu
- Edit existing menu

Menu File Id: _____
On Drive: _____

EXECUTE - Proceed
CANCEL  - Terminate
```

File ID a 1-character to 8-character file name, optionally
 followed by a 1-character to 3-character extension

Drive a letter of the alphabet designating a drive

Comments

1. This utility creates or edits a file containing the data necessary for the computer to display and execute a menu. The prompt shown above is the first of a series of prompts. The file ID in the first prompt refers to the file to be created or edited. The File ID field must have an entry before you can proceed.

The files which contain existing system menus include the following:

- MENU.DAT - Main System Menu
- APPMENU.DAT - Applications Menu
- UTILITY.DAT - System Utilities Menu
- PRGDVMEN.DAT - Program Development Menu
- TCMENU.DAT - Communications Menu
- REDIRMNU.DAT - Printer Support Menu

2. The Drive Designation field in the first prompt allows you to specify the drive on which you edit or create the menu. Refer to Comment 5 for an explanation of how to specify the drive from which you invoke the menu.

3. To move the cursor between fields on the screens displayed by this utility, you can use the TAB and BACK TAB keys in addition to the RETURN key.

4. When you select the Create New Menu option, the following prompt appears:

Wang Professional Computer
Interactive Menu Design Utility
Release 1.20

Enter header text of menu,
to be centered on the first three lines

Line one: _____

Line two: _____

Line three: _____

EXECUTE - Proceed
CANCEL - Terminate

Your responses to this prompt will appear centered on the first three lines of the new menu. You must make an entry for the first line. The other two lines are optional. You may enter up to 60 characters per line.

5. When you have made your response to the first prompt displayed by the Create New Menu option, a screen with the header you have entered, a highlighted line for entering text, and the following prompt appears.

```

Line 1 of Menu Header
Line 2 of Menu Header
Line 3 of Menu Header

_____

File name: _____ File Extension: ____ On Drive : _
In Directory: _____
Parameters: _____
Module Type:  _ Menu          _ Program      EXECUTE - Accept screen
               _ Other        _ System function _ Command.com  CANCEL - Cancel operation

```

The File ID fields, which specify the file for the menu selection you create in this step, must have entries before you can proceed. The File type defaults to Menu, unless you specify otherwise.

If you specify a drive designation for the file, the computer will search only that drive when you invoke the file. If you leave the drive designation field blank, the computer will search the current default drive whenever you invoke the file. Therefore, if you wish to be able to invoke the file from any drive, leave the drive designation field blank.

The computer uses the drive specified in this prompt as the default drive for file access until the execution of this menu item ceases. However, if a program invoked by selecting this item changes the default drive while it is executing, the drive it establishes remains in effect when you return to the menu.

In the highlighted text entry field, enter a menu item as you wish it to appear on the new menu. You may enter up to 32 characters per item. The file ID specifies the file the computer will call when you select this menu item. In the file ID field, enter a 1-character to 8-character file name with an optional 1-character to 3-character extension. For the file type, move the acceptance block to one of the options shown: Menu for a menu file, Command.com for the DOS Command Processor, Other if the item on the menu is Other, and Program for any other program. System Function is not for general use, and is usually only used by the PC system designers.

When you press the EXEC key, the Work Screen (described in Comment 8) along with the menu headers appears.

6. When you invoke the menu you have created, the following messages automatically appear in the bottom righthand corner of the menu:

```
SPACE BAR - Item select
EXECUTE   - Proceed
CANCEL    - Previous Menu
```

7. In order to use a menu you have created, you must call it from an already existing menu. Therefore you must first add the name of the new menu to an old menu. To do this, return to the original prompt displayed by this utility and select the Edit Existing Menu option.

8. If you select Edit Existing Menu from the original prompt displayed by this utility, or if you have supplied the first item on a newly created menu, the Work Screen along with the existing menu appears on the monitor. The header of the Work Screen will be the same as the header of the existing menu or the header of the newly created menu. The options from the menu you are editing or the option you have already entered on the new menu appears in the middle of the Work Screen.

The bottom lefthand corner of the Work Screen contains a menu from which you can select the function you wish to perform. The Work Screen menu appears as follows:

```
Line 1 of Menu Header
Line 2 of Menu Header
Line 3 of Menu Header
```

```
- Existing Menu Entry
- Existing Menu Entry
- Existing Menu Entry
```

```
- Add new entry
- Edit
- Reorder
```

```
- Delete
- Edit header
- Edit help screen
```

```
EXECUTE - Select operation
CANCEL  - End/Update menu
```

Move the acceptance block to the function you want. The following comments explain each of these functions.

Use the Add new entry function to add an item to a menu. First move the cursor next to the item on the menu immediately above the line on which you want the new item to appear. Then, select Add New Entry. A highlighted line for entering text appears on the line below the acceptance block, and the items already below the acceptance block move down one line. The prompt described in Comment 5 also appears. Enter text and respond to the prompt as indicated in that comment. When you have finished adding your new entry, the Work Screen menu reappears.

Use the Edit function to modify an item on a menu. First move the cursor next to the item you wish to modify and then select Edit. The item you have chosen to edit becomes highlighted. The prompt described in Comment 5 also appears, with the current values highlighted. Highlighting indicates that you can change those values. Respond to the prompt as indicated in Comment 5. When you have finished editing the selected item, the Work Screen menu reappears.

The Reorder function allows you to alter the order in which items appear on the menu you are modifying. First move the cursor next to the item you want to move and then select Reorder. Pressing the North or South cursor control key moves the item up or down.

Use the Delete function to remove an item from the menu you are modifying. First move the cursor next to the item you want to remove and then select Delete. Before deleting the item, the utility protects you against an accidental deletion by prompting you to press the EXEC key if you want to delete. When you press the EXEC key, the utility deletes the item, reformats the remaining items, and returns to the Work Screen.

Use the Edit header function to modify the header displayed on the Work Screen. When you select this option, the prompt described in Comment 4 appears on the monitor. Respond to this prompt as indicated in that comment.

Example

The following is an example of a menu that you can create using this utility:

ACCOUNTS PAYABLE MENU

Select an Item and Proceed

- Vendors
- Taxes
- Payroll
- Pensions
- Other

SPACE BAR - Item select
EXECUTE - Proceed
CANCEL - Previous Menu

2.3.12 PATH - CHANGE DIRECTORY UtilityFunction

This utility allows you to specify or change the default directory used by the computer for file searches.

Type

Internal

Prompt

SYSTEM UTILITIES - PATH - CHANGE DIRECTORY

Default Pathname: A:/

Drive: A

New Pathname: _____

EXECUTE - Proceed
CANCEL - Terminate

Drive a letter of the alphabet designating a drive

Pathname a slash representing the disk directory followed by one or more subdirectory names separated by slashes; optionally preceded by a drive designation; a maximum of 8 characters per subdirectory name; path name a maximum of 50 characters, including slashes

Comments

1. The path name you specify with this utility remains the default path name until you change it by using this utility again or restarting the system. The disk directory is the default path.
2. The displayed path name is the current default. To leave the default path name unchanged, press EXEC or CANCEL without entering anything for the New Pathname.
3. Because the path name must begin from the disk directory, you cannot use the special character .. to bypass naming the directory.
4. Refer to Section 1.5 for a detailed explanation of path names.

Example

Default Pathname: A:/

Drive: A

New Pathname: /PAYDATA/SALARY/BONUSES_____

2.3.13 PATH - MAKE DIRECTORY UtilityFunction

This utility creates a new subdirectory.

Type

Internal

Prompt

SYSTEM UTILITIES - PATH - MAKE DIRECTORY

Default Pathname: A:/

Drive: A

Create Pathname: _____

EXECUTE - Proceed
CANCEL - Return to Menu

Drive	a letter of the alphabet designating a drive
Pathname	a slash representing the disk directory, followed by one or more subdirectory names separated by slashes; optionally preceded by a drive designation; a maximum of 8 characters per subdirectory name; path name a maximum of 50 characters, including slashes

Comments

1. The name following the last slash in the path name designates the subdirectory to be created. PATH - MAKE DIRECTORY creates a file in the directory format and enters its name, location, and the time and date of creation in the directory that precedes the new subdirectory in the path.
2. The names in a directory must be unique. Therefore, PATH - MAKE DIRECTORY cannot create a subdirectory if the directory containing the subdirectory already has an entry with that name.
3. Subdirectories can have as many entries as the space available on the disk allows.
4. The path name you enter must begin from the disk directory.
5. Refer to Section 1.5 for a detailed explanation of path names.

Example

Default Pathname: A:/

Drive: A

Create Pathname: /TAXINDEX_____

This example causes PATH - MAKE DIRECTORY to create a subdirectory named TAXINDEX and list it in the disk directory.

2.3.14 PATH - REMOVE DIRECTORY UtilityFunction

This utility removes an empty subdirectory from a disk.

Type

Internal

Prompt

SYSTEM UTILITIES - PATH - REMOVE DIRECTORY

Default Pathname: A:/

Drive: A

Remove Pathname: _____

EXECUTE - Proceed
CANCEL - Return to Menu

Drive a letter of the alphabet designating a drive

Pathname a slash representing the disk directory, followed by
one or more subdirectory names separated by slashes;
optionally preceded by a drive designation; a
maximum of 8 characters per subdirectory name; path
name a maximum of 50 characters, including slashes

Comments

1. This utility deletes the subdirectory whose name follows the last slash in the path name. The subdirectory is erased from the disk, and its entry is deleted from the directory that immediately precedes it in the path.
2. The subdirectory must be empty before you can remove it. A subdirectory is empty if it contains no entries for files subsequent to it. However, a subdirectory having no subsequent files continues to exist because it contains an entry for the preceding directory (the special character ..). It is good practice to remove subdirectories when they become empty since they take up space on the disk and in the preceding directory.
3. You cannot remove the disk directory with this utility. To delete an old disk directory and initialize a new one, use the DISK FORMAT utility.
4. The path name you enter must begin from the disk directory.
5. Refer to Section 1.5 for a detailed explanation of path names.

Example

Default Pathname: A:/

Drive: A

Remove Pathname: /MY-INDEX/BILLS/TAXES/FOREIGN_____

This example causes the computer to remove the subdirectory FOREIGN from the disk and from its preceding directory, TAXES.

2.3.15 PATH - SELECT ALTERNATES UtilityFunction

This utility defines the directories that are searched when a referenced file is not found in either the default directory or in the directory designated in the file specification. Optionally, this utility displays the current alternate path names.

Type

Internal

Prompt

SYSTEM UTILITIES - PATH - SELECT ALTERNATE

Default Pathname: A:/

Alt. Pathname: _____

Alt. Pathname: _____

Alt. Pathname: _____

Alt. Pathname: _____

Alt. Pathname: _____

More Alternates Required? (Yes/No) N

EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field

Pathname a slash representing the disk directory, followed by one or more subdirectory names separated by slashes; optionally preceded by a drive designation; a maximum of 8 characters per subdirectory name; path name a maximum of 50 characters, including slashes

Comments

1. If no alternate paths are in effect, the computer searches for the file specified in a file ID along one path only, the default path or the path you enter in the file ID. This utility instructs the computer to search other paths if it does not find the file on the first path. The alternate paths you define with this utility remain in effect until you use this utility again or restart your system.
2. Each path name entered must begin from the disk directory.
3. If a file ID includes a path name, the computer searches for a file with the name or name and extension that appear after the last slash in the file ID. The computer searches the alternate paths in the order in which you enter them. When it finds a specified file name or extended file name on a path, it stops searching. Therefore, if there are files with duplicate names and extensions on different paths, only one of the files will be found.
4. If you respond to the "More Alternates Required?" prompt with Y, prompts for additional alternate path names appear on the screen when you press the EXEC key. The PATH - SELECT ALTERNATES utility does not execute until you respond to "More Alternates Required?" with N.
5. You may enter a single semicolon instead of a path name. This instructs the computer to search only the default directory.
6. Entering no path names and pressing EXEC causes the current alternate path names to appear on the screen.
7. If you want a new default path directory to be in effect every time you start the system, then you have to change the following command in CONFIG.SYS:

```
SHELL = /MENUDRVR.COM -N001 -P/BIN
```

Use the Wang PC Editor (see Chapter 3) to change the path names after the -P portion from the default alternative BIN (as shipped by Wang Laboratories, Inc.) to those you select. Separate the path names by semicolons. The alternate paths you specify remain in effect until you change them using this utility.

CAUTION:

Be very careful if you modify CONFIG.SYS. If you make a mistake, you may not be able to start your system. Always keep copies of the system files with the original CONFIG.SYS.

8. Refer to Section 1.5 for a detailed explanation of path names.

Example

Default Pathname: A:/

Alt. Pathname: A:/JOESFILES/TAXDATA_____

Alt. Pathname: A:/ANNSFILES/TAXDATA_____

Alt. Pathname: B:/COMPTROL/JOESFILES/TAXDATA_____

Alt. Pathname: B:/COMPTROL/ANNSFILES/TAXDATA_____

Alt. Pathname: _____

More Alternates Required? (Yes/No) N

This example instructs the computer to search two paths on Drive A and two on Drive B.

2.3.16 SET DATE Utility

Function

This utility displays the current date, as known to the computer, and allows you to change it. Setting this date resets the calendar that records when files are created and modified.

Type

Internal

Prompt

```

                                SYSTEM UTILITIES - SET DATE

Current Date: mm/dd/yy          New Date: _/_/_/_

EXECUTE  - Proceed             TAB      - Next Entry
CANCEL   - Return to Menu     BACKTAB - Prev Entry
EAST/WEST - Next/Prev Char    BACKSPACE - Destruct Prev
```

Comments

1. The format of the Current Date display is determined by the SET NATIONAL DEFAULTS utility. (Refer to Section 2.3.19.) You must enter the new date in the same format. The remaining comments assume the United States format (month/day/year) is in effect.

2. You must enter the date using numerals only, not letters. For the month, enter two digits from 01 to 12. For the day, enter two digits from 01 to 31. For the year, enter two digits from 80 to 99.
3. To leave the date unchanged, enter nothing in the New Date field and press EXEC or CANCEL.
4. If you enter an invalid date, one of three error messages appears (Invalid Month, Invalid Day, or Invalid Year) informing you that you have entered an invalid day, month, or year. Respond by entering an allowable value and press EXEC.
5. The message "Change(s) completed" is displayed to inform you that the new date has been set.

Example

Current Date: mm/dd/yy

New Date: 02/12/83

2.3.17 SET DEFAULT DRIVE Utility

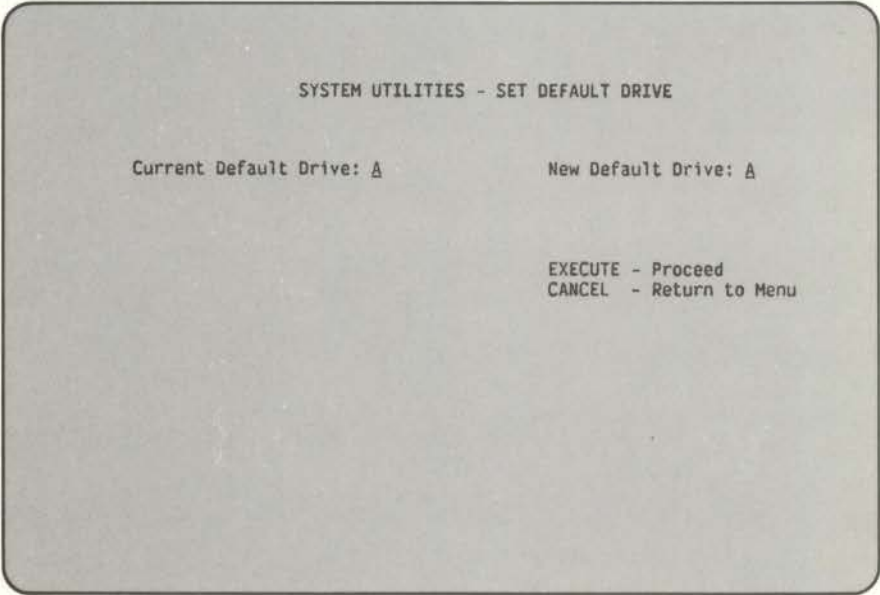
Function

This utility allows you to change the default disk drive by typing in a new drive designation. The drive you specify remains the default drive until you restart the system or use this utility again.

Type

Internal

Prompt



```

                                SYSTEM UTILITIES - SET DEFAULT DRIVE

Current Default Drive: A           New Default Drive: A

                                EXECUTE - Proceed
                                CANCEL  - Return to Menu

```

Drive a letter of the alphabet designating a drive

Comments

1. Refer to Section 1.3, The Drive Designation Parameter.
2. After you enter a new default drive, and press the EXEC key, the message "Change(s) completed" appears which informs you that the new default drive is set.

Example

Current Default Drive: A

New Default Drive: B

2.3.18 SET KEYBOARD OPTIONS Utility

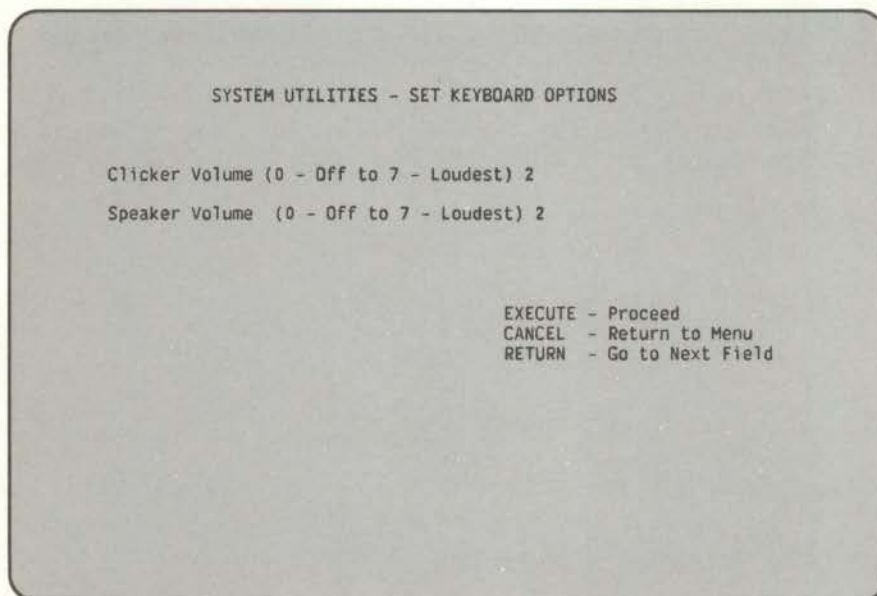
Function

This utility allows you to set the volume for the keyboard click and speaker.

Type

Internal

Prompt



```
SYSTEM UTILITIES - SET KEYBOARD OPTIONS

Clicker Volume (0 - Off to 7 - Loudest) 2
Speaker Volume (0 - Off to 7 - Loudest) 2

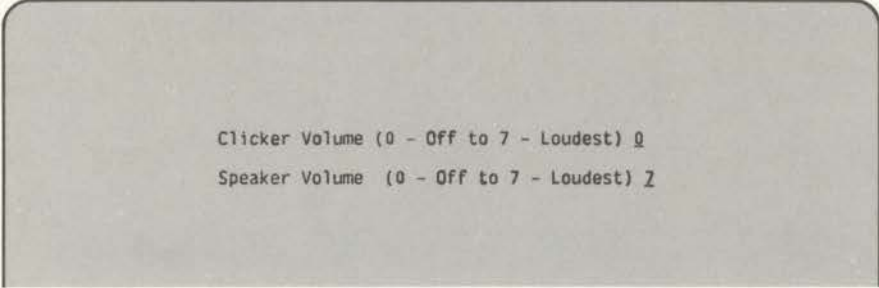
EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field
```

Comments

1. The Clicker sets the volume of the sound emitted when you press the keys. The Speaker sets the volume of the keyboard speaker.
2. Respond to both prompts by entering a digit from 0 to 7 and pressing EXEC. 0 turns the volume off. The volume increases as the value of the digit ascends to a maximum of 7.

3. The message "Change(s) completed" appears to inform you that the new volumes for the clicker and speaker are set.

Example



```
Clicker Volume (0 - Off to 7 - Loudest) 0  
Speaker Volume (0 - Off to 7 - Loudest) 7
```

In this example, the clicker would be turned off and the volume of the speaker would be set to the maximum.

2.3.19 SET NATIONAL DEFAULTS UtilityFunction

This utility sets the default values for various parameters as they are used in different countries.

Type

Internal

Prompt

```

SYSTEM UTILITIES - SET NATIONAL DEFAULT

- United States      - Denmark
- Canada            - Finland
- Latin America     - Norway
- Venezuela         - Sweden
- United Kingdom    - Iceland
- Germany           - Spain
- France            - Portugal
- Austria           - Turkey
- Netherlands       - Greece
- Belgium           - Cyprus
- Italy              - South Africa
- Switzerland       - General Definition

BACKSPACE / SPACE - Item Select
EXECUTE           - Proceed
CANCEL            - Return to Menu
  
```

Comments

1. Table 2-1 lists the parameters this utility sets and their corresponding values for various countries.
2. This utility establishes defaults that all subsequent programs use until the defaults are changed by this utility or until you restart your system. As shipped by Wang Laboratories, Inc., the defaults established at system start-up are the United States standards. Refer to Comment 7 for an explanation of how to change the start-up defaults.
3. The country whose standards are currently in effect on your system appears highlighted in the prompt.

4. This utility establishes one of the following three date formats as the default:

American standard	mm/dd/yy
European standard	dd/mm/yy
Swedish standard	yy/mm/dd

The SET DATE utility uses the format you select with the SET NATIONAL DEFAULTS utility.

5. The General Definition option allows the programmer to design his own standards. For this, the Debugger program development tool must be used to modify the MS-DOS code. (Refer to The Wang Professional Computer Program Development Guide.) When MS-DOS has been appropriately modified, selecting General Definition from the SET NATIONAL DEFAULTS menu establishes the standards you create as the default values. As shipped by Wang Laboratories, Inc., the General Definition option supplies the values listed at the end of Table 2-1 under General Definition.

6. The currency symbol you select appears on the screen when the program you are running calls for it. The currency symbol that appears in printouts depends on the character set of the printer you are using. Refer to your printer manual.

7. To change the default values established at system start-up, you must use the Wang PC Editor to modify the file on the system diskette named CONFIG.SYS. You can modify it in one of two ways. You can add the command COUNTRY = #, where # represents the country code listed in Table 2-1. You can also modify the SHELL = <filespec> command by adding a space and -N# after the file specification. The COUNTRY = # command may not accept values greater than 99.

CAUTION:

Be very careful if you modify CONFIG.SYS. If you make a mistake, you may not be able to start your system. Always keep copies of the system files with the original CONFIG.SYS file.

8. The following explanations apply to entries in Table 2-1:

- The Currency Symbol Position can be before the amount with a space in between, before the amount with no space in between, after the amount with a space in between, or after the amount with no space in between.
- The Currency Decimal Positions are the number of decimal positions used in currency expressions.
- 12/24 Hours indicates whether the hour is designated 1 to 12 or 0 to 23.

- The Data Separator is the punctuation mark used by programs as the divider in lists of data.
9. The message "Change(s) completed" is displayed to inform you that the new national standards are in effect.

Table 2-1. National Default Values

Country	Austria	Belgium	Canada	Cyprus
Code	103	105	10	121
Date/Time Format	European	European	European	European
Date Separator	.	-	-	-
Time Separator	:	:	:	:
Currency Symbol	S	\$	\$	\$
Currency Symbol Position	Before, with space	Before, no space	Before, no space	Before, no space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	.	,	.
Decimal Separator	,	,	.	,
12/24 Hours	24	24	24	24
Data Separator	;	;	,	;

Table 2-1. National Default Values(continued)

Country	Denmark	Finland	France	Germany
Code	110	111	102	101
Date/Time Format	European	European	European	European
Date Separator	.	-	/	.
Time Separator	.	:	:	.
Currency Symbol	KR	\$	F	DM
Currency Symbol Position	Before, no space	Before, no space	After, with space	After, with space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	.	.	.
Decimal Separator	,	,	,	,
12/24 Hours	24	24	24	24
Data Separator	;	;	;	;

Table 2-1. National Default Values (continued)

Country	Greece	Iceland	Italy	Latin America
Code	120	114	106	20
Date/Time Format	European	European	European	European
Date Separator	/	.	-	/
Time Separator	:	:	:	:
Currency Symbol	DRS	kr	\$	\$
Currency Symbol Position	After, with space	Before, with space	Before, no space	Before, no space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	.	.	.
Decimal Separator	,	,	,	,
12/24 Hours	24	24	24	24
Data Separator	;	;	;	;

Table 2-1. National Default Values (continued)

Country	Netherlands	Norway	Portugal	South Africa
Code	104	112	116	201
Date/Time Format	European	European	European	European
Date Separator	-	.	-	/
Time Separator	:	.	:	:
Currency Symbol	\$	KR	\$	R
Currency Symbol Position	Before, no space	Before, no space	Before, no space	Before, no space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	.	.	a space
Decimal Separator	,	,	,	,
12/24 Hours	24	24	24	24
Data Separator	;	;	;	;

Table 2-1. National Default Values (continued)

Country	Spain	Sweden	Switzerland	Turkey
Code	115	113	107	117
Date/Time Format	European	Swedish	European	European
Date Separator	/	-	.	-
Time Separator	:	:	:	:
Currency Symbol	Pts	SEK	SFR	\$
Currency Symbol Position	Before, no space	Before, no space	Before, no space	Before, no space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	.	'	.
Decimal Separator	,	a space	.	,
12/24 Hours	24	24	24	24
Data Separator	;	;	;	;

Table 2-1. National Default Values (continued)

Country	United Kingdom	United States	Venezuela	General Definition
Code	100	1	21	255
Date/Time Format	European	American	European	European
Date Separator	/	/	/	-
Time Separator	:	:	:	:
Currency Symbol	\$	\$	Bs	\$
Currency Symbol Position	Before, no space	Before, no space	Before, no space	Before, no space
Currency Decimal Positions	2	2	2	2
1000 Separator	.	,	.	.
Decimal Separator	,	.	,	,
12/24 Hours	24	24	24	24
Data Separator	;	,	;	;

2.3.20 SET TIME UtilityFunction

This utility displays the current time, as known to the computer, and allows you to change it. Setting this time resets the internal clock that records when files are created and updated.

Type

Internal

Prompt

```

                                SYSTEM UTILITES - SET TIME

Current Time: hh:mm:ss          New Time: __:__:__

EXECUTE  - Proceed             TAB      - Next Entry
CANCEL   - Return to Menu      BACKTAB - Prev Entry
EAST/WEST - Next/Prev Char     BACKSPACE - Destruct Prev
```

Comments

1. The format of the Current Time display is determined by the SET NATIONAL DEFAULTS utility. (Refer to Section 2.3.19.) You must enter the new time in the same format. The remaining comments on this utility assume the United States format (hour:minute:second) is in effect.

2. You must enter the time using numerals only, not letters. Enter the numbers in 2-digit form; for example, 1 is 01.

3. Enter the time values in the hour:minute:second format. The seconds entry is optional. The minute and second entries must be numbers between 00 and 59. The hour must be a number between 00 and 23. 12 midnight is 00; 12 noon is 12. To translate afternoon times other than noon from the standard clock to the 24-hour clock, add 12 to the hour on the standard clock. For example, 1 pm on the standard clock becomes hour 13 on the 24-hour clock, 2 pm on the standard clock becomes hour 14 on the 24-hour clock, and so on.

4. To leave the time unchanged, leave the New Time field blank and press EXEC or CANCEL.

5. If you enter an invalid time, one of three error messages (Invalid Hour, Invalid Minute, or Invalid Second) appears informing you that you have entered an invalid hour, minute, or second. Enter an allowable value and press EXEC.

6. The message "Change(s) completed" appears to inform you that the new time is set.

Example

Current Time: 17:40:35

New Time: 17:30:00

2.3.21 WINCHESTER BACKUP UtilityFunction

This utility creates a backup copy of the Winchester disk or a portion of the Winchester disk; it automatically formats the output diskettes used for the backup.

Type

External, on a separate diskette

Prompt

```

                                SYSTEM UTILITIES - WINCHESTER BACKUP

INPUT OPTIONS:
  Directory: _____
  Sub-Directories?: (Yes/No) N
  Modified Files Only?: (Yes/No) N

OUTPUT:
  Drive: A

                                EXECUTE - Proceed
                                CANCEL  - Return to Menu
                                RETURN  - Go to Next Field

```

Directory optional; a slash representing the disk directory, followed by one or more subdirectory names separated by slashes; a maximum of 8 characters per subdirectory name; path name a maximum of 50 characters, including slashes

Comments

1. If you do not specify a directory, the utility creates copies of the entries in the default directory.
2. If you respond to the Subdirectories prompt with Yes, the utility creates copies of every entry on every path that begins from the directory you selected, including hidden files. (Refer to Section 1.8 for details on hidden files.) If you selected the default directory, the utility copies every file on the Winchester disk. If you respond to the Subdirectories prompt with No, the utility creates copies only of the entries in the directory you selected.
3. If you respond to the Modified Files Only prompt with Yes, this utility makes copies only of those files in the selected directories that were modified since the last time you used the utility. The system records file creation and modification automatically regardless of the date and time that you enter when you start the system. Therefore, you are not required to enter the date and time each time you start the system to ensure accurate backup of modified files.
4. The format used by this utility on the output diskettes is not the standard DOS format. Therefore, you cannot access Winchester backup files from the diskette. The only way to use them is to restore them to the Winchester disk using the WINCHESTER RESTORE utility (see Section 2.3.22) and then access them from the disk. You can copy the complete backup diskette to another diskette using DISK COPY (see Section 2.3.3), but you will still be unable to access individual files directly from the diskette.
5. You can only back up files by directories and subdirectories; you cannot make copies of individual files with this utility. If you want to make copies of single files, use the FILE COPY utility. (See Section 2.3.6.)
6. The maximum number of files that you can back up at one time is 800. If you have more than 800 files, a message appears before BACKUP begins informing you that the maximum file number has been exceeded. The only way to back up more than 800 files is to run BACKUP more than once and specify only a limited number of directories and subdirectories for each run.
7. The system prompts you to insert backup diskettes as necessary. You do not have to format these diskettes before you use them with this utility. You may want to write-protect the backup diskettes by placing a tab over the hole in the diskette to ensure that these files cannot be overwritten or changed by mistake. For the first diskette, the following message appears:

Insert first output backup diskette in Drive A:
Press any key to continue

You can press any key on the keyboard to initiate backup, except the CANCEL key. Pressing CANCEL terminates the utility. If the utility uses up the space on a diskette before completing the backup, it prompts you to insert a new diskette to continue the backup, as follows:

```
Remove backup diskette in Drive A:  
Insert next output backup diskette in Drive A:  
Press any key to continue
```

Again, you can press any of the keys on the keyboard except the CANCEL key. As the utility proceeds with formatting the diskette and copying files, it displays on the screen the status of the format when formatting, as well as each file it is copying as it copies.

8. You can cancel the utility at any time by pressing CANCEL. If you press CANCEL while the utility is in the middle of a BACKUP, the files that it has copied may not be accurate. Therefore, you should run BACKUP again from the beginning to ensure accuracy.

Example

This example copies the entries in subdirectory BIN and every entry on the paths that begin from BIN to the diskette in Drive A.

```
INPUT OPTIONS:  
Directory: /BIN_____  
  
Sub-Directories?: (Yes/No) Y  
  
Modified Files Only?: (Yes/No) N  
  
OUTPUT:  
Drive: A
```

2.3.22 WINCHESTER RESTORE UtilityFunction

This utility copies files created by the WINCHESTER BACKUP utility from a diskette onto the Winchester disk.

Type

External, on a separate diskette

Prompt

SYSTEM UTILITIES - WINCHESTER RESTORE

Input:
 Drive: A
 File ID: _____

Output Options
 Protect Modified and Read-only Files:
 _ Prompt _ Bypass _ Restore

Write Verify:
 _ On _ Off

RETURN - Go to Next Field
 EXECUTE - Proceed
 CANCEL - Return to Menu

Drive a letter of the alphabet designating a drive

File ID optional; a 1-character to 8-character file name,
 optionally preceded by a path name, optionally
 followed by a 1-character to 3-character extension;
 a maximum of 50 characters, including punctuation

Comments

1. This utility overwrites files on the Winchester disk with the same file IDs on the backup diskettes. If the backup diskette contains directories, subdirectories, or files that are not on the Winchester disk, then those files are created automatically on the Winchester disk. Therefore, if you delete or lose files on the Winchester, they can be replaced by using the backup files on diskette.

2. You have the choice to overwrite selected files by using one of the Output options under Modified and Read-Only files. Modified files are those which you modified between BACKUPS. The BACKUP utility automatically marks those files as modified files. Read-Only files are files which you can use, but cannot access or modify. If you select Prompt, the system lists all Modified and Read-Only files and allows you to select file-by-file which ones you want to overwrite. If you select Bypass, none of the Modified and Read-Only files are restored. If you select Restore, all Modified and Read-Only files are restored.

The screen below appears after you have selected an Output option and pressed EXECUTE to invoke the utility.

```

SYSTEM UTILITIES - WINCHESTER RESTORE

Release 1.20

Date of Backup: mm/dd/yy           Time of Backup: hh:mm:ss
Diskette      of                   Number of Files:

Select Files to be Restored

- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:
- File ID:

INSERT - Select      NEXT   - Next Screen
DELETE - Deselect   EXECUTE - Proceed
                      CANCEL - Return to Menu
  
```

3. The system highlights all the files on the screen. All files highlighted will be restored. Therefore, if you do not want to restore a file, you can deselect it by moving the cursor (using the space bar) next to the file and then pressing DELETE. The highlighting disappears, and it is no longer included for restoration. To select a file, press INSERT. To view the next screen, press NEXT, and to view the last screen press SHIFT and NEXT simultaneously. To view the previous screen, press PREV and to view the first screen, press SHIFT and PREV simultaneously.

To select all the files specified by your response to the File ID prompt on the first screen, press SHIFT and INSERT simultaneously. If you press SHIFT and DELETE simultaneously all the files specified in the File ID prompt are deselected. If you wish, you can then use INSERT to individually select files.

You do not have to restore the files in the same order in which you backed them up. The system has a complete listing of all files that were backed up and can initiate RESTORE at any point.

When you have selected the appropriate files from the listing, press EXECUTE to start the overwrite. The system displays a message informing you how many files you selected and asks you if you want to continue. If so, press EXECUTE; if not, press CANCEL and you can start your selection procedure again.

4. Once you have initiated the RESTORE, the system prompts you for the diskettes holding the files you have selected. It also maintains a display showing the status of RESTORE with messages on the screen as follows:

Total Files Selected:
Total Files Bypassed:
Total Files Restored:

5. If you select Write Verify On, the computer compares the copy it creates on the Winchester disk to the file on the diskette and informs you if an error has occurred. If you select Write Verify Off, the accuracy of the restored files cannot be guaranteed.

6. You can respond to the File ID prompt with a path name, a file ID, or by leaving it blank. If you enter a file ID, the utility restores that file only. If you enter a path name, the next screen displays the names of each file in each subdirectory on that path. If you leave the response field blank, the next screen displays the names of all the files that WINCHESTER BACKUP copied. In both cases, you can then select the files you want to restore from the files displayed on the screen in the same way as described above. If you entered a path name, all the files in the display are selected for restoration by default. If you left the response field blank, none of the files are selected by default. If you entered a file ID or path name that does not exist on the backup diskettes, RESTORE automatically creates a file or path under the name you specified. However, those files or paths are empty.

7. You can terminate the utility before it is complete by pressing CANCEL. The utility finishes restoring the file it was working on when you cancelled. Therefore, all files that have been restored up to the point of cancellation are accurate, and do not require a repeat restoration. You can continue RESTORE by specifying the files following the one at cancellation.

Example

This example would direct all backup diskettes to be read from Drive A and would restore all Modified and Read-Only files. It would also activate the Write Verify option.

```
Input:
  Drive: A
  File ID: _____

Output Options
  Protect Modified and Read-only Files:
    _ Prompt          _ Bypass          * Restore

  Write Verify:
    * On              _ Off

RETURN - Go to Next Field
EXECUTE - Proceed
CANCEL - Return to Menu
```

2.3.23 WRITE VERIFY Utility

Function

This utility compares input to output when the computer creates, modifies, or copies files.

Type

Internal

Prompt

```

                                SYSTEM UTILITIES - WRITE VERIFY

    _ Verify On
    _ Verify Off

                                SPACE BAR - Item Select
                                EXECUTE   - Proceed
                                CANCEL    - Previous Menu

```

Comments

1. If you select Verify On, the computer compares the output of all writes to disk files (e.g., by the COPY utility) against the original input. The comparison takes place as soon as the write finishes.
2. You turn the WRITE VERIFY utility on or off by placing the acceptance block next to the field you want and pressing EXEC. When the prompt for the WRITE VERIFY utility appears on the screen, the acceptance block is next to the Verify On field. Press the space bar or RETURN to move the acceptance block to Verify Off.
3. Once selected, Verify On remains in effect until you restart the system or until you issue a Verify Off command.

3

THE EDITOR

Introduction

How to Invoke the Editor
Configuration Parameters

Editor Features

The Window

Editor Commands

CHAPTER 3 THE EDITOR

3.1 INTRODUCTION

This chapter describes the Wang PC Editor (PCEDIT.EXE). You use the Editor to create and modify source files for programs in the compiled languages and the Assembler. However, you can also use the Editor to create and modify text files, such as memos, reports, and lists.

Section 3.2 describes how to invoke the Editor. Section 3.3 explains the Editor's default parameter values and how to change them. Section 3.4 describes several features of Editor operation.

Using the Editor involves entering and modifying text within an area of the screen called the "Window." To create and edit files, you need to know how to use the window. Section 3.2 explains the window.

You edit text by issuing the commands provided by the Editor. Section 3.6 explains each of the Editor's commands and how to issue them.

3.2 HOW TO INVOKE THE EDITOR

You can invoke the Editor from the Program Development Menu or from the DOS Command Processor. To use the first method, select the Program Development option from the Main System Menu. Figure 3-1 shows the Program Development Menu.

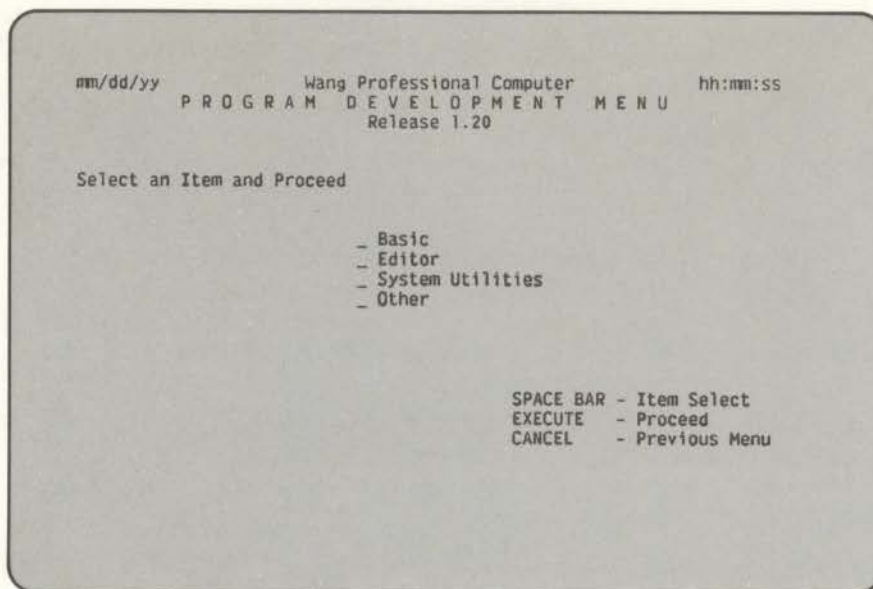


Figure 3-1. The Program Development Menu

If you are using a dual-drive diskette system, insert System Diskette II into Drive B. If you are using a single-drive diskette system, insert System Diskette II into Drive A. From the Program Development Menu, select the Editor option. A file name prompt then appears. Although the words File Name appear on the screen, the prompt accepts a full file specification as a valid response. Enter the specification of the file you wish to edit.

The other method of invoking the Editor is to select the DOS Command Processor option from the Main System Menu. The DOS prompt then appears. Respond to the prompt by typing:

```
PCEDIT [<filespec>]
```

If you supply the optional file specification, the Editor automatically loads that file. If you do not supply the file specification, the Editor prompts you for it.

To create a file, invoke the Editor and enter a specification for a file that does not exist on the disk you are accessing. The Editor then creates the file. (You can also create a file using the FILE COPY System utility or the COPY DOS utility.)

3.3 CONFIGURATION PARAMETERS

When you enter the file specification, the Editor searches the default directory for a file named CONFIG.EDT. This file contains default tab and width settings for several different programming languages. The extension to the file name identifies the file's language. For example, the Editor supplies .ASM files with the default tab settings and line length for Assembler. If CONFIG.EDT does not define values for an extension, the Editor uses 80 for the default width and sets nine default tab positions at every eighth column beginning at column eight.

NOTE:

If the document you are editing was created with a width greater than 80, you must use the SET WIDTH command (refer to Section 3.6) to override the default width. If you do not reset the width, lines you change are shortened to a width of 80 characters. Valid widths are 80 to 255.

CONFIG.EDT also specifies whether the Editor saves the file in compressed format or uncompressed ASCII format and whether the Editor adds CONTROL + Z to the file as the end-of-file indicator. Compressed format uses less disk space, because a tab replaces every group of contiguous blank spaces preceding an 8-column boundary. CONFIG.EDT specifies uncompressed format as the default.

Some programs that run on the Wang PC require CONTROL + Z as the end-of-file indicator. However, the default specified by CONFIG.EDT is that the Editor does not add CONTROL + Z to a file because most programs do not require it.

You can change the CONFIG.EDT defaults or add defaults for other file name extensions by editing CONFIG.EDT. A CONFIG.EDT command is a text string that consists of one to three characters (the file name extension without the period), followed by a space, a keyword, an equal sign, and then a value or values separated by commas. The keywords are TABS, WIDTH, COMPRESS, and CTRLZ. The values for TAB and WIDTH are decimal numbers. The values for COMPRESS and CTRLZ are either TRUE or FALSE.

A sample CONFIG.EDT file would be as follows:

```
ASM TABS=8,8,8,8
ASM WIDTH=120
ASM COMPRESS=FALSE
ASM CTRLZ=FALSE
```

All the defaults defined for various extensions must be contained in one CONFIG.EDT file. If CONFIG.EDT contains more than one definition of a particular value for an extension, the Editor uses the last one.

3.4 EDITOR FEATURES

This section explains several features of the Editor. It describes line numbering, the Editor's use of memory, the Editor Help screens, and the backup files created by the Editor.

3.4.1 Line Numbers

The Editor always numbers lines sequentially beginning at line one. If you insert or delete a line, the Editor renumbers all lines. Line numbers are not part of the text. They are only used as a means to reference a particular line or a group of lines. The line number of the cursor line appears at the top of the screen. Line numbers do not appear beside the lines on the screen.

3.4.2 Buffer Size

When you edit a file, the Editor maintains the entire file in a memory buffer. The amount of memory available with the operating system and the Editor program resident determines the size of this buffer. The available memory space varies depending on the configuration of your system. If a file is too large to fit in available memory, you can create a new file and use the LOAD PARTIAL FILE command (refer to Section 3.6) to insert a section of an old file into the new.

3.4.3 Help Screens

You issue Editor commands using single keystrokes or shifted keystrokes. To find the keystroke required for a command, press HELP. A Help screen that defines the keystroke for each command appears on the top three lines of the screen. If the command you desire is not on this screen, press HELP again. Another Help screen appears. Pressing HELP a number of times displays successive screens and finally brings you back to the original screen. While a Help screen is displayed, the window remains in view, and you can invoke any command.

3.4.4 .BAK Backup Files

When you use the END SESSION AND SAVE CHANGES or SAVE PARTIAL FILE command to save any changes you have made to a file, the Editor keeps a backup copy of the original file by changing its extension to .BAK. The backup copy has the same file name as the newly edited file. If a .BAK file with that name already exists, the Editor deletes the previous .BAK file. Thus, you always have a copy of the file as it existed immediately prior to your most recent changes.

3.5 THE WINDOW

The window is a maximum of 21 lines long. The first four lines of the screen are never used for the window. They are reserved for header, status, prompt, and tab lines. The window is bordered by two horizontal lines of blocks. The top line of the border is highlighted when you first enter the Editor.

Two modes of editing within the window exist: center mode and floating cursor mode. In center mode, the cursor line is always in the center of the screen. Therefore, you can only edit the text in the screen's center. To scroll the screen up or down and move a new line to the center of the screen, press the North or South cursor control key. Center mode is the default mode when you begin editing a file.

In floating cursor mode, you can move the cursor to any line in the window and edit the text in that line. To scroll one new line at a time into the window, position the cursor at the top line and press the North cursor control key, or position the cursor at the bottom line and press the South cursor control key. In either mode, you can scroll the preceding or succeeding 21 lines into the window by pressing PREV or NEXT, respectively.

If you have not yet specified a file for edit or if you have not yet created the file, the border lines appear with no space between them, as in Figure 3-2.

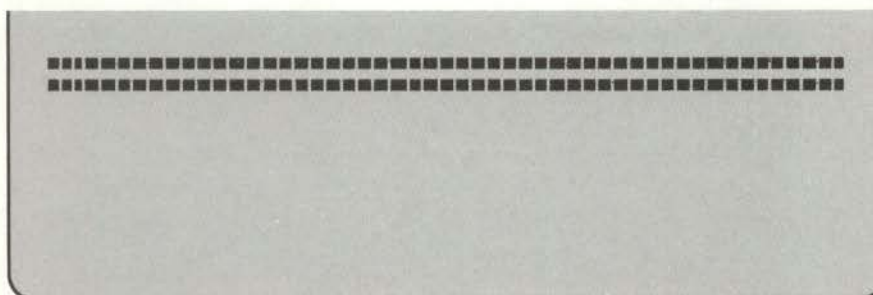


Figure 3-2. The Initial Window

To create a new text file, move the cursor into the window by pressing EXEC. Then, enter text on the cursor line. Each time you want to add a line to the file, press EXEC again.

When you specify an existing file for edit, the top border of the window appears in the center of the screen with the first ten lines of the file below it. Figure 3-3 illustrates this.

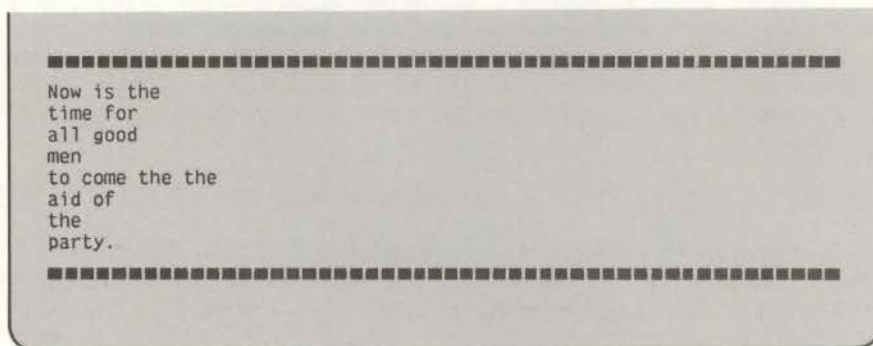


Figure 3-3. The Window with the First Lines of a File

To edit existing text, move the cursor to the line you wish to edit by using the cursor control, PREV, or NEXT keys. Then, edit the text within the window by using the Editor commands.

3.6 EDITOR COMMANDS

The Editor acts on commands that require no input parameters, as soon as you press the required key. When you select a command that requires you to supply parameters, a command line with fields for the parameter values appears at the top of the screen. You can edit these fields in the same manner that you edit a text line. Use TAB, BACK TAB, and RETURN to move between fields. When you have entered the values you want, press EXEC. To abort a command, press CANCEL.

Special Function key 15 serves as a recall key for parameter fields and text lines. Press SF 15 after you invoke a command to update a parameter field with the value the field had the last time you invoked the command during that session. For example, if you invoke the SEARCH command and press SF 15, the last string that you searched for appears in the search field. Press SF 15 after you have typed over text already existing on a line to restore the previous text.

A description of each of the editing commands is presented below. The commands are organized according to function: cursor movement, text insertion and replacement, text deletion, special features, and loading files and exiting the Editor.

3.6.1 Cursor Movement

You can move the cursor by character, by line, by screen, or by larger intervals, to the beginning and end of the file. The keys you use include the East, West, North, and South cursor keys as well as NEXT, PREV, and GO TO.

Movement by Character

The CURSOR EAST key moves the cursor one position to the right. The CURSOR WEST key moves the cursor one position to the left. If you press these keys continually, the cursor moves multiple positions to the right or left. The cursor line does not change. If the line length is greater than 80, the screen scrolls left by one position or right by one position when the cursor is at the right or left edge of the screen. Scrolling ceases when the cursor reaches the start or end of the line.

Press the East or West cursor key.

Movement by Line

The CURSOR NORTH key moves the cursor one line above the current line. The CURSOR SOUTH key moves the cursor one line below the current line. If you press these keys continually, the cursor moves multiples lines up or down. The cursor column does not change. The screen scrolls according to whether center mode or floating cursor mode is in effect. (Refer to the CENTER MODE command.)

Press the North or South cursor key.

The SHIFT + CURSOR EAST keys move the cursor to the last character on the line. The SHIFT + CURSOR WEST keys move the cursor to Column one. The cursor line does not change. The screen scrolls left or right if the new cursor position is not on the currently displayed screen.

Press SHIFT + the East or West cursor key.

The TAB key moves the cursor to the next tab stop. If there are no tab stops to the right of the cursor, the cursor moves one space to the right. Tabs do not occur in the actual text; therefore, you cannot use the Search command (see Special Features subsection, TAB command) to find them.

Movement by Screen

The NEXT key moves the entire next screen into the window. The cursor position remains the same unless the cursor would be positioned beyond the last line of text on the new screen. In that case, the command positions the cursor on the last line of text with the column unchanged.

Press NEXT.

The PREV key moves the entire previous screen into the window. The cursor position remains the same, unless the cursor would be positioned before the first line of text on the screen. In that case, the command positions the cursor on the first line with the column unchanged.

Press PREV.

Movement by Larger Intervals

The SHIFT + NEXT keys move the cursor to the last line of the file being edited. The SHIFT + PREV keys move the cursor to the first line of the file being edited. The cursor column does not change. The screen scrolls according to whether center mode or floating cursor mode is in effect. (Refer to the Special Features, CENTER command.)

Press SHIFT + NEXT or SHIFT + PREV.

The GO TO key prompts you to enter a line number and positions the cursor at the line you specify. The column does not change.

Press GO TO, enter line number, press EXEC.

3.6.2 Text Insertion and Replacement

The Editor allows you to create new text of any length and at any position in the file. There are separate commands which complete both a text deletion and replacement simultaneously to make text replacement efficient. The keys you use for text insertion and replacement include INSERT and REPLC.

Text Insertion

In insert mode, the Editor inserts the characters that you type into the text at the current cursor position. When the Editor is not in insert mode, the characters you type overwrite the characters currently occupying those positions. Insertion using the Editor causes existing text to move to the right. If you press BACK SPACE while in insert mode, the character to the left of the cursor is deleted.

While in insert mode, you can insert from one character up to one line of characters at a time. Once you are at the end of the line, the system automatically exits insert mode. To enter additional lines, you have to press INSERT again or press EXEC to create a blank line below the current cursor position.

While insert mode is in effect, the letters Ins appear highlighted in the status line at the top of the screen, and the LED at the far left is on.

Press INSERT while insert mode is off to enter insert mode.

Press INSERT while insert mode is on to exit insert mode.

Press EXEC to create a blank line, position the cursor at the beginning of the line, and enter insert mode.

Text Replacement

When you use the text replacement command, REPLC key, the Editor searches for a string of characters and replaces it with another string which you specify. First, the Editor prompts you to enter a search string and a replace string. Then, the Editor searches for the first string, beginning at Column one of the current cursor line. The search only recognizes characters that have the same case as the characters in the search string you entered. If the Editor finds the string, it displays the prompt "Replace Y or N" with the default response of Y. To replace the string, press EXEC. If you do not want to replace this occurrence of the string, enter N and press EXEC. In either case, the search continues for another occurrence of the search string. To terminate text replacement at any time, press CANCEL.

NOTE:

If the replacement string is longer than the search string, characters at the end of the line can be lost. A message appears informing you that the replacement will result in a loss of characters.

If you want to replace all matches without receiving a prompt for each occurrence of the search string, invoke this command by pressing SHIFT + REPLACE.

Press REPLC or SHIFT + REPLC, enter search string, press RETURN, enter replacement string, press EXEC.

3.6.3 Text Deletion

You can delete text either by character or by line. The keys you use for text deletion include BACK SPACE, DELETE, ERASE, and STOP.

Deletion by Character

You can delete a character using either of two commands: BACK SPACE or DELETE. BACK SPACE deletes the character previous to the current cursor position; DELETE deletes the character in the current cursor position. With the BACK SPACE deletion, the Editor does not adjust the text. With DELETE, the characters on the line to the right of the cursor move one position left and a space is placed in the last column.

Press BACK SPACE.

Press DELETE.

Deletion by Line

The SHIFT + DELETE command deletes the line at the current cursor position. All text within the line is deleted, including the characters prior to the current cursor position. Text is automatically adjusted after the line is deleted.

Press SHIFT + DELETE.

You can also delete a line and enter insert mode with one command, SHIFT + ERASE. This command erases all characters on the cursor line, replaces them with blanks, and positions the cursor at the beginning of the line. ERASE deletes all characters following the current position, replaces them with blanks, and maintains the cursor position at the point where you pressed ERASE.

Press SHIFT + ERASE.

Press ERASE.

To delete more than one line at a time, press STOP. This command deletes a block of text lines. The command prompts you to enter the starting line and the ending line. The default for both fields is the current line number. To change the line number in either field, use the North or South cursor control key (shifted or unshifted), or NEXT or PREV to position the cursor at the desired line. The line number in the field automatically changes to that of the cursor line. Use the TAB, BACK TAB, and RETURN keys to move between fields. When the values you want appear in the prompt fields, press the EXEC key to delete the lines you have specified.

Press STOP, enter first line to delete, advance to next field, enter last line to delete, press EXEC.

3.6.4 Special Features

The special features of the Wang PC Editor discussed below include automatic text centering, text copy, text move, text print, and text search. Also included in this section are the commands you need to set tabs and to set the width of the lines within a file.

Text Centering

Center mode causes the line you are editing to be fixed at the vertical center of the screen. In this mode, the screen scrolls each time you position the cursor to a new line. Center mode allows you to see the text lines that appear directly above and directly below the line you are currently editing.

Floating cursor mode allows you to edit at any position on the screen. In floating cursor mode, the screen scrolls when you try to position the cursor above the top display line or below the bottom display line. With floating cursor mode, you can view a small portion of text without losing view of the top lines, for example, as you edit the bottom lines. Floating cursor mode is also helpful on systems with a low resolution video board since scrolling is slower with this board.

In center mode, the center line of the window is highlighted. In floating cursor mode, nothing in the window is highlighted. Therefore, your current mode is always clear from viewing the screen.

Press CENTER while in floating cursor mode to invoke center mode.

Press CENTER while in center mode to invoke floating cursor mode.

Text Copy

This command copies a block of lines from one specified point in the text to a second specified point. The original lines remain intact at the first location. The command prompts you for a starting line, an ending line, and a target line. The copied lines are inserted after the target line. The default value for each of the three fields is the current line number. To change the line number in any of the fields, use the North or South cursor control key (shifted or unshifted), or NEXT or PREV to position the cursor on the desired line. The line number in the field automatically changes to the cursor line. Use TAB, BACKTAB, and RETURN to move between fields. When the values you want appear in the prompt fields, press EXEC, and copying takes place.

Press COPY.

Text Move

This command moves a block of lines from one specified point in the text and inserts them at a second specified point. The original lines are deleted. The command prompts you for a starting line, an ending line, and a target line. The lines being moved are inserted after the target line. The default value for each of the three fields is the current line number. To change the line number in any field, use the North or South cursor control key (shifted or unshifted), or NEXT or PREV to position the cursor at the desired line. The line number in the field automatically changes to that of the cursor line. Use TAB, BACKTAB, and RETURN to move between fields. When the values you want appear in the prompt fields, press EXEC, and the lines are moved.

Press MOVE.

Text Print

This command sends a block of text lines to the printer. The command displays a prompt for the starting line and the ending line. The default for both fields is the current line number. To change the line number in either field, use the North or South cursor control key (shifted or unshifted), or NEXT or PREV to position the cursor at the desired line. The line number in the field automatically changes to that of the cursor line. Use TAB, BACK TAB, and RETURN to move between fields. When the values you want appear in the prompt fields, press EXEC to print the lines.

Press PRINT.

Text Search

This command prompts you to enter a string of characters and searches for the first occurrence of that string beginning at the line following the current cursor line. If the search finds the string, the line in which the text occurs becomes the new cursor line, and the line is highlighted in the center of the screen. To find the next occurrence of the string, press EXEC. If the search does not find the string, a message is displayed, and the cursor position does not change. If you want the search to find both uppercase and lowercase occurrences of a string, invoke this command by pressing SHIFT + SEARCH.

Press SEARCH or SHIFT + SEARCH.

Set Tabs

This command allows you to set and modify tab positions. When you invoke the command, the cursor is positioned at Column zero in the tab line. Use the East and West cursor control keys to move the cursor to the desired tab position. To set a tab, press TAB or T (shifted or unshifted). A tab indicator then appears at the cursor position in the tab line. To erase a previously set tab, type over the tab indicator with the space bar or a hyphen (-).

Press TAB.

Set Width

This command allows you to change the line length. When you invoke the command, it prompts you to enter the new line length. Enter a number between 80 and 255 and then press EXEC.

NOTE:

This command does not reformat the text. If you shorten the line width, existing lines can be truncated. However, the text is not lost. You can recover it by resetting the line width to the previous value. This command does not change the number of characters which appear on one line on the screen, it changes the number of characters within a logical line.

Press FORMAT.

3.6.5 Load Files and Exit Editor

Within the Editor, you can load a partial or complete file into the file that is currently being edited. In this way, you can merge two files effectively at any position. Also included in this section are the commands you need to save files and exit the Editor.

Load Files

You can load either a complete file or portions of a file. To load portions of a file, press SHIFT + INDENT. This command reads a range of lines from a file into the text buffer and inserts them into your existing text file after the current cursor line. The command prompts you to enter a file specification. The command also prompts you to enter the starting line and ending line. The default values for these fields are 1 and 9999, respectively. Type the values specifying the range of lines you want to load and press EXEC.

Press SHIFT + INDENT.

To load a complete file, press INDENT. This command loads a specified text file into memory from a disk. The command prompts you to enter a file specification. After you enter the specification you want, press EXEC to load the file. If you have made changes to the current text file, a prompt appears asking if the current text area should be saved. The file specification of the current text also appears. Press EXEC to save the changes. If you do not want to save the changes, enter N before pressing EXEC.

If you respond to the prompt by typing C or c, the Editor saves the text in compressed format. Press EXEC, or type A or a, to save the text in uncompressed format (the default). (Refer to Section 3.3 for an explanation of compressed and uncompressed formats.)

Save Files

This command writes a range of lines from memory to disk. The command prompts you to enter a file specification. It also prompts you for the starting line, and the ending line. The default for both fields is the current line number. To change the line number in either field, use the North or South cursor control key (shifted or unshifted), or NEXT or PREV to position the cursor at the desired line. The line number in the field automatically changes to that of the cursor line. Use TAB, BACKTAB, and RETURN to move between fields. When you press EXEC, the lines are written to the specified file.

NOTE:

If the specified file already exists, this command deletes the previous version.

Press SHIFT + GO TO.

Exit Editor

When you want to end an editing session, press SHIFT + CANCEL. The system gives you the option of saving your changes by displaying the prompt PRESS EXECUTE AND TEXT WILL BE SAVED, TYPE N AND CHANGES WILL BE LOST. The name of the file being edited also appears on the monitor to remind you which file will be written if you press EXEC. If you press the N or n, all changes are lost.

If you respond to the prompt by typing C or c, the Editor saves the text in compressed format. If you press EXEC or type A or a, the Editor saves the text in uncompressed format (the default). (Refer to Section 3.3 for an explanation of compressed and uncompressed formats.)

If you invoke this command by mistake, you can abort the command by pressing CANCEL.

Press SHIFT + CANCEL or CONTROL + C.

4

DOS COMMAND PROCESSOR

Introduction
Using the DOS Command Processor
Format Notation
Editing DOS Commands
The DOS Utilities
Batch Processing
Replacing the System Screens
with the DOS Command Processor

CHAPTER 4

USING THE DOS COMMAND PROCESSOR

4.1 INTRODUCTION

Chapter 2 explains how to give commands to the Wang Professional Computer by selecting options from menus. This chapter explains another way to give the Wang PC commands--the DOS Command Processor. (DOS stands for Disk Operating System.)

When you select the DOS Command Processor option on the Main System Menu, the following prompt, known as the DOS prompt, appears on the screen:

A:

You respond to the DOS prompt by typing commands. The name of the program that is running when this prompt appears is COMMAND.COM.

From the Command Processor, you can execute any program that runs on the Wang PC, except those written in interpretive BASIC. Thus, programs you can run from the Command Processor include those supplied with your system and those you may have written yourself or acquired subsequently.

To run many of the system programs supplied with the Wang PC, you respond to the DOS prompt with a "keyword" that tells the computer what program you are calling. For example, if you want to load interpretive BASIC from the Command Processor, you type BASIC after the prompt. This chapter describes several of these system programs, called DOS utilities. The remaining system programs you can execute through the Command Processor are described in other manuals.

Most of the system utilities described in Chapter 2 are also DOS utilities. This chapter describes how to call those programs from the Command Processor. In addition, it describes other DOS utilities not listed on the System Utilities Menu.

This chapter also explains how to create batch files by means of which you can enter several DOS commands in one step. When you call this kind of file through the Command Processor, the computer loads the file and then executes the commands sequentially. Finally, this chapter explains how to load the DOS Command Processor, instead of the system screens, directly after system start-up.

4.1.1 Who Should Use the DOS Command Processor?

If you are not proficient with computers, use the menus rather than the Command Processor wherever possible. Typing commands requires you to follow numerous rules that are absolutely inflexible. Violating even a seemingly insignificant rule, perhaps by misplacing a comma or forgetting to insert a blank space where required, can change the meaning of the command.

The reason these rules must be so inflexible is that, contrary to popular belief, computers are not actually smart, just fast. If you type a word incorrectly or forget a punctuation mark, the computer is unable to figure out what you meant to tell it. The computer responds only to what is actually given it, exactly as given.

When you make a mistake, an error message appears on the screen to tell you that something is wrong. It is impossible, however, for the error messages to be so specific that in every case they tell you precisely what went wrong. Sometimes the error is obvious. Other times it can be frustratingly hard to find. Unless you are very experienced with computers, then, it is preferable to enter a command from a menu.

4.1.2 How to Use This Chapter

Section 4.2 gives general information about responding to the Command Processor's prompt, including how to change the default disk drive. (If your system has only one disk drive, read the instructions in Section 1.3.1 before using the Command Processor.)

Section 4.5 contains detailed descriptions of the DOS utilities in alphabetical order. Each description includes a format that schematically represents the proper syntax of the command used to call the program. In order to understand these formats, you must first understand the syntax notation and parameters used in the formats, along with the function of all-purpose file name characters.

Therefore, syntax notation is explained in Section 4.3, before the DOS utility descriptions. The all-purpose characters are explained in Section 1.4.1. Most of the parameters used in DOS commands are defined in Chapter 1. Those parameters not defined in Chapter 1 are defined in the descriptions of the utilities that use them.

Before using the DOS utilities, it is also helpful to understand the special editing functions provided by the Wang PC to facilitate entering DOS commands. Section 4.4 describes those special editing functions.

Section 4.6 explains how to create and use batch files, and Section 4.7 explains how to load the DOS Command Processor directly after system start-up.

4.2 USING THE DOS COMMAND PROCESSOR

This section contains general instructions for using the Command Processor. Some of the instructions are applicable to all DOS commands. All are at least applicable to more than one command.

4.2.1 How to Enter and Terminate a DOS Command

When the Command Processor prompt appears, it is followed by the cursor indicating where you are to begin entering your response. You can type the command in any combination of uppercase and lowercase characters. The computer converts them to uppercase internally. (Certain words in the IF and FOR...IN...DO commands must be typed in uppercase. Refer to Section 4.5.)

Type your response in accordance with the specifications described in Section 4.5. For example, to call the DATE utility, type DATE as follows:

A:DATE

then press RETURN to enter the command.

When the execution of a DOS command has finished, the DOS prompt returns to the screen on the line below any output produced by the command. You can terminate a command while it is still executing by hitting SHIFT + CANCEL or CONTROL + C. Again, the DOS prompt returns to the screen on the next line. To return to the Main System Menu from the DOS prompt, respond to the DOS prompt by typing:

EXIT

and pressing RETURN.

4.2.2 Internal and External Program Types

Programs run from the Command Processor are of two types: programs internal to the Command Processor (program COMMAND.COM) or programs external to it. The internal programs are always available when the DOS prompt appears. Most of the DOS utilities are internal programs.

All other programs are external, that is, the computer must read them into memory from disk each time it executes them. Therefore, do not issue a command unless the program is contained on the default drive or the drive you designate in the file specification. The DOS utility descriptions in Section 4.5 indicate whether the utility is internal or external.

4.2.3 The Default Disk Drive

When you enter a DOS command without including an optional drive designation, the computer supplies a default drive designation. The default disk drive is the device where the computer looks for any files named in DOS commands when a command does not specify a particular drive. The designator for the default drive, a letter of the alphabet, appears before the colon in the DOS command prompt.

To change the default drive, respond to the DOS prompt by typing a new drive designator followed by a colon at the cursor position. When you press RETURN, the DOS prompt reappears with the colon preceded by the new drive designator. For example:

```
A: _  
A:B:  
B: _
```

4.3 FORMAT NOTATION

The DOS command formats in Section 4.5 employ syntax notation and punctuation marks. This section gives the rules governing symbols and punctuation in those formats.

4.3.1 Syntax Notation

- Capital letters indicate portions of statements that must be entered exactly as shown. These are the keywords that indicate to the computer which utility to call. Note that although the formats display keywords in capital letters, you can type them in any combination of uppercase or lowercase.
- Items in angular brackets (< >) are parameters for which you supply a value. What you enter must conform to the rules for that parameter.

- Square brackets ([]) indicate that the enclosed item is optional. Items not in square brackets are required. You must supply something for any item not in square brackets.
- Ellipses (...) indicate that an entry can be repeated as many times as desired.
- Angular brackets, square brackets, and ellipses are not part of the commands they appear in, but are symbols used to display the syntax of the commands. They are not typed when the commands whose formats they appear in are typed.
- All commas, colons, slash marks, equal signs, and plus signs are punctuation marks that are part of the commands they appear in. They must be typed exactly as shown in the formats. This is one of the easiest rules to violate, so keep it in mind. (In one, and only one case, punctuation that is not shown in a format can be used in a command. Refer to Section 4.3.2.)

Some DOS commands include optional modifiers that slightly change the action of the command. These command modifiers are called switches. For example, the PRINT command has three switches. All three affect the PRINT command in a different way. One switch adds files to a print request; one deletes files from a print queue; and the third deletes the entire print queue. Switches are usually preceded by a "/" or a "-".

4.3.2 Punctuation

When you enter a command, you must separate user-supplied values from keywords by one, and only one, of the following: a space, comma, semicolon, equal sign, or TAB key. The command formats do not display all of these options. Therefore, in this case, but only in this case, you can use punctuation that is not shown in the format for a command.

4.4 EDITING DOS COMMANDS

The DOS Command Processor offers a variety of functions that make command line editing a simple and efficient task. These functions make use of two temporary storage areas, called "buffers," in memory. One buffer holds the command you enter until you send it to the Command Processor by pressing RETURN. The other buffer holds a copy of the command for editing and functions as a template for entering the next command. Pressing RETURN also copies the command line to the template.

You edit a command line by entering one of the following kinds of input:

- Alphanumerics
- Punctuation
- Special editing functions
- Control character functions

The special editing and control character functions greatly increase the Command Processor's ease-of-use. These functions are always resident in the operating system. The following subsections explain the special editing and control character functions.

4.4.1 Special Editing Functions

The special editing functions relieve you of repeatedly typing in the same sequences of keys by remembering the last command line entered and placing it in the template. By using the template and executing the special editing functions, you receive the following advantages:

1. You can repeat an entire command with only two keystrokes.
2. You can edit and retry an erroneous command without reentering the entire command line.
3. You can edit and execute a command line similar to the preceding command with a minimum of typing.

Table 4-1 contains a complete list of the special editing functions.

Table 4-1. Special Editing Functions

Key	Editing Function
East cursor	Copy one character from the template to the new command line.
COPY	Copy all characters up to a specified character from the template to the new command line.
SHIFT + COPY	Copy all remaining characters in the template to the new command line.
DELETE	Skip over (do not copy) a character in the template to the new command line.
SEARCH	Skip over (do not copy) the characters in the template up to the character specified.
ERASE	Void the current input; leave the template unchanged.
INSERT	Enter insert mode. To exit insert mode (the default), press INSERT again or press any other special editing key.
MOVE	Make the new line the new template.

As an example of the use of the special editing keys and command entry in general, assume that you have entered the following command:

```
DIR PROG.COM
```

This command displays the directory entry for the file PROG.COM on the terminal screen. Since the command is saved in the template, you can repeat the command by typing three keys, SHIFT + COPY and RETURN. The repeated command then appears on the screen. Pressing SHIFT + COPY causes the repeated command to appear on the screen. Pressing RETURN causes the command line to be processed by the Command Processor.

Now assume that you want to display the directory entry for a file with the file name PROG and the extension .ASM. To do this, we will use the template, and press the COPY key followed by C. Pressing the COPY key followed by C copies characters from the template to the command line buffer up to, but not including, the character C. The text DIR PROG. appears on the screen. Now, type:

```
ASM
```

The result is DIR PROG.ASM_

The new command is now in the command buffer. To send this command to the Command Processor and the template, press RETURN. The template now contains the command DIR PROG.ASM

Next, assume that you want to execute the command TYPE PROG.ASM. To do this, you type:

TYPE

and press INSERT, space bar, SHIFT + COPY, and RETURN. The alphanumeric characters TYPE are entered directly into the command buffer; they also automatically replace corresponding characters in the template. This automatic replacement is turned off when you press INSERT. Thus, the characters TYPE replaced the characters DIR and a space in the template. Pressing INSERT and the space bar inserted a space between TYPE and PROG.ASM. Pressing SHIFT + COPY copied the rest of the template to the command line.

When you pressed RETURN, you sent the new command to the Command Processor and the template. Therefore, the template now contains the command TYPE PROG.ASM

If you had misspelled TYPE as BYTE, a command error would occur. If you discovered the error before you pressed RETURN, you could press MOVE instead. Pressing MOVE sends the command to the template but not to the Command Processor. The command in the template would then be BYTE PROG.ASM

You can then edit this erroneous command line with the special editing functions. Type:

T

Press the East cursor control key. Type:

P

Then press SHIFT + COPY. The East cursor control key copies a single character from the template to the command buffer. The SHIFT + COPY copies the rest of the template. The resulting command, TYPE PROG.ASM, is the one you want.

As an alternative, you could have used the DELETE and INSERT keys with the same template to achieve the same result. Pressing DELETE twice skips over the first two template characters. Pressing the East cursor control key copies the third template character. Next, press INSERT and type:

YP

to insert these letters in the new command. Finally, press SHIFT + COPY to copy the rest of the template to the new command. The result is the command TYPE PROG.ASM

4.4.2 Control Character Functions

While commands are being entered, DOS recognizes seven control character functions. These control characters and the functions associated with them are shown in Table 4-2.

Table 4-2. Control Character Functions

Control Character	Function
CONTROL + N	Cancel echoing of output to line printer.
CONTROL + C	Abort current command.
CONTROL + H	Remove last character from command, and erase character from terminal screen. The BACKSPACE key also performs this function.
CONTROL + J	Insert physical end-of-line, but do not empty command line. This function extends the current logical line beyond the physical limits of one terminal line.
CONTROL + P	Echo terminal output to the line printer.
CONTROL + Q	Resume display of output to the monitor. Press CONTROL + S to suspend the display.
CONTROL + S	Suspend display of output to monitor. Press CONTROL + Q to continue the display.
CONTROL + X	Cancel the current command, empty the command line, and then output a back slash (\), carriage return, and line feed. The template used by the Special Editing commands is not affected. The ERASE key also performs this function.

4.5 THE DOS UTILITIES

This section presents a detailed description of how to use the DOS utilities. The utilities appear in alphabetical order. The description of each utility includes the following information:

- a description of its function
- the menu option to which it corresponds, if any
- its type, internal or external
- the format of its command
- brief descriptions of the parameters used in the command
- any explanatory comments needed in addition to those given for the corresponding menu option
- examples, where appropriate

The following is a list of the DOS utilities:

<u>Utility</u>	<u>Function</u>
BACKUP	Create backup copies of files from the Winchester disk on diskettes.
CHDIR	Specify or change the default directory.
CHKDSK	Analyze the contents of a disk, check for inconsistencies between the directories and the File Allocation Table. Report the number of bytes available on disk and in memory; optionally restore consistency, reports the number of noncontiguous allocation units per file or per disk, and display the names of files and directories as they are processed.
CLS	Clear the screen leaving the DOS prompt in the upper left-hand corner.
COPY	Make duplicate copies of one or more files; can also create files.
COPY +	Make a combined file by appending one or more files to another file.

<u>Utility</u>	<u>Function</u>
CTTY	Change the device that receives the input/output normally sent to the monitor.
DATE	Display the current date, as known to the computer, and permits you to enter a new date.
DEL	Delete a file or a group of files from a disk.
DIR	Display an entire directory, specific directory entries, or the file names in a directory on the monitor screen.
ECHO	Turn the console display on or off. It can also display a message.
FOR...IN...DO	Allow instructions to be executed repeatedly with different parameter values.
FORMAT	Prepare a disk to accept files by initializing the disk directory, File Allocation Table, and other areas of the disk; analyze the disk for any defective tracks.
GOTO	Transfer control to the line after a label in a batch file.
IF	Allow conditional execution of commands.
MENUICMP	Modify existing menus and create new menus.
MKDIR	Create a new subdirectory.
PATH	Define the directories that are searched when a referenced file is not found in the default directory or in the directory designated in the file specification; optionally, display the current alternate path names.
PAUSE	In batch files, cause the computer to wait for you to respond to the prompt "Strike a key when ready..."; optionally, display a remark.

<u>Utility</u>	<u>Function</u>
REM	Display remarks during the execution of a batch file.
RENAME	Change the name of a file.
RESTORE	Copy Winchester disk backup files from diskette back onto the Winchester disk.
RMDIR	Remove an empty subdirectory from a disk.
SHIFT	In a batch file, this utility allows you to enter more than 10 parameter values on the command line.
TIME	Display the current time, as known to the computer, and allows you to enter a new time.
TYPE	Display the contents of a file on the screen.
VER	Display the version number of the operating system.
VERIFY	Compare input to output when the computer creates, modifies, or copies files.
VOL	Display the volume ID of the disk in the specified drive.
WANGCOPY	Make duplicate copies of one or more files, make combined files by appending one or more files to another, and can create files.
WCOMPARE	Compare the contents of two files, displays their differences, and tabulate the number of differences.
WDSKCOPY	Copy the entire contents of one diskette to another and reformat the destination diskette if necessary.
WPCNVDOC	Convert Wang Word Processing documents to DOS text files.
WPCONV	Convert DOS text files to Wang Word Processing documents.

4.5.1 BACKUP Utility

Function

This utility creates a backup copy of the Winchester disk or a portion of the Winchester disk; it automatically formats the output diskettes used for the backup.

Menu Option

Winchester Backup

Type

External, on a separate diskette provided with the Winchester disk

Format

BACKUP C: [pathname] d: [-M] [-S]

C:	the drive designation of the Winchester disk
pathname	a slash representing the default directory, followed by one or more 1-character to 8-character subdirectory names separated by slashes; optionally preceded by the drive designation for the Winchester
d:	the drive designation of the diskette onto which the copies of the Winchester disk files are copied
-M	switch for backup of modified files only
-S	switch for backup of all subdirectories within the directory specified in pathname

Comments

1. When you call this utility using DOS, the program called is the same as the WINCHESTER BACKUP System Utility. However, there is no screen because you provide the information the utility needs in the DOS command. The system prompts you to insert diskettes, and otherwise operates in the same manner as the WINCHESTER BACKUP utility. (See section 2.3.21.)
2. To back up all files, do not specify any pathname or use any switches in the backup procedure. To back up selected files, include a pathname, or use the -M or -S switches described below.

3. Use the -M switch to make backup files of only those files which have been modified since the last backup. The system records file creation and modification automatically regardless of the date and time that is recorded when you start the system. Therefore, you are not required to enter the date and time each time you start the system to ensure accurate backup of modified files.

4. Use the -S switch to include all subdirectories within the directory that you specified in the pathname.

Example

```
BACKUP C: /BIN A: -M
```

This command would back up modified files only from the default directory (BIN). The backup files would be placed on diskettes in Drive A.

4.5.2 CHDIR Utility

Function

This utility specifies or changes the default directory.

Menu Option

Path - Change Directory

Type

Internal

Format 1

CHDIR [<pathname>]

Format 2

CD [<pathname>]

<pathname>

a slash representing the disk directory, followed by one or more 1-character to 8-character subdirectory names separated by slashes; optionally preceded by a drive designation

Comments

1. If <pathname> is absent, the default directory is displayed.
2. Refer to Section 1.5.2 for a detailed explanation of the path name parameter.

Example

CHDIR /JOEFILES/REPORTS

4.5.3 CHKDSK Utility

Function

This utility analyzes the contents of a disk, checks for inconsistencies between the directories and the File Allocation Table, and reports the number of bytes available on disk and in memory. Optionally, it restores consistency, reports the number of noncontiguous allocation units per file or per disk, and displays the names of files and directories as they are being processed.

Menu Option

Check Disk

Type

External, System Diskette II

Format

CHKDSK [<d>:] [<filespec>...] [-F] [-V]

<d>	a letter of the alphabet designating a drive
<filespec>	a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1-character to 3-character extension

Comments

1. If you include <filespec> in the command, CHKDSK returns the number of noncontiguous allocation units in the file. If <filespec> is *.* , CHKDSK returns the total number of noncontiguous allocation units in all files.
2. Including the -F switch in the command instructs CHKDSK to correct inconsistencies between the FAT and the directories.
3. Including the -V switch in the command instructs CHKDSK to display the names of directories and files as it processes them.
4. Refer to Comments on the CHECK DISK system utility in Section 2.3 for further discussion of CHKDSK.

Example

```
chkdsk b:joestax -f -v
```

This command instructs CHKDSK to check the disk in Drive B, to correct inconsistencies, to display file names as it processes them, and to report the number of noncontiguous allocation units in the file named JOESTAX.

4.5.4 CLS Utility

Function

This utility clears the screen leaving the DOS prompt in the upper left-hand corner.

Type

Internal

Format

CLS

Comments

The screen does not clear automatically when a DOS command has finished executing. Instead, the DOS prompt appears below the last line displayed by the previous command. This utility clears the screen of the previous contents and displays the DOS prompt in the upper left-hand corner of the screen.

4.5.5 COPY Utility

Function

This utility can make a copy of a file, with or without changing the file name. It can also create files.

Menu Option

File Copy

NOTE:

This utility is different from WANGCOPY, which is called when FILE COPY is selected from the System Utilities Menu.

Type

Internal

Format 1

COPY <filespec>

Format 2

COPY <filespec> <d>:

Format 3

COPY <filespec> <filename>[.<ext>]

Format 4

COPY <filespec> <d>:<filename>[.<ext>]

<filespec>	a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1-character to 3-character extension
<d>	a letter of the alphabet designating a drive
<filename>	a 1-character to 8-character file name
<ext>	a 1-character to 3-character file name extension

Comments

1. Formats 1 and 2 allow you to copy a file without changing the file name or extension. Formats 3 and 4 allow you to copy a file and give it a new name or extension. A disk cannot have two files with the same file name and extension. If you want the original and the copy to have the same name and extension, you must copy the file to a different disk.

2. Format 1 copies the original file, with the same name and extension, to the default disk drive. The drive designated in <filespec> must not be the default drive. For example, if the default drive is B, the command:

COPY a:testfile.bat

copies the file testfile.bat from the disk in Drive A to the disk in Drive B. The file name and extension remain the same.

3. Format 2 copies the original file, with the same name and extension, from the drive designated in <filespec> or the default drive to another drive. For example, if the default drive is B, the command:

COPY ?.exe a:

copies all files on Drive B's disk with a one-character file name and the extension .exe to Drive A's disk. The file name and extension remain the same.

4. Format 3 copies the original file to a file with a new name and/or extension on the default drive. For example, if the default drive has a file named testfile.old, the following command makes a copy of it called testfile.new on the same drive:

COPY testfile.old testfile.new

CAUTION:

If the output file has the same name as a file already on the disk specified for the output file, the old file is overwritten.

5. You can use all device file names for the original and duplicate files of COPY commands. (Refer to Section 1.4.2.) For example, the command:

COPY <filespec> CON:

displays the contents of <filespec> on the monitor. The command is equivalent to TYPE <filespec>. (Refer to the TYPE utility.)

6. To create a file using the COPY utility, specify CON as the input file and supply some other file as the output file. By using CON for the input file, you send whatever you type after EXECUTE to the disk under the output file ID. You must terminate the last line in the file by pressing RETURN, then press CONTROL + Z followed by another RETURN. Before you press CONTROL + Z, you can delete the file by pressing CONTROL + C.

7. For an explanation of the use of all-purpose characters with this utility, refer to Comment 4 on the FILE COPY utility in Section 2.3.6

CAUTION:

When you use all-purpose characters, the file names you specify for the output files may already exist on the disk you are writing to. Creating the output files overwrites the existing files.

4.5.6 COPY + Utility

Function

This utility makes a combined file by appending one or more files to another file. Separate copies of the original files can be retained.

Menu Option

File Copy With Append

NOTE:

This utility is different from WANGCOPY which is called when FILE COPY WITH APPEND is selected from the System Utilities Menu.

Type

Internal

Format 1

COPY [-B] <filespec> + <filespec>... [<filespec>]

Format 2

COPY <filespec>[-switch] + <filespec>[-switch]... [<filespec>[-switch]]

<filespec>	a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1-character to 3-character extension
------------	--

<switch>	the letter A or B
----------	-------------------

Comments

1. The combined file has the file name and extension (if any) specified by the final optional <filespec> (the <filespec> not preceded by "+"). For example, the command:

```
COPY A.XYZ + B.COM+BIC.TXT BIGFILE.CRP
```

combines the contents of A.XYZ, B.COM, and BIC.TXT and places them in the file on the default drive called BIGFILE.CRP.

2. If you do not include the final <filespec>, the name and extension of the combined file is that of the first <filespec>, and a separate copy of the first file is not retained. If you want a separate copy of the first file, the combined file must have a different <filespec>.

3. The COPY + operation is normally carried out for files in the text (or ASCII) mode. Files created with the Editor, and source files of the different programming languages, are in text mode. These text files may contain a code, 1AH, indicating that CONTROL + Z was pressed when the file was created or edited. The computer interprets this code as the end-of-file mark.

The -B option in Format 1 tells the computer that the files to be combined are "binary" files rather than text files. Files created by the Linker, Assembler, or one of the compilers are binary files. Binary files do not use 1AH as an end-of-file mark. Therefore, when you are combining binary files, you must override the normal interpretation of the end-of-file with the -B switch. -B forces the COPY + utility to use the physical end-of-file determined by the file length recorded in the Disk Directory. For example:

```
COPY -B A.COM + B.COM
```

4. Format 2 allows you to combine text and binary files by using -B on binary files and -A on text files. A switch (-A or -B) takes effect on the file after which it is placed. The switch applies to all subsequent files until another switch appears.

An -A or -B switch on the output file determines whether or not a CONTROL + Z is placed at the end of the file. Text files read while -A is in effect have CONTROL + Z stripped off. If -A is in effect when the file is written, a single CONTROL + Z is put back. Thus, you could append additional CONTROL + Z's with commands such as:

```
COPY A.ASM-B + B.ASM-B C.ASM-A
```

This occurs because the -B on the first two files prevents the CONTROL + Z's from being stripped off, and the -A on the last file puts one on.

The primary practical application may be the reverse where a file has CONTROL + Z stripped from it. For example:

COPY PROG.COM-B + ERRS.TXT-A NEWPROG.COM-B

In this example, it is assumed that ERRS.TXT was generated by the Editor, but the program it is appended to treats it as consisting of data constants (error messages). Since the result is an executable, binary file, a CONTROL + Z at the end is not needed. (For an explanation of files produced by the Linker, refer to The Wang Professional Computer Program Development Guide. For an explanation of files produced by the Assembler and compilers, refer to the appropriate language manual listed in The Wang Professional Computer Documentation Guide.)

6. For an explanation of the use of all-purpose characters with this utility, refer to Comments 4 and 5 on the FILE COPY WITH APPEND utility in Section 2.3.7.

4.5.7 CTTY Utility

Function

This utility changes the device that receives the input/output normally sent to the monitor.

Type

Internal

Format

CTTY /DEV/<dev>

<dev> a file name reserved for a device

Comments

1. With CTTY you can make your printer act as a monitor. You can also use a monitor on another system linked to your system by a communications device. For example, if you specify a printer as your terminal, whatever input you send to the computer from the keyboard and whatever output the computer returns to you appears not on the monitor, but as printed copy. Thus, you can use this utility to save a trace of the execution of a batch file. This utility is also useful if your monitor is malfunctioning.

2. For a list of reserved device file names, refer to Section 1.4.2.

Examples

CTTY /DEV/AUX

This command would move all monitor I/O to the AUX port.

CTTY /DEV/CON

This command would move the I/O back to the normal device.

4.5.8 DATE Utility

Function

This utility displays the current date, as known to the computer, and permits you to enter a new date. This date resets the calendar that records the creation or modification of files.

Menu Option

Set Date

Type

Internal

Format

DATE [<mm>-<dd>-<yy[yy]>]

<mm> (month)	one or two digits from 01 to 12
<dd> (day)	one or two digits from 01 to 31
<yy> (year)	two digits from 80 to 99
<yyyy> (year)	four digits from 1980 to 2099

Comments

1. The format of the Date display is determined by the SET NATIONAL DEFAULTS utility. (Refer to Section 2.3.) You must enter the new date in the same format. The remaining comments assume the United States standard (month/day/year) is in effect.
2. If you enter a DATE command without any parameters, the command returns the following prompt:

Current date is mm-dd-yy
Enter new date: _

To leave the date unchanged, press RETURN. To change the date, enter a valid set of numerals and press RETURN.

3. If you enter a DATE command with valid parameter values, the specified date is taken, and no other message appears.

4. You can separate the month, day, and year entries by a hyphen (-) or a slash (/). If an invalid date or separator is used in a DATE command, you receive an "Invalid date" message and a prompt to enter a valid date:

```
Invalid date
Enter new date: _
```

Example

DATE

```
Current date is 11-08-83
Enter new date: 11/9/83 _
```

4.5.9 DEL Utility

Function

This utility deletes a file or a group of files from a disk.

Menu Option

File Delete

Type

Internal

Format 1

DEL <filespec>

Format 2

ERASE <filespec>

<filespec>

a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1- to 3-character extension; maximum 255 characters including punctuation

Comments

Refer to Comments on the FILE DELETE system utility in Section 2.3.8.

Example

DEL testfile.1

4.5.10 DIR Utility

Function

This utility displays an entire directory, specific directory entries, or the file names in a directory on the monitor screen.

Menu Option

Directory Display

Type

Internal

Format

DIR [<d>:] [<filename>] [.<ext>] [-P] [-W]

<d>	a letter of the alphabet designating a drive
<filename>	a 1-character to 8-character file name
<ext>	a 1-character to 3-character file name extension

Comments

1. You can use the all-purpose characters (?) and (*) for the file name and extension parameters, as explained in Section 1.4.3. As a result, the commands in each row of the following list are equivalent:

DIR	DIR *.*
DIR FILE	DIR FILE.*
DIR .EXT	DIR *.EXT
DIR .	DIR *.

2. The display produced by this utility scrolls upward until all the entries have appeared on the screen. -P (for page mode) causes the scrolling to pause each time the display fills the screen. To resume the scroll, press any key. If you do not use page mode, you can stop the scrolling by pressing CONTROL + S. Pressing CONTROL + Q resumes the scroll.

3. -W (for wide display) causes only file names and extensions to appear. Five entries appear per line of display.

4. For further explanation, refer to Comments on the DIRECTORY DISPLAY system utility in Section 2.3.

Example

DIR ?FILE.EXE

This command could produce a display like:

AFILE.EXE	100	12-03-83	3:17a
BFILE.EXE	94755	12-10-83	17:34p
CFILE.EXE	3846	12-11-83	15:15p

4.5.11 ECHO Utility

Function

This utility turns the console display on or off. It can also display a message.

Type

Internal

Format 1

ECHO

Format 2

ECHO ON

Format 3

ECHO OFF

Format 4

ECHO <message>

Comments

1. Normally, commands in a batch file appear on the monitor screen as the computer executes them. ECHO OFF turns this feature off. ECHO ON turns it back on. PAUSE and REM messages do not appear when ECHO mode is off.
2. Format 1 displays a message stating the current ECHO mode: on or off.
3. Format 4 displays a message.

Example

ECHO OFF

This command cancels the screen display of the commands in a batch file.

4.5.12 For...IN...DO UtilityFunction

This utility allows instructions to be executed repeatedly with different parameter values.

Type

Internal

Format

FOR%%<c> IN <set> DO <command>

<c>	any character
<(set)>	0 or more file specifications or DOS command keywords enclosed in parentheses
<command>	a DOS command or a batch file specification

Comments

1. The %%<c> variable is sequentially set to each member of <(set)>, and the <command> is executed. The double percent sign distinguishes the variable from a dummy parameter. (For dummy parameters, refer to Section 4.6.2.) If you use this command outside of a batch file, use only one percent sign.
2. If a member of <(set)> is an expression involving * and/or ?, then the variable is set to each matching pattern on the disk. Only one item using all-purpose characters can be in the set. After the first such item, other items using all-purpose characters are ignored.
3. The words IN and DO must appear in uppercase.

Examples

```
For %%f IN ( *.ASM ) Do MASM %%f;
```

This example executes program MASM for each file on the disk with the extension .ASM.

```
For %%f IN (FOO BAR BLECH) DO REM %%f found
```

This example displays the message "<filename> found" for the files named FOO, BAR, AND BLECH.

4.5.13 FORMAT UtilityFunction

This utility prepares a disk to accept files by initializing the disk directory, File Allocation Table, and other areas of the disk and by analyzing the disk for any defective tracks.

Menu Option

Disk Format

Type

External, System Diskette II

Format

FORMAT [<d>:][-<switch>]

<d>	a letter of the alphabet designating a drive
<switch>	digits indicating a diskette's capacity and the number of sectors per track, as defined in Comment 1, or the letters S, G, and W which modify the command's operation.

Comments

1. This utility treats the diskette as a double-sided, double-density, 360KB diskette and formats it with nine sectors per track, unless you specify otherwise by supplying a switch. To format a double-sided, double-density, 320KB diskette with eight sectors per track, specify -8 as the switch. To format a single-sided, double-density, 180KB diskette with nine sectors per track, specify -1 as the switch. To format a single-sided, double-density, 160KB diskette with eight sectors per track, specify a switch of -1 followed by -8 (-1-8).

2. This command can also be used to transfer system files (BIOS.SYS, MSDOS.SYS, AND COMMAND.COM) automatically after the disk format is completed. To use this option, add -S to the end of the format command as follows:

FORMAT -S

First, the system prompts you to insert the DOS diskette (System Diskette I) into Drive A, as shown below.

Format Version 2.0.15

Insert DOS disk in Drive A:
and strike any key when ready

After you insert System Diskette I into Drive A, the system copies the system files into memory to be transferred to the new diskette after it is formatted. When the copy is complete, the system prompts for the new diskette. Remove System Diskette I and insert the blank diskette.

The message "System transferred" is displayed on the screen to inform you that the system files have been copied to the new diskette. You may also use the -S option with this command from the "Other" selection on the Main System Menu.

3. You can also transfer CONFIG.SYS along with the system files by using the -G switch. The command is as follows:

FORMAT -S -G

Again, the system prompts you to load the DOS diskette (System Diskette I) into Drive A. It then completes the format as described in Comment 2, except that it transfers CONFIG.SYS and the other system files.

4. To format a 10 MB Winchester disk, use the -W switch. Assuming that the Winchester disk is assigned to Drive C, you should also include the drive designation, as follows:

FORMAT C: -W

When formatting a Winchester disk, you cannot use the switches -1 or -8 because these switches refer exclusively to floppy diskettes. If you do use these switches with the -W switch, an error results and the format utility is not run.

5. For additional information, refer to Comments on the DISK FORMAT system utility in Section 2.3.4.

Example

FORMAT B:

This command causes the computer to display the following message:

Insert new disk for Drive B:
and strike any key when ready

After you insert the new disk and strike a key, formatting is initiated and the following message appears:

Formatting. . .

When the formatting is completed, the following prompt appears:

Volume label (11 characters, RETURN for none)?

When you press RETURN, the computer displays the following message:

Format completed. . .

nnnnnn bytes total disk space
nnnnnn bytes available on disk

Format another (Y/N)?_

Press Y to format another disk or N to cease formatting.

4.5.14 GOTO Utility

Function

In a batch file, this utility transfers control to the line after a label.

Type

Internal

Format

GOTO <label>

<label> 1 to 8 characters

Comments

1. The line referenced by <label> must begin with a colon. Control transfers to the commands that begin at the next line after label line.
2. If the label does not exist, the current batch file terminates.

Example

```
:foo  
REM looping...  
GOTO foo
```

This example produces an infinite repetition of the message: REM looping...

4.5.15 IF Utility

Function

This utility allows conditional execution of commands.

Type

Internal

Format 1

IF <condition> <command>

Format 2

IF NOT <condition> <command>

<condition> one of the following conditions explained in
 Comments 4 through 6, respectively:

ERRORLEVEL <number>

<string1> == <string2>

EXIST <filespec>

Comments

1. With Format 1, when the <condition> is true, then the <command> is executed, otherwise, the <command> is skipped.
2. With Format 2, when the <condition> is false, then the <command> is executed, otherwise, the <command> is skipped.
3. The words ERRORLEVEL, EXIST, and NOT must be in uppercase.
4. To use the ERRORLEVEL <number> condition, the program that executed immediately preceding this command must be written to return an exit code. (Refer to The Wang Professional Computer Program Development Guide.) The ERRORLEVEL <number> condition is true if, and only if, the previous program had an exit code of <number> or higher. Results will be undefined if the program that executed immediately preceding this command did not return an exit code.

5. The `<string1> == <string2>` condition is true if, and only if, `<string1>` and `<string2>` are identical (i.e., equal) after parameter substitution. Strings may not have embedded delimiters.

6. `EXIST <filespec>`. True if, and only if, `<filespec>` exists.

Example

```
IF NOT EXIST /tmp/foo ECHO Can't find file /tmp/foo
```

This example displays the message "Can't find /tmp/foo" if a file named FOO does not exist in a subdirectory named TMP.

4.5.16 MENUICMP Utility

Function

This utility modifies existing menus and creates new menus.

Menu Option

Modify System Menus

Type

External, System Diskette I

Format

MENUICMP

Comments

When you call this utility using DOS, the program called is the same as the one for the MODIFY SYSTEM MENUS utility which you access from the System Utilities Menu. Therefore, you work with the same prompts, screens, and information described in Section 2.3.11 on the MODIFY SYSTEM MENUS system utility.

4.5.17 MKDIR Utility

Function

This utility creates a new subdirectory.

Menu Option

Path - Make Directory

Type

Internal

Format 1

MKDIR <pathname>

Format 2

MD <pathname>

<pathname>

a slash representing the disk directory, followed by one or more 1-character to 8-character subdirectory names separated by slashes; optionally preceded by a drive designation

Comments

Refer to Comments on the PATH - MAKE DIRECTORY system utility in Section 2.3.13.

Example

MKDIR /JOESFILE/PAYMENTS/TAXES

This command creates a subdirectory named TAXES listed in the subdirectory named PAYMENTS.

4.5.18 PATH Utility

Function

This utility defines the directories that are searched when a referenced file is not found in either the default directory or in the directory designated in the file specification. Optionally, it displays the current alternate path names.

Menu Option

Path - Select Alternates

Type

Internal

Format 1

PATH [<pathname>[;<pathname>...]]

Format 2

PATH=[<pathname>[;<pathname>...]]

<pathname>	a slash representing the disk directory, followed by one or more 1-character to 8-character subdirectory names separated by slashes; optionally preceded by a drive designation
------------	---

Comments

1. You must separate the path names with a semicolon.
2. You may supply a single semicolon as the sole parameter value. This instructs the computer to search only the default directory.
3. Entering a PATH command with no parameters causes the current alternate path names to appear on the screen.
4. For further explanation, refer to Comments on the PATH - SELECT ALTERNATES system utility in Section 2.3.15.

Example

```
PATH /JOESFILE/MPLOYEES;/JOESFILE/CSTOMERS;/B:JOESFILE/FRIENDS
```

This command instructs the computer to search for files it cannot find in the default directory first in the subdirectory named EMPLOYEES, then in the subdirectory named CSTOMERS. Each of these subdirectories is referenced from a directory named JOESFILE. The example assumes that these subdirectories are on the default drive and that the default drive is not Drive B. If the computer cannot find files in these subdirectories, the command instructs it to search for files in the subdirectory named FRIENDS referenced from the directory named JOESFILE on Drive B.

4.5.19 PAUSE UtilityFunction

In batch files, this utility causes the computer to wait for you to respond to the prompt "Strike a key when ready....". Optionally, this utility displays a remark.

Type

Internal

Format

PAUSE [<remark>]

<remark>	any combination of 121 or fewer characters, including spaces
----------	---

Comments

1. During the execution of a batch file, you may need to change diskettes or perform some other action between the execution of commands. The PAUSE utility exists for this purpose.
2. Pressing any key causes the execution of the batch file to continue. If you press SHIFT + CANCEL, or CONTROL + C, the computer displays the prompt:

Abort batch job (Y/N)?_

If you type Y, the batch job terminates, and the DOS prompt returns to the screen. Thus, you can use PAUSE to break a batch file into modules, allowing you to end the execution of the file at an intermediate point.

Example

PAUSE Change diskette in Drive B before continuing

4.5.20 PRINT Utility

Function

This utility prints hardcopies of files and cancels print requests.

Type

External, System Diskette II

Format

PRINT [[[<filespec> [-P]] ...] [<filespec> -C] [<filespec>...] [-T]

filespec	the file specification, including the pathname if required
-P	switch for adding a file to the print queue after a print cancellation and for setting the print mode
-C	switch for deleting a file from the print queue which suspends print mode for all new print requests
-T	switch for deleting all files from the print queue which suspends print mode

Comments

1. This utility can be accessed only from the DOS Command Processor or from the "Other" selection on the Main System Menu.
2. When you invoke the PRINT utility, the following message appears:

Print Version 1.2

Now the system is ready to accept the PRINT command. If your system has both a serial printer and a parallel printer, and you intend to use both during one print session, you have to run the PRINT REDIRECT utility to redirect the system to the correct printer port. Refer to The Wang Professional Computer Introductory Guide, Appendix I, for a complete description of how to use this utility. For example, if you wanted to print two files with the parallel printer and then switch to print additional files with the serial printer, you would have to wait until the files are printed, then exit the DOS Command Processor, and return to the Main System Menu. From the Main System Menu, select the Printer Support option. Then, select the Redirect to Serial Port #1 option. After you have run this utility, you can re-enter the DOS Command Processor, invoke the PRINT utility, and submit requests for printing for the serial printer.

NOTE:

If you need to disable the print drivers to use the transparent mode for printing items such as graphics, refer to The Wang Professional Computer Introductory Guide for instructions on how to load the Transparency Mode utility and run it.

3. You can add either one or multiple files to the print queue. To add multiple files, list the filespecs, separated by a space as follows:

```
PRINT file1 file2 file3 file4
```

At the end of each printed file, the system automatically adds a form feed so that the next item to be printed starts on a new page. With multiple file printing, the system inserts the form feed between files.

The number of files that can be sent to the print queue at one time is limited to 10 files. Each file name cannot exceed 64 bytes. In listing files, you cannot use the all-purpose characters "*" and "?" to refer to more than one file. You must list each file separately, using individual filespecs.

After you have sent a print request, the system displays the file currently being printed and the print queue as follows:

```
Now printing file1
```

```
file2 is in queue  
file3 is in queue  
file4 is in queue
```

4. To cancel individual files from the print queue, use the -C switch with the filespec(s) as follows:

```
PRINT file2 -C file4
```

You do not need to enter the -C after each filespec. Once you declare the individual file cancellation mode, all files that follow without specifying another switch, will be cancelled as well. After the file is deleted, the message "File cancelled by operator" is printed on the list device.

When you use -C to cancel a print request, all the other files in the queue are printed without change. However, to add new files to the queue, you must use the -P qualifier because print cancellations suspend print mode for all files not on the queue. For example, if you cancelled printing of file2 and file4, and you wanted to add file6 and file7 to the print queue, you would use the following:

```
PRINT file6 -P file7
```

You have to use the -P only for the first filespec after a cancellation.

5. Use the -T switch, which does not require a filespec, to delete all files from the print queue. The message "All files cancelled by operator" is printed on the list device to indicate that the print queue has been emptied. Similar to the -C cancellation of individual files, -T suspends print mode for all subsequent print requests. Therefore, to send a new file for printing, you have to use the -P qualifier for the first filespec.

6. If you enter just PRINT without any qualifiers or filespecs, the print queue is displayed on the screen.

7. For proper printing of a file, you should first save the file in ASCII format. All files saved as text files are in ASCII format, including all word processing documents, source programs for compiled languages such as Pascal and COBOL, and all files created with the Text Editor. Interpretive BASIC files can be saved in ASCII format using the ASCII option with the SAVE command (refer to The Wang Professional Computer Interpretive BASIC Language Guide). For other files saved in binary format, you can use the DOS command, COPY +, to change them to ASCII (refer to Section 4.5.6). Otherwise, the hardcopy of the file may not be legible because all characters, including control characters, line feeds, etc. would be printed.

8. Within one PRINT command, you can use a combination of switches. Each time you want to switch from a print request to a print cancellation, you have to include the switch after the filespec. For example, if you wanted to delete a file from the print queue and add two new files, you would write the following:

```
PRINT file3 -C file5 -P file7
```

9. You cannot reorder the print queue, except by deleting a file and then re-entering it to the end of the queue. For example, you could empty the print queue and then re-issue print requests, as follows:

```
PRINT -T file3 -P file4 file2 file6
```

4.5.20 REM UtilityFunction

This utility displays remarks during the execution of a batch file. The remark appears when the execution of the batch file reaches the REM command.

Type

Internal

Format

REM <remark>

<remark> any combination of 123 or fewer characters,
including spaces

Comments

1. The separator between the keyword REM and the remark can be a space, tab, or comma.
2. A REM command without a remark causes a blank line in the display of the batch file.
3. REM does not cause a pause in the execution of the batch file. To suspend execution, use the PAUSE utility.

Example

REM This is the weekly calendar program

4.5.21 RENAME Utility

Function

This utility changes the name of a file.

Menu Option

File Rename

Type

Internal

Format 1

RENAME <filespec> <filename> [.<ext>]

Format 2

REN <filespec> <filename> [.<ext>]

<filespec>	a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1-character to 3-character extension
<d>	a letter of the alphabet designating a drive
<filename>	a 1-character to 8-character file name
<ext>	a 1-character to 3-character file name extension

Comments

Refer to Comments on the FILE RENAME system utility, in Section 2.3.10.

Example

REN testfile.abc testfile.xyz

4.5.22 RESTORE Utility

Function

This utility copies files created by the WINCHESTER BACKUP utility from a diskette onto the Winchester disk.

Type

External, on a separate diskette provided with the Winchester disk

Format

RESTORE

Comments

1. Once you have called this utility from the DOS command processor, the same screens used in the WINCHESTER RESTORE system utilities appear. Proceed in the same manner as you would for that utility (see section 2.3.22).

Example

RESTORE

4.5.23 RMDIR Utility

Function

This utility removes an empty subdirectory from a disk.

Menu Option

Path - Remove Directory

Type

Internal

Format 1

RMDIR <pathname>

Format 2

RD <pathname>

<pathname> a slash representing the disk directory, followed by one or more 1-character to 8-character subdirectory names separated by slashes; optionally preceded by a drive designation

Comments

Refer to Comments on the DIRECTORY - REMOVE PATH system utility in Section 2.3.14.

Example

RMDIR /JOESFILE/PAYMENTS/TAXES

This command removes the subdirectory named TAXES listed in the subdirectory named PAYMENTS.

4.5.24 SHIFT UtilityFunction

In a batch file, this utility allows you to enter more than 10 parameter values on the command line.

Type

Internal

Format

SHIFT

Comments

You are limited to having 10 dummy parameters, %0 through %9, in a batch file. (Refer to Section 4.6.2.) This utility allows the batch file to process more than 10 values for the dummy parameters. If there are more than 10 parameters given on a command line, then those that appear after the 10th (%9) will be shifted one at a time into %9 by successive SHIFT commands.

Example

You can write a batch file to display the directory entries for 10 files by using dummy parameters %0 to %9. For instance,

```
dir %0
dir %1
.
.
.
dir %9
```

By adding SHIFT commands to this file, you can display the directory for one file more for each command added. For instance,

```
dir %0
dir %1
.
.
.
dir %9
SHIFT
dir %9
SHIFT
dir %9
SHIFT
dir %9
```


4.5.25 TIME UtilityFunction

This utility displays the current time, as known to the computer, and permits you to enter a new time. This time resets the clock that records the creation or modification of files.

Menu Option

Set Time

Type

Internal

Format

TIME [<hh>[:<mm>[:<ss>]]]

<hh> (hour)	one or two digits from 00 to 23
<mm> (minute)	one or two digits from 00 to 59
<ss> (second)	one or two digits from 00 to 59

Comments

1. The format of the Time display is determined by the SET NATIONAL DEFAULTS utility (refer to Section 2.3.19) You must enter the new time in the same format. The remaining comments assume the United States standard (hour:minute:second) is in effect.

2. If you enter a TIME command without parameters, the following prompt appears:

Current time is hh:mm:ss.cc
Enter new time:

The parameter cc refers to hundredths of seconds. Simply press the EXEC key if you do not want to change the time shown.

3. To change the time, enter new hour, minute, and second (not hundredths of seconds) parameter values and press the EXEC key. You must separate the hour, minute, and second entries with a colon.

4. Optionally, a new time can be given as an entry in a TIME command, as in:

```
TIME 8:20:00
```

If the parameter values or separators are not legal, the computer returns the message:

```
Invalid time  
Enter new time: _
```

The computer then waits for you to enter a legal time.

Example

```
TIME
```

```
Current time is 01:24:16.65
```

```
Enter new time: 02:24:19
```

4.5.26 TYPE Utility

Function

This utility displays the contents of a file on the screen.

Type

Internal

Format

TYPE <filespec>

<filespec>	a 1-character to 8-character file name; optionally preceded by a 1-character drive designation and/or a path name; optionally followed by a 1-character to 3-character extension
------------	--

Comments

1. Use this utility to examine a file without modifying it. Use the DIR utility to find the name of a file, the COPY + utility to combine files, and the Editor option on the Program Development Menu to modify files.
2. The display of the file is unformatted except that tab characters are set at every eighth column, that is, Columns 8, 16, 24, etc.
3. Since the computer stores all information in code, you may not be able to read the display of files produced by the Linker, Assembler, or a compiler. These files can contain codes that do not represent letters or numbers. Among these codes are control codes that cause the computer to perform a specific action when it reads them. Thus, in addition to displaying files, the TYPE utility can cause the audio alarm to sound, forms to be inserted in the printer, and other possibly undesired actions.
4. This utility can produce more output than the screen can hold at one time. When this happens, the output displayed on the screen scrolls upward until the execution of the utility is complete. You can stop the scrolling without terminating the display by pressing CONTROL + S. To continue the scroll, press CONTROL + Q.

Example

TYPE B:testfile

4.5.27 VER Utility

Function

This utility displays the version number of the operating system.

Type

Internal

Format

VER

Comments

MS-DOS system utilities include VER because some manufacturers' systems may not automatically display the version number of the operating system as the Wang PC does.

4.5.28 VERIFY Utility

Function

This utility compares input to output when the computer creates, modifies, or copies files.

Menu Option

Write Verify

Type

Internal

Format 1

VERIFY ON

Format 2

VERIFY OFF

Comments

Refer to Comments on the WRITE VERIFY system utility in Section 2.3.23.

4.5.29 VOL Utility

Function

This utility displays the volume ID of the disk in the specified drive.

Type

Internal

Format

VOL <d>:

<d> any alphabetic character designating a drive

Comments

Refer to the description of volume IDs in Section 1.6.

4.5.30 WANGCOPY Utility

Function

This utility makes duplicate copies of one or more files, makes combined files by appending one or more files to another, and can create files.

Type

External, System Diskette II

Menu Options

File Copy

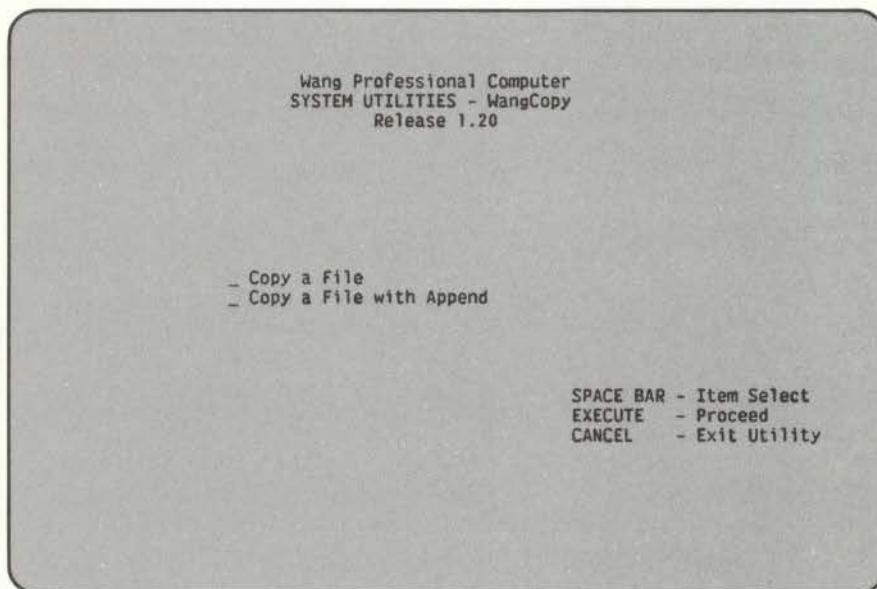
File Copy with Append

Format

WANGCOPY

Comments

1. When you enter this command, the following prompt appears on the screen:



Use the space bar to move the acceptance block to the option you want. Then press EXEC.

2. If you select Copy a File, the prompt displayed by the FILE COPY system utility appears on the screen. Respond to the prompt according to the instructions for that system utility in Section 2.3.6.
3. If you select Copy a File with Append, the prompt displayed by the FILE COPY WITH APPEND system utility appears on the screen. Respond to the prompt according to the instructions for that system utility in Section 2.3.7.
4. Sections 2.3.6 and 2.3.7 include complete examples for using this utility.

4.5.31 WCOMPARE UtilityFunction

This utility compares the contents of two files, displays their differences, and tabulates the number of differences.

Type

External, System Diskette II

Menu Option

File Compare

Format

WCOMPARE

Comments

When you enter this command, the following prompt appears on the screen:

```

                                SYSTEM UTILITIES - FILE COMPARE
                                Release 1.20

Default Pathname: A:/

File #1
Drive: A                               Volume ID: _____
File ID: _____

File #2
Drive: A                               Volume ID: _____
File ID: _____

Error Limit: __

RETURN - Next Field      EXECUTE - Proceed
BACKTAB - Prior Field    CANCEL - Previous Menu
```

Respond to this prompt according to the instructions for the FILE COMPARE system utility in Section 2.3.5.

4.5.32 WDSKCOPY Utility

Function

This utility copies the entire contents of one diskette to another and reformats the destination diskette if necessary.

Menu Option

Disk Copy

Type

External, System Diskette II

Format

WDSKCOPY [<d>:] [-1] [-8] [-N] [<d>:]

<d> a letter of the alphabet designating a drive

Comments

1. The drive designations must refer to different drives. The first drive contains the diskette to be copied. The second drive contains the diskette to receive the copy. Where a drive is omitted, the default drive is used.
2. The drive designations must be the first and last entries after the keyword on the command line. The order of the other entries is optional.
3. The -1 and -8 switches are for diskettes formatted under operating systems other than MS-DOS. The -1 switch indicates that the diskette is single-sided. The -8 switch indicates eight sectors per track. In the absence of either specification, the computer treats the diskette as double-sided and having nine sectors per track, respectively.
4. The -N switch instructs the computer not to verify that the copy was successful. Verify is the default.
5. For a further explanation of this utility, refer to Comments on the DISK COPY system utility in Section 2.3.3.

Example

wdskcopy a: -1 -8 -n b:

This command copies the contents of a single-sided diskette with eight sectors per track in Drive A to the diskette in Drive B.

4.5.33 WPCNVDOC UtilityFunction

This utility converts Wang Word Processing (WP) documents to DOS text files.

Menu Option (Conversion Aids Menu)

Convert Document to Text

Type

External, System Diskette II

Format

WPCNVDOC

Comments

1. When you enter this command, the following prompt appears on the screen:

```
Wang Professional Computer
SYSTEM UTILITIES - DOCUMENT TO TEXT FILE
Release 1.20

Input Document:
  Drive: _
  Path:  _
  File Id: _____

Output Text File:
  Drive: _
  Path:  _
  File ID: _____ Extension: ____

-----
EXECUTE - Proceed
CANCEL  - Return to Menu
RETURN  - Go to Next Field
```

2. The file name extension of the input document must be DOC.
3. The Volume ID is optional in both places.

4. If the document you enter does not exist, the utility prompts you to either respecify the document name or cancel processing. If the output text file already exists, the utility gives you the option of replacing the existing file or specifying a new name for the output file. Replacing the existing file destroys the previous contents of the file.

5. The utility reads the format line of the WP document and preserves the line length and all tab positions. As it reads the document, the utility inserts a carriage return/line feed (ODOAH) at an appropriate word break at the end of each line, using the line length determined from the format line. It also replaces WP carriage returns (83H) with carriage return/line feeds.

6. As it reads the document, the utility searches for tabs, indents, centers, and dec tabs. These are interpreted on the basis of the format line tab positions and replaced with the appropriate number of spaces. The utility also searches for merge and note characters and deletes them when found. It replaces any characters represented by hex values below 20H with a question mark. It copies all other document characters directly to the text file.

7. The utility does not attempt to interpret WP document attributes (underscore, double underscore, super/subscript, strike through, and boldface) because these have no counterpart for text files.

8. There is no limit to the size of the text file created by the program other than that imposed by the maximum size of WP documents, 75 pages. Therefore, text files created in this manner may be too large to be directly accessible through the Editor. Refer to Section 3.4 for an explanation of how to use the Editor with files too large to fit in the Editor's buffer.

Example

Input Text File:	
Drive: B	
Path:	_____
File ID: RESUME3_	
Output Document:	
Drive: A	
Path:	_____
File ID: RESUME_	Extension: #3_

This example converts a WP document on Drive B named RESUME3 with the default extension of .DOC to a text file on Drive A named RESUME.#3.

4.5.34 WPCONV UtilityFunction

This utility allows you to convert DOS text files to Wang Word Processing (WP) documents.

Menu Option (Conversion Aids Menu)

Convert Text to Document

Type

External, System Diskette II

Format

WPCONV

Comments

1. When you enter this command, the following prompt appears on the screen:

Wang Professional Computer
SYSTEM UTILITIES - TEXT FILE TO DOCUMENT
Release 1.20

Input Document:

Drive: _
Path: _____
File ID: _____ Extension: ____

Output Text File:

Drive: _
Path: _____
File ID: _____

EXECUTE - Proceed
CANCEL - Return to Menu
RETURN - Go to Next Field

2. When you specify the file ID for the output document, supply only the file name which is 1 to 8 characters long. The utility supplies the default extension .DOC. A path name is not allowed.

3. The Volume ID is optional in both places.
4. If a document with the output document's name already exists, the utility displays a prompt asking whether you want to delete the existing document or supply a new name for the output file.
5. The WP document created can be no more than 75 pages, with a maximum of 4K bytes per page. If the WP document reaches this limit without completely converting the input file, the utility prompts you to supply a name for another WP document and continues converting the input file into the new document. The process of creating additional WP documents goes on until the end of the input file is found.
6. This utility translates the following text file characters into equivalent WP graphic characters:

<u>Text File Character</u>	<u>WP Graphic Character</u>
Tab	Tab
Carriage Return, Linefeed	Carriage Return
Form Feed	End-of-page Mark
Space	Dotted Space

Certain other special characters in the text document appear as question marks in the WP document. After the utility has created the WP document, you can modify these question marks as you wish.

7. When created, the WP document has a format line specifying five spaces between tab stops, single-line spacing, and a maximum line length of 158 characters. You can modify these format characteristics as you wish.
8. This utility does not provide any of the characters in the WP document with attributes such as bold printing, double underscore, or super- and subscripting. After the utility has created the WP document, you can supply these attributes as you wish.

Example

Input Document:

Drive: A

Path: _____

File ID: RESUME__ Extension: #3_

Output Text File:

Drive: B

Path: _____

File Id: RESUME3_

This example converts a text file on Drive A named RESUME.#3 to a WP document on Drive B named RESUME3 with the default extension of .DOC.

4.6 BATCH PROCESSING

This section explains batch processing, the use of replaceable parameter values in batch files, and the automatic execution of the file AUTOEXEC.BAT.

4.6.1 Batch Files

The DOS batch facility allows you to place one or more commands in a file in order to submit them for processing at the same time. The computer processes the batches of commands in these files as if you had typed them sequentially at a terminal. A command in a batch file can be a DOS utility command, or it can be the file specification for a program to be run from the batch file, followed by any parameter values necessary for the execution of the program.

To create a batch file, use the Editor (refer to Chapter 3), or the COPY utility with CON as the first file specification. (Refer to Section 1.4.2.)

You must give each batch file the extension .BAT, but you submit it for execution by entering its file name without the extension. When appropriate, you can supply optional parameter values as well. The syntax for calling a batch file is as follows:

```
<filespec> [<parameters>]
```

For example, a batch file might look like this when displayed on the screen:

```
1: REM This is file NEWDISK.BAT
2: REM (.BAT extension must be given)
3: PAUSE Insert disk in B:
4: FORMAT B:-S
5: DIR B:
6: CHKDSK B:
```

To execute this batch file from the default disk drive, simply enter the file name, NEWDISK, without the .BAT extension. The result is the same as if you had entered each of the lines in the .BAT file at the terminal as individual commands. While the file is executing, each command appears on the screen, preceded by the DOS prompt. If the .BAT file contains external commands, the programs called by those commands must be on the drive designated for those commands (the default drive if you do not designate another drive).

The REM DOS utility displays remarks in batch files. The PAUSE DOS utility prompts the user with an optional message and permits either continuing or aborting execution of a batch file at a given point. Refer to Sections 4.5.19 and 4.5.21 for descriptions of PAUSE and REM.

NOTE:

To include a remark in batch file that does not appear on screen when the file executes, put a colon at the beginning of the line. Everything on the line after the colon is ignored. Because colons which are part of a file identification are not at the beginning of a batch file line, they are not interpreted as remarks.

4.6.2 Using Replaceable Parameter Values

A batch file can include commands that operate on other files. For example, the batch file may call any of the DOS utilities that deal with files. When you create the batch file, however, you do not need to know what files you will be using the batch on. Instead, the commands in the batch file can contain "dummy" parameter values, that is, symbols you replace with file specifications when you call the batch file. You can specify up to ten dummy parameter values, using the symbols %0 through %9.

On the command line that invokes the batch file, enter the specifications for the files to be worked on after the specification for the batch file. The replacement of dummy parameter values takes place by position. That is, the first file specification parameter you supply after the batch file specification takes the place of the first dummy value, the second file specification parameter takes the place of the second dummy value, and so on.

For example, assume that the following file exists as A:ASMFILE.BAT:

```
1: REM This is A:ASMFILE.BAT
2: REM START BATCH FILE
3: COPY %1.ASM %2.ASM
5: TYPE %2.PRN
6: TYPE %0.BAT
```

To execute this .BAT file and supply parameters, enter:

```
A:ASMFILE A:MYPROG B:MYPROG
```

The result is the same as if you had entered each of the following commands at your terminal:

```
REM This is A:ASMFILE.BAT
REM START BATCH FILE
COPY A:MYPROG.ASM B:MYPROG.ASM
TYPE B:MYPROG.PRN
TYPE A:ASMFILE.BAT
```

The batch facility allows files to re-execute themselves. To write a batch file that re-executes itself, use the dummy parameter value %0. The batch facility substitutes the name of the batch command itself for %0.

4.6.3 Automatic Execution

When you start or restart your system and press the EXEC key from the Date and Time screen, the operating system searches the start-up disk for the file AUTOEXEC.BAT. If a batch file with that name is on the start-up disk, the computer automatically invokes the batch facility to execute the commands contained in AUTOEXEC.BAT. The normal sequence of screens following the Date and Time screen does not take place.

4.7 REPLACING THE SYSTEM SCREENS WITH THE DOS COMMAND PROCESSOR

The System Software diskettes contain two files with the name CONFIG. One file has the extension .SYS. The other has the extension .SAV. Both files contain parameter initializations for use at system start-up. The computer uses the file with the .SYS extension. As shipped by Wang Laboratories, Inc., the file CONFIG.SYS specifies that in normal operation the Date and Time Screen appears when the start-up procedures are complete. (Refer to The Wang Professional Computer Introductory Guide.)

You can cause the DOS Command Processor prompt, instead of the Date and Time screen, to appear after the start-up procedures by using the following steps:

1. Change the extension of file CONFIG.SYS.
2. Change the extension of file CONFIG.SAV to .SYS.
3. Restart the system.

The computer now uses the new CONFIG.SYS to initialize parameters. The new CONFIG.SYS instructs the computer to load the DOS Command Processor program (COMMAND.COM) instead of the system menu program (MENUDRVR.COM).

CAUTION:

Always keep copies of the system files with the original CONFIG.SYS file. To ensure that you do not lose the original, do not replace the .SYS extension with .BAK. The Wang PC Editor uses .BAK as the extension for backup files that are deleted each time a file with the same name as the .BAK file is re-edited.

APPENDICES

APPENDIX A MESSAGES

This appendix contains the error messages that the programs described in the Utility Programs User Guide may display. The messages are listed alphabetically, and an explanation follows each message. The explanation begins with the name of the program that displays the message. If the program is a system utility, the name is given first as it appears on the System Utilities Menu, then as it is invoked from the DOS Command Processor.

Usually, you can solve the problem that caused the message to appear by taking the action indicated in the message or the explanation. Sometimes, however, the explanation states that a problem has occurred at the system level. These problems are caused by conditions internal to the computer. The conditions may be temporary, so you should retry the operation a few times. If the problem persists, report it to the Wang Professional Computer Assistance Center at 1-800-343-1098 (617-459-5000 in Massachusetts, Alaska, or Hawaii).

Allocation error for file <filename>

CHECK DISK (CHKDSK). The named file had an allocation unit allotted to it that did not exist (that is, an allocation unit whose number is larger than the largest possible allocation unit number). CHECK DISK truncates the file at the last valid sector.

Attempted write-protect violation

MSDOS.SYS. The diskette is write-protected and therefore cannot be written to. To restart, insert a new diskette and press any key.

Bad command or file name

COMMAND.COM. The preceding command is not a valid internal DOS command, and the computer could not find a file called <command-name>.COM or <command-name>.EXE on the disk in the specified drive or in the default drive.

The Border Line May Not Be Edited

EDITOR. You attempted to write on the border of the window. To edit, you must move the cursor into the area between the borders.

Cannot load MSDOS.SYS, please re-IPL

BIOS.SYS. The computer attempted a system start-up, but could not load the operating system program MSDOS.SYS from the disk. Make sure the disk in the default drive contains MSDOS.SYS. "Re-IPL" means to restart the system.

Close Error on Input File

FILE COPY (WANGCOPY). A problem has occurred at the system level.

Close Error on Output File

FILE COPY (WANGCOPY). A problem has occurred at the system level.

Create Error on Output File

FILE COPY (WANGCOPY). A problem has occurred at the system level.

Current Directory Cannot be Removed

PATH - REMOVE DIRECTORY. You cannot remove the current default directory.

Data error reading drive <x> Abort, Retry, Ignore?

MSDOS.SYS. The computer has detected a data transmission error. The computer is waiting for you to make one of the following responses:

- A (for Abort). The computer terminates the program that requested the I/O operation.
- R (for Retry). The computer attempts the operation again.
- I (for Ignore). The computer attempts to continue the program as if the error had not occurred.

Directory error-file: <filename>

CHECK DISK (CHKDSK). The file had no valid sectors allotted to it; therefore, CHECK DISK deleted the file.

Directory Path name invalid

MENU.COM. The disk in the specified drive does not contain the path you requested. Insert a correct diskette or change the path name.

Disk Directory Error

EDITOR. Use another disk.

Disk Directory Is Full

EDITOR. Either delete files from the disk or use another disk for the file you are editing.

Disk error reading drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. A disk read error occurred. The computer attempted the operation four times. Refer to the "Data error reading drive <x>" message.

If disk read errors occur while the Debugger program (refer to The Wang Professional Computer Program Development Guide) is executing, only the first line of the message appears.

Disk error writing drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. A disk write error occurred. The computer retried the operation four times. Refer to the "Data error reading drive <x>" message.

If disk write errors occur while the Debugger program (refer to The Wang Professional Computer Program Development Guide) is executing, only the first line of the message appears.

Disk Full, Write Not Complete

EDITOR. Cancel this operation, put a new disk in the drive, and begin the operation again.

Disk unsuitable for system disk

DISK FORMAT (FORMAT). DISK FORMAT detected a defective track where a system file was to be written. If you use the diskette at all, format it without the system files.

Diskette not initialized

CHECK DISK (CHKDSK). CHECK DISK could not find the root directory or File Allocation Table on the disk. Format the disk again before using it. To save the data on the disk, you may be able, first, to copy the contents of a disk to an already formatted disk.

Divide overflow

MSDOS.SYS. A program tried to divide by zero, or an error in the program's logic caused the computer to suspend execution of the program.

Drive <x> not ready

DISK COPY (WDSKCOPY) or DISK FORMAT (FORMAT). Properly put a diskette in the drive and close the door.

Drive <x>: write protected

DISK COPY (WDSKCOPY). Use another diskette or remove the write-protect tab from the current diskette.

Duplicate file name or File not found

FILE RENAME (REN). You attempted to give a file a name already in the directory, or the file being renamed was not on the disk.

Duplicate Input File

FILE COMPARE (WCOMPARE). The file IDs for the files you are comparing must be different.

Duplicate Output File

FILE COMPARE (WCOMPARE). You gave the file being created the same ID as one of the files being compared.

ERROR - BIOS version N.NN or above required

DISK COPY (WDSKCOPY) or DISK FORMAT (FORMAT). The BIOS version number displayed when you start up your system must be equal to or greater than the number displayed in this message.

Error Closing File

FILE COMPARE (WCOMPARE). A problem has occurred at the system level.

Error in EXE file

COMMAND.COM. The relocation data the Linker program supplied contains an error. Refer to The Wang Professional Computer Program Development Guide.

Error Retrieving Message

FILE COMPARE (WCOMPARE). An error has occurred at the system level in retrieving the header to be included in the file you are creating.

Error while reading COMMAND.COM, please re-IPL

BIOS.SYS. The computer attempted a system start-up, but could not read the operating system program COMMAND.COM from disk into memory. If retrying with the same disk does not succeed, use another disk containing COMMAND.COM. "Re-IPL" means to restart the system.

File Access DENIED

MENU.COM. The file may already be opened, there may not be enough memory space available to load the file, or you may have attempted a directory search for a hidden file.

File allocation table bad, drive <x>

Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message. If retrying does not succeed, you must format the disk again.

File cannot be copied onto itself

COMMAND.COM. The COPY utility cannot create an output file with the same name and on the same disk as the input file. Give the output file a new name or put it on another disk.

File Close Error

FILE COPY (WANGCOPY). A problem has occurred at the system level.

File COMMAND.COM not found, please re-IPL

BIOS.SYS. The computer attempted a system start-up, but could not find the operating system file COMMAND.COM on the disk. Make sure the disk in the default drive contains COMMAND.COM. "Re-IPL" means to restart the system.

File creation error

COMMAND.COM. An attempt to add a file name to a directory failed. Use CHECK DISK to determine what condition caused the failure, e.g., a full root directory (64 entries).

File ID invalid

MENU.COM. You neglected to supply a file ID or the file ID you supplied contained invalid characters.

File not found

COMMAND.COM. A file specified in a command was not found on the disk. Reenter the command with a new file specification or with a correct disk in the specified drive. Then, press RETURN.

File Not Found

MENU.COM. The disk in the specified drive does not contain the file you requested. Enter a new file specification or change the disk in the drive. Then, press EXEC.

File Not in Disk Directory

EDITOR. The file is in a subdirectory or it is not on the disk in the specified drive. Enter a new file specification or change the disk in the drive.

File Open Error

FILE COPY (WANGCOPY). A problem has occurred at the system level.

File size error for file <filename>

CHECK DISK (CHKDSK). The size allocated for the file differs from the size listed in its directory. The directory size has been adjusted to the actual size. (The amount of useful data may be less than the size shown because the last data block may not be used fully.)

Filename Missing or Invalid

FILE COPY (WANGCOPY). You neglected to supply a file ID or the file ID you supplied contained invalid characters.

Files cross-linked: <filename> and <filename>

CHECK DISK (CHKDSK). Two files share the same allocation unit. To correct the problem, you can edit, make copies of, or delete either or both files.

Format failure

DISK FORMAT (FORMAT). DISK FORMAT found a disk error, or the disk drive may not be functioning properly. It may be that the diskette cannot be used, perhaps because it is not the proper type for the Wang PC. For an explanation of the proper diskette types, refer to the DISK FORMAT system utility, Section 2.3. For an explanation of how to test for a disk drive failure, refer to The Wang Professional Computer Introductory Guide.

Format failure/NHH

For an explanation of the code displayed with the message, refer to Appendix B.

Illegal Drive Specified

EDITOR. You entered an invalid drive designation.

Illegal Path Name Specified

EDITOR. The disk in the specified drive does not contain the path you requested. Insert a correct diskette or change the path name.

Input File not found

MENU.COM. The disk in the specified drive does not contain the file you requested. Insert a correct diskette in the drive or change the file specification. Then, press EXEC.

Input Filename NOT found; Re-enter

FILE COPY (WANGCOPY). MENU.COM. The disk in the specified drive does not contain the file you requested. Enter a new file specification or change the disk in the drive. Then, press EXEC.

Input/Output Formats Incompatible

MENU.COM. You have incorrectly used all-purpose characters in the input or output file specification.

Insert disk with batch file and strike any key when ready

COMMAND.COM. You removed the diskette holding the batch file currently in execution. To resume execution, insert a diskette with the batch file in the correct drive and press any key.

Insert DOS disk in default drive and strike any key when ready

MSDOS.SYS and DISK FORMAT (FORMAT). The default drive does not contain a disk with the system files. Therefore, DOS cannot reload the Command Processor, and DISK FORMAT cannot load the system files.

Insufficient disk space

COMMAND.COM. The disk does not have sufficient unused space for the file being written. Use CHECK DISK to determine the amount of available space.

Insufficient memory for system transfer

DISK FORMAT (FORMAT). At the time you instructed the utility to transfer the system files, the files already loaded in memory occupied too much space to permit the operation. Restart your system and invoke the format utility before performing any other operations.

Insufficient Space for Output File

FILE COPY (WANGCOPY). The designated disk does not have enough space for the copy. Change the diskette in the drive or supply a different drive designation.

Invalid characters in volume id

DISK FORMAT (FORMAT). You entered a volume ID with invalid characters.

Invalid COMMAND.COM. Insert DOS disk in default drive and strike any key when ready

MSDOS.SYS. The Command Processor cannot be reloaded because the copy of COMMAND.COM on the diskette is incorrect. Insert a correct system diskette and press any key.

Invalid date

Enter new date: _

DATE. You entered an invalid date or separator.

Invalid Day

MENU.COM. Enter a 2-digit number from 01 to 30, 01 to 31, or 01 to 28, depending on the month you entered. Then, press EXEC.

Invalid Drive Specification

COMMAND.COM or MENU.COM. You entered an invalid drive designation in a command or in a parameter supplied with a command.

Invalid Drive Specification/DNN

DISK FORMAT (FORMAT). An abnormal condition was detected for the drive to be formatted. Refer to Appendix B for an explanation of the code.

Invalid Entry

FILE COMPARE (WCOMPARE). The Error Limit field accepts numeric entries only.

Invalid File Access

FILE COMPARE (WCOMPARE). The file may already be opened, there may not be enough memory space available to load the file, or you may have attempted a directory search for a hidden file.

Invalid File Handle

FILE COMPARE (WCOMPARE). A problem has occurred at the system level.

Invalid File Specification

MENU.COM. Enter a correct file specification and press EXEC or RETURN, or press CANCEL to return to the menu.

Invalid File Type

FILE COPY (WANGCOPY). Your response to the File Type prompt must be A or B.

Invalid Filename

FILE COMPARE (WCOMPARE). You neglected to supply a file ID or the file ID you supplied contained invalid characters.

Invalid Filename for Wild Card Usage

FILE COPY (WANGCOPY). The way you used the all-purpose character ? or * (wild cards) would give the output the same file specification as the input.

Invalid Hour

MENU.COM. Enter a 2-digit number from 00 to 23. Then, press EXEC.

Invalid Interrupt Executed HHHH:HHH

BIOS.SYS. The program did not properly initialize the interrupt address. The hex numbers displayed with the message indicate the address of the interrupt instruction in the executing program.

Invalid Keystroke

EDITOR. The key you pressed does not function for the current Editor operation.

Invalid Minute

MENU.COM. Enter a 2-digit number from 00 to 59. Then, press EXEC.

Invalid Month

MENU.COM. Enter a 2-digit number from 01 to 12. Then, press EXEC.

Invalid parameter

CHECK DISK (CHKDSK) and DISK FORMAT (FORMAT). One or more of the required parameter values is missing or contains invalid characters.

Invalid parameters

DISK COPY (WDSKCOPY). One or more of the required parameter values is missing or contains invalid characters.

Invalid Second

MENU.COM. Enter a 2-digit number from 00 to 59. Then, press EXEC.

Invalid time

Enter new time: _

TIME. You entered an invalid time or separator.

Invalid Volume ID

MENU.COM. The volume ID you entered does not match the volume ID of the disk in the selected drive. Enter a new volume ID, a new drive designation, or change the disk in the drive. Then, press EXEC.

Invalid Write Count

FILE COMPARE (WCOMPARE). A problem has occurred at the system level.

Invalid Year

MENU.COM. Enter a 2-digit number from 80 to 99. Then, press EXEC.

Line Number Out of Range

EDITOR. You specified a line number that exceeds the number of lines in the file.

Maximum Command Length Exceeded

PATH - SELECT ALTERNATES. Total number of characters in a command, including drive designation and volume ID, cannot exceed 128.

Maximum of 10 Input Files Entered

FILE COPY WITH APPEND (WANGCOPY). You cannot enter more than 10 input files.

Missing file name

FILE RENAME (REN). You did not supply the second file name.

MSDOS Disk Error

EDITOR. Use another disk.

No Help Text Available

MENU.COM. Help text for the function you selected is not currently available.

No More Tabs May Be Set

EDITOR. You reached the maximum number of tab settings.

Messages

Not Enough Memory Available

EDITOR. The file you wish to edit is too large for the buffer. Create a new file and use the LOAD PARTIAL FILE command (refer to Section 3.6) to insert a section of an old file into the new.

Not ready error reading drive <x>

Abort, Retry, Ignore?

MSDOS.SYS. Properly put a diskette in the drive and close the door.

Object diskette may be INVALID

DISK COPY (WDSKCOPY). The system detected an error while reading the contents of the input diskette or writing them to the output diskette. Therefore, the copy created on the output diskette may be inaccurate.

Open Error on Input File

FILE COPY (WANGCOPY). A problem has occurred at the system level.

Out of Environment Space

PATH. The command you entered exceeded the maximum number of characters allowed.

Path Access DENIED

PATH - MAKE DIRECTORY (MKDIR) or PATH - REMOVE DIRECTORY (RMDIR). You cannot create a path that already exists on the disk or remove a path, unless it is empty.

Path Not Found

MENU.COM. The disk in the specified drive does not contain the path you requested. Insert a correct diskette or change the path name. Then, press EXEC.

Permanent read error on source/track NN

DISK COPY (WDSKCOPY). The computer encountered an error while reading a track from the input diskette. Therefore, the copy may be invalid.

Permanent write error on object/track NN

DISK COPY (WDSKCOPY). An error occurred while the computer was writing a track on the output diskette. Therefore, the copy may be invalid.

Please Save Text and Reload

EDITOR. Due to memory usage, the system cannot efficiently handle the text you are adding.

Printer power is off

COMMAND.COM. The printer is not connected on or the proper device driver for the printer is not installed.

Program too big to fit in memory

COMMAND.COM. The program cannot be loaded because not enough memory space is available.

Range Contains Target Line Number

EDITOR. The target line number must not be included in the range.

Read Access Denied,

FILE COMPARE (WCOMPARE). A problem has occurred at the system level.

Response must be "Y" or "N"

MENU.COM. Enter a Y or a N and press EXEC.

Sector not found error reading drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

Sector not found error writing drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

Seek not found error reading drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

Seek not found error writing drive <x>
Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

Sorry, Help File Not Found

MENU.COM. The disk in the specified drive does not contain the Help file you requested. Insert a correct diskette in the drive and press HELP.

Sorry, Maximum Number of Menus Already Displayed

MENU.COM. You cannot display an additional menu from this screen because you have used all the menu levels allowed.

Sorry, Menu File Not Found

MENU.COM. The disk in the specified drive does not contain the menu you requested. Insert a correct diskette in the drive and press EXEC. If the file not found is MENU.DAT, this message appears on a screen containing some of the options from the Main System Menu. You can select one of these options to proceed.

Sorry, Program Not Found

MENU.COM. The disk in the specified drive does not contain the program you requested. Insert a correct diskette in the drive or change the file specification. Then, press EXEC or RETURN.

Sorry, Program Not Found

MENU.COM. The disk in the specified drive does not contain the program you requested. Insert a correct diskette in the drive or change the file specification. Then, press EXEC.

SORRY Unable to Load Program

MENU.COM. Probably not enough memory space is available for the program. Press EXEC to retry or CANCEL to exit.

Start Line Must Precede End Line

EDITOR. The number you supply for the start line must be smaller than the number for the end line.

System Error: Parity

BIOS.SYS. A hardware malfunction has occurred in memory. Run System Diagnostics.

Terminate batch job (Y/N)?

MSDOS.SYS. This message is displayed if you press SHIFT + CANCEL during the execution of a batch file. Press Y to terminate the execution of the batch file. Pressing N only terminates the command executing when you pressed SHIFT + CANCEL. Execution of the batch file continues with the next command.

Text Buffer is Full

EDITOR. You have used up the memory space allocated for the file you are editing. Either clear the buffer by saving your changes or delete text from the file.

Too Many Open Files

FILE COMPARE (WCOMPARE). At the time you ran this utility, the maximum number of open files was exceeded. Retry.

Too many Text Lines in File

EDITOR. The maximum number of lines for an Editor file is 2500.

Track 0 bad - disk unusable

DISK FORMAT (FORMAT). The start-up code, File Allocation Tables, and disk directory must be written starting at Track 0. Use another disk.

Write error

MSDOS.SYS. An error occurred while DISK FORMAT was writing the start-up code or the system files.

Write Error on Output File

FILE COPY (WANGCOPY). A problem has occurred at the system level.

Write fault error writing drive <x>

Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

Write protect error formatting drive <x>

DISK FORMAT (FORMAT). Use another diskette or remove the write-protect tab from the current diskette.

Write protect error writing drive <x>

Abort, Retry, Ignore?_

MSDOS.SYS. Refer to the "Data error reading drive <x>" message.

NNNNNNNNNN bytes of disk space freed

CHECK DISK (CHKDSK). Disk space shown as allocated was not actually allocated and has been freed.

APPENDIX B DISK FORMAT RETURN CODES

B.1 INTRODUCTION

This appendix explains the numeric codes returned by the DISK FORMAT system utility (and FORMAT DOS utility) in the "Format failure" and "Invalid drive specification" messages. The information in this appendix is intended for programmers. Programmers will find further explanations of the functions and terms used in this appendix in The Wang Professional Computer Program Development Guide.

B.2 "Format failure/NHH"

This message appears when a failure occurs in the DISK FORMAT utility. The NHH character string in this message provides information as to the type of failure that occurred. The digit N identifies the processing state of the format program at the time of failure. The current range of acceptable values for N is 1 through 9. HH is a two-digit hexadecimal number specifying the response from the BIOS or MSDOS when the failure occurred. This number belongs to one of the following three groups.

- | | |
|---------|---|
| Group 1 | Completion code found in AL after initiating standard software BIOS interface INT 88H |
| Group 2 | Status byte set by the BIOS in the request field of the RCB when the standard software BIOS interface INT 88H is used |
| Group 3 | Error code set in AL by MS-DOS as a result of an absolute disk read (INT 25H) or write (INT 26H) |

Table B-1 lists the possible values for the first digit, the group to which the corresponding hex code belongs, and the processing state of DISK FORMAT when the failure occurred.

Table B-1. DISK FORMAT Processing States

First Digit	Hex Code Group	Processing state of DISK FORMAT
1	Group 2	Set mode if formatting a floppy or disable retries if formatting a Winchester.
2	Group 2	Request format of a track on a floppy.
3	Group 3	Write boot sector to formatted disk.
4	Group 1	Set mode if formatting a floppy or disable retries if formatting a Winchester.
5	Group 1	Request Winchester format.
6	Group 2	Request Winchester format.
7	Group 3	On an absolute write of pattern DB6 to a Winchester, more than 40 write errors have occurred.
8	Group 1	Disable Winchester ECC.
9	Group 2	Disable Winchester ECC.

Tables B-2 through B-4 list the hex codes for each of the three groups together with the definitions for those codes.

Table B-2. Hex codes for Group 1

Hex Code	Definition
00H	Function completed normally
01H	Function index (AL) is invalid
02H	Function specified has not been implemented
03H	Invalid parameter(s) specified
04H	Operation impossible
05H	Event queue full
06H	Invalid QID specified
07H	Invalid screen index specified
08H	Resource allocation denied
09H	Internal error of unspecifiable nature

Table B-3. Hex Codes for Group 2

Hex Code	Definition
80H	Function completed successfully
01H	Drive not ready
02H	Write protection error
03H	CRC error
04H	Disk format error
05H	Equipment malfunction error
06H	Nonexistent drive
07H	Function not yet implemented
08H	Programmer error
09H	Drive dropped ready
0AH	Controller timed out
0BH	Verify error

Table B-4. Hex Codes for Group 3

Hex Code	Definition
00H	Write protect violation
01H	Unknown unit
02H	Drive not ready
03H	Unknown command (programmer error)
04H	CRC error
05H	Bad drive request structure length
06H	Seek error
07H	Unknown media
08H	Sector not found
09H	Printer out of paper
0AH	Write fault
0BH	Read fault
0CH	General failure

B.3 "Invalid drive specification/DNN"

The computer displays this error message when it detects an abnormal condition for the drive to be formatted. D is the alphabetic designation of that drive. NN are two decimal digits identifying the abnormal condition. Table B-5 lists the possible values for NN and their definitions.

Table B-5. Abnormal Drive Conditions

Code	Definition
00-09	Unable to access the System Configuration Table. See Group 1 codes defined for "Format failure/NHH."
22	Format request for A or B. Status byte in Disk Drive Control Block is set to indicate the drives do not exist.
23	Drive number for drive to be formatted (i.e., A = 1,...) exceeds the number of disk drives specified in the System Configuration Table (SCT).
24	Drive to be formatted is neither A nor B. The status byte in Disk Drive Control Block is set to indicate the requested drive does not exist.
25	The drive requested for format is neither a floppy nor a Winchester.
26	The System Configuration Table specifies less than 2 or more than 26 disk drives.
27	A or B has been requested as the drive for format, and the System Configuration Table does not identify the drive requested as being a floppy.
28	Formatting has been requested for a Winchester disk. The System Configuration Table does not specify that this disk is at least a 5 meg Winchester (i.e., must have at least 25C0H 512 byte sectors).

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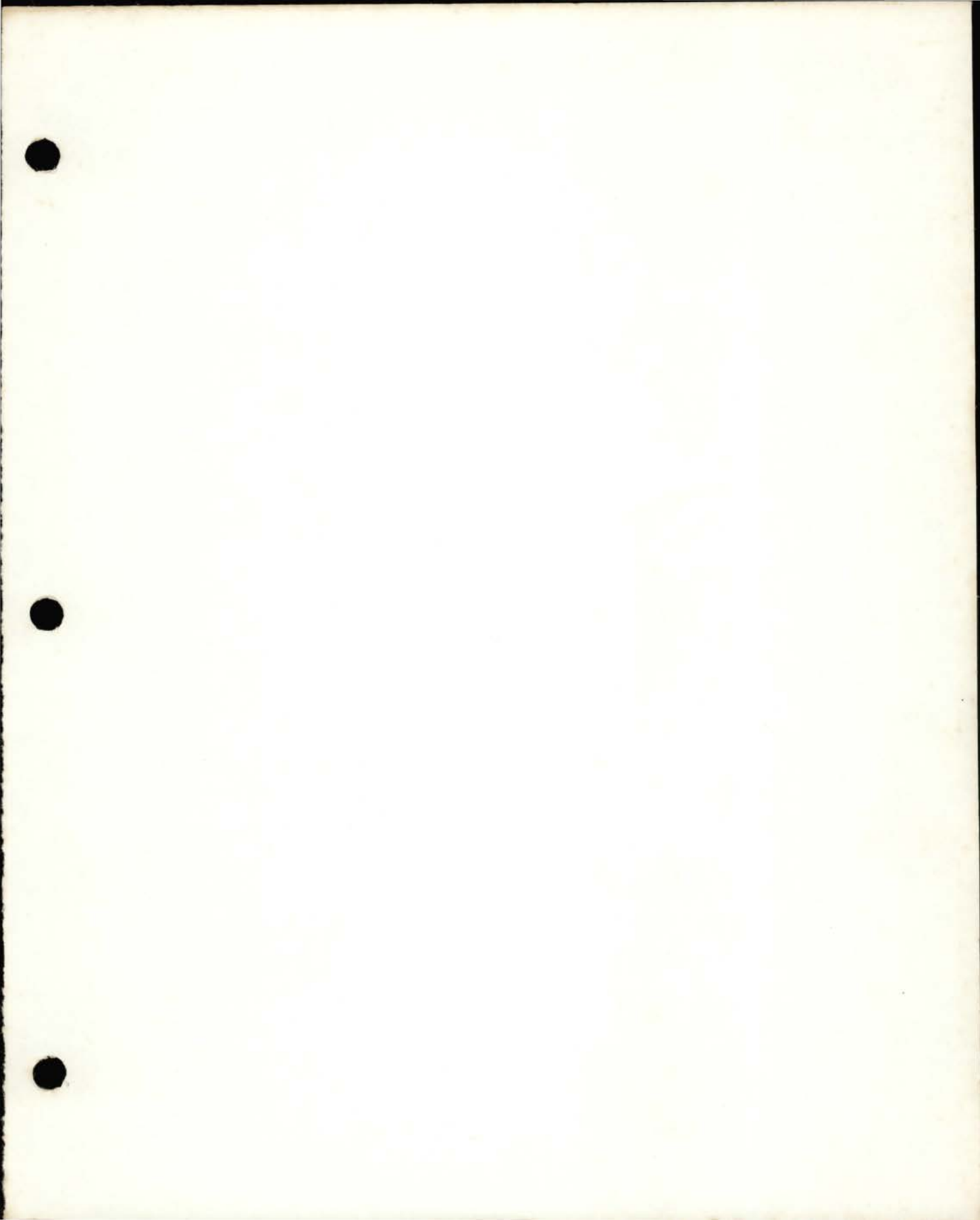
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Printed in U.S.A.
700-8389
11-83-50M