



**OPERATOR'S GUIDE
TO MS-DOS 3.10**

XEROX®

610P72913

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MS™-DOS is a disk operating system for 8086-based computers. That is, the programs can be used on floppy disks or hard disks.

An operating system is your "silent partner" when you are using the computer. It provides the interface between the hardware (i.e., screen, keyboard, processor) and both you and other software programs, such as word processing, accounting, data analysis, etc.

An operating system can be compared to the electricity in a house---you need it for the toaster and the blender to work, but you are not always aware that it's there.

MS-DOS also performs "housekeeping" tasks such as preparing new disks and copying and erasing information stored on a disk.

MS-DOS enables you to create and keep track of files, run and link programs, and access peripheral devices such as printers and disk drives.

2.

ABOUT THIS MANUAL

This manual is a reference manual for MS-DOS 3.10 operating system. It is divided into five sections, ten appendices and an index.

The five sections are

- 1 - Introduction
- 2 - General Information
- 3 - Using MS-DOS
- 4 - Using Application Software
- 5 - How to with MS-DOS

The ten appendices are

- A - Software Installation
- B - Repartitioning of the Hard Disk
- C - Command Equivalency Chart
Xerox vs IBM
- D - Error Messages
- E - Using EDLIN
- F - Using the Linker Program
- G - Advanced CONFIGUR
- H - Set system defaults (CONFIG.SYS)
- I - IBM-related commands
- J - ANSI escape sequences

If your system is brand new or you are upgrading from MS-DOS 2.11 to 3.10, you need to read Appendix A before continuing in this manual. If you are using ScreenMate 2.11 and want to become an MS-DOS **without** ScreenMate 3.10 user, you need to read Appendix A before continuing.

The sections that you need to read are:

- 1 - Introduction
- 2 - General Information
- 3 - Using MS-DOS

You only need to read Section 4 when needed.

Section 5 describes how to do tasks with MS-DOS (i.e., copy files, rename files, etc.). The tasks are in alphabetical order.

3.

MS-DOS AND XEROX UNIQUE FILES

The Xerox Personal Computer comes with three MS-DOS disks:

- MS-DOS with ScreenMate (boot disk)
- Utilities and Help disk
- Supplemental Programs disk

The MS-DOS with ScreenMate disk contains the programs needed to load the MS-DOS operating system into your computer.

The Utilities and Help disk contains programs that perform specific tasks and files that display helpful information on the screen.

The Supplemental Programs disk contains additional programs.

MS-DOS with ScreenMate

<u>MS-DOS files</u>	<u>Function</u>
COMMAND.COM	MS-DOS command processor
CONFIG.SYS	System configuration file

<u>Xerox unique files</u>	<u>Function</u>
ANSI.SYS	Controls screen display
AUTOEXEC.BAT	Auto execute file
FDMAINT.EXE	Floppy disk maintenance
FDMAINT.HLP	Help file
LOGO.COM	Displays Xerox logo
MOUSE.COM	Xerox optical mouse driver
PRTRDRV.COM	Generic print driver
VDISK.SYS	Virtual disk driver
XMATE.EXE	Loads ScreenMate
XMATE1.EXE	Used by ScreenMate
XMATE.INT	Used by ScreenMate
XMATE1.HLP	ScreenMate help file

Utilities and Help disk**MS-DOS files****CHKDSK.COM****FC.EXE****FIND.EXE*****FORMAT.COM****MORE.COM****PRINT.COM****SORT.EXE*****SYS.COM****Function**

Checks file space allocation

Compares files' content

Finds a string in a list of files
or standard inputDisplays text a screen at a
time

Prints file(s)

Sorts text

Xerox unique files**CONFIGUR.EXE****CONFIGUR.HLP****HDMAINT.EXE****HDMAINT.HLP****SOFTKEYS.EXE****SOFTKEYS.HLP****SYSGEN.EXE****SYSGEN.HLP****TREE.EXE****XMATE1.HLP** thru**XMATE8.HLP****Function**Configures the system hard-
ware

Help file

Hard disk maintenance

Help file

Redefine keys

Help file

Puts operating system on
disk

Help file

Displays directory structure

ScreenMate help files

***Documented in Appendix I.**

Supplemental Programs disk**MS-DOS files**

*ASSIGN.COM	<u>Function</u> Reassign a drive
ATTRIB.EXE	Set file to Read/Only
*BACKUP.EXE	
**DEBUG.COM	Program debugger
*DISKCOPY.COM	
*DISKCOMP.COM	
EDLIN.COM	Line editor
EXE2BIN.EXE	Converts .EXE files to .COM files
*GRAPHICS.COM	
JOIN.EXE	Rename a drive as a path
LABEL.EXE	Change or delete a disk label
LINK.EXE	Program linker
*MODE.COM	
RECOVER.COM	Recovers usable sectors from a disk with bad sectors
*RESTORE.EXE	
SHARE.EXE	Used with networks
SUBST.EXE	Rename a path as a drive

Xerox unique files

PRTPW.DAT	<u>Function</u> Used by Setprt program
SETPRT.EXE	Allows printer translation
SETPRT.HLP	Help file

*Documented in Appendix I.

**Documented in Microsoft's Macro Assembler manual.

Important file information

Except for the AUTOEXEC.BAT and CONFIG.SYS files, the files on these disks **should not** be tampered with.

Most of these files **cannot** be displayed on the screen. If you try to do so, garbage characters will be displayed and strange results may occur. You may have to reboot your system.

The COMMAND.COM, CONFIG.SYS and ANSI.SYS files **should never** be erased from a bootable disk.

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What is a file?

A file is any information recorded on a disk. A file on your disk can be compared to a file folder in a desk drawer. For example, one file folder might contain the names and addresses of the employees who work in the office. You might name this file the Employee File. A file on your disk could also contain the names and addresses of employees in the office and could be named EMPLOYEE.DAT.

All programs, text, and data on your disk reside in files and each file has a unique name.

A file is created when you enter and save data or text on your PC. Files are also created when you write and name programs and save them on your disks.

You refer to files by their **file names**.

File names

The name of a typical MS-DOS file will look like this:

NEWFILE.TXT

The name of a file consists of two parts.

- file name
- an optional file name extension

A **file name** can be from one-to-eight characters long. You can type the file name in upper or lowercase letters and MS-DOS will translate these letters into uppercase characters.

The **file name extension** begins with a period followed by three or fewer characters and is optional. File name extensions describe the contents of a file to you and to MS-DOS, so it is a good idea to use them. For example, you may want to name all report files with a file name extension of .RPT. Most applications will set the file name extension for you. This way, you can identify which program created a specific file.

Your file names and file name extensions can be made up of letters and numbers; other characters are also allowed. Here is a complete list of the characters you can use in file names and file name extensions:

A-Z 0-9 \$ & # % ' () - _ @ ^ { } ~ !

File specification (filespec)

When you need to access a file, you will use a file specification. Referred to as **filespec**. This tells the system where the file is located. The filespec includes

- an optional drive name
- an optional path
- a file name
- an optional file name extension

The following is the format of a filespec:

[*d:*][*path*]*filename*[*.ext*]

where *d:* represents the optional drive name; *path* represents the optional path; *filename* represents the one-to-eight character file name; *.ext* represents the optional one-to-three character file name extension. The brackets ([]) means the information is optional.

The optional drive name tells MS-DOS to look on the disk in the designated drive to find the file name. A drive name is needed only if you want to tell MS-DOS to look at another drive to find a file.

The optional path is used when you are using multiple directories (subdirectories) to tell the system which directory has the file. For example:

```
C:\>type \joel\payroll.txt
```

tells the system that the file to be displayed is named PAYROLL.TXT and is located in the JOE subdirectory.

Illegal file names

MS-DOS treats some device names as special, so certain names are reserved for the names of these devices. These names **cannot** be used as file names.

You **must not** name your files any of the following:

AUX	LPT1
COM1	LPT2
COM2	LPT3
COM3	NUL
CON	PRN

Even if you add device designations or file name extensions to these file names, they remain associated with the devices listed above. For example, CON.DAT still refers to the console and cannot be used as the name of a file.

You **can** use any one of these names as a file name extension, however. For example, PAY.PRN.

Wild card characters

When typing commands which affect files, you can use two special characters (called wild cards) in the file names and file name extensions. They are the asterisk (*) and the question mark (?).

The ? wild card

A question mark (?) typed in a file name or file name extension indicates that any one character can occupy that position.

For example, the following file name used with the DIR command

```
A:\>dir test?.dat
```

will list all directory entries on the disk in the default drive that begin with TEST followed by any one character, and have a file name extension of .DAT.

Some examples of the files that might be listed by the above example are:

```
TEST1.DAT  
TEST2.DAT  
TEST6.DAT
```

The * wild card

An asterisk (*) typed in a file name or file name extension indicates that any character can occupy that position or any of the remaining positions in the file name or file name extension. For example:

```
A:\>dir test*.dat
```

will list all directory entries on the disk in the default drive with file names that begin with the characters TEST and have a file name extension of .DAT. Here are some examples of the files that might be listed:

```
TEST1.DAT  
TEST2.DAT  
TEST6.DAT  
TESTALL.DAT
```

The wild card designation *.* refers to all files in the selected drive/directory. Note that this can be very powerful and destructive when used. For example, if used with ERASE or DEL, it will delete all files in the directory, regardless of file name or file name extension.

To list the directory entries for all files named ACCOUNTS on the disk in the default drive/directory (regardless of their file name extension), you can use the following:

```
A:\>dir accounts.*
```

To list the directory entries for all files with the file name extension of .TXT (regardless of their file names) on the disk in Drive B, use the following:

```
A:\>dir b:*.txt
```

The above command would be useful when you have given all your text files a file name extension of .TXT. By using the DIR command with wild card characters, you can obtain a listing of all your text files even if you do not remember their exact file names.

How MS-DOS keeps track of your files

The names of files are kept in directories on a disk. These directories also contain information on the size of the files, their location on the disk, and the dates that they were created or last updated. The directory you are working in is called your "working" directory.

An additional system area is called the File Allocation Table. It keeps track of the location of your files on the disk. It also allocates the free space on your disks so that you can create new files.

These two system areas, the directories and the File Allocation Table, enable MS-DOS to recognize and organize the files on your disks. The File Allocation Table is added to a new disk when you format it and one empty directory is created, called the "root" directory.

For more information on directories, see "Chapter 2. Directories" in this section.

How to protect your files

MS-DOS is a powerful and useful tool in processing your personal and business information. As with any information system, inadvertent errors may occur and information may be misused. If you are processing information that cannot be replaced or requires a high level of security, you should take steps to ensure that your data and programs are protected from accidental or unauthorized use, modification or destruction.

Simple measures such as removing your disks when they are not in use, keeping backup copies of valuable information, and installing your equipment in a secure facility can help you maintain the integrity of the information in your files.

2.

DIRECTORIES

In this section, you will be given general information on directories.

What is a directory?

A directory contains the names of the files on each disk. The directory also contains information on the size of the files, their locations on the disk, and the dates that they were created or last updated.

General

Multiple directories

Use of multiple directories is optional.

If you are using a dual floppy disk drive system, you may not want to have multiple directories. You can easily organize and categorize your files by keeping them on different disks. For example, have one disk for word processing, one for data base use, one for accounting, etc.

If you are using a hard disk drive system, you will find that the use of multiple directories is a necessity for organizing your files. For example, you could have a directory for word processing files, data base files, or accounting files. If you do not use multiple directories, the root directory will become very long and unmanageable.

The **root directory** is the first level of the directory structure. It is the directory that is automatically created when you format a disk. Think of the root directory as being a filing cabinet. It contains file names and other directories. These other directories are known as **subdirectories**. Think of the subdirectories as drawers and folders in the filing cabinet.

When you are in the root directory, the system prompt is `d:\>`, where `d` is the drive name.

When there are multiple users on your computer, or when you are working on several different projects, the number of files in the root directory can become large and unwieldy. You may want your own files kept separate from a co-worker's; or you may want to organize your programs into categories that are convenient for you.

MS-DOS allows you to organize the files on your disk into subdirectories. Subdirectories divide your files into convenient groups. For example, you may want all of your accounting programs in one subdirectory and word processing files in another.

Any one subdirectory can contain any reasonable number of files, and it may also contain other subdirectories. This method of organizing your files is called a **multilevel directory structure**.

For more information, see "Using Multiple Directories" in the USING MS-DOS section.

There are two types of disks:

Floppy disks

Hard disks

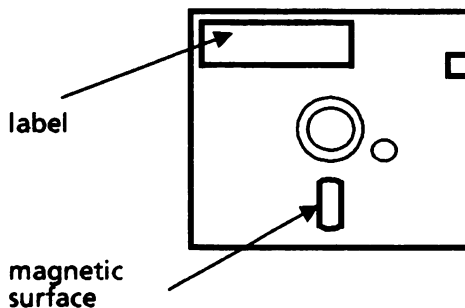
They are described in this section.

Floppy disks

The front of a floppy disk is smooth, while the back has visible seams.

Be sure to label each disk. Always place labels on the front of the floppy disk, at the top. Never let the label touch the magnetic surface of the disk itself inside the plastic protective envelope. Always use a soft felt-tip pen when writing on labels—a pencil or ballpoint pen can damage the disk.

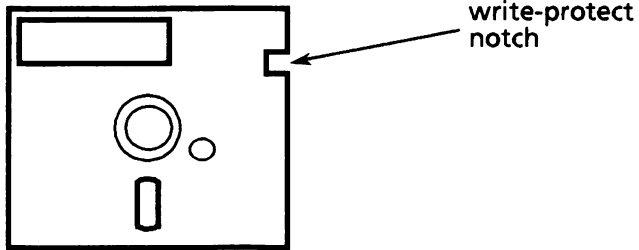
Store floppy disks in a safe place away from dust, magnetism, and extremes in temperature.



Write-protected disks

Some floppy disks are protected; that is, you can examine (read) information on the disk but you **cannot** change (write) anything on the disk. These disks are called "**write-protected**".

Usually, write-protected disks have a small tab covering a notch on the right side of the disk. You can copy information onto a write-protected disk or make backup copies of the disk by removing the write-protect tab first. However, be sure to consider the reason the disk was protected in the first place before you change its contents. It is always a good idea to replace the write-protect tab after you have copied or changed a write-protected disk.



If a disk does not have a write-protect notch, it is already write-protected. This protects the disk from any changes by your computer. Your MS-DOS disks may not have a write-protect notch. If so, you must always use a backup copy when you want to change the contents of the MS-DOS disks.

Hard disks

A hard disk is like a floppy disk that is built into the computer. Most computers with a hard disk have a floppy disk drive (a drive where you insert floppy disks) and a hard disk drive.

A hard disk stores much more information than a floppy disk. Also, it takes less time for the computer to access a hard disk than a floppy disk.

If you have important data on your hard disk that you add to or edit daily, it is recommended that you back up every day. This will ensure that the hard drive can be reloaded in the event the information is lost due to an operator error or a hardware failure. You may want to make two sets of backup disks just in case one set gets damaged.

The following is a list of device names.

AUX	Refers to input from or output to an auxiliary device (such as a printer or disk drive).
COM1 COM2 COM3	Refers to a communications device.
CON	Refers to keyboard input or to output to the terminal console (screen).
LPT1 LPT2 LPT3	Refers to a printer.
PRN	Refers to the printer.
NUL	Used when you do not want to create a file, but the command requires an input or output file name.

You **must not** name your files any of the above device names. You **can** use any one of these names as a file name extension, however.

Even if you add device designations or file name extensions to these file names, they remain associated with the devices listed above. For example, CON.DAT still refers to the console and cannot be used as the name of a file.



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1. GENERAL INFORMATION

This section will give you some general information on using MS-DOS.

How to load MS-DOS

Dual floppy disk drive systems

Be sure there are no floppy disks in the disk drives.

- ▶ Turn the system on.

A resident diagnostics test is run. If you get an error message or one of the tests fails, contact your service representative.

After the test is complete, the system displays

Primary Boot-Strap ...
Primary Boot-Strap DISK READ ERROR.

- ▶ Insert the MS-DOS boot disk in Drive A (bottom drive) and close the drive door.

If you get the message,

Non system disk
Replace and press any key.

Dual floppy disk drive systems - cont'd

you have inserted the wrong disk. Be sure you have inserted the MS-DOS boot disk and press the Spacebar. (*Note: Whenever you are prompted "Press any key ...," it is good practice to press the Spacebar.*)

When the system has loaded correctly, the Xerox personal computer release level will be displayed followed by the MS-DOS system prompt.

Hard disk drive systems

Be sure there is no floppy disk in the floppy disk drive.

- ▶ Turn the system on.

A resident diagnostics test will be run. If you get an error message or one of the tests fails, contact your service representative.

After the test is complete, the Xerox personal computer release level will be displayed followed by the MS-DOS system prompt.

MS-DOS system prompt

The MS-DOS system prompt takes the format

```
d:\>
```

where

d: is the default drive name

\ tells you that you are in the root directory. If you were in a subdirectory, this would be different. For example, if you have a hard disk drive and you were in a subdirectory named ACCTS, the prompt would be

```
C:\ACCTS>
```

> means MS-DOS is ready to accept commands.

How to quit MS-DOS

There is no quit command in MS-DOS, but ending your MS-DOS session is easy. Follow these steps:

- ▶ Make sure that your last command has finished processing. You should see the MS-DOS system prompt (i.e., A:\>) on the screen.
- ▶ Take out any floppy disks that are in the disk drives. Make sure to put these disks back in their protective holders and store them in a safe place.
- ▶ Turn off your system.

That's all there is to it.

How to change the default drive

MS-DOS will search only the disk in the default drive for any file names you may enter and will write files to that disk unless you specify a different drive. The default drive letter is **always** displayed in the MS-DOS system prompt.

You can ask MS-DOS to search the disk in another drive by changing the drive designation or by specifying the drive name in the command.

To change the disk drive designation, type the new drive letter followed by a colon (no space) and press the Return key. For example,

```
A:\> b:  
B:\>
```

In the above example, the default drive is changed from Drive A to Drive B. MS-DOS will search only the disk in Drive B until a different default drive is specified.

To specify a drive in a command, type the drive name in the command.

The command

```
A:\>dir b:
```

displays the directory of the disk in Drive B but the default drive is still Drive A.

The command

```
A:\>type b:myfile.txt
```

displays the contents of the file named MYFILE.TXT on the disk in Drive B and the default drive remains Drive A.

Using new floppy disks

You **must** format all new floppy disks before they can be used by MS-DOS. The Xerox utility `FDMAINT` is used to format new floppy disks. See "Format disk(s)" in the HOW TO WITH MS-DOS section for instructions on how to use `FDMAINT`.

Back up your disks

It is strongly recommended that you make backup copies of all your disks. If a disk becomes damaged or if files are accidentally erased, you will still have all of the information on your backup disk.

If you have a dual floppy disk drive system, you can back up disks by using the Xerox utility `FDMAINT`. See "Copy one disk to another" in the HOW TO WITH MS-DOS section for instructions on using `FDMAINT`.

If you have a hard disk drive system, you can back up the hard disk by using the Xerox utility `HDMAINT`. See "Back up hard disk files" in the HOW TO WITH MS-DOS section for instructions on using `HDMAINT`.

Automatic program execution

If you want to run a specific program automatically each time you start MS-DOS, you can do so with Automatic Program Execution. For example, you may want to have MS-DOS display the names of your files each time you load MS-DOS.

When you start MS-DOS, the command processor searches for a file named `AUTOEXEC.BAT` on the MS-DOS boot disk. This file contains commands that are executed each time MS-DOS is loaded. See "Automatic program execution" in the HOW TO WITH MS-DOS section for instructions on how to create an `AUTOEXEC.BAT` file.

Using multiple directories

Use of multiple directories is optional.

If you are using a dual floppy disk drive system, you may not want to have multiple directories, since you can categorize your files on different disks. For example, have a disk for word processing, one for data base use, one for accounting, etc.

If you are using a hard disk drive system, you will find that having multiple directories is a necessity for categorizing your files. For example, you can have subdirectories for word processing files, data base files or accounting files. If you do not use multiple directories, the root directory will become unmanageable.

The **root directory** is the first level of the directory structure. It is the directory that is automatically created when you format a disk. Think of the root directory as being a filing cabinet. It contains file names and other directories. These other directories are known as **subdirectories**. Think of the subdirectories as drawers and folders in the filing cabinet.

When you are in the root directory, the system prompt is `d:\>`, where `d` is the drive name.

When there are multiple users on your computer, or when you are working on several different projects, the number of files in the root directory can become large and unwieldy. You may want your own files kept separate from a co-worker's; or you may want to organize your programs into categories that are convenient for you.

MS-DOS allows you to organize the files on your disk into subdirectories. Subdirectories divide your files into convenient groups. For example, you may want all of your accounting programs in one subdirectory and word processing files in another.

Any one subdirectory can contain any reasonable number of files, and it may also contain other subdirectories. This method of organizing your files is called a **multilevel directory structure**.

Files are like the papers within folders and drawers. Unless you take special action when you create a file, the new file will be recorded within the directory in which you are working. This directory is known as the "**working**" directory. You can have files with the same file name in different subdirectories.

It is possible for you to find any file in the system by starting at the root directory and traveling down any of the subdirectories to the desired file. Conversely, you can start where you are within the file system and travel back to the root directory. To access a file, you must tell MS-DOS where the file is located in the directory structure. This is done by giving MS-DOS a **path** to the file.

The following example illustrates multiple directories.

The root directory contains three subdirectories named BIN, USERS, and ACCOUNTS.

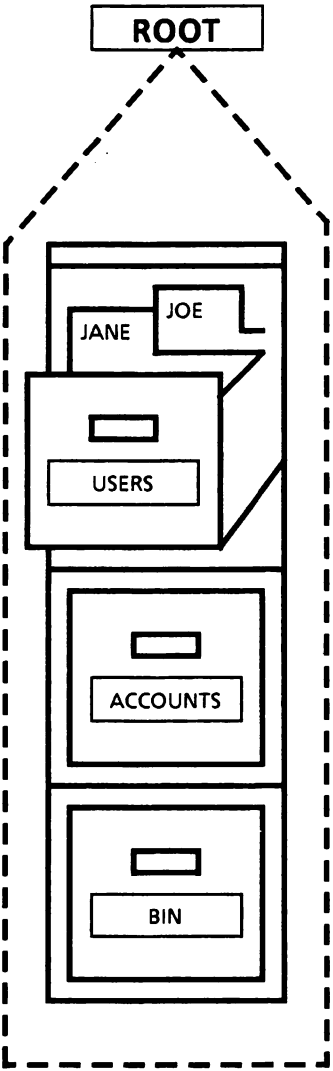
The BIN subdirectory contains external command files and no other subdirectories.

The USERS subdirectory contains files and two subdirectories named JOE and JANE. The JOE and JANE subdirectories only contain files.

The ACCOUNTS subdirectory contains accounting files and no other subdirectories.

The following are the paths used when referring to the root and subdirectories.

\ is the symbol for the root directory of the disk.



\USERS
\USERS\JANE
\USERS\JOE

\ACCOUNTS

\BIN

Path to a file

When you create or search for a file, MS-DOS needs to know three things:

- drive name
- directory containing the file (path)
- name of the file

If the file is on the disk in the default drive, you **do not** have to specify a drive name.

If the file is in the "working" directory, you **do not** need to specify a path.

If the file is not in the "working" directory, you **must** tell MS-DOS the path of subdirectory names leading to the desired subdirectory. The path can be either the path of names beginning with the root directory or the path starting from the "working" directory.

A path is a sequence of subdirectory names separated by backslashes (\). For example:

```
C:\>cd \user\joe
```

If a file name is included, it must be separated from the last subdirectory name by a backslash. For example,

```
C:\>type \user\joe\memo.dat
```

If a path begins with a backslash, MS-DOS searches for the file beginning at the root directory. Otherwise, MS-DOS begins at the current directory, known as the "working" directory and searches downward from there.

When you are in the "working" directory, a file name and its corresponding path may be used interchangeably.

Pathing and internal commands

Internal commands are the simplest, most commonly used commands. They execute immediately because they are loaded into your computer's memory when you start MS-DOS.

Some internal commands can use paths. The following four commands, COPY, DIR, DEL, and TYPE have greater flexibility when you specify a path after the command.

The format of these four commands is shown below.

COPY *path path*

If the second *path* to COPY is a subdirectory, all files are copied into that subdirectory. For example,

```
C:\>copy \acct\payroll.* \pay
```

will copy all the files named PAYROLL with any extension from the \ACCTS subdirectory to the \PAY subdirectory.

DEL *path*

If the path is a subdirectory, all the files in that subdirectory are deleted. The prompt "Are you sure (Y/N)?" will be displayed. Type Y to complete the command, or type N to abort the command. For example, del \acct.

DIR *path*

Displays the subdirectory for a specific path. For example, dir \jane.

TYPE *path*

You must specify a file name in a path for this command. MS-DOS will display the file on your screen. For example, type \joelmemo.dat.

Pathing and external commands

External commands reside on disk as program files. They must be read from the disk before they execute.

When you are working with more than one directory, it is convenient to put all MS-DOS external command files into a separate subdirectory so they do not clutter the root directory. When you issue an external command to MS-DOS, it immediately checks your "working" directory to find that command. You must tell MS-DOS in which subdirectory these external command files reside. This is done with the PATH command.

For example, if you are in a "working" directory named \PROG, and all MS-DOS external command files are in \BIN, you must tell MS-DOS to choose the \BIN path to find an external command. The command

```
PATH \BIN
```

tells MS-DOS to search in your "working" directory and the \BIN directory for all commands. You only have to specify this path once to MS-DOS during a session or you can put it in the AUTOEXEC.BAT file. MS-DOS will now search in \BIN for the external commands.

If you want to know what the current path is, type the word PATH and the current value of PATH will be displayed.

Additional information

MS-DOS provides special shorthand notations for the "working" directory and the parent directory (one level up) of the "working" directory:

- . MS-DOS uses this shorthand notation to indicate the name of the "working" directory. MS-DOS automatically creates this entry when a subdirectory is made.
- .. The shorthand name of the "working" directory's parent directory. For example, if you type:

dir ..

MS-DOS will list the files in the parent directory of your "working" directory.

Refer to the HOW TO WITH MS-DOS section on how to

Make a directory

Change "working" directory

Delete a directory

Rename a path as a drive

2.

LEARNING ABOUT COMMANDS

Commands are a way of communicating with the computer. By entering MS-DOS or Xerox unique commands at your keyboard, you can ask the system to perform useful tasks. There are MS-DOS or Xerox unique commands that:

Compare, copy, display, delete, and rename files

Copy and format disks

Execute system programs such as EDLIN, as well as your own programs

Analyze and list directories

Enter date, time, and remarks

Set various printer and screen options

Copy MS-DOS system files to another disk

Request MS-DOS to wait for a specific period of time

Types of commands

There are two types of MS-DOS commands:

Internal commands

External commands

Xerox has unique external commands.

MS-DOS internal commands

Internal commands are the simplest, most commonly used commands. You cannot see these commands when you do a directory listing of your MS-DOS disk; they are part of the command processor. When MS-DOS is loaded into internal memory, so are the internal commands.

When you type these commands, they execute immediately.

The following internal commands are described in the HOW TO WITH MS-DOS section.

BREAK	EXIT	REN (RENAME)
CHDIR (CD)	FOR	RMDIR (RD)
CLS	GOTO	SET
COPY	IF	SHIFT
CTTY	MKDIR (MD)	TIME
DATE	PATH	TYPE
DEL (ERASE)	PAUSE	VER
DIR	PROMPT	VERIFY
ECHO	REM	VOL

MS-DOS external commands

External commands reside on disks as program files. They must be read from disk before they can execute. If the disk containing the command file is not in the drive, MS-DOS will not be able to find and execute the command.

Any file name with an extension of .COM, .EXE or .BAT is considered an external command. For example, programs such as CHKDSK.COM and PRINT.COM are external commands.

Because all external commands reside on disk, you can create commands and add them to the system. Programs that you create with most languages (including assembly language) will be .EXE (executable) files.

When you enter an external command, do not include its file name extension.

The following are external commands.

ASSIGN	JOIN
ATTRIB	LINK
CHKDSK	MORE
DEBUG	PRINT
EDLIN	RECOVER
EXE2BIN	SHARE
FC	SORT
FIND	SUBST

XEROX unique external commands

Below is a chart listing the Xerox unique external commands, their function(s) and their PC-DOS equivalency.

The IBM-related files are described in Appendix I. They are ASSIGN, BACKUP, DISKCOMP, DISKCOPY, FORMAT, GRAPHICS, MODE, RESTORE, and SYS.

Command	Function(s)	PC-DOS
CONFIGUR	Set screen attributes Configure serial port(s) Reroute devices	MODE
FDMAINT	Formats floppy disks Disk copy Verifies disks	FORMAT DISKCOPY
HDMAINT	Use to set up hard disk Backup files from hard disk Restore files to hard disk	FDISK BACKUP RESTORE
SETPRT	Printer translation	N/A
SOFTKEYS	Redefine keyboard keys	N/A
SYSGEN	Put operating system on a disk	SYS
TREE	Display directory structure	TREE

Command parameters

Parameters can be included in your MS-DOS commands to specify additional information to the system. If you do not include some parameters, MS-DOS provides a default value.

The format of all MS-DOS commands:

`command [parameters ...]`

where the parameters can be:

- d:* Refers to a disk drive name. *Note that the drive name is not required unless you need to indicate to MS-DOS on which disk drive to search for a specific file.*
- filename* Refers to any valid name for a disk file, including an optional file name extension. *The file name option does not refer to a device or to a disk drive designation.*
- filespec* Refers to an optional drive name, an optional path, a file name, and an optional file name extension in the format:
- `[d:][path]filename[.ext]`
- switches* Switches are parameters that control MS-DOS commands. They are preceded by a slash (i.e., /P).
- arguments* Provide more information to MS-DOS commands. You usually choose between arguments (i.e., ON or OFF).

Command format

The following format notation is used throughout this manual in descriptions of command and statement format:

CAPS Capital letters indicate portions of statements or commands that **must** be entered, exactly as shown. These words are called keywords. You can enter these keywords in any combination of upper or lowercase. MS-DOS will convert all keywords to uppercase.

[] Square brackets indicate that the enclosed entry is optional. If you wish to include optional information, do not include the square brackets, only the information within the brackets.

italics Text in *italics* indicates information you **must** supply. For example, TYPE *filespec*.

| A vertical bar indicates an OR statement in a command. Choose **one** of the items and type it as part of the command: For example: ON | OFF means you can type either ON or OFF, but not both. **Do not type the vertical bar.**

... Ellipses indicate that an entry may be repeated as many times as needed or desired.

All other punctuation, such as commas, colons, slashes, and equal signs, **must** be entered exactly as shown.

Information common to all commands

The following information applies to all MS-DOS commands.

- Commands are usually followed by one or more parameters, such as a file name.
- Commands and parameters may be entered in upper or lowercase, or a mixture of both.
- Commands and parameters **must** be separated by delimiters (space, comma, semicolon, equal sign, or the tab key). The delimiters can be mixed. You will usually use the space and comma as delimiters because they are the easiest. For example:

A:\>rename,thisfile,thatfile

In this manual, a space will be used as the delimiter, such as:

A:\>rename thisfile thatfile

- Do not separate a *filespec* (d:\path\filename.ext) with delimiters, since the colon, backslash, and the period serve as delimiters.
- You **must** include the file name extension when referring to a file that has a file name extension.
- When instructions say "Press any key," press the Spacebar.
- Commands take effect only after you have pressed the Return key.
- You can stop commands when they are running by simultaneously pressing the Ctrl and C keys.

- When commands produce a large amount of output on the screen, the display will automatically scroll to the next screen. You can press **Ctrl+NumLock** or **Ctrl+S** keys simultaneously to suspend the display. Press the **Spacebar** to resume the display on the screen.

Or, you can use the **MORE** filter with a command to display output a screen at a time. See "Filters" on page 3-25.

- **MS-DOS** editing and function keys can be used when entering commands. Refer to "Editing and function keys" in this section for a complete description of these keys.
- Disk drives will be referred to as **source** drives and **destination** drives.

A source drive is the drive you will be transferring information from.

A destination drive is the drive you will be transferring information to.

- Unlike previous versions of **MS-DOS**, you can specify a path to run a specific command or program. For example, if you move the **CHKDSK** program to a directory named **\BIN**, you can type:

```
C:\>\bin\chkdsk a:
```

- Many commands manipulate "strings" of text. A "string" is a group of characters; it can include letters, numbers, spaces and all other characters. Searching for a particular word in a file is a common use of a string.

Batch processing of commands

Often you may find yourself typing the same sequence of commands over and over to perform some commonly used task. With MS-DOS, you can put the command sequence into a special file called a **batch file**, and execute the entire sequence simply by typing the name of the batch file. "Batches" of your commands in such files are processed as if they were typed at a keyboard.

See the "Batch processing of commands" in the HOW TO WITH MS-DOS section on how to create and execute batch files.

Command input and output

MS-DOS always assumes that input comes from the keyboard and output goes to the screen. However, the input and output can be redirected. Input can come from a file rather than a keyboard, and output can go to a file or to a line printer instead of to the screen.

In addition, "pipes" can be created that allow output from one command to become the input to another.

Redirection and pipes are discussed in this section.

Redirecting the output

Most commands produce output that is sent to the screen. You can send this information to a file by using a greater-than sign (>) in your command. For example, the command

```
A:\>dir
```

displays a directory listing of the disk in the default drive on the screen. The same command can send this output to a file named MYFILES by designating the output file on the command line:

```
A:\>dir >myfiles
```

If the file MYFILES does not already exist, MS-DOS creates it and stores your directory listing in it. If MYFILES already exists, MS-DOS overwrites what is in the file with the new data.

If you want to append your directory or a file to another file (instead of replacing the entire file), two greater-than signs (>>) can be used to tell MS-DOS to append the output of the command (such as a directory listing) to the end of a specified file.

The command

```
A:\>dir >>myfiles
```

appends your directory listing to a currently existing file named MYFILES. If MYFILES does not exist, it is created.

It is often useful to have input for a command come from a file rather than from a keyboard. This is possible in MS-DOS by using a less-than sign (<) in your command. For example, the command

```
A:\>sort <names >list1
```

sorts the file NAMES on the disk in the default drive and sends the sorted output to a file named LIST1 on the disk in the default drive.

Filters

A filter is a command that reads your input, transforms it in some way, and then sends the resulting output usually to the screen or to a file. In this way, the data is said to have been "filtered" by the program. Since filters can be put together in many different ways, a few filters can take the place of a large number of specific commands.

MS-DOS filters include FIND, MORE, and SORT. Their functions are described below:

- FIND** Searches for a constant string of text in a file. (See "Find a specific string of text" in HOW TO WITH MS-DOS.)
- MORE** Takes standard screen output and displays it one screen at a time. (See "Display output a screen at a time" in HOW TO WITH MS-DOS.)
- SORT** Sorts text entered at the keyboard and text in a data file. It can also be used to sort a directory. (See "Sort data file(s)" and "Sort directory file names" in HOW TO WITH MS-DOS.)

Command piping

If you want to give more than one command to the system at a time, you can "pipe" commands to MS-DOS. For example, you may occasionally need to have the output of one program sent as the input to another program. A typical case would be a program that produces output in columns. It could be desirable to have this columnar output sorted.

Piping is done by separating commands with the pipe separator, which is the vertical bar symbol (|). The vertical bar is produced by pressing the Shift and the backslash (\) keys simultaneously. For example, the command

```
A:\>dir | sort
```

will give you an alphabetically sorted listing of your directory. The vertical bar causes all output generated by the left side of the bar to be sent to the right side of the bar for processing.

Piping can also be used when you want to output to a file. If you want your directory sorted and sent to a new file (i.e., DIREC.FIL), you would type:

```
A:\>dir | sort >direc.fil
```

MS-DOS will create a file named DIREC.FIL on the disk in the default drive. DIREC.FIL contains a sorted listing of the directory of the disk in the default drive, since no other drive is specified in the command. To specify a drive other than the default drive, type:

```
A:\>dir | sort >b:direc.fil
```

This sends the sorted data to a file named DIREC.FIL on the disk in Drive B.

A pipeline may consist of more than two commands. For example,

```
A:\>dir | sort | more
```

will sort your directory, show it to you one screen at a time, and put --MORE-- at the bottom of the screen when there is more output to be seen.

You will find many uses for piping commands and filters.

3.

EDITING AND FUNCTION KEYS

The special editing keys deserve particular emphasis because they depart from the way in which most operating systems handle command input. You do not have to type the same sequences of keys repeatedly, because the last command line is automatically placed in a special storage area called a **template**.

By using the template and the special editing keys, you can take advantage of the following MS-DOS features:

- A command line can be instantly repeated by pressing two keys.
- If you make a mistake in the command line, you can edit it and retry without having to retype the entire command line.
- A command line that is similar to a preceding command line can be edited and executed with a minimum of typing by pressing a special editing key.

When you type a command to MS-DOS on the command line and press the Return key, the command is automatically sent to the command processor for execution. At the same time, an exact copy (including the case---upper, lower or mixed) of this command is sent to the template. You can now recall the command or modify it with MS-DOS special editing keys.

The following is a list of the editing and function keys. Each of these keys is more fully described in APPENDIX E - USING EDLIN.

<u>Key</u>	<u>Editing function</u>
F1	Copies one character from the template to the command line.
F2 c	Copies characters up to the given character (c) in the template and puts these characters on the command line.
F3	Copies all remaining characters in the template to the command line.
Del	Skips over (does not copy) a character in the template.
F4 c	Skips over (does not copy) the characters in the template up to the given character (c).
Ctrl + [voids the current input; leaves the template unchanged.
Ins	Enters/exits insert mode.
F5	Makes the new line the new template.
F6	Puts a Ctrl+Z (1AH) end-of-file character in the new template.

The examples on the following pages illustrates how these keys work.

Examples:

If you type the following command,

```
dir myfile.dat
```

MS-DOS displays information about the file MYFILE.DAT on your screen. The command line is also saved in the template.

To repeat the command, just press two keys: the F3 function key and the Return key.

The repeated command is displayed on the screen as you type, as shown below:

```
<F3>dir myfile.dat<Return>
```

Notice that pressing the F3 function key causes the contents of the template to be copied to the command line; pressing the Return key causes the command line to be sent to the command processor for execution.

If you want to display information about a file named MYFILE.TXT, you can use the contents of the template and type:

```
<F2>d
```

Pressing F2 and typing d copies all characters from the template to the command line, up to but not including d. MS-DOS displays:

```
dir myfile. _
```

Note that the underline is your cursor. Now type:

```
txt
```

The result is:

```
dir myfile.txt
```

The command line dir myfile.txt is now the template and ready to be sent to the command processor for execution. To do this, press the Return key.

Now assume that you want to execute the following command:

```
type myfile.txt
```

To do this, type:

```
type<Ins> <Space> <F3> <Return>
```

Notice that when you are typing, the characters are entered directly into the command line and overwrite corresponding characters in the template. This automatic replacement feature is turned off when you press the Ins key. Thus, the characters "type" replace the characters "dir " in the template. To insert a space between "type" and "myfile.txt", you pressed the Ins key and then the Spacebar. Finally, to copy the rest of the template to the command line, you pressed the F3 key and then the Return key. The command type myfile.txt has been processed by MS-DOS, and the template becomes type myfile.txt.

If you had misspelled TYPE as BYTE, a command error would have occurred. Still, instead of throwing away the whole command, you could save the misspelled line before you press the Return key by creating a new template by pressing the F5 key:

```
byte myfile.txt<F5>
```

The screen will look similar to

```
byte myfile.txt@
```

—

You can edit this erroneous command by typing:

```
t<F1>p<F3>
```

The F1 key copies a single character from the template to the command line. The resulting command line is then the command that you want:

```
type myfile.txt
```

To display the file, press the Return key.

If you have already pressed the Return key, you can use the same template containing byte myfile.txt and then use the Del and Ins keys to achieve the same result:

```
<Del><Del><F1><Ins>yp<F3>
```

To illustrate how the command line is affected as you type, examine the keys typed on the left; their effect on the command line is shown on the right:

	—	Skips 1st template character
	—	Skips 2nd template character
<F1>	t	Copies 3rd template character
<Ins>yp	typ	Inserts two characters
<F3>	type myfile.txt	Copies rest of template

Notice that Del does not affect the command line. It affects the template by deleting the first character. Similarly, F4 deletes characters in the template, up to but not including a given character.

These special editing keys can add to your effectiveness at the keyboard. The next section describes control character functions that can also help when you are typing commands.

Control character functions

A control character function is a function that affects the command line.

Remember that when you type a control character, such as Ctrl + C, you must hold down the Ctrl key while you press the C key.

<u>Control Character</u>	<u>Function</u>
Ctrl + N	Toggles echoing (printing) of output to the line printer.
Ctrl + C	Aborts the current command.
Ctrl + H	Removes the last character from the command line, and erases a character from the screen.
Ctrl + J	Inserts physical end-of-line, but does not empty the command line.
Ctrl + P	Toggles the terminal output to the line printer.
Ctrl + S	Suspends the output display on the screen. Press the Spacebar to continue. If you have pressed any key(s) prior to pressing Ctrl + S to stop scrolling, Ctrl + S will not work. Use Ctrl + NumLock.
Ctrl + NumLock	Similar to Ctrl + S. Unlike Ctrl + S, you can press key(s) prior to pressing Ctrl + NumLock.
Ctrl + [Cancels the current line, empties the command line, and then displays a backslash (\), carriage return, and line feed. The template is not affected.

USING APPLICATION SOFTWARE

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1.

GETTING STARTED

This section describes the steps that you need to follow to use application software packages on your system.

If you encounter problems, you may need to contact your service representative.

Some manufacturers do not allow you to make a backup copy of their software disk(s). Check your application software manual.

Some software packages create their own CONFIG.SYS file. Be sure you rename or copy to another disk the Xerox CONFIG.SYS file. You will need to use this file when you reload MS-DOS after using the software.

Some software packages require that you copy the MS-DOS FORMAT, DISKCOPY, or DISKCOMP files to their disk.

Make a backup copy and install software

This section describes how to make a backup copy of the application software disk. Also, most application software packages have an install program that needs to be run before you load the software.

This is a one time procedure. If you already have a backup copy of your application software that is installed, go to the "Loading Application Software" section on page 4-11 for instructions on loading (running) the software.

If you have a dual floppy disk drive system, continue on the next page.

If you have a hard disk drive system, go to page 4-8 and continue.

Dual floppy disk drive system

Some application software manufacturers do not allow their disks to be copied. Check your application manual to determine whether the disks can be copied or not. (*Note: The steps for copying disks on the Xerox PC will be different from those in most application software manuals, so follow the steps below.*)

Your application manual may suggest that you put MS-DOS and/or COMMAND.COM on the application software disk. The instructions for copying COMMAND.COM are on page 4-6. If you want to put the boot (loadable) portion of MS-DOS on the disk, you should use SYSGEN. Using SYSGEN is optional in most cases. (See "Put the operating system on a disk" in the HOW TO WITH MS-DOS section.)

If the application disks can be copied, follow the steps below. If they cannot be copied, go to the installation procedures on page 4-7.

Copying application software

Obtain new (or erasable) disk(s), which can be used to make copies of the application software disk(s).

With the MS-DOS system prompt displayed,

- ▶ Type FDMAINT and press the Return key.

The Floppy Disk Maintenance Program Main Menu is displayed.

- ▶ Remove the MS-DOS boot disk from Drive A.
- ▶ Insert the application software disk in Drive A and close the drive door. *Be sure the disk is write-protected.*
- ▶ Insert the disk to receive the copy (destination disk) in Drive B and close the drive door.

- ▶ Select F2 to copy one disk to another.

The Copy Menu is displayed. The source disk should be A and the destination disk should be B.

- ▶ Select F9 to execute copy.

The system displays

All data on the destination disk will be lost.
Do you want to continue? [N]

- ▶ Type Y to say "yes" you want to continue.

If the destination disk is brand new, it will be formatted before copying begins.

As copying begins, the following messages will be displayed alternately.

Reading ...
Writing ...

This tells you that the system is reading data from the source disk and writing it to the destination disk.

When copying is complete, the following message is displayed.

Copy complete.

- ▶ Remove the two disks. Store the original in a safe place and label the new disk accordingly.

Some application software packages have more than one disk. If there is more than one application disk, repeat the procedure beginning with "Insert the application software disk . . ." step on the previous page.

When all disks are copied, follow the steps below to return to the MS-DOS system prompt:

- ▶ Insert the MS-DOS boot disk in Drive A and close the drive door.
- ▶ Select F10 to exit to the main menu.
- ▶ Select F10 again to exit the program.

You are now ready to install the software.

Copying COMMAND.COM (optional)

Start with the MS-DOS boot disk in Drive A and a copy of the application disk in Drive B.

- ▶ Type COPY A:COMMAND.COM B: (be sure to type the spaces and punctuation exactly as shown).
- ▶ Press the Return key.

You also need to copy the CONFIG.SYS and ANSI.SYS files onto this disk for it to operate properly.

Installing (configuring) software

With the MS-DOS system prompt displayed,

- ▶ Remove the MS-DOS boot disk from Drive A.

- ▶ Insert the backup application software disk with the install program on it in Drive A and close the drive door. Check with your application software manual for the install program name.

- ▶ Refer to the application software manual for instructions on how to install the software.

When you have installed your software and exited the install program, the MS-DOS system prompt is displayed.

Go to the "Loading Application Software" section on page 4-11 and continue.

Hard disk drive system

Copying application software

On the hard disk, it is recommended that each software application have its own subdirectory.

Before you copy the application software onto the hard disk, you'll need to make a subdirectory for it.

With the MS-DOS system prompt (C:\>, if you are on Drive C of the hard disk) displayed,

- ▶ Be sure you are in the root directory.
- ▶ Type MD dirname (where dirname is the name of the subdirectory to be created such as WORDPR for word processing software) and press the Return key.

The subdirectory is created and the MS-DOS system prompt is displayed.

- ▶ Write-protect the application software disk, if this has not been done already.
- ▶ Insert the application software disk in Drive A and close the drive door.
- ▶ Type A: and press the Return key to log on to Drive A. The system prompt should change to A:\>.
- ▶ Type COPY *.* C:\dirname and press the Return key.

(Note: The drive name above (C:) is where the application software subdirectory is located. You may have yours on a different drive. If you do, you would use that drive name instead of "C".)

The files are displayed on the screen as they are copied.

- ▶ Remove the original disk from Drive A and store it in a safe place.

If there is more than one application software disk, repeat the above procedure beginning with "Insert the application . . ." until all disks are copied.

When all disks are copied onto the hard disk,

- ▶ Type C: (your drive name may be different) and press the Return key to log on to the drive of the hard disk containing the application software files.

You are now ready to install the software.

Installing (configuring) software

With the MS-DOS system prompt displayed,

- ▶ Change to the subdirectory containing the application software program files.
- ▶ Refer to the application software manual for instructions on how to install the software.

When you have installed your software and exited the install program, the MS-DOS system prompt will be displayed.

Go to the "Loading Application Software" section on the next page and continue.

2.

LOADING APPLICATION SOFTWARE

The following steps describe how to load application software in your system.

Dual floppy disk drive system

With the MS-DOS system prompt displayed,

- ▶ Remove the MS-DOS boot disk from Drive A.
- ▶ Insert the backup application software disk containing the load program in Drive A and close the drive door. *Check with the application software manual for the name of the program.*
- ▶ Refer to the application software manual for instructions on how to load the software.

When you exit the program, the MS-DOS system prompt is displayed.

If you see the message

Insert COMMAND.COM disk in drive A
and strike any key when ready

Remove the application software disk and insert the MS-DOS boot disk; then press the Spacebar.

Hard disk drive system

With the MS-DOS system prompt displayed,

- ▶ Change to the subdirectory and/or drive containing the application software program files.
- ▶ Refer to the application software manual for instructions on how to load the software.

When you exit the program, the MS-DOS system prompt will be displayed.

HOW TO WITH MS-DOS

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Automatic program execution

You can create an AUTOEXEC.BAT file that will allow you to automatically execute programs when you start MS-DOS.

When you start MS-DOS, the command processor searches the MS-DOS boot disk for a file named AUTOEXEC.BAT. The AUTOEXEC.BAT file is a batch file that is automatically executed each time you start the system.

If MS-DOS finds the AUTOEXEC.BAT file, the file is immediately executed by the command processor and the date and time prompts are bypassed.

If MS-DOS does not find an AUTOEXEC.BAT file when you first load the MS-DOS boot disk, then the date and time prompts will be issued.

How to create an AUTOEXEC.BAT file

The AUTOEXEC.BAT file **must** be created in the root directory of the MS-DOS boot disk.

If, for example, you wanted to automatically load BASIC and run a program called PAYROLL each time you started MS-DOS, you could create an AUTOEXEC.BAT file as follows:

- ▶ From the MS-DOS system prompt (i.e., A:\>), type `COPY CON: AUTOEXEC.BAT` and press the Return key.

This statement tells MS-DOS to copy the information entered at the keyboard into the AUTOEXEC.BAT file.

- ▶ Type `ECHO OFF` and press the Return key.

This tells the system not to display the commands in the batch file on the screen as they are executed.

Automatic program execution - cont'd

How to create an AUTOEXEC.BAT file - cont'd

- ▶ Type ECHO REMOVE MS-DOS BOOT DISK AND INSERT BASIC DISK WITH PAYROLL IN DRIVE A and press the Return key.

This tells the system to print the message on the screen.

- ▶ Type PAUSE and press the Return key.

This tells the system to pause and wait for you to press the Spacebar before continuing.

- ▶ Type BASIC PAYROLL and press the Return key.

This statement tells MS-DOS to load BASIC and run the PAYROLL program.

- ▶ Simultaneously press the Ctrl and Z keys and then press the Return key.

Your system returns to the MS-DOS system prompt.

How to execute an AUTOEXEC.BAT file

With the above example AUTOEXEC.BAT file, when you start MS-DOS, you would be prompted to insert the BASIC disk containing the PAYROLL program and press the Spacebar to continue. Then, BASIC would be loaded into memory and the PAYROLL program would run.

Back up hard disk files

If you have important data on your hard disk that you add to or edit daily, it is recommended that you back up every day. In fact, make two sets of backup disks just in case one set gets damaged.

Also, floppy disk files may be backed up to a hard disk. The backed up files are stored in a directory named BACKUP.

This is for use with hard disk systems only.

From the MS-DOS system prompt,

- ▶ Type HDMAINT and press the Return key.

The Hard Disk Maintenance Program is loaded into memory and the screen looks similar to the one below.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F1</div> --> Partitioning	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F2</div> --> Hard Disk 0
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F3</div> --> Format MS-DOS Partition	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F4</div> --> Format Physical Hard Disk
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F5</div> --> Backup Files	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F6</div> --> Restore Files
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F7</div> --> Place into Shipping Mode	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F8</div> --> Help
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F9</div> --> Display Partition Status	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-bottom: 5px;">F10</div> --> Exit this Program
Press function key to activate selection.	

Back up hard disk files - cont'd

From the Hard Disk Maintenance Program Main Menu,

- ▶ Select F5-Backup Files.

The screen should look similar to the following illustration.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation	
BACKUP FILES MENU	
F1 --> Read files from Disk d	F2 --> Use Current Directory
F3 --> Write files to Disk d	F4 --> Select Only Modified Files
F5 --> Omit Read/Only Files	F6 --> Omit Subdirectories
F7 --> Ignore File Date	F8 --> Help
F9 --> Execute Backup	F10 --> Return to Main Menu
Press function keys to cycle through selections.	

Back up hard disk files - cont'd

Set selections

The Read files from Disk d setting specifies the drive name from which the files will be read (source drive).

- ▶ Select F1 until the drive name containing the file(s) to be backed up is displayed.

The current directory (Use Current Directory) or a directory other than the current directory (Directory Will be Named) can be backed up.

- ▶ Select F2 to display the desired setting.

The Write files to Disk d setting specifies the drive name to which the files will be written (destination drive).

- ▶ Select F3 until the drive name where the file(s) are to be copied is displayed.

You can back up all identified files in the directory including the ones you have already backed up (Select All Files). Or, you can back up only those files not previously backed up (Select Only Modified Files). When you back up files, the system marks the files as being backed up. So, if you back up on a daily or weekly basis, you would choose the Select Only Modified Files and the system would only back up new files or files that have been edited.

- ▶ Select F4 to display the desired setting.

Back up hard disk files - cont'd

Set selections - cont'd

You can choose to back up Read/Only files (Include Read/Only Files) or not to back them up (Omit Read/Only Files).

- ▶ Select F5 to display the desired setting.

You can back up only those files in the named directory (Omit Subdirectories) or back up files in the named directory and its subdirectories (Include Subdirectories). The entire hard disk may be backed up by specifying the root directory and all of its subdirectories.

- ▶ Select F6 to display the desired setting.

You can back up only those files whose creation date is greater than or equal to the requested date (File Date to be Specified) or you can ignore the file creation date (Ignore File Date).

- ▶ Select F7 to display the desired setting.

Back up hard disk files - cont'd

Execute backup

Once all options are set, you can begin the backup process.

- ▶ Select F9 to begin the backup process.

The system displays

Insert backup disk to write and press RETURN, or ESC to abort.

- ▶ Insert a formatted floppy disk, close the drive door, and press the Return key.

(Note: When the system is prompting you to insert the backup disk, enter the path, enter the file name or enter file date, you can press the Esc key to exit from the Execute Backup process. You will still be in the BACKUP FILES MENU.)

If you chose to name a directory, the following message will appear.

Enter the source directory path.

- ▶ Type the name of the directory you want backed up and press the Return key. The Backspace key can be used to correct errors.

The system displays

Enter file name. (wild card characters permitted)

- ▶ Type the file name to be backed up and press the Return key. (*.*) can be used.)

Back up hard disk files - cont'd

Execute backup - cont'd

If you chose to select files by a certain creation date, the following message will appear:

Enter file selection date in format mm-dd-yy:

- ▶ Type in file date (need to enter zero with single digit entries) and press the Return key.

The name of each file is displayed as it is copied to the disk following the message Transferring.

Very large hard disk files may be broken across multiple floppy disks.

If more than one floppy disk is needed to back up files, the system displays one of three messages:

Insufficient space for file. Insert next disk and press RETURN.

Disk full. To complete file, insert next disk and press RETURN.

ERROR: Disk already has split file. Insert next disk and press RETURN.

If you get one of the above messages,

- ▶ Remove the disk from the floppy disk drive and label it (i.e., Backup disk #1).
- ▶ Insert another formatted disk, close the drive door, and press the Return key.

The backup process will continue. If necessary, you will be asked to insert additional floppy disks. Be sure to label your backup disks numerically (i.e., #1, #2, etc.). This will be helpful if you need to restore the files to the hard disk.

Back up hard disk files - cont'd

Backup complete

When all specified files have been backed up, the following message is displayed,

Press function keys to cycle through selections.
n file(s) backed up.

where n is the number of files backed up.

If you have more files to back up, you can repeat the process.

If you want to return to the Hard Disk Maintenance Main Menu,

- ▶ Select F10.

To exit the Hard Disk Maintenance Program and return to MS-DOS,

- ▶ Select F10 from the main menu.

You will see the MS-DOS system prompt.

Batch processing of commands

Often you may find yourself typing the same sequence of commands over and over to perform some commonly used task.

With MS-DOS, you can put the command sequence into a special file called a **batch file**, and execute the entire sequence simply by typing the name of the batch file at the MS-DOS system prompt.

"Batches" of your commands in such files are processed as if they were typed at the keyboard.

Each batch file **must** be named with the .BAT file name extension. It is executed by typing the file name without its extension.

You can create a batch file by using the COPY CON command, the line editor (EDLIN), or a word processor.

A batch file can contain replaceable parameters and/or variables.

This section covers:

- Create a batch file

- Execute a batch file

- Terminate a batch file

- Important notes

- Batch file with no parameters or variables

- Batch file with replaceable parameters

- Batch file with variables

- Batch processing commands

Batch processing of commands - cont'd

Create a batch file

You can create a batch file by using the COPY CON command, the line editor (EDLIN), or a word processor.

To use the COPY CON command, follow the steps below:

- ▶ From the MS-DOS system prompt type:

```
copy con filename.bat
```

where *filename* is replaced with the name you want for the batch file.

- ▶ Press the Return key.
- ▶ Type the commands you want to be in the batch file. *After you type each command, press the Return key.*

If you make a mistake typing a command **before** you press the Return key, you can use the Backspace key to correct it.

If you see a mistake in a command **after** you have pressed the Return key, you can simultaneously press the Ctrl + C keys to end the COPY CON command without saving the batch file. Then repeat the above procedure.

- ▶ When you have finished entering commands, simultaneously press the Ctrl + Z keys and then press the Return key. This ends the COPY CON command and saves the batch file. The following message is displayed:

```
1 File(s) copied
```

```
d:\>
```

Batch processing of commands - cont'd

Execute a batch file

Batch files are executed by typing the name of the batch file at the MS-DOS system prompt and then pressing the Return key.

For example, to execute a batch file named REPORT.BAT, at the MS-DOS system prompt type:

```
report
```

then press the Return key.

You **do not** type the batch file name extension .BAT.

Terminate batch processing

You can stop batch processing by simultaneously pressing the Ctrl and C keys.

The system displays

```
Terminate batch job (Y/N)?
```

If you press Y, the remainder of the commands in the batch file are ignored and the system prompt appears.

If you press N, only the current command ends and batch processing continues with the next command in the file.

Batch processing of commands - cont'd

Important notes

The following list contains information that you should read before you execute a batch process with MS-DOS:

- Do not enter the file name **BATCH** unless the name of the file you want to execute is **BATCH.BAT**.
- Only the file name should be entered to execute the batch file. **Do not** enter the file name extension.
- The commands in the file named *filename*.BAT are executed.
- If you press **Ctrl + C** while in batch mode, the system displays:

Terminate batch job (Y/N)?

If you press **Y**, the remainder of the commands in the batch file are ignored and the system prompt appears.

If you press **N**, only the current command ends and batch processing continues with the next command in the file.

- If you remove the disk containing a batch file being executed, MS-DOS prompts you to insert it again before the next command can be read.
- The last command in a batch file may be the name of another batch file. This allows you to call one batch file from another when the first is finished.
- You can redirect input/output in a batch file using the **>** and **<** symbols.

Batch processing of commands - cont'd

Batch file with no parameters or variables

Batch processing is useful if you want to execute several MS-DOS commands with one batch command, such as when you want to check a directory of a disk and also check the disk for errors. A batch file for this purpose might look like this:

```
echo off
rem This is a file to check disk directory
rem It is named chkdisk.bat
echo Insert disk to be checked in Drive B
pause
dir b: | more
chkdsk b: /f/v
```

The `echo off` command tells the system not to display the commands as they are executed.

The `rem` command allows you to put remarks and comments in your batch file without these remarks being executed as commands.

The `echo Insert disk to be checked in Drive B` tells the system to display this message.

The `pause` command causes the system to pause while a disk is inserted in the drive.

The command

```
dir b: | more
```

tells the system to display the directory of the disk in Drive B. The `| more` tells the system to display the directory a screen at a time. This is useful if you have a large directory.

Batch processing of commands - cont'd

Batch file with no parameters or variables - cont'd

The command

```
chkdsk b: /f/v
```

tells the system to check the disk in Drive B for errors. The /f/v are options of the CHKDSK command.

To execute this batch file

To execute a batch file with no replaceable parameters or variables, you simply type the batch file name without the .BAT extension at the MS-DOS system prompt.

For example, to execute the above batch file, the command line would be

```
A:\>chkadisk
```

The result is the same as if each of the lines in the batch file was entered at the keyboard as an individual command.

Batch processing of commands - cont'd

Batch file with replaceable parameters

There may be times when you have repetitive tasks to do which are similar, differing only by the file being processed. Using replaceable parameters in the batch file can provide a file name to the batch file. This way, the batch file can perform the task for you without having to be edited to match your current needs.

Up to ten parameters can be specified in a batch file. They are named %0, %1,...%9. *Refer to the SHIFT command in this section to specify more than ten parameters.*

The %0 parameter is always replaced by the drive designator, if specified, and the file name of the batch file.

If you use the percent sign as part of a file name within a batch file, you must type it twice. For example, to specify the file ABC%.EXE, you must type it as ABC%%.EXE in the batch file.

The parameters are replaced sequentially by the parameters you supply when you execute the file.

A batch file with parameters might look like this:

```
echo off
rem Display contents of a file
rem It is named dispfile.bat
type %1 | more
pause
type %2 | more
pause
type %3 | more
pause
```

Batch processing of commands - cont'd

Batch file with replaceable parameters - cont'd

The `echo off` command tells the system not to display the commands as they are executed.

The `rem` command allows you to put remarks and comments in your batch file without these remarks being executed as commands.

The command

```
type %1 | more
```

tells the system to display the contents of the file specified by parameter `%1`. The `| more` tells the system to display the contents a screen at a time.

The `pause` command causes the system to pause between displaying the different files.

The process is repeated for parameters `%2` and `%3`.

See next page on how to execute this batch file.

Batch processing of commands - cont'd

Batch file with replaceable parameters - cont'd

To execute this batch file

To execute a batch file with replaceable parameters, you **must** enter the batch file name (without its extension) followed by the parameters you want MS-DOS to substitute for %1, %2, etc., in that order.

To execute the example batch file, the command line would be

```
A:\>dispfile my.dat sal.dat bill.dat
```

Remember in the DISPFILE.BAT file there are three replaceable parameters (%1, %2, %3).

The above command tells MS-DOS to run the DISPFILE batch file and to substitute MY.DAT for %1, SAL.DAT for %2 and BILL.DAT for %3.

The batch file is executed as if you had typed each of the commands in the batch file with their parameters, as follows:

```
type my.dat | more  
type sal.dat | more  
type bill.dat | more
```

Remember that if you specify the parameter %0 in your batch file, it is always replaced by the drive name (if specified) and the file name of the batch file. If you do not need to refer to the batch file, start your parameters at %1.

Batch processing of commands - cont'd

Batch file with variables

In a batch file, you can also assign specific data to variables.

Unlike parameters, a variable keeps its assigned value until the system is rebooted or turned off. This way, values can be passed from one batch file to another and also to the system.

In the batch file, a variable is a string enclosed by percent signs (%). For example, %FILE1%.

The MS-DOS SET command is used to assign values to the variables. The values can be set before or during the batch file process.

To demonstrate how values are passed from one batch file to another, study the batch files below:

Batch file 1 (dispfile.bat)

```
echo off
rem Display contents of a file
rem This file is dispfile.bat
type %file1% | more
pause
type %file2% | more
pause
copyfile
```

Batch file 2 (copyfile.bat)

```
echo off
rem Copy a file
rem This file is copyfile.bat
copy %file1% %file3%
pause
copy %file2% %file4%
```

Batch processing of commands - cont'd

Batch file with variables - cont'd

Batch file 1 (dispfile.bat)

The `echo off` command tells the system not to display the commands as they are executed.

The `rem` command allows you to put remarks and comments in your batch file without these remarks being executed as commands.

The command

```
type %file1% | more
```

tells the system to display the contents of the file specified by variable `%file1%`. The `| more` tells the system to display the contents a screen at a time.

The `pause` command causes the system to pause between displaying the different files.

The process is repeated for variable `%file2%`.

The `copyfile` command tells the system to execute the `COPYFILE.BAT` file.

Batch file 2 (copyfile.bat)

The command

```
copy %file1% %file3%
```

tells the system to copy the file specified by variable `%file1%` and name it the name specified by variable `%file3%`.

The `pause` command causes the system to pause between copying the different files.

The process is repeated for variables `%file2%` and `%file4%`.

Batch processing of commands - cont'd

Batch file with variables - cont'd

To execute these batch files

To execute a batch file with variables, if the variable value is not set in the batch file, you need to set it prior to executing the batch file.

To execute the example batch files, you need to set the values before executing the batch files. For example,

```
A:\>set file1 = my.dat
A:\>set file2 = sal.dat
A:\>set file3 = newmy.dat
A:\>set file4 = newsal.dat
```

When using the SET command, be sure there are no spaces on either side of the equal sign.

When the variables have been assigned values, you can execute the batch file. The command line would look like this

```
A:\>dispfile
```

The above command tells MS-DOS to run the DISPFILE batch file.

The batch file is executed as if you had typed each of the commands in the batch file as follows:

```
A:\>type my.dat
      (file is displayed on the screen)
A:\>type sal.dat
      (file is displayed on the screen)
A:\>copyfile
      (batch file is executed)
A:\>copy my.dat newmy.dat
      (file is copied)
A:\>copy sal.dat newsal.dat
      (file is copied)
```

Batch processing of commands - cont'd

Batch processing commands

In this section, the MS-DOS batch processing commands are described. These commands are usually only used in a batch processing file that you create. They can be used in interactive MS-DOS commands---the commands you enter at the keyboard to begin some task.

Batch processing commands are internal MS-DOS commands, that is, they are stored in memory and not as files on a disk.

The MS-DOS batch processing commands are listed in alphabetical order.

ECHO command

The ECHO command turns the echo feature on and off.

The format for the ECHO command is:

ECHO [ON | OFF | *message*]

Normally, commands in a batch file are displayed ("echoed") on the screen as they are performed by the computer.

ECHO OFF causes the commands not to be displayed as they are performed.

ECHO ON causes the commands to be displayed.

If ECHO is OFF, you can use ECHO *message* to display text on the screen. *Use this only in a batch processing file.*

If ON, OFF or *message* is not specified, the current setting of ECHO is displayed.

Batch processing of commands - cont'd

FOR command

The FOR command is a command extension used in batch and direct mode file processing to assign different values to a single variable sequentially.

The format of the FOR command for batch processing is:

```
FOR %%c IN (item...) DO command
```

The format of the FOR command for direct mode processing (that is, from the MS-DOS system prompt) is:

```
FOR %c IN (item...) DO command
```

c can be any character except 0,1,2,3,...,9 to avoid confusion with the %0-%9 batch parameters.

item is a parameter valid for the command required enclosed in parentheses, for example, (*memo.dat*). If more than one *item* is listed, separate each *item* with a space, for example, (*report.dat memo.dat address.dat*).

The %%*c* variable is set sequentially to each member of *item*, and then *command* is evaluated. If a member of *item* is a filespec involving * and/or ?, then the variable is set to each matching pattern from the disk.

FOR commands **cannot** be nested. That is, you can only specify one FOR command in a command line.

Batch processing of commands - cont'd

FOR command - cont'd

Batch file examples:

```
for %%f in (*.dat) do type %%f
```

```
for %%f in (report memo pay) do del %%f
```

The first example assigns the variable named %f to files ending with .DAT in the "working" directory. It then executes the command

```
TYPE filename
```

where *filename* could be: MYFILE.DAT
 PAYROLL.DAT
 MEMO.DAT

The second example assigns the variable %f to the files named REPORT, MEMO and PAY. It then deletes each of these files.

In a batch file, the %% is needed so that after batch parameter (%0-%9) processing is done, there is one % left. If only %f were there, the batch parameter processor would see the %, look at f decide that %f was an error (bad parameter reference) and throw out the %f, so that the command FOR would never see it.

Direct mode example:

```
A:\>for %f in (*.dat) do type %f
```

This example does the same as the first example above except it is entered in direct mode rather than in batch mode.

If the FOR is not in a batch file, then only one % should be used.

Batch processing of commands - cont'd

GOTO command

The GOTO command directs batch program flow.

The format of the GOTO command is:

GOTO *label*

To define a *label* in a batch file, precede a sequence of characters by a colon (:). Batch processing ignores the line until it encounters the GOTO *label*.

GOTO *label* causes commands to be executed beginning with the line after the *label* definition. If no *label* has been defined, the current batch file will terminate with the message Label not found.

Do not enter the colon when using the *label* as a parameter of GOTO.

(Note: The colon may also be used to put in comment lines in a batch file.)

Example:

```
:loop  
rem looping...  
goto loop
```

will produce an infinite sequence of rem looping... and goto loop messages on the screen.

Batch processing of commands - cont'd

IF command

The IF command allows conditional processing of MS-DOS commands.

The format of the IF command is:

IF *condition command*

The parameter *condition* is one of the following:

ERRORLEVEL *number*

True if and only if the previous program executed by COMMAND had an exit code of *number* or higher. (An exit code is set by a specific program. It is returned by the operating system after the program has finished. Later program tasks may be performed based on the value of this number.)

string1 = = string2

True if and only if *string1* and *string2* are identical after parameter substitution. Strings may not have embedded separators.

EXIST *filename*

True if and only if *filename* exists.

NOT *condition*

True if and only if *condition* is false.

When the *condition* is true, the *command* is executed. Otherwise, the *command* is ignored and the next line in the batch processing file is performed.

Examples:

if not exist payroll.dat echo Can't find file

if not errorlevel 3 link \$1,,;

Batch processing of commands - cont'd

PAUSE command

The PAUSE command suspends execution of the batch file.

The format of the PAUSE command is:

PAUSE [*message*]

During the execution of a batch file, you may need to change disks or perform some other action. PAUSE suspends execution until you press the Spacebar.

When a PAUSE command is encountered, the system displays

Strike a key when ready . . .

If you press Ctrl + C, another message is displayed:

Terminate batch job (Y/N)?

If you type Y in response to this message, execution of the remainder of the batch command file is terminated and control is returned to the operating system command level. Therefore, PAUSE can be used to break a batch file into pieces, allowing you to end the batch command file at an intermediate point.

The *message* is optional and may be entered on the same line as PAUSE. You may want to prompt the user of the batch file with some meaningful message when the batch file pauses. ECHO must be ON when using *message*.

The *message* prompt will be displayed before the "Strike a key" message.

Batch processing of commands - cont'd

REM command

The REM command is used to display remarks which are on the same line as the REM command in a batch file during execution of that batch file.

The format of the REM command is:

REM [*comment*]

You can use REM without a *comment* in your batch file to add spacing for readability.

The only separators allowed in the *comment* are the space, tab, and comma.

Example:

```
echo off
rem This file checks disk directory
rem It is named chkdisk.bat
echo Insert disk to be checked in Drive B
pause
dir b: | more
chkdsk b: /f/v
```

Batch processing of commands - cont'd

SHIFT command

The SHIFT command allows access to more than ten replaceable parameters in batch file processing.

The format of the SHIFT command is:

SHIFT

Usually, command files are limited to handling ten parameters, %0 through %9. To allow access to more than ten parameters, use SHIFT to change the command line parameters. For example,

```
if %0 = "memo"  
%1 = "bar"  
%2 = "name"  
%3...%9 are empty
```

then a SHIFT will result in the following:

```
%0 = "bar"  
%1 = "name"  
%2...%9 are empty
```

If there are more than ten parameters given on a command line, those that appear after the 10th (%9) will be shifted one at a time into %9 by successive SHIFTS.

There is no backward shift. Once SHIFT is executed, the 0 parameter (%0) that existed before the SHIFT cannot be recovered.

Change default (active) drive

To change the default (active) drive, you type the drive name followed by a colon (:) with no space.

Example:

If your default (active) drive is Drive A, the following system prompt is displayed on the screen:

```
A:\>
```

To log onto Drive B, you would type the following bolded text:

```
A:\>b:  
B:\>
```

Notice that the system prompt is now B:\>.

Change input device

The CTTY command allows you to change the device from which you issue commands. In this command, the letters TTY represents the console; that is, the keyboard.

CTTY is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the CTTY command is:

CTTY *device*

The *device* is the device from which you are giving commands to MS-DOS. See "Chapter 4. Device Names" of the GENERAL INFORMATION section for a list of device names.

This command is useful if you want to change the device on which you are working. The command

A:\>ctty aux

moves all command I/O (input/output) from the current device (the keyboard) to the AUX port, such as a printer.

The command

A:\>ctty con

moves I/O back to the original device (here, the keyboard).

(Note: There are many programs that do not use MS-DOS for input, output, or both. These programs do input directly to the hardware on your computer. The CTTY command will have no effect on these programs. CTTY will only effect programs that use MS-DOS.)

Change "working" directory

The CHDIR (or CD) command changes to a different "working" directory.

The format for the CHDIR (or CD) command is:

CHDIR *path*

or

CD *path*

CHDIR is an internal MS-DOS command; that is, it is stored in memory and not as a file on disk.

If you are in the root directory and want to change to another subdirectory (such as \USER\JOE), you would use the following command:

```
C:\>cd \user\joe
```

You are now in the \USER\JOE subdirectory. The system prompt changes to

```
C:\USER\JOE>
```

The CD .. command will always put you in the parent (next level up) directory of your "working" directory. For example, if you are in the \USER\JOE subdirectory and you give the command:

```
C:\USER\JOE>cd ..
```

You are now in the \USER subdirectory. The system prompt changes to

```
C:\USER>
```

To return to the root directory from the "working" directory, type

```
CHDIR \
```

or

```
CD \
```

Change the MS-DOS system prompt

The PROMPT command is used to change the MS-DOS system prompt.

PROMPT is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the PROMPT command is:

```
PROMPT [prompt text]
```

If no *prompt text* is typed, the prompt will be set to the default prompt, which is the default drive designation and the greater than sign (i.e., A >).

You can set the prompt to a special prompt, such as the current time, by using the characters indicated below.

The following characters can be used in the PROMPT command to specify special prompts. They **must** all be preceded by a dollar sign (\$) in the PROMPT command.

<u>Specify This Character</u>	<u>To get this prompt:</u>
\$	'\$' character
t	current time
d	current date
p	current "working" directory of the default drive
v	version number
n	default drive
g	'>' character
	'<' character
b	' ' character
_	A CR LF sequence
s	a space (leading only)
e	ASCII code X'1B' (escape)

Change the MS-DOS system prompt - cont'd

Examples:

If your current system prompt is,

```
d>
```

(where d is a drive name)

and you wanted to change it to display the current "working" directory of the default drive, you would enter the following command:

```
C>prompt $p$g
```

The system prompt would now be

```
C:\>
```

where the \ indicates you are in the root directory.

If you were in the subdirectory entitled ACCOUNTS, the system prompt would be

```
C:\ACCOUNTS>
```

You could also put the above command in the AUTOEXEC.BAT file. This way you do not have to type the above command every time you load MS-DOS.

You can use escape sequences in your prompts. For example:

```
prompt $e[7m$n:$e[m
```

sets the prompts in inverse video mode and returns to video mode for other text.

Check disk integrity

The CHKDSK command checks the directory of a specified disk to see that it is consistent with the files on the disk.

CHKDSK also tells you the available space remaining on your disk in bytes.

This command **does not** work over a network.

CHKDSK is an external MS-DOS command, that is, it is stored as a file on disk.

The format for the CHKDSK command is:

```
CHKDSK [d:][filename] [/F][/V]
```

CHKDSK analyzes the directories and the File Allocation Table on the disk in the drive that you specify. If no disk drive (*d:*) is specified, the default drive is used. It then produces a status report of any inconsistencies, such as files which have a non-zero size in their directory but really have no data in them.

CHKDSK should be run occasionally on each disk to check for errors in the directory. If any errors are found, CHKDSK will display error messages, if any, and then a status report.

A sample status report follows:

```
160256 bytes total disk space
 8192 bytes in 2 hidden files
 512 bytes in 2 directories
30720 bytes in 8 user files
121344 bytes available on disk

65536 bytes total memory
53152 bytes free
```

Check disk integrity - cont'd

Contiguous/non-contiguous file

If you want to check a file(s) to see if it is stored on the disk in contiguous (sequentially) or non-contiguous order, you can include a *filename* in the command.

CHKDSK switches

There are two switches you can use with the CHKDSK command. They are

/F switch

If this switch is specified, CHKDSK will correct the errors found in your directory. Otherwise, no corrections are made.

/V switch

If this switch is specified, CHKDSK will display messages while it is running.

Redirect CHKDSK output

To redirect CHKDSK output, use the > redirection symbol followed by the name of a file. This can either be an existing file or CHKDSK will create a new file. If the file already exists, that file will be overwritten with the new data unless you use the >> redirection symbol.

Error messages will be sent to the file specified and not displayed on the screen.

Do not use the /F switch if you redirect CHKDSK output.

Example:

```
A:\>chkdsk b: >diskchk.dat
```

Check disk integrity - cont'd

Error messages

CHKDSK may display the following messages:

filename

Contains *n* non-contiguous blocks.

The file or files you named are not written sequentially (sequentially) on the disk.

All specified file(s) are contiguous.

The file or files you named are all written sequentially on disk.

If the /F switch is specified, the following errors will be corrected automatically.

Allocation error, size adjusted

An invalid cluster number was found in the FAT. The file was truncated at the end of the last valid cluster.

Cannot Chdir to *filename*

Tree past this point not processed

CHKDSK is traveling the tree structure of the directory and is unable to proceed to the specified directory. All subdirectories and files under this directory will not be verified.

Disk error reading FAT

Or

Disk error writing FAT

One of your File Allocation Tables has a defective sector in it. MS-DOS will automatically use the other FAT. It is a good idea to copy all your files onto another disk.

First cluster number is invalid

Entry truncated

The file directory entry contains an invalid pointer to the data area. If you specified the /F switch, the file is truncated to a zero-length file.

Check disk integrity - cont'd

Error messages - cont'd

You must correct the following errors returned by CHKDSK, even if you specified the /F switch.

***filename* is cross-linked on cluster**

A cluster has been assigned to more than one file. Make a copy of the file you want to keep, and then delete both files that are cross-linked.

Cannot Chdir to root

Processing cannot continue

CHKDSK is traveling the tree structure of the directory and is unable to return to the root directory. CHKDSK is not able to continue checking the remaining sub-directories to the root. Try to restart MS-DOS. If this error persists, the disk is unusable.

Cannot recover . entry, processing continued

The . entry ("working" directory) is defective.

Cannot recover .. entry

The .. (parent directory) entry is defective.

Directory is totally empty, no . or ..

The specified directory does not contain references to working and parent directories. Delete the specified directory and re-create it.

Entry has a bad attribute (or size or link)

This message may be preceded by one or two periods to indicate which subdirectory is invalid. If you have specified the /F switch, CHKDSK will attempt to correct the error.

Check disk integrity - cont'd

Error messages - cont'd

Errors found, F parameter not specified
Corrections will not be written to disk

You must specify the /F switch if you want the errors corrected by CHKDSK.

Insufficient memory
Processing cannot continue

There is not enough memory in your machine to process CHKDSK for this disk. You must obtain more memory to run CHKDSK.

Insufficient room in root directory

Erase files in root and repeat Chkdsk

CHKDSK cannot process until you delete files in the root directory.

Invalid drive specification

Specify a valid drive.

Invalid parameter

One of the switches that you have specified is wrong.

Invalid sub-directory entry

The subdirectory that you have specified either does not exist or is invalid. Check to see that you have entered the subdirectory name correctly.

Invalid working directory

Processing cannot continue

Your disk is bad. Replace the disk or make a copy from your backup system disk.

Check disk integrity - cont'd

Error messages - cont'd

Probable non-DOS disk
Continue (Y/N)?

The disk you are using is a non-DOS disk. You must indicate whether or not you want CHKDSK to continue processing. This error message usually means that the File Allocation Table (FAT) is bad.

Unrecoverable error in directory
Convert directory to file (Y/N)?

A directory has been found to be unusable. If you respond Y, CHKDSK will convert the bad directory into a file. You can then delete it.

If you respond N, you may not be able to write to or read from the bad directory.

X lost clusters found in y chains
Convert lost chains to files (Y/N) ?

Clusters have been found that do not correspond to a file. If you respond Y, CHKDSK will create a file in the root directory for you to resolve this problem (files created by CHKDSK are named FILEnnnn.CHK). If you did not specify the /F switch, CHKDSK does nothing.

If you respond N and have specified the /F switch, CHKDSK will display:

X bytes disk space freed

If you respond N and have not specified the /F switch, CHKDSK displays:

X bytes disk space would be freed

Clear the screen

The `CLS` command clears the display screen.

`CLS` is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the `CLS` command is:

`CLS`

The `CLS` command causes MS-DOS to send the ANSI escape sequence `ESC[2J` (which clears the screen) to the console.

Compare the contents of two files

It is sometimes useful to compare files on your disk. If you have copied a file and later want to compare copies to see which one is current, you can use the MS-DOS File Comparison Utility (FC).

The File Comparison Utility compares the contents of two files. The differences between the two files can be sent to the screen or to a third file.

The files being compared **must** be text files.

The comparisons are made in one of two ways:

- line-by-line
- byte-by-byte

The line-by-line comparison isolates blocks of lines that are different between the two files and displays those blocks of lines.

The byte-by-byte comparison displays the bytes that are different between the two files.

Limitations on comparisons

FC uses a large amount of memory as buffer storage space to hold the text files. If the text files are larger than available memory, FC will compare what can be loaded into the buffer space. If no match is found in the portions of the files in the buffer space, FC will display the message:

resync failed. Files are too different.

For binary files larger than available memory, FC compares both files completely, overlaying the portion in memory with the next portion from disk. All differences are output in the same manner as those files that fit completely in memory.

Compare the contents of two files - cont'd

How to use FC

The format of FC is as follows:

```
FC [/a /b /c /l /lb # /w /t /n /#] filespec1  
filespec2
```

FC compares the first file (*filespec1*) against the second file (*filespec2*) and reports any differences between them.

Paths can be used in the command. For example,

```
C:\>fc \tom\data1.txt \sue\data2.txt
```

FC takes DATA1.TXT in the \TOM subdirectory and compares it with DATA2.TXT in the \SUE subdirectory.

FC switches

Switches must be typed in lowercase and, if more than one switch is used, there must be a space between them.

There are nine switches that you can use with the File Comparison Utility. They are:

/a switch

This switch abbreviates the output of an ASCII comparison. Instead of displaying all of the lines that are different, only the lines that begin and end each set of differences are displayed. The intermediate lines are represented by ellipses (...).

Compare the contents of two files - cont'd

FC switches - cont'd

/b switch

A binary comparison of both files is performed. The two files are compared byte-to-byte, with no attempt to resynchronize after a mismatch.

It is the default when you compare files with an extension of .EXE, .COM, .SYS, .OBJ, .LIB or .BIN.

The mismatches are displayed as follows:

```
xxxxxxx: yy zz
```

where xxxxxx is the relative address of the pair of bytes from the beginning of the file. Addresses start at 00000000. yy and zz are the mismatched bytes from file1 and file2, respectively.

If one of the files contains less data than the other, a message is displayed. For example, if file1 ends before file2, FC displays:

```
fc: File2 longer than File1
```

/c switch

The case of letters is ignored during the comparison. All letters in the files are considered uppercase letters.

/l switch

Compares the files in ASCII mode. It is the default when you compare files that do not have an extension of .EXE, .COM, .SYS, .OBJ, .LIB or .BIN.

Compare the contents of two files - cont'd

FC switches - cont'd

/lb # switch

This switch sets the internal line buffer to # lines. The default length of the internal buffer is 100 lines. Files that have more than this number of consecutive, differing lines will abort the comparison.

/w switch

Whites (tabs and spaces) are compressed during the comparison. Thus, multiple contiguous whites in any line will be considered as a single white space. Note that although FC compresses whites, it does not ignore them. The two exceptions are beginning and ending whites in a line, which are ignored.

If both the /w and /c options are specified, then FC will compress whites and ignore case.

/t switch

This switch does not expand tabs to spaces. The default is to treat tabs as spaces to 8-column positions.

/n switch

Displays the line numbers on an ASCII comparison.

Compare the contents of two files - cont'd

FC switches - cont'd

/# switch

This switch specifies the number of lines required to match for the files to be considered as matching again after a difference has been found. # can be any number from 1 to 9. If this switch is not specified, the number defaults to 2.

Difference reporting

The File Comparison Utility reports the differences between the two files you specify by displaying:

```
*****filename1
last match, if any
differences
next match, if any
*****filename2
last match, if any
differences
next match, if any
```

The default for the number of lines to match between the files is 2. If you want to change this default, specify the number of lines with the /# switch.

To stop scrolling, press the Ctrl + NumLock or Ctrl + S keys. To start scrolling, press the Spacebar.

If there are too many differences (involving too many lines), the program will simply report that the files are different and stop.

The comparison report is sent to the screen unless you specify output redirection to a file.

Compare the contents of two files - cont'd

Redirecting FC output to a file

The differences and matches between the two files you specify will be displayed on the screen unless you redirect the output to a file using the redirection symbol (>).

To compare FILE1 and FILE2 and then send the FC output to DIFFER.TXT, the command would look like this:

```
A:\>fc file1 file2 >differ.txt
```

The differences and matches between FILE1 and FILE2 are put into DIFFER.TXT on the disk in the default drive.

FC error messages

When the File Comparison Utility detects an error, one or more of the following error messages will be displayed:

fc: *filename* longer than *filename*

One of the files is longer than the other in a binary comparison.

fc: cannot open *filename* - No such file or directory

One of the files does not exist. Check the directory for the correct file name.

fc: incompatible switches

The switches specified are not compatible, i.e., /b and /l. Do not combine binary and ASCII comparison switches.

Compare the contents of two files - cont'd

FC error messages - cont'd

fc: no differences encountered
The files are the same.

fc: out of memory
There is not enough memory to perform the comparison.

resynch failed. Files are too different.
The number of lines in the internal line buffer is less than the number of consecutive, differing lines. You should specify the /b # switch with a larger number if you want to display all of the file differences.

usage: fc [/a]/[b]/[c]/[l]/[b n]/[w]/[t]/[n]/[NNNN]
file1 file2

The wrong number of options have been specified on the FC command line or one of the switches specified is invalid.

Compare the contents of two files - cont'd

FC examples

Assume the two following ASCII files are on the disk in Drive A:

ALPHA.DAT

A
B
C
D
E
F
G
H
I
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z

BETA.DAT

A
B
C
G
H
I
J
1
2
P
Q
R
S
T
U
V
4
5
W
X
Y
Z

If you use the following command,

```
A:\>fc alpha.dat beta.dat
```

FC compares the two files and displays the differences on the screen. All defaults remain intact. The output is shown on the next page.

Compare the contents of two files - cont'd

FC examples - cont'd

***** alpha.dat

C

D

E

F

G

(Note: alpha file contains CDEFG.
beta contains CG.)

***** beta.dat

C

G

***** alpha.dat

I

M

N

O

P

(Note: alpha file contains IMNOP
where beta contains IJ12P.)

***** beta.dat

I

J

1

2

P

***** alpha.dat

V

W

(Note: alpha file contains VW
where beta contains V45W.)

***** beta.dat

V

4

5

W

Compare the contents of two files - cont'd

FC examples - cont'd

If the following command is used,

```
A:\>fc /b alpha.dat beta.dat
```

the following binary comparison appears.

```
00000009: 44 47
0000000c: 45 48
0000000f: 46 49
00000012: 47 4a
00000015: 48 31
00000018: 49 32
0000001b: 4d 50
0000001e: 4e 51
00000021: 4f 52
00000024: 50 53
00000027: 51 54
0000002a: 52 55
0000002d: 53 56
00000030: 54 34
00000033: 55 35
00000036: 56 57
00000039: 57 58
0000003c: 58 59
0000003f: 59 5a
fc: alpha.dat longer than beta.dat
```

Configure screen attributes

See Appendix A, Chapter 6 for instructions on how to configure the screen attributes.

Or

For using the CONFIGUR utility in a batch mode, see Appendix G.

Configure serial port(s)

See Appendix A, Chapter 6 for instructions on how to configure the serial port(s).

Or

For using the CONFIGUR utility in a batch mode, see Appendix G.

Convert .EXE files to binary format

The EXE2BIN command converts .EXE (executable) files to binary format. This results in a saving of disk space and faster program loading.

This command is useful only if you want to convert .EXE files to binary format.

EXE2BIN is an external MS-DOS command that is stored as a file on disk.

The format for the EXE2BIN command is:

EXE2BIN *filespec1* [*filespec2*]

The file named by *filespec1* is the input file. If no drive name is specified, the default drive name is used. If no path is specified, the "working" directory is used. If no extension is specified, it defaults to .EXE.

The input file is converted to .COM file format (memory image of the program) and placed in the output file.

The file named by *filespec2* is the output file. If no drive name is specified, the drive name of the input file will be used. If no output file name is specified, the input file name will be used. If no file name extension is specified in the output file name, the new file will be given an extension of .BIN.

The input file **must** be in valid .EXE format produced by the linker. The resident or actual code and data part of the file **must** be less than 64K. There **must** be no STACK segment.

Convert .EXE files to binary format - cont'd

Two kinds of conversions are possible, depending on whether the initial CS:IP (Code Segment: Instruction Pointer) is specified in the .EXE file:

1. If CS:IP is not specified in the .EXE file, a pure binary conversion is assumed. If segment fixups are necessary (that is., the program contains instructions requiring segment relocation), you will be prompted for the fixup value. This value is the absolute segment at which the program is to be loaded. The resulting program will be usable only when loaded at the absolute memory address specified by a user application. The command processor will not be able to load the program.
2. If CS:IP is specified as 0000:100H, it is assumed that the file is to be run as a .COM file with the location pointer set at 100H by the assembler statement ORG; the first 100H bytes of the file are deleted. No segment fixups are allowed, as .COM files must be segment relocatable; that is, they must assume the entry conditions explained in Microsoft's Macro Assembler Manual. Once the conversion is complete, you may rename the output file with a .COM extension. Then the command processor will be able to load and execute the program in the same way as the .COM programs supplied on your MS-DOS disk.

If CS:IP does not meet either of these criteria, or if it meets the .COM file criterion but has segment fixups, the following message will be displayed:

File cannot be converted

This message is also displayed if the file is not a valid executable file.

Convert .EXE files to binary format - cont'd

EXE2BIN error messages

If EXE2BIN finds an error, one or more of the following error messages will be displayed:

File cannot be converted

The input file is not in the correct format.

File Creation Error

EXE2BIN cannot create the output file. Run CHKDSK to determine if the directory is full, or if some other condition caused the error.

File not found

The file is not on the disk specified.

Fixups needed - base segment (hex):

The source (.EXE) file contained information indicating that a load segment is required for the file. Specify the absolute segment address at which the finished module is to be located.

Insufficient disk space

There is not enough disk space to create a new file.

Insufficient memory

There is not enough memory to run EXE2BIN.

WARNING - Read error on EXE file.

Amount read less than size in header

This is a warning message only. It means that the .EXE header in the file is inconsistent with the size of the file.

Copy file(s)

The COPY command is used to copy one or more files to another disk or to the same disk. If you prefer, you can give the copies different names.

The COPY command also lets you join (append) one or more files to the end of another file. This is called concatenating files. (See page 5-65.)

COPY is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk. The format for the COPY command is:

COPY [/A]/[B] *filespec1* [*filespec2*] [/V]

filespec1 is the file specification of the file(s) to be copied.

filespec2 may take three forms:

- If *filespec2* is a drive name only (d:), the original file is copied with the original file name to the disk in the designated drive.
- If *filespec2* is a file name only, the original file is copied to a file on the default drive with the file name specified.
- If *filespec2* is a full file specification, the original file is copied to a file on the disk in the designated drive and in the specified path with the file name specified.

If *filespec2* is not given, the copy will be on the default drive and will have the same name as the original file (*filespec1*). If *filespec1* is on the default drive and *filespec2* is not specified, the COPY will be aborted. Copying files to themselves is not allowed. MS-DOS will display the error message:

File cannot be copied onto itself
0 File(s) copied

Copy file(s) - cont'd

Files can be copied to different subdirectories by specifying a path.

An entire subdirectory can be copied to another subdirectory by specifying two paths.

The date and time a file was created/updated is not changed during a COPY.

Before you begin the COPY process, make sure there is enough space (in bytes) left on the destination disk to record the new file(s). Use the CHKDSK command to check disk space.

If files already exist on the destination disk, they will not be affected unless a file on the destination disk has the same file name as the file being copied. In this case, the file on the destination disk is written over (replaced).

COPY will not copy files with bad sectors. Use the RECOVER command to recover the good sectors. See "Recover file with bad sector(s)" in this section for instructions.

COPY switches

There are three switches that you can use with COPY. They are

/A switch

The /A switch indicates that the file is an ASCII file. This entry applies to the file specification it precedes and to all subsequent file specifications on the command line until a /B is encountered.

In a source file specification, /A allows data in the file to be copied up to, but not including an end-of-file marker. (In EDLIN, this is a Ctrl + Z.) The remainder of the file is not copied.

Copy file(s) - cont'd

COPY switches - cont'd

/A switch - cont'd

In a destination file specification, /A adds an end-of-file character to the end of the copied file.

/B switch

The /B indicates that the file is a binary data file. This option refers to the preceding file specification and remains in effect until /A is encountered.

In a source file specification, /B copies the entire file, including any end-of-file markers.

In a destination file specification, /B causes no end-of-file marker to be added to the copied file.

/V switch

The /V switch causes MS-DOS to verify that the sectors written on the destination disk are recorded properly. Although there are rarely recording errors when you run COPY, you can verify that critical data has been correctly recorded.

This option causes the COPY command to run more slowly because MS-DOS must check each entry recorded on the disk.

An error is displayed if a write is not verified.

Copy file(s) - cont'd

COPY examples

The following are some examples of how to use the COPY command.

A:\>copy b:myfile.dat

The file MYFILE.DAT on the disk in Drive B is copied to the disk in the default drive and keeps the same file name.

A:\>copy *.* b:

Copy all the files on the disk in the default drive to the disk in Drive B.

A:\>copy old.dat new.dat

Copy OLD.DAT to the same disk and name the file NEW.DAT.

A:\>copy *.dat b:*.txt

Copy all the files on the disk in the default drive that have an extension of .DAT to the disk in Drive B and change the file extension to .TXT.

C:\>copy memo.dat \user\joe

Copy the file MEMO.DAT in the root directory to the \USER\JOE subdirectory.

C:\>copy \user\sue \user\joe

Copy all the files in the \USER\SUE subdirectory to the \USER\JOE subdirectory.

Copy file(s) - cont'd

File concatenation

The COPY command also allows file concatenation (appending) while copying.

The format for concatenation is

COPY *filespec* + *filespec* ... *filespec*

Concatenation is accomplished by simply listing any number of files with COPY, separated by +, then specify a destination *filespec* to send the combined files to. For example,

A:\>copy intro.dat + main.dat b:report.dat

This command concatenates the files named INTRO.DAT and MAIN.DAT on the disk in the default drive and places them in a file on the disk in Drive B called REPORT.DAT.

To combine several files using wild cards into one file, you could type:

A:\>copy *.lst combin.prn

This command would take all files with a file name extension of .LST and combine them into a file named COMBIN.PRN on the disk in the default drive.

In the following example, for each file found matching *.LST, that file is combined with the corresponding .REF file. The result is a file with the same file name but with the extension .PRN. Thus, FILE1.LST will be combined with FILE1.REF to form FILE1.PRN; then XYZ.LST with XYZ.REF to form XYZ.PRN; and so on.

A:\>copy *.lst + *.ref *.prn

Copy file(s) - cont'd

The following COPY command combines all files matching *.LST, then all files matching *.REF, into one file named COMBIN.PRN:

```
A:\>copy *.lst + *.ref combin.prn
```

Do not enter a concatenation COPY command where one of the source file names has the same extension as the destination. For example, the following command is an error if ALL.LST already exists.

```
A:\>copy *.lst all.lst
```

The error would not be detected, however, until ALL.LST is appended. At this point, the original ALL.LST file could have already been destroyed.

COPY compares the file name of the input file with the file name of the destination. If they are the same, that one input file is skipped, and the error message

Content of destination lost before copy

is displayed. Further concatenation proceeds normally. This allows "summing" files, as in this example:

```
A:\>copy all.lst + *.lst
```

This command appends all *.LST files, except ALL.LST itself, to ALL.LST. This command will not produce an error message and is the correct way to append files using the COPY command.

Copy one disk to another

The Xerox FDMMAINT utility is used to copy one disk to another. This is a track-for-track disk copy.

FDMMAINT is a Xerox utility that is stored as a file on disk.

FDMMAINT should not be used while running network software.

You should always make backup copies of your program disks as soon as you get them and of your important data disks.

You never know when something may happen to ruin a floppy disk. Making backup copies will save you hours of work replacing vital data.

The date and time a file was created or last updated is not changed when you make a backup copy of the disk.

If the backup (destination) disk is not blank (has files on it), all of these files will be erased.

The backup disk can be a new unformatted disk. The system will format it before it begins the copy process.

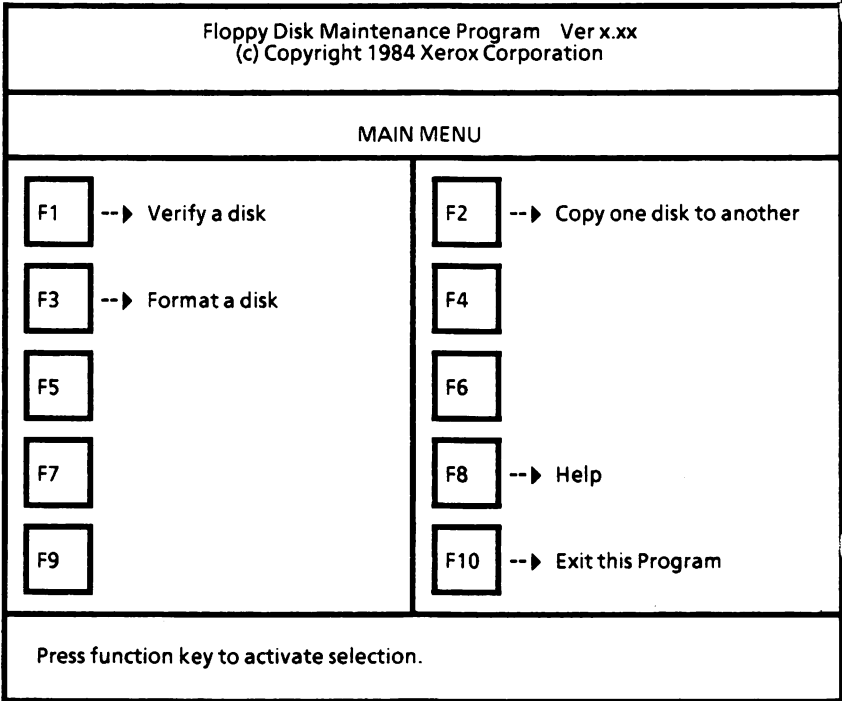
To load the FDMMAINT utility

From the MS-DOS system prompt,

- ▶ Type FDMMAINT and press the Return key.

The Floppy Disk Maintenance Program is loaded into memory and the screen looks similar to the one on the following page.

Copy one disk to another - cont'd



With the Floppy Disk Maintenance Program Main Menu displayed,

- ▶ Select F2.

The Copy Menu is displayed as shown on the next page.

Copy one disk to another - cont'd

Floppy Disk Maintenance Program Ver x.xx (c) Copyright 1984 Xerox Corporation	
COPY MENU	
F1 --> Source disk d	F2 --> Destination disk d
F3	F4
F5	F6
F7	F8 --> Help
F9 --> Execute Copy	F10 --> Return to Main Menu
Press function keys F1 and F2 to set selection.	

Set selections

- ▶ Select F1 until the source drive is displayed. The source drive is the drive containing the disk to be copied.
- ▶ Select F2 until the destination drive is displayed. The destination drive is the drive containing the disk to be copied to.

(Note: If you have a hard disk drive system, the above options cannot be changed to another drive unless you have additional floppy disk drives.)

Copy one disk to another - cont'd

Execute copy

If you have a dual floppy disk drive system, insert the source disk and the destination disk in the appropriate drives and close the drive doors.

If you have a hard disk drive system, you will be prompted when to insert the source disk and when to insert the destination disk. After inserting the appropriate disk, press the Spacebar to continue.

- ▶ Select F9 to begin the copy process.

The following message is displayed,

All data on the destination disk will be lost.
Do you want to continue? [N]

- ▶ Enter Y to say "yes"

Or

Enter N to say "no"

If you use a new disk, the system will automatically format it. You will see the following message as the system is formatting the disk.

Formatting...

Copy one disk to another - cont'd

Execute copy - cont'd

When the formatting is complete, the copy process begins by displaying

Reading...

then

Writing...

The above two messages tell you that the system is reading information from the source disk and then writing it to the destination disk.

(Note: Do not open either drive door at any time during the copy process unless the system prompts you to do so.)

If you have a hard disk drive system, you will be asked to insert the source and destination disks, as required, in order to copy the entire disk.

Copy one disk to another - cont'd

Copy complete

When the copy process is complete, the following message is displayed.

Press function keys F1 and F2 to set selection.
Copy complete.

- ▶ Remove and label the disk.

You can repeat the process or select F10 to return to the Floppy Disk Maintenance Program Main Menu.

To exit this program,

- ▶ Select F10 from the Main Menu.

You are returned to the MS-DOS system prompt.

Copy text from the keyboard into a file

To copy the text that you are about to enter at the keyboard into a file, use the following format:

COPY CON: *filespec*

You can then enter text directly into the file you have named, terminating your input by simultaneously pressing the Ctrl and Z keys and then the Return key.

The colon (:) is optional.

Example:

A:\>copy con: myfile.dat

—

In this example, whatever is entered at the keyboard after this command is given is copied to the MYFILE.DAT file on the disk in the default drive until you terminate the command by pressing Ctrl + Z and then the Return key.

Date (display or change)

The DATE command allows you to enter or change the date known to the system. This date will be recorded in the directory for any files you create or alter.

DATE is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the DATE command is:

DATE [*mm-dd-yy*]

You can change the date from the keyboard.

If you type DATE, DATE will respond with the message:

Current date is Wed 8-28-1985
Enter new date (mm-dd-yy): _

Press the Return key if you do not want to change the date shown.

If you want to change the date, you can enter it now. The new date must be entered using numerals only; letters are not permitted. The allowed options are:

mm = 1 - 12
dd = 1 - 31
yy = 80 - 99 or 1980 - 2099

The date, month, and year entries may be separated by hyphens (-) or slashes (/).

MS-DOS is programmed to change months and years correctly, whether the month has 31, 30, 29, or 28 days. MS-DOS handles leap years, too.

Date (display or change) - cont'd

If the options or separators are not valid, DATE displays the message:

```
Invalid date
Enter new date (mm-dd-yy):
```

DATE then waits for you to enter a valid date.

You can also type a particular date after the DATE command as in:

```
A:\>date 3-9-84
```

In this case, you do not have to answer the Enter new date: prompt.

Delete a directory

The **RMDIR** (or **RD**) command deletes a subdirectory from a multilevel directory structure.

The format for the **RMDIR** (or **RD**) command is:

RMDIR *path*

or

RD *path*

RMDIR (or **RD**) is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

Before a subdirectory can be deleted, it has to be **empty** except for the **.** and **..** shorthand symbols. This will prevent you from accidentally deleting files and subdirectories.

To delete the **\USER\JOE** subdirectory, first issue a **DIR** command for that path to be sure that the **\JOE** subdirectory does not contain any important files that you do not want deleted. If you are in the root directory, the command to check the **\JOE** subdirectory is

```
C:\>dir \user\joe
```

Next, you need to delete all the files in the **\JOE** subdirectory.

```
C:\>del \user\joe
Are you sure (Y/N)? Y
C:\>_
```

Now that the **\JOE** subdirectory is empty except for the **.** and **..** shorthand symbols (you cannot delete these entries), you can delete it.

```
C:\>rd \user\joe
```

The **\JOE** subdirectory has been deleted from the **\USER** subdirectory.

Delete file(s)

The DEL (or ERASE) command deletes all specified files.

DEL (or ERASE) is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the DEL (or ERASE) command is:

DEL *filespec*

or

ERASE *filespec*

Use this command with **caution**. You should always double check your typed entry before you press the Return key. Once a file is deleted, it **cannot** be retrieved. *However, there are utilities available in today's market that can be used to recover deleted files. Check with your software dealer.*

If the *filespec* is *.* or a path only, the system displays

Are you sure (Y/N)?

If a Y is typed in response, all files are deleted as requested.

If an N is typed in response, the delete command is aborted.

Designate boot partition

Whenever you want to switch from one operating system to another or to change an MS-DOS partition to boot from, you need to designate the partition containing the desired operating system as the "BOOT" partition.

The Xerox HDMAINT utility is used to designate a boot partition.

HDMAINT is for use with hard disk systems only.

To load the HDMAINT utility, from the MS-DOS system prompt

- ▶ Type HDMAINT and press the Return key. The screen displays the following.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Partitioning	F2 --> Hard Disk 0
F3 --> Format MS-DOS Partition	F4 --> Format Physical Hard Disk
F5 --> Backup Files	F6 --> Restore Files
F7 --> Place into Shipping Mode	F8 --> Help
F9 --> Display Partition Status	F10 --> Exit this Program

Press function key to activate selection.

Designate boot partition - cont'd

From the Hard Disk Maintenance Program Main Menu,

- ▶ Select F1 to go to the Partitioning Hard Disk 0 Menu.

The screen should look similar to the following.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation						
PARTITIONING HARD DISK 0						
PARTITION	TYPE	DRIVE	START	END	SIZE	STATUS
1	OTHER(114)	D	200	304	105	SYSTEM DISK
2	MS-DOS(1)	C (BOOT)	0	199	200	SYSTEM DISK

F5	--▶ Add MS-DOS Partition	F6	--▶ Delete MS-DOS Partition
F7	--▶ Designate Boot Partition	F8	--▶ Help
F9	--▶	F10	--▶ Return to Main Menu

Press function key to activate selection.

Designate boot partition - cont'd

From the Partitioning Hard Disk 0 Menu,

- ▶ Select F7 until the desired partition is indicated as "BOOT". This partition is available for use by the appropriate system.

If the last (highest-numbered) partition is the "BOOT" partition when you select F7, no partition is active. In this condition, you should select F7 once more to make Partition 1 the "BOOT" and then select the appropriate partition.

When the desired partition is selected as the "BOOT",

- ▶ Select F9 to accept the active partition.
- ▶ Select F10 to return to the main menu.
- ▶ Select F10 to exit the program. The MS-DOS system prompt is displayed.

Now the next time you reboot or turn your system off and on, the system will load from the partition you just designated.

Display contents of a directory

The DIR command is used to list the files in a specified directory.

The format for the DIR command is:

`DIR [filespec] [/P]/[W]`

DIR is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

When the DIR command is executed, the following information is displayed on the screen:

- Disk volume label (if any)
- Directory name
- Directory files - one line is displayed for each file with this information:

file name
file name extension
size (in bytes)
date and time the file was created or
last updated

- Amount of free space left on the disk (in bytes)

If the screen scrolls too fast for you to read the file, simultaneously press the Ctrl + NumLock or Ctrl + S keys to stop it. To continue the display, press the Spacebar.

You can simultaneously press the Shift + PrtSc keys to get a screen print out of the directory.

Display contents of a directory - cont'd

The command

```
A:\>dir
```

displays all directory entries on the disk in the default drive.

If only the drive specification is given with the command

```
A:\>dir b:
```

all entries on the disk in the specified drive are displayed.

If only a file name is entered with no extension

```
A:\>dir payroll
```

all files with the designated file name on the disk in the default drive are listed.

If you want to find out if a certain file is on a disk, you can type the exact filespec as follows.

```
A:\>dir payroll.dat
```

or

```
A:\>dir b:payroll.dat
```

or

```
C:\>dir \user\joe\payroll.dat
```

If you want to display the files in a subdirectory other than the "working" directory, you can type a path as follows:

```
C:\>dir \bin
```

Display contents of a directory - cont'd

Wild card characters

The wild card characters "?" and "*" (question mark and asterisk) may be used in the file name option. The following DIR commands are equivalent:

<u>Command</u>	<u>Equivalent</u>
DIR	DIR *.*
DIR FILENAME	DIR FILENAME.*
DIR .EXT	DIR *.EXT

DIR switches

Two switches (/P and /W) may be specified with DIR.

/P switch

The /P switch selects Page Mode. With /P, display of the directory pauses after the screen is filled. To resume display of output, press the Spacebar. An example is

```
A:\>dir /p
```

/W switch

The /W switch selects Wide Display. With /W, only file names are displayed without other file information. Files are displayed five per line. An example is

```
A:\>dir b: /w
```

Display contents of a file

The **TYPE** command is used to display the contents of a file on the screen.

TYPE is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the **TYPE** command is:

TYPE *filespec*

Use this command to view the contents of a file without modifying it. (Use **DIR** to find the name of a file and **EDLIN** to change the contents of a file.)

The only formatting performed by **TYPE** is that tabs are expanded to spaces consistent with tab stops every eighth column.

The display of binary (program) files causes control characters (such as **Ctrl+Z**) to be sent to the system, including bells, form feeds, and escape sequences. The display on the screen may not be understandable. Experimenting with program files and **TYPE** does not harm the program file, but you may need to reboot the computer to continue.

To stop scrolling, simultaneously press the **Ctrl+NumLock** keys. To continue the display, press the **Spacebar**.

Display directory structure

The Xerox TREE utility displays the directory structure for a specified drive.

The format for TREE is

```
TREE [d:] [/F | /V]
```

When a drive (d:) is not specified, the default drive is used.

When specifying a drive (d:) with a switch (/F or /V), **be sure** you put a space after the drive name before entering the switch.

For each subdirectory encountered, the full path, as well as any subdirectories defined within the subdirectory, is displayed.

To stop the screen from scrolling, simultaneously press the Ctrl + NumLock or Ctrl + S keys. Press the Spacebar to continue the display.

While TREE is executing, you can simultaneously press the Ctrl + C keys to exit TREE and return to the system prompt.

If you have a hard disk drive system, be sure you are in the root directory before executing TREE.

Display directory structure - cont'd

TREE switches

There are two switches you can use with the TREE command.

/F switch

If the /F switch is specified, a list of all files will be displayed following their subdirectory name.

/V switch

If the /V switch is specified, a list of all files will be displayed following their subdirectory name with information about each file such as size, attribute, and date and time created or last updated.

See the next few pages for examples of TREE output.

Display directory structure - cont'd

TREE with no switches specified

The command

```
C:\>tree
```

will display the subdirectories of the disk in the default drive as illustrated below.

```
C:\>tree
```

```
DIRECTORY PATH LISTING FOR VOLUME name
```

```
Path: \subdirectory name
```

```
Sub-directories: name
```

```
Path: \subdirectory name\subdirectory name
```

```
Sub-directories: None.
```

```
Path: \subdirectory name
```

```
Sub-directories: None.
```

Display directory structure - cont'd

TREE with the /F parameter specified

The command

```
C:\>tree /f
```

will display a list of all files following their subdirectory name as illustrated below.

```
C:\>tree /f
```

```
DIRECTORY PATH LISTING FOR VOLUME name
```

```
Path: \
```

```
Sub-directories:  name  
                  name
```

```
Files:           filename.ext  
                  filename.ext
```

```
Path: \subdirectory name
```

```
Sub-directories:  None.
```

```
Files:           filename.ext  
                  filename.ext
```

```
Path: \subdirectory name
```

```
Sub-directories:  None.
```

```
Files:           filename.ext  
                  filename.ext
```

Display directory structure - cont'd

TREE with /V switch specified

The command

```
C:\>tree /v
```

will display a list of all files following their subdirectory name with information about each file such as size, attribute, and the date and time it was created or last updated as illustrated below.

```
C:\>tree /v
```

DIRECTORY PATH LISTING FOR VOLUME name

Path: \

Sub-directories: name
name

Files: filename.ext size attribute date & time
filename.ext size attribute date & time
n File(s) n Bytes Total

Path: \subdirectory name

Sub-directories: None.

Files: filename.ext size attribute date & time
filename.ext size attribute date & time
n File(s) n Bytes Total

Path: \subdirectory name

Sub-directories: None.

Files: filename.ext size attribute date & time
filename.ext size attribute date & time
n File(s) n Bytes Total

Display disk volume label

The VOL command displays the disk label, if it exists, of the disk in the specified drive.

VOL is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the VOL command is:

VOL [d:]

If no drive name is specified, MS-DOS displays the volume label of the disk in the default drive.

If the disk does not have a volume label, VOL displays the following message:

Volume in drive x has no label

The command

A:\>vol

displays the disk volume label of the disk in the default drive.

The command

A:\>vol b:

displays the disk volume label of the disk in Drive B.

Display file attribute

The ATTRIB command can be used to display the attribute of a file.

ATTRIB is an external MS-DOS command that is stored as a file on disk.

The format for the ATTRIB command to display a file attribute is:

ATTRIB *filespec*

The wild card characters *.* can be used to display the attributes of all files on a specific drive or path.

An R is displayed to the left of the file name when it is a Read Only file.

Examples:

```
A:\>attrib myfile.dat
A:\MYFILE.DAT
```

```
A:\>attrib salary.dat
R          A:\SALARY.DAT
```

```
A:\>attrib b:*. *
R          B:\MEMO.DAT
R          B:\PERSONAL.DAT
R          B:\REPORT.DAT
```

```
C:\>attrib \user\joel*. *
R          \USERJOE\PAY.DAT
R          \USERJOE\NAMES.DAT
R          \USERJOE\tax.DAT
```

Display MS-DOS version number

The VER command displays the MS-DOS version number.

VER is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the VER command is:

VER

The command

A:\>ver

displays the MS-DOS version number on the screen.

Display output a screen at a time

The MORE command displays output one screen at a time.

MORE is an external MS-DOS command that is stored as a file on disk.

The format for the MORE command is:

command | MORE

MORE is an MS-DOS filter that reads information and displays it one screen of information at a time.

The MORE command is useful for viewing a long file or directory one screen at a time.

The vertical bar (|) is used to pipe the output from the text file to the MORE filter. Press the Shift + backslash (\) keys to get the vertical bar.

The MORE command pauses and displays the message --MORE-- at the bottom of your screen.

Pressing the Spacebar will display another screen of information. This process continues until all the input data has been read.

The command

A:\>type myfile.dat | more

displays the contents of the file MYFILE.DAT on the disk in the default drive one screen at a time.

Display "working" directory name

If your system prompt is the A> or C> and you have a multilevel directory structure, you do not know what directory you are in.

You can use the CHDIR (or CD) command to display the "working" directory name.

If the CHDIR (or CD) command is used without a path, the "working" directory name is displayed. For example, if you are in the \USER\JOE subdirectory and you give the command

```
C>cd
```

The screen will display

```
C>\USER\JOE
```

You can change your system prompt to display the directory path as part of the system prompt. The command is

```
PROMPT $P$G
```

If you created your MS-DOS disk as described in this manual, your system prompt should display the directory path. For example, in the root directory the system prompt will be

```
d:\>
```

(where d is the drive name)

For the subdirectory \USER\JOE, the system prompt would be

```
d:\USER\JOE>
```

If not, you can give the PROMPT command each time you load MS-DOS or you can put it in the AUTOEXEC.BAT file.

File sharing and locking

The SHARE command installs file sharing and locking.

SHARE is an external MS-DOS command that is stored as a file on disk.

The format for the SHARE command is:

```
SHARE [/F:filespace] [/L:locks]
```

This command is only used when networking is active. It is included in the AUTOEXEC.BAT file to install shared files.

/F:filespace switch allocates file space in bytes for the area used to record file sharing information. Each file that is open needs the length of the full file name plus 11 bytes. The default value for the */F* switch is 2048 bytes.

/L:locks switch allocates the number of locks you want to allow. The default value for the */L* switch is 20 locks.

When you load SHARE, all read and write requests are checked by MS-DOS.

If you try to install SHARE again, the following message is displayed:

```
SHARE already installed
```

The following example loads file sharing and uses the default values for the */F* and */L* switches:

```
A:\>share
```

Find a specific string of text

The FIND command searches for a specific string of text in a file or files.

FIND is an external MS-DOS command that is stored as a file on disk.

The format for the FIND command is:

```
FIND [/V /C /N] "string" [filespec. . .]
```

FIND is an MS-DOS filter that takes as parameters a string and a series of *filespecs*. FIND displays all lines that contain a specified string from the file(s) specified in the command line.

You **cannot** use wild card characters in the file name.

If no *filespecs* are specified, FIND takes the input on the screen and displays all lines that contain the specified string.

The string **must** be enclosed in quotes.

The command

```
A:\>find "Fool's Paradise" book1.txt  
book2.txt
```

displays all lines from BOOK1.TXT and BOOK2.TXT (in that order) on the disk in the default drive that contain the string Fool's Paradise.

Find a specific string of text - cont'd

You can also use an MS-DOS command with FIND.

The command

```
A:\>dir b: | find /v "DAT"
```

causes MS-DOS to display all names of the files on the disk in Drive B that do not contain the string DAT.

FIND switches

There are three switches that can be used with FIND.

/V switch

The /V switch displays all lines not containing the specified string.

/C switch

The /C switch displays only the count of lines that contain a match in each of the files.

/N switch

The /N switch causes each line to be preceded by its relative line number in the file.

Find a specific string of text - cont'd

FIND error messages

When an error is detected, FIND responds with one of the following error messages.

FIND: File not found *filename*
The file name specified does not exist or FIND cannot find it.

FIND: Invalid number of parameters
A string was not specified with the FIND command.

FIND: Invalid Parameter *name*
A parameter was specified that does not exist.

FIND: Read error in *filename*
An error occurred when FIND tried to read the file specified in the command.

FIND: Syntax error
An illegal string was typed when issuing the FIND command. Remember that the string must be enclosed by quotes.

Floppy disk volume label

The LABEL command can be used to create, change, or delete the volume identification label of a floppy disk.

The format of the LABEL command is:

```
LABEL [d:] [volume label]
```

The *volume label* can be up to 11 characters long. LABEL truncates the volume label if you enter more than 11 characters.

You should not use the following characters in a volume label: * ? / \ | . , ; : + = < > [] .

The volume label may include spaces, but may not include tabs.

If you do not specify a *volume label*, LABEL prompts:

```
Volume in drive d is xxxxxxxxxxxx
Volume label (11 characters, ENTER for
none)? _
```

If the disk does not already have a volume label, LABEL prompts:

```
Volume in drive d has no label
Volume label (11 characters, ENTER for
none)? _
```

You can either type the *volume label* that you want and press the Return key or just press the Return key to get the delete volume label message.

If you just press the Return key, the system prompts:

```
Delete current volume label (Y/N)? _
```

If you enter Y, LABEL deletes the volume label on the disk. Otherwise, the volume label remains unchanged.

Format floppy disk(s)

The Xerox FDMAINT utility is used to format floppy disks.

To load the FDMAINT utility into memory, from the MS-DOS system prompt

- ▶ Type FDMAINT and press the Return key.

The Floppy Disk Maintenance Program is loaded into memory and the screen looks similar to the following.

Floppy Disk Maintenance Program Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Verify a disk	F2 --> Copy one disk to another
F3 --> Format a disk	F4
F5	F6
F7	F8 --> Help
F9	F10 --> Exit this Program
Press function key to activate selection.	

Format floppy disk(s) - cont'd

With the Floppy Disk Maintenance Program Main Menu displayed,

- ▶ Select F3.

The Format Menu is displayed.

(Note: The text next to F7 is for informational purposes only.)

Floppy Disk Maintenance Program Ver x.xx (c) Copyright 1984 Xerox Corporation	
FORMAT MENU	
<p>F1 --> Format disk d</p> <p>F3 --> 9 sectors per track</p> <p>F5 --> Data disk</p> <p>F7 Standard Disk Drive</p> <p>F9 --> Execute Format</p>	<p>F2 --> Double sided disk</p> <p>F4 --> Name volume</p> <p>F6 --></p> <p>F8 --> Help</p> <p>F10 --> Return to Main Menu</p>
Press function keys to cycle through selections.	

Format floppy disk(s) - cont'd

Set selections

- ▶ Select F1 until the drive containing the disk to be formatted is displayed.

If you have a hard disk drive system, this option cannot be changed to another drive unless you have additional floppy disk drives.

- ▶ Select F2 until the disk type is displayed.

You can choose Double sided disk or Single sided disk.

- ▶ Select F3 until the number of sectors per track is selected.

You can choose 9 sectors per track or 8 sectors per track.

- ▶ Select F4 to name or not name the disk being formatted.

You can choose Name volume or No volume name. You can give the disk a name of up to 11 characters.

- ▶ Select F5 until the type of disk is selected. If you choose System disk, select F6 to select the source disk of the system files.

You can choose Data disk, System disk, or Reserve system file space.

If you choose Data disk, the disk will be formatted so that it will be non-bootable and can be used to store data and program files. This disk cannot be SYSGENed.

Format floppy disk(s) - cont'd

Set selections - cont'd

If you choose System disk, the disk will be formatted with the operating system so you can load the disk. It is the same as using SYSGEN on a disk. You will be asked to select the source disk. You can change the drives to select the desired source disk by selecting F6.

If you choose Reserve system file space, a portion of the disk will be set aside for you to use SYSGEN at another time.

Execute format

- ▶ Check the selections to be sure that they are what you want.
- ▶ Select F9 to begin the format process.

The following message is displayed.

Formatting will remove all data from the destination disk.
Do you want to continue? [N]

- ▶ Enter Y to continue.

Or

Enter N to correct the information.

If you entered Y, the following message is displayed.

Insert disk to be formatted and press any key.

Format floppy disk(s) - cont'd

Execute format - cont'd

- ▶ Insert the disk to be formatted and close the drive door.

Remember, this process will erase everything recorded on the disk.

- ▶ Press the Spacebar to begin the formatting process.

The message

Formatting...

is displayed. Then the message

Verifying...

is displayed.

If the disk is to be formatted as a system disk, the message

Writing system files.

is displayed.

Format floppy disk(s) - cont'd

Format complete

After verifying is complete and if the disk is to be named, the message

Enter volume name. (Max 11 characters)

is displayed. Type the disk name and press the Return key. If you make a mistake while typing the name, you can use the Backspace key to correct it.

When the format process is complete, the message

Press function keys to cycle through selections.
Format complete. No defective sectors found on disk.

is displayed. If there were flawed sectors, they were noted and marked on the disk, so they will not be used by the operating system.

You can repeat the process or select F10 to return to the Floppy Disk Maintenance Program Main Menu.

To exit the FDMAINT utility, select F10 from the Floppy Disk Maintenance Program Main Menu. The MS-DOS system prompt is displayed.

Format MS-DOS partition

WARNING: This procedure will cause all data on the hard disk to be deleted (erased).

If your system is brand new (never been used), see Appendix A - Software Installation.

If for some reason you are repartitioning your system, see Appendix B - Repartitioning the Hard Disk.

Format physical hard disk

WARNING: This procedure will cause all data on the hard disk to be deleted (erased).

If your system is brand new (never been used), see Appendix A - Software Installation.

Invoke a secondary command processor

The **COMMAND** command is used to invoke a secondary command processor.

COMMAND is an external MS-DOS command that is stored in memory as a file on disk.

The format for the **COMMAND** command is:

```
COMMAND [d:][path] [cttydev] [/P]
[/C string]
```

[d:][path] is the drive and path where MS-DOS looks for the command processor you want to invoke.

cttydev allows you to specify a different device (such as aux) for input and output.

/P copies the new command processor into memory permanently. If the */P* switch is specified, the second command processor does not return to the primary command processor. You have to reboot the system to remove the second command processor.

/C string tells the command processor to execute the command or commands specified by *string* and then return. This should be the last switch in the command.

Example:

```
A:\>command /c chkdsk b:
```

loads a secondary command processor, it executes the command **chkdsk b:** and then exits back to the primary command processor.

Invoke a secondary command processor - cont'd

When a secondary command processor is loaded with no parameters specified, you can return to the previous level of command processor by issuing the EXIT command.

The EXIT command exits the program COMMAND.COM (the command processor) and returns to a previous level, if one exists.

EXIT is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the EXIT command is:

EXIT

This command can be used when you are running an application program and want to start the MS-DOS command processor, then return to your program.

For example, to look at a directory of the disk in Drive B while running an application program, you must issue an EXEC of the command interpreter (system call 4BH). The system prompt will appear. You can type the DIR B: command and MS-DOS will display the directory for Drive B. To return to the previous level (the application program), type EXIT.

Load MS-DOS

Dual floppy disk drive systems

Be sure there are no floppy disks in the disk drives.

- ▶ Turn the system on.

A resident diagnostics test is run. If you get an error message or one of the tests fails, contact your service representative.

After the test is complete, the system displays

Primary Boot-Strap ...
Primary Boot-Strap DISK READ ERROR.

- ▶ Insert the MS-DOS boot disk in Drive A (bottom drive) and close the drive door.

If you get the message,

Non system disk
Replace and press any key.

you have inserted the wrong disk. Be sure you have inserted the MS-DOS boot disk and press the Spacebar. (*Note: Whenever you are prompted "Press any key ...", it is good practice to press the Spacebar.*)

When the system has loaded correctly, the Xerox personal computer message will be displayed followed by the MS-DOS system prompt.

Load MS-DOS - cont'd

Hard disk drive systems

Be sure there is no floppy disk in the floppy disk drive.

- ▶ Turn the system on.

A resident diagnostics test is run. If you get an error message or one of the tests fails, contact your service representative.

After the test is complete, the Xerox personal computer message will be displayed followed by the MS-DOS system prompt.

Make a directory

The MKDIR (or MD) command creates a new subdirectory. This command creates a multilevel directory structure.

The format for the MKDIR (or MD) command is:

MKDIR *path*

or

MD *path*

MKDIR is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

When you are in the root directory, you can create subdirectories by using the MKDIR command. The command

C:\>MD \USER

will create a subdirectory \USER in the root directory.

If you are in the root directory and want to create a subdirectory named JOE in the \USER subdirectory the command would be:

C:\>MD \USER\JOE

If you are in the \USER subdirectory ("working" directory) and you want to create a subdirectory named SUE, you would use the following command.

C:\USER>MD SUE

When you create subdirectories, they always appear under your "working" directory unless you explicitly specify a different path.

Make a file Read-Only

The ATTRIB command is used to make a Read/Write file Read-Only.

When a file is Read-Only, you cannot write to it or erase it. This is a way of protecting files that you do not want to change.

The format for the ATTRIB command to make a file Read-Only is:

ATTRIB +R *filespec*

filespec specifies the file you want to make Read-Only.

The command

A:\>attrib +r myfile.txt

makes the file named MYFILE.TXT on the disk in the default drive Read-Only.

Make a Read-Only file Read/Write

The ATTRIB command is used to make a Read-Only file Read/Write.

When a file is Read-Only, you cannot write to it or erase it. This is a way of protecting files that you do not want to change.

If you need to modify or erase a Read-Only file, you first have to make it a Read/Write file.

The format for the ATTRIB command to make a file Read/Write is:

ATTRIB -R *filespec*

filespec specifies the file you want to make Read/Write.

The command

A:\>attrib -r myfile.txt

makes the file named MYFILE.TXT on the disk in the default drive Read/Write.

If an application opens a file with read and write permission, ATTRIB forces Read-Only mode to allow file sharing over a network.

Partition the hard disk

WARNING: This procedure will cause all data on the hard disk to be deleted (erased).

If your system is brand new (never been used), see Appendix A - Software Installation.

If for some reason you are repartitioning your system, see Appendix B - Repartitioning the Hard Disk.

Place the hard disk system into shipping mode

The Xerox HDMAINT utility is used to place the hard disk system into shipping mode.

This is for hard disk drive systems only.

Before moving your system, you should place it into shipping mode. When it is in shipping mode, the heads are electronically moved away from the disk so the system can be moved without damage to the hard disk.

From the MS-DOS system prompt,

- ▶ Type HDMAINT and press the Return key.

The Hard Disk Maintenance Program Main Menu is displayed as shown below.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Partitioning	F2 --> Hard Disk 0
F3 --> Format MS-DOS Partition	F4 --> Format Physical Hard Disk
F5 --> Backup Files	F6 --> Restore Files
F7 --> Place into Shipping Mode	F8 --> Help
F9 --> Display Partition Status	F10 --> Exit this Program
Press function key to activate selection.	

**Place the hard disk system into shipping mode -
cont'd**

From the Hard Disk Maintenance Program Main Menu,

- ▶ Select F7.

The system displays

Do you wish to place into shipping mode? [N]

- ▶ Enter Y to answer "yes".

Or

Enter N to answer "no".

If you enter Y, the system displays

Turn off your XEROX Personal Computer. It is now in shipping mode.

- ▶ Turn off the system and move it to the new location.

Turning the system on again will take it out of shipping mode.

Print file(s)

The PRINT command is used to print text files on a printer while you are processing other MS-DOS commands (usually called "background printing").

PRINT is an external MS-DOS command that is stored as a file on disk.

The format for the PRINT command is:

```
PRINT [filespec] [/D:device] [/B:buffsiz]  
[U:busytick] [M:maxtick] [S:timeslice]  
[Q:quesiz] [T] [C] [P]
```

You will use the PRINT command only if you have a printer attached to your system.

If PRINT is typed with no options, PRINT displays the contents of the print queue without affecting the queue.

You can enter more than one file name in the command line. Also, wild card characters are allowed in the file name.

When you run PRINT for the first time and do not specify the device name using /D:*device*, the system displays:

```
Name of list device [PRN:]
```

Type the name of a valid output list device (LPT1, LPT2, LPT3, PRN, COM1, COM2, AUX) or simply press the Return key to accept the default line printer (PRN).

Print file(s) - cont'd

PRINT switches

There are **nine** switches you can use with PRINT.

The following six switches can only be specified the first time you use the PRINT command after starting MS-DOS.

/D:device switch

Specifies the print device. If not specified, the default device is PRN. PRINT will prompt you for a print device.

/B:buffsiz switch

Sets the size in bytes of the internal buffer. Increasing the value of /B speeds up the PRINT command.

/U:busytick switch

Specifies the number of computer clock ticks that PRINT will wait for until the print device is available. If PRINT waits longer than this value, it gives up its time slice (see /S switch).

M:maxtick switch

Specifies how many computer clock ticks PRINT can have to print a file. The default value is 2 clock ticks. The value of /M can be from 1 to 255 clock ticks.

Print file(s) - cont'd

PRINT switches - cont'd

/S:timeslice switch

Specifies the time slice value. The default is 8 time slices. The range of values is 1 to 255.

/Q:quesiz switch

Specifies the number of files allowed in the print queue. The default value is 10. The minimum value for the /Q switch is 4; the maximum is 32.

The following three switches can be used any time.

/T switch

Sets the terminate mode. Deletes all files in the print queue (those waiting to be printed). A message to this effect will be printed at your printer.

/C switch

Sets the cancel mode. The preceding file name and all following file names entered on the command line will be canceled from the print queue until a /P is entered on the command line or until you press the Return key.

/P switch

Sets the print mode. The preceding file name and all following file names will be added to the print queue until a /C is found on the command line or until you press the Return key.

Print file(s) - cont'd

PRINT examples

A:\>print /t

Empties the print queue.

A:\>print *.dat /c

Removes all .DAT files on the disk in the default drive from the print queue.

A:\>print b:temp.tst /c b:my.tst b:rate.tst

Removes the three files on the disk in Drive B from the print queue.

A:\>print memo.dat /c my.dat /p pay.dat

Removes MEMO.DAT from the print queue, and adds MY.DAT and PAY.DAT to the print queue.

Print file(s) - cont'd

PRINT error messages

If an error is detected, PRINT will display one of the following error messages.

***filename* file not found**

You switched disks when a file was queued up, but before it started to print. Reissue the PRINT command for that file.

All files canceled

If the /T switch is issued, the message

All files canceled by operator

will be printed on your printer.

If the current file being printed is canceled by a /C, the message

File canceled by operator

will be printed.

Cannot open *filename*

Either MS-DOS cannot find the specified file to print or the file does not exist. Check the command for a valid file name.

Errors on list device indicate that it may be off line. Please check it.

Your printer is turned off.

List output is not assigned to a device

This message is displayed if the Name of list device specified is invalid. Subsequent attempts will return the same message until a valid device is specified.

Print file(s) - cont'd

PRINT error messages - cont'd

Name of list device [PRN:]

This prompt appears when PRINT is issued for the first time and the /D switch is not specified. Any current device may be specified and that device then becomes the PRINT output device. As indicated in the brackets, simply pressing the Return key results in the default print device PRN being used.

No files match d:XXXXXXXXX.XXX

A filespec was given for files to add to the print queue, but no files match the file specification. (*Note: If there are no files in the queue to match the canceled filespec, no error message will be displayed.*)

PRINT queue is empty

There are no files in the print queue.

PRINT queue is full

There is room for ten files in the print queue. If you attempt to put more than ten files in the queue, this message will be displayed. To change the print queue value, refer to the /Q:*quesiz* switch previously described.

Resident part of PRINT installed

This is the first message that MS-DOS displays when you issue the PRINT command. It means that available memory has been reduced by several thousand bytes to process the PRINT command along with other processes.

Printer translation

The Xerox SETPRT utility is used to configure your system for a foreign print wheel.

Also, if you have a software package that only supports an Epson-type printer and you have something else, you could use SETPRT to allow proper translation to your printer.

The print wheel data file (PRTPW.DAT) **must** be on the source disk before loading the SETPRT program.

SETPRT is an external Xerox utility command that is stored as a file on disk.

The format for the SETPRT command is:

SETPRT

If you have a dual floppy disk drive system, be sure the Supplemental Programs disk is in Drive A and MS-DOS is loaded. Put the boot disk you want the configuration saved on in Drive B.

To load the SETPRT utility, from the MS-DOS system prompt

- ▶ Type SETPRT and press the Return key.

SETPRT is loaded into memory and the Printer Setprt Menu is displayed on the screen as shown on the next page.

Printer translation - cont'd

PRINTER SETPRT Ver. x.xx (c) Copyright 1984 Xerox Corporation	
PRINTER SETPRT MENU	
F1	F2 --> Destination Disk d:
F3 --> Language = ASCII	F4 --> EPSON >> 630
F5	F6
F7	F8 --> Help
F9 --> Accept configuration	F10 --> Exit from the program
Press function key to activate selection.	

Set selections

- ▶ The default disk drive will be displayed. Select F2 until the desired destination drive is selected.

F3 cannot be changed.

Printer translation - cont'd

Set selections - cont'd

- ▶ Select F4 until the desired printer translation is selected. This sets the logical to physical translation for the printer escape sequences and control codes. The application program "expects" the logical printer. The physical printer is the one actually connected to the computer. The selections available are EPSON >> 630, EPSON >> 620, EPSON >> 610, EPSON >> C150, 630 >> EPSON, EPSON >> EPSON, 630 >> 630, or NO TRANSLATION.

Save setup

After selecting the desired printer translation, you are ready to save the configuration on the selected destination disk. The program will then exit to the MS-DOS system prompt.

- ▶ Select F9 to save this configuration.

The message Saving printer & printwheel definitions appears briefly and then the MS-DOS system prompt is displayed.

You now have to modify the AUTOEXEC.BAT file to include the command PRTDRV.

The PRTPW.DEF file has to be on the boot disk.

For this setup to become active, you need to reboot the system with the disk containing the PRTPW.DEF and PRTDRV.COM files.

Put the operating system on a disk

The Xerox SYSGEN utility is used to copy the MS-DOS operating system from one MS-DOS disk or partition to another.

SYSGEN may be used on both dual floppy and hard disk drive systems. The following configurations can be used:

- from one floppy disk to another floppy disk
- from a floppy disk to a hard disk
- from a hard disk to a floppy disk
- from one partition to another partition (same hard disk)
- from one partition to another partition (different hard disks)

System space must have been reserved when the disk was formatted. SYSGEN allows you to put operating system files on a disk that already contains files. The disk **must** have already been prepared to accept operating system files. This is done by formatting the disk as a System disk or Reserve system file space.

To load the SYSGEN utility, from the MS-DOS system prompt

- ▶ Type SYSGEN and press the Return key.

The SYSGEN program is loaded into memory and the screen looks similar to the one on the following page.

Put the operating system on a disk - cont'd

SYSGEN Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> System source disk d	F2 --> System destination disk d
F3	F4
F5	F6
F7	F8 --> Help
F9 --> Execute Sysgen	F10 --> Exit this Program
Press F1 and F2 to cycle through selection.	

Put the operating system on a disk - cont'd

Set selections

- ▶ Select F1 until the source disk drive is displayed. The source disk drive is the drive containing the disk with the operating system files on it (boot disk).
- ▶ Select F2 until the destination disk drive is displayed. The destination disk drive is the drive containing the disk that is to be SYSGENed.

(Note: If you have a hard disk drive system with one floppy drive, you can use SYSGEN to copy the operating system from one floppy disk to another. See the instructions on page 5-131.)

Execute SYSGEN

- ▶ Insert the disk to be SYSGENed and close the drive door, if applicable.
- ▶ Select F9 to begin the SYSGEN program.

The message

Executing...

appears briefly, and then the following message is displayed.

Writing system files.

Put the operating system on a disk - cont'd

Sysgen complete

When the process is complete, the following message is displayed.

Press F1 and F2 to cycle through selection.
System files transferred.

If you need to SYSGEN more disks, you may repeat the process.

(Note: SYSGEN transfers the COMMAND.COM file to the destination disk. The CONFIG.SYS and the ANSI.SYS files also need to be on the disk for proper operation. So after SYSGENing, you need to copy these two files to the disk.)

Exit this program

- ▶ Select F10 to exit the SYSGEN program.

You are returned to the MS-DOS system prompt.

Put the operating system on a disk - cont'd

Instructions for SYSGEN of floppy to floppy on a hard disk drive system

- ▶ Select F1 until system source disk is A.
- ▶ Select F2 until system destination disk is A.
- ▶ Select F9 to execute the SYSGEN Program.
The following message is displayed.
Insert system source disk and press any key.
- ▶ Insert the system source disk in Drive A, close the drive door and press the Spacebar.
The following message is displayed.
Reading system files.

When the files have been read into memory, the system displays
Insert system target disk and press any key.
- ▶ Remove the source disk, insert the target (destination) disk in Drive A, close the drive door and press the Spacebar.

Put the operating system on a disk - cont'd

Instructions for SYSGEN of floppy to floppy on a hard disk drive system - cont'd

The following message is displayed.

Writing system files.

When the process is complete, the following message is displayed.

Press F1 and F2 to cycle through selection.
System files transferred.

You may repeat the process or select F10 to exit the SYSGEN program.

If you select F10, you are returned to the MS-DOS system prompt.

Reboot the system

When you want to reboot the system, you can either

- ▶ Press the Reset button located on the lower right-hand corner of the disk drive (processor).

Or

Simultaneously press the Alt + Ctrl + Del keys.

Recover good sectors from a bad disk

When a sector on a disk is bad, you can use the **RECOVER** command to recover the entire disk (if the bad sector is in the directory).

Do not use **RECOVER** when running network software.

RECOVER is an external MS-DOS command that is stored as a file on disk.

The format for the **RECOVER** command is:

RECOVER d:

where **d:** is the drive containing the disk to be recovered.

If there is not enough room in the root directory, **RECOVER** will display a message and store information about the extra files in the File Allocation Table. You can run **RECOVER** again to regain these files when there is more room in the root directory.

When the files are recovered, they are given file names as follows:

FILE0001.REC
FILE0002.REC
:
FILE0020.REC
etc.

You will have to look at the contents of each file and then rename it. Some files, such as program (binary) files, will be unreadable.

Recover good sectors from a bad disk - cont'd

If you have a dual floppy disk drive system, the RECOVER.COM file is located on the Supplemental Programs disk.

The command

A:\>recover b:

will display the following message

Press any key to begin recovery of the
file(s) on drive B:

Press the Spacebar to begin the recovery process.
When recover is complete, the following message is
displayed

n file(s) recovered

where n is a number.

If you look at the directory of the recovered disk,
the files will be displayed as

FILE0001.REC
FILE0002.REC
:
FILE0020.REC
etc.

Now you need to rename them.

Recover file with bad sectors

The RECOVER command recovers a file containing bad sectors.

Do not use RECOVER when running network software.

RECOVER is an external MS-DOS command that is stored as a file on disk.

The format for the RECOVER command is:

RECOVER *filespec*

If a sector on a disk is bad, you can recover the file containing that sector (without the bad sector).

If you have a dual floppy disk drive system, the RECOVER.COM file is located on the Supplemental Programs disk.

The command

A:\>recover b:myfile.dat

will display the following message

Press any key to begin recovery of the file(s) on drive B:

Press the Spacebar to begin the recovery process.

MS-DOS reads the file MYFILE.DAT on the disk in Drive B sector-by-sector and skips the bad sectors. When MS-DOS finds the bad sectors, the sectors are marked and MS-DOS will no longer allocate data to that sector.

When recover is complete, the following message is displayed

n of n bytes recovered

where n is a number.

Redefine key function

The Xerox SOFTKEYS utility is used to redefine the function of any key with these exceptions:

Ctrl	Shift PrtSc
Shift (either)	Ctrl Alt Del
Alt	Ctrl C
CapsLock	Esc
NumLock	Spacebar
ScrollLock	Ctrl 2

The SOFTKEYS files can be useful when you are using applications software and want to redefine a keystroke or combination of keystrokes.

For SOFTKEYS to function properly, the CONFIG.SYS and ANSISYS files **must** be resident in the **root** directory of the drive that is used to boot the system.

SOFTKEYS are not active once a Xerox utility has been loaded.

If you have several SOFTKEYS files, you may want to make a hard copy of the files. This will help you keep track of all the files and redefinition of keys with those files.

The functions of the redefined keys are stored in a file that you name and then activate.

The format for the SOFTKEYS command is:

SOFTKEYS [*filename*]

If *filename* is not specified, the Xerox SOFTKEYS utility is loaded and you can create a SOFTKEYS file.

If a SOFTKEYS *filename* is specified, the keys defined in that file are activated. To turn off the SOFTKEYS file, you have to load the SOFTKEYS utility and deactivate the file.

Redefine key function - cont'd

Load SOFTKEYS utility

From the MS-DOS system prompt,

- ▶ Type **SOFTKEYS** and press the Return key.
The **SOFTKEYS Main Menu** is displayed.

SOFTKEYS MAIN MENU Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Display/Edit	F2 --> Read Keys from File
F3 --> Abandon Edits	F4 --> Activate keys
F5 --> Save Keys to File	F6 --> Print Key Definitions
F7	F8 --> Help
F9 --> Deactivate Keys	F10 --> Exit this program
Press function key to activate selection.	

Redefine key function - cont'd

Create a SOFTKEYS file

- ▶ Load the SOFTKEYS utility.

No SOFTKEYS file active

- ▶ Select F1.

The Display/Edit Menu is displayed as illustrated on the next page.

- ▶ Continue on the next page.

With a SOFTKEYS file active

- ▶ Select F9.

The system displays

Confirm deactivation of ALL activated SOFTKEYS? [N]

- ▶ Type the letter Y.

The system displays

All activated edits are abandoned.

- ▶ Select F1.

The Display/Edit Menu is displayed as illustrated on the next page.

- ▶ Continue on the next page.

Redefine key function - cont'd

Create a SOFTKEYS file - cont'd

SOFTKEYS Ver x.xx
(c) Copyright 1984 Xerox Corporation

DISPLAY/EDIT MENU

<F1> =
<F2> =
<F3> =
<F4> =
<F5> =
<F6> =
<F7> =
<F8> =
<F9> =
<F10> =

Current definition bytes = 0; available bytes = 400.

Enter soft key(redefine)/SPACE(view more keys)/ESC (Main Menu):

To view the keys that can be redefined, press the Spacebar.

Some special characters require confirmation in order to be redefined. Normal text entry requires these keys be unchanged:

Ctrl + H (BS)
Ctrl + I (tab)
Ctrl + M (ret)

Some editors require that Ctrl + Z (end of file mark) be entered to "close" a file.

Redefine key function - cont'd

Create a SOFTKEYS file - cont'd

- ▶ Press the key you want to redefine. It will be displayed on the screen with the cursor beside it. The system will display the message

Enter soft key definition / Ctrl + 2 (End Definition) / ESC (Abandon definition):

- ▶ Type the new key definition.

A status line displays the number of bytes used and the number of bytes available in the SOFTKEYS buffer.

If you make a mistake, press the Esc key to erase the entire definition of that key.

If your redefinition is a command, such as CONFIGUR, remember to press the Return key.

- ▶ Simultaneously press the Ctrl and 2 keys to end the redefinition.
- ▶ Continue pressing the key to be redefined, typing the new definition, and simultaneously pressing Ctrl and 2 until you have finished redefining all the keys you want to redefine.
- ▶ Press the Esc key to end the redefinitions and return to the SOFTKEYS Main Menu.

If you decide that you do not want these edits, you can select F3 at the SOFTKEYS Main Menu. The system will display the message Edits are abandoned. any definitions assigned to SOFTKEYS during this session are negated.

Redefine key function - cont'd

Create a SOFTKEYS file - cont'd

To activate the newly created SOFTKEYS file:

- ▶ Select F4.

The system displays

Keys will be active on exit.

To save the SOFTKEYS file:

- ▶ Select F5.

The system displays

Enter filename<RET>:

- ▶ Type the file name of the SOFTKEYS file and press the Return key. The system displays

SOFTKEYS file is saved.

To exit the SOFTKEYS program and return to the MS-DOS system prompt:

- ▶ Select F10.

Redefine key function - cont'd

Display/Edit a SOFTKEYS file

- ▶ Load the SOFTKEYS utility.

To display/edit the current active SOFTKEYS file:

- ▶ Select F1. The Display/Edit Menu is displayed as illustrated in "Create a SOFTKEYS file".

To view the file, use the Spacebar.

To edit the file, use the same procedure as in "Create a SOFTKEYS file".

To display/edit a non-active SOFTKEYS file

- ▶ Select F2. The system displays

Enter filename <RET>:

- ▶ Type the SOFTKEYS file name that you want to display/edit and press the Return key. The system displays

SOFTKEYS file is read.

- ▶ Select F1.

The Display/Edit Menu is displayed as illustrated in "Create a SOFTKEYS file".

To view the file, use the Spacebar.

To edit the file, use the same procedure as in "Create a SOFTKEYS file".

Redefine key function - cont'd

Activate a SOFTKEYS file

There are two ways of activating a SOFTKEYS file.

Method 1

From the MS-DOS system prompt,

- ▶ Type **SOFTKEYS filename** and press the Return key. The system displays

SOFTKEYS loaded and active.

Method 2

If you are not sure which SOFTKEYS file you want active, use this method. With the SOFTKEYS utility loaded and the Main Menu displayed:

- ▶ Select F2 to read a SOFTKEYS file. The system displays

Enter filename<RET>:

- ▶ Type the SOFTKEYS file name and press the Return key. The system displays

SOFTKEYS file is read.

- ▶ Select F1 to display the file. Use the Spacebar to view the file.

- ▶ Press the Esc key to return to the Main Menu.

If this is not the correct file, repeat the above steps.

If this is the correct file, select F4 and then F10.

Redefine key function - cont'd

Deactivate a SOFTKEYS file

- ▶ Load the SOFTKEYS utility.

From the SOFTKEYS Main Menu,

- ▶ Select F9.

The system displays

Confirm deactivation of ALL activated
SOFTKEYS? [N]

- ▶ Type the letter Y.

The system displays

All activated edits are abandoned.

All SOFTKEYS assignments are negated.

To exit to MS-DOS,

- ▶ Select F10.

Redefine key function - cont'd

Print the contents of a SOFTKEYS file

- ▶ Load the SOFTKEYS utility.

Print the contents of the currently active SOFTKEYS file

- ▶ Select F6. The system displays
The resident SOFTKEYS file is printed.

To exit to MS-DOS,

- ▶ Select F10.

Print the contents of a non-active SOFTKEYS file

- ▶ Select F2. The system displays
Enter filename<RET>:
- ▶ Type the SOFTKEYS file name and press the Return key. The system displays
SOFTKEYS file is read.
- ▶ Select F6. The system displays
The resident SOFTKEYS file is printed.

To exit to MS-DOS,

- ▶ Select F10.

Redefine key function - cont'd

Read keys from a SOFTKEYS file

- ▶ Load the SOFTKEYS utility.

From the SOFTKEYS Main Menu,

- ▶ Select F2. The system displays
Enter filename<RET>:

- ▶ Type the SOFTKEYS file name and press the Return key.

The following message is displayed.

SOFTKEYS file is read.

- ▶ Select F1 to edit the file.

or

Select F4 to activate the file.

or

Select F6 to print the key definitions.

- ▶ Select F10 to exit the SOFTKEYS program and return to the MS-DOS system prompt.

Redirect communications device

If you have more than one serial port with communication devices connected, you will need to redirect communications.

See Appendix A, Chapter 6 for instructions on how to redirect communications device.

Or

You can use the CONFIGUR utility in a batch mode, see Appendix G.

Redirect printer device

If you need to redirect your printer, see Appendix A, Chapter 6 for instructions on how to redirect printer device.

Or

You can use the CONFIGUR utility in a batch mode, see Appendix G.

Rename a drive as a path

If you have more than one partition on your hard disk drive (i.e., C, D and E), you can rename a drive as a path.

Do not use JOIN when running network software.

JOIN is an external MS-DOS command that is stored as a file on disk.

The format for the JOIN command is:

```
JOIN [drive1: drive2:path] [/D]
```

drive1: is the drive name to be renamed as a path.

drive2: is the drive you are working from (default).

path is the name of the path to assign to *drive1*..

If the *path* does not exist, MS-DOS tries to make a subdirectory with that path. The *path* must be empty. It cannot contain any files or other subdirectories.

If the *path* already existed before the JOIN command was typed, it will not be useable while the JOIN is in effect.

After you issue the JOIN command, *drive1*: becomes invalid. If you try to use it, MS-DOS displays the error message Invalid drive specification.

The JOIN command removes the distinction that physical drives are separately addressable by drive letter. This way you can always refer to all of the directories on a specific drive by one path.

You can only JOIN a drive at the root directory.

Rename a drive as a path - cont'd

The following command will work:

```
C:\>join d: c:\memos
```

After this command, Drive D is now referenced by using the \MEMOS path instead of D:. Whenever giving commands, you would use \MEMOS where D: would have been used before the JOIN command was issued. If you wanted to look at the directory of Drive D, the command would now be DIR \MEMOS. Or, if you wanted to change to Drive D, the command would now be CD \MEMOS.

The following command will **not** work:

```
C:\>join d: c:\memos\june
```

To change back to using the drive name, use the following format:

```
JOIN drive: /D
```

where *drive*: represents the drive that was renamed. The /D switch turns off the JOIN command.

The command

```
C:\>join
```

displays the current drives that are joined.

Rename a path as a drive

The SUBST command creates or deletes a "virtual drive" by associating a path with a drive letter.

SUBST is an external MS-DOS command that is stored as a file on disk.

The format for the SUBST command is:

SUBST [drive:] [path] [/D]

drive: is the "virtual drive" name to be used for the **path**.

path is the name of the path to be renamed as a drive.

Before using this command, you will need to set the LASTDRIVE command in the CONFIG.SYS file. The default value is E. You can set the value to Z. To do this, look at the contents of your CONFIG.SYS file by using the command TYPE CONFIG.SYS. Now you can create a new CONFIG.SYS file by using the command COPY CON CONFIG.SYS. Enter the commands displayed from the TYPE CONFIG.SYS command. Be sure to press the Return key after each command entered. Lastly, enter the command LASTDRIVE = Z and press the Return key. Then simultaneously press the Ctrl and Z keys and press the Return key. This saves the new CONFIG.SYS file. Now reboot your system.

You can now use the SUBST command.

When MS-DOS sees a drive that was created with the SUBST command, it replaces the reference with the new path.

Rename a path as a drive - cont'd

The command

```
C:\>subst f: \user\fred\forms
```

creates a "virtual drive" F for the path "\user\fred\forms". Now, instead of typing the full path, you can get to this subdirectory by simply typing F:.

The command

```
C:\>subst
```

displays the names of the "virtual drives" in effect.

To change back, use the following format:

```
SUBST drive: /D
```

where *drive*: represents the "virtual drive". The /D switch turns off the SUBST command.

Rename file(s)

The REN (or RENAME) command is used to rename a file.

REN is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the REN command is:

```
REN filespec filename  
Or  
RENAME filespec filename
```

The *filespec* must be given a drive name if the disk resides in a drive other than the default drive. Any drive name for the *filename* is ignored. This file will remain on the disk where it currently resides. You **cannot** rename files across drives or directories.

The wild card characters may be used in either the *filespec* or *filename*. All files matching the *filespec* are renamed. If wild card characters appear in the *filename*, corresponding character positions will not be changed. The command

```
A:\>ren *.lst *.prn
```

changes the names of all files with the .LST extension to similar names with the .PRN extension.

The command

```
A:\>ren b:abode ?d?b?
```

renames the file ABODE on the disk in Drive B to ADOBE. The file remains on the disk in Drive B.

An attempt to rename a *filespec* to a name already present in the directory will result in one of the following error messages being displayed.

```
Duplicate file name  
File not found
```

Restore files to the hard disk

This is for use with hard disk drive systems only.

When needed, the Xerox HDMAINT utility allows you to restore previously backed up files to the hard disk.

To load HDMAINT, from the MS-DOS system prompt

- ▶ Type HDMAINT and press the Return key.

The Hard Disk Maintenance Program is loaded into memory and the screen will look similar to the one below.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F1</div> --> Partitioning	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F2</div> --> Hard Disk 0
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F3</div> --> Format MS-DOS Partition	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F4</div> --> Format Physical Hard Disk
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F5</div> --> Backup Files	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F6</div> --> Restore Files
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F7</div> --> Place into Shipping Mode	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F8</div> --> Help
<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F9</div> --> Display Partition Status	<div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">F10</div> --> Exit this Program
Press function key to activate selection.	

Restore files to the hard disk - cont'd

From the Main Menu,

- ▶ Select F6.

The Restore Files Menu is displayed as shown below.

HARD DISK MAINTENANCE PROGRAM Ver x.xx (c) Copyright 1984 Xerox Corporation	
RESTORE FILES MENU	
F1 --> Read files from Disk d	F2 --> Restore Current Directory
F3 --> Write files to Disk d	F4 --> Omit Modified Files
F5 --> Omit Read/Only Files	F6 --> Omit Subdirectories
F7 --> Restore Single Floppy	F8 --> Help
F9 --> Execute Restore	F10 --> Return to Main Menu
Press function keys to cycle through selections.	

Restore files to the hard disk - cont'd

Set selections

The **Read files from Disk d** specifies the drive to read the files from.

- ▶ Select F1 until the desired drive is displayed.

You can restore from the current directory (**Restore Current Directory**) or you can name a directory to restore from (**Directory Will be Named**).

- ▶ Select F2 to display the desired setting.

The **Write files to Disk d** specifies the drive to write (restore) the files to.

- ▶ Select F3 until the desired drive is displayed.

You can restore all files except those that have been modified since they were last backed up (**Omit Modified Files**) or you can restore every file, overwriting the modified file (**Overwrite Modified Files**).

- ▶ Select F4 to display the desired setting.

You can restore all files (**Include Read/Only Files**) or all files except system and read-only files (**Omit Read/Only Files**).

- ▶ Select F5 to display the desired setting.

You can restore only those files in the named directory (**Omit Subdirectories**) or restore the files in the named directory and its subdirectories (**Include Subdirectories**).

- ▶ Select F6 to display the desired setting.

You can restore a single floppy (**Restore Single Floppy**) or multiple floppies (**Restore Multiple Floppies**).

- ▶ Select F7 to display the desired setting.

Restore files to the hard disk - cont'd

Execute restore

Once all options are set you can begin the restore process.

- ▶ Select F9 to begin the restore process.

The system displays

Insert backup disk and press RETURN, or ESC to abort.

- ▶ Insert the backup disk, close the drive door, and press the Return key.

If you chose to name a directory, the following message will appear.

Enter the source directory path.

- ▶ Type the name of the directory you want restored and press the Return key. The Backspace key can be used to correct errors.

The system displays

Enter file name. (wild card characters permitted)

- ▶ Type the file name to be restored and press the Return key. (*.*) can be used).

The name of each file is displayed as it is copied to the hard disk.

Restore files to the hard disk - cont'd

Execute restore - cont'd

If you get the message,

Partial file on floppy omitted. Press any key to continue.

It means that the disk contains a part of a split file but not the first part. This part is not copied to the hard disk.

If a file was split between two disks, the system displays

File incomplete. Insert next disk in sequence and press RETURN, or ESC.

The system is ready for the floppy disk containing the next part of the split file. Insert the next disk, close the drive door, and press the Return key.

If you get the message,

ERROR: Disks must be sequential. Replace and press RETURN, or ESC to abort.

You have not inserted the disk containing the next part of the split file. Locate the next sequential disk, insert it in the drive, close the drive door and press the Return key.

Files that have been broken across floppy disks will be restored as complete files on the hard disk.

If you are restoring multiple disks, the system will display the following message

Insert next disk and press RETURN, or ESC to quit

Insert the next disk, close the drive door, and press the Return key. Or, if you have restored all of the disks, press the Esc key to quit.

Restore files to the hard disk - cont'd

Restore complete

When all specified files on the floppy disk have been restored, the following message is displayed,

Press function keys to cycle through selections.
n file(s) restored.

where n is the number of files restored.

If you have more disks to restore, repeat the process.

If you are ready to return to the Hard Disk Maintenance Main Menu, select F10.

To exit the program, select F10 from the main menu.

Set a command path

The **PATH** command sets a search path for all MS-DOS and Xerox file commands.

The format for the **PATH** command is:

```
PATH [path[:path]...]
```

This command allows you to tell MS-DOS which directories should be searched for external commands after MS-DOS searches your "working" directory.

The default value is no path.

To tell MS-DOS to search the **\BIN** subdirectory for external commands, the command would be

```
C:\>path \bin
```

MS-DOS will now search the **\BIN** subdirectory for external commands until you set another path or leave MS-DOS.

You can tell MS-DOS to search more than one path by specifying several paths separated by semicolons. For example,

```
C:\>path \bin\user;\bin\dev
```

tells MS-DOS to search the subdirectories specified by the above paths to find external commands.

MS-DOS searches the paths in the order specified in the **PATH** command.

The command **PATH** with no parameters will display the current path.

If you specify **PATH ;** MS-DOS will set the **NUL** path, meaning that only the "working" directory will be searched for external commands.

Set Ctrl + C check

The **BREAK** command sets the extended Ctrl + C check.

BREAK is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the **BREAK** command is:

BREAK [ON | OFF]

Depending on the program you are running, Ctrl + C may be used to stop an activity (for example, to stop sorting a file).

Normally, MS-DOS checks to see if Ctrl + C has been typed while it is reading from the keyboard, writing to the screen, or to a printer. Setting **BREAK ON** allows Ctrl + C checking to be extended to other functions such as disk reads and writes.

To check for Ctrl + C during screen, keyboard, and printer reads and writes only, set **BREAK OFF**.

To find out how **BREAK** is currently set, type

break

and press the Return key.

Set one string value to another

The SET command sets one string value in the environment table equivalent to another string for use in later programs.

SET is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the SET command is:

SET [*string = string*]

Be sure that there are **no** spaces on either side of the equal sign.

This command is meaningful only if you want to set values that will be used by programs you have written.

When MS-DOS sees a SET command, it inserts the entire string into a part of memory reserved for "environment" strings.

If the name already exists in the environment table, it is replaced by the new string.

If you type the SET command with only the first string, the associated string name is removed from the environment table.

If you type SET with no options, MS-DOS displays the current environment table settings.

An application program can get a listing of all environment values that have been set by examining its environment. Environments are passed in the Program Segment Prefix. Refer to "Chapter 4, MS-DOS Control Blocks and Work Areas" in the MS-DOS Programmer's Reference Manual for more information.

Set one string value to another - cont'd

The command

```
A:\>set tty = vt52
```

sets your TTY value to VT52 until you change it with another SET command.

The command

```
A:\>set
```

displays the current environment table strings.

Sort data file(s)

The SORT command is used to sort the contents of a file and send the result to a device or file.

SORT can also sort data input from the keyboard, then write it to the screen or file.

SORT is an external MS-DOS command that is stored as a file on disk.

The format for the SORT command is:

```
SORT [/R] [/+ n] [<filespec] [>filespec |  
>device]
```

SORT can be used, for example, to alphabetize a file by a certain column.

SORT switches are:

/R Reverse the sort; that is, sort from Z to A.

/+ *n* Sort starting with column *n*, where *n* is some number. If you do not specify this switch, SORT will begin sorting from column 1.

You use the redirection symbols (< and >) to tell the system to read data from a specified file (e.g., <UNSORTED.TXT) and then write the sorted file to another file or device (e.g., >SORTED.TXT).

See examples on next page.

Sort data file(s) - cont'd

If you use SORT with no parameters, you can sort data entered from the keyboard. The sorted data will be displayed on the screen. For example,

```
A:\>sort
oranges
apples
pears
bananas
^Z      (Ctrl+Z and a Return are entered)
apples
bananas
oranges
pears

A:\> _
```

If `>filespec` is entered with the above command (i.e., `sort >b:fruit.dat`), the sorted data will be stored in the file named FRUIT.DAT on the disk in Drive B. The sorted data **will not** be displayed on the screen.

The command

```
A:\>sort /r <unsort.txt >sort.txt
```

reads the file UNSORT.TXT on the disk in the default drive, reverses the sort, and then writes the output to a file named SORT.TXT on the disk in the default drive.

The command

```
A:\>sort <names.dat >con
```

reads the file NAMES.DAT on the disk in the default drive, sorts the data, and displays the sorted data on the screen instead of sending it to a file.

Sort directory file names

The SORT command is used to sort a directory.

The command

```
A:\>dir | sort / + 14
```

will pipe the output of the directory command to the SORT filter. The SORT filter will sort the directory listing starting with column 14 (this is the column in the directory listing that contains the file size), then send the output to the screen. Thus, the result of this command is a directory sorted by file size.

The command

```
A:\>dir | sort / + 14 | more
```

will do the same thing as the command in the previous example, except that the MORE filter will give you a chance to read the sorted directory one screen at a time.

Time (display or change)

The **TIME** command displays and sets the time.

TIME is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the **TIME** command is:

TIME [*hh[:mm]*]

If the **TIME** command is entered without any parameters, the following message is displayed:

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

Press the Return key if you do not want to change the time shown.

A new time may be given as a parameter to the **TIME** command as in:

A:\>**time 8:20**

The time **must** be entered using numbers only; letters are not allowed. The allowed options are:

hh = 00 - 24
mm = 00 - 59

The hour and minute entries **must** be separated by colons. You do not have to type the *ss* (seconds) or *cc* (hundredths of seconds) option.

MS-DOS uses a 24-hour or "military" clock. For example, 8 a.m. is 8:00 hours, 1 p.m. is 13:00 hours, 2:30 p.m. is 14:30 hours.

MS-DOS uses the time entered as the new time if the parameters and separators are valid. If the parameters or separators are not valid, MS-DOS displays the message and waits for you to type a valid time.

Invalid time
Enter new time:

Turn the verify switch on or off

The **VERIFY** command determines if a **COPY** command automatically checks that data has been copied correctly to a disk.

This command has the same purpose as the **/V** switch in the **COPY** command.

VERIFY is an internal MS-DOS command, that is, it is stored in memory and not as a file on disk.

The format for the **VERIFY** command is:

VERIFY [ON | OFF]

If you want to verify that all files are written correctly to disk, you can use the **VERIFY** command to tell MS-DOS to verify that your files are intact (no bad sectors, for example).

MS-DOS will perform a **VERIFY** each time you write data to a disk (use the **COPY** command). You will receive an error message only if MS-DOS is unable to successfully write the data to disk.

VERIFY ON remains in effect until you change it in a program (by a **SET VERIFY** system call), or until you issue a **VERIFY OFF** command to MS-DOS.

If you want to know what the current setting of **VERIFY** is, type **VERIFY** with no parameters.

Verify floppy disk(s)

The Xerox FDMAINT utility is used to verify floppy disks.

To load FDMAINT, from the MS-DOS system prompt

- ▶ Type FDMAINT and press the Return key.

The Floppy Disk Maintenance Program is loaded into memory and the screen looks similar to the one below.

Floppy Disk Maintenance Program Ver x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Verify a disk	F2 --> Copy one disk to another
F3 --> Format a disk	F4
F5	F6
F7	F8 --> Help
F9	F10 --> Exit this Program
Press function key to activate selection.	

Verify floppy disk(s) - cont'd

With the Floppy Disk Maintenance Program Main Menu displayed,

- ▶ Select F1.

The Verify Menu is displayed.

Floppy Disk Maintenance Program Ver x.xx (c) Copyright 1984 Xerox Corporation	
VERIFY MENU	
F1 --▶ Verify disk A	F2
F3	F4
F5	F6
F7	F8 --▶ Help
F9 --▶ Execute Verify	F10 --▶ Return to Main Menu

Press F1 to cycle through selections.

Verify floppy disk(s) - cont'd

Set selections

- ▶ Select F1 until the drive containing the disk to be verified is displayed.

If you have a hard disk drive system, this option cannot be changed to another drive unless you have additional floppy disk drives.

Execute verify

- ▶ Insert the disk to be verified and close the drive door.

(Note: The disk to be verified cannot be write-protected.)

- ▶ Select F9 to begin the verify process.

The message

Verifying...

will be displayed while the system is verifying the disk.

Verify floppy disk(s) - cont'd

Verify complete

When verification is complete, the message below will be displayed:

0 total defective sector(s) found.
0 defective sector(s) removed from disk space.
0 flawed sector(s) remaining in existing files.

You can repeat the process or select F10 to return to the Floppy Disk Maintenance Program Main Menu.

Exit this program

From the Floppy Disk Maintenance Program Main Menu,

- ▶ Select F10.

You are returned to the MS-DOS system prompt.

Notes:

SOFTWARE INSTALLATION

APPENDIX A

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1. NEW DUAL FLOPPY DISK DRIVE SYSTEM

This procedure is for new dual floppy disk drive systems only.

This is a one-time procedure. Check off the steps as you go through them.

If you are upgrading from MS-DOS 2.11 to MS-DOS 3.10, you need to go to "2. Upgrade Dual Floppy Disk Drive System" in this appendix.

Find the three MS-DOS disks that came with your system. The disks are labeled:

- MS-DOS with ScreenMate
- MS-DOS Utilities and Help
- MS-DOS Supplemental Programs

You will do the following tasks and in the order given:

Write-protect the original disks
Load the system
Make backup disks
Reboot the system

These tasks are described in order beginning on the next page.

Important: Remove and insert disks as instructed. **Do not** remove a disk unless you are instructed to do so.

Write-protect the original disks

Before making backup copies of your MS-DOS disks, make sure your original disks are write-protected.

Disks can have a small square notch on the side that is called the "write-protect" notch.

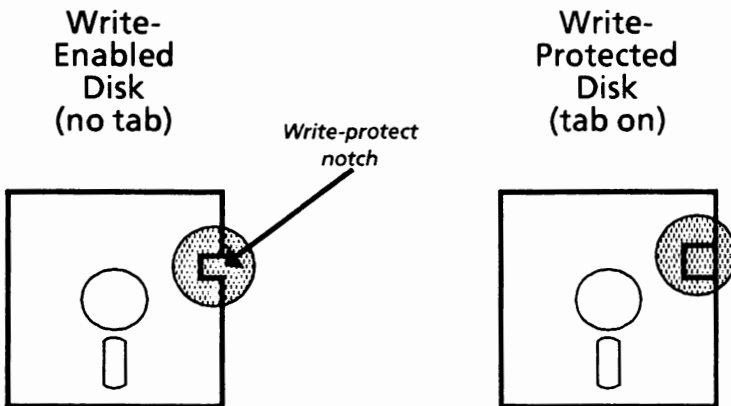
If your disks do not have a notch or if the notch is covered, the information on the disk can only be read. It cannot be accidentally erased, changed, or written over.

When you purchase disks, write-protect tabs (small tapes) were supplied with the disks. These tabs can be used to cover the write-protect notch.

When you want to add or erase information on a write-protected disk, you can remove the write-protect tab. A disk with no tab on the notch is "write-enabled".

See the illustrations below.

The shaded circle indicates the write-protect notch.



Load the system

When turning the system off and on, be sure there are no floppy disks in the disk drives.

- Turn the system on.

The resident diagnostics test is run. If you get an error message, contact your service representative.

After the test is complete, the system displays

Primary Boot-Strap ...
Primary Boot-Strap DISK READ ERROR.

- Insert the MS-DOS with ScreenMate disk (boot disk) in Drive A (bottom drive) and close the drive door.

If you get the message,

Non system disk
Replace and press any key.

Or

DISK READ ERROR

you have inserted the wrong disk or inserted it incorrectly. Be sure you have inserted the disk labeled MS-DOS with ScreenMate and press the Spacebar. (*Note: Whenever you are prompted "Press any key ...", it is good practice to press the Spacebar.*) If you have inserted the correct disk and it does not load, contact your service representative.

When the system is loading correctly, the Xerox personal computer release level will be displayed, then you'll see the Xerox logo. After a short time, ScreenMate is loaded and the screen will look similar to the one below.

06-27-84 01:30:21 pm				Xerox ScreenMate - Version x.xx (c) COPYRIGHT 1984 Xerox Corporation
User Mode				
USER MODE				
F1-Directory F2-Run A Program F3-Show A File F4-Copy A File F5-Erase A File F6-Maint. Mode F7-Alter Command F8-Help F9-Exit				
#	←→	PgUp	PgDn	Make selections from the MODE MENU for User Utilities. Select EXIT to go to DOS.

Make backup disks

The instructions for making backup disks begin below.

- Obtain two new (or erasable used) disks. The disks should be certified for double-density, double-sided recording.

You will do the following tasks and in the order given:

Exit ScreenMate
Load the FDMAINT program
Copy the Supplemental Programs disk
Copy the MS-DOS with ScreenMate disk
Exit the FDMAINT program
Create an MS-DOS boot disk

Exit ScreenMate

You need to exit ScreenMate and go to MS-DOS.

- Press the F9 function key.

The system displays

To leave ScreenMate and enter DOS, press ESC or select Alter.

- Press the Esc key.

The MS-DOS system prompt (A>) is displayed.

Load the FDMAINT program

The Xerox FDMAINT program is used to copy one disk to another.

From the MS-DOS system prompt,

- Type FDMAINT and press the Return key.

The Floppy Disk Maintenance Program is loaded into memory and the main menu is displayed as shown below.

Floppy Disk Maintenance Program Ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Verify a disk	F2 --> Copy one disk to another
F3 --> Format a disk	F4
F5	F6
F7	F8 --> Help
F9	F10 --> Exit this Program
Press function key to activate selection.	

With the Main Menu displayed,

- Select F2 to copy one disk to another.

The screen will look similar to the one shown below.

Floppy Disk Maintenance Program Ver. x.xx (c) Copyright 1984 Xerox Corporation	
COPY MENU	
F1 --> Source disk A	F2 --> Destination disk B
F3	F4
F5	F6
F7	F8 --> Help
F9 --> Execute Copy	F10 --> Return to Main Menu
Press function keys F1 and F2 to set selection.	

Copy the Supplemental Programs disk

- Remove the MS-DOS with ScreenMate disk from Drive A (bottom drive).

- Insert the Supplemental Programs disk in Drive A (bottom drive) and close the drive door.

- Insert a double-sided, double-density disk in Drive B (top drive) and close the drive door.

- Select F9.

The following message is displayed.

All data on the destination disk will be lost.
Do you want to continue? [N]

- Type the letter Y to continue.

If the disk is new, the following is displayed

Formatting . . .

After formatting is complete, copying begins.
The following two messages will display on the screen alternately.

Reading . . .

Writing . . .

This indicates that the system is reading data from the source disk and writing it to the destination disk.

When copying is complete, you will see the following message:

Press function keys F1 and F2 to set selection.
Copy complete.

- Remove the original Supplemental Programs disk from Drive A (bottom drive).
- Remove the backup Supplemental Programs disk from Drive B (top drive) and label it Supplemental Programs disk.

Do not write on the disk. Use the labels that came with the box of disks.

Copy the MS-DOS with ScreenMate disk (boot)

- Insert the MS-DOS with ScreenMate disk in Drive A (bottom drive) and close the drive door.
- Insert a double-sided, double-density disk in Drive B (top drive) and close the drive door.
- Select F9.

The following message is displayed.

All data on the destination disk will be lost.
Do you want to continue? [N]

- Type the letter Y to continue.

If the disk is new, the following is displayed:

Formatting ...

After formatting is complete, copying begins. The following two messages will display on the screen alternately.

Reading ...

Writing ...

This indicates that the system is reading data from the source disk and writing it to the destination disk.

When copying is complete, you will see the following message

Press function keys F1 and F2 to set selection. Copy complete.

Exit the FDMAINT program

With the above message displayed,

- Select F10 to return to the main menu.

- Select F10 again to exit the program.

The system displays the MS-DOS system prompt.

Create an MS-DOS boot disk

You can combine the MS-DOS with ScreenMate disk and the Utilities and Help disk to create an MS-DOS boot disk.

To create an MS-DOS boot disk, you will

Erase files that are not needed
Copy files from the Utilities and Help disk
Create a new AUTOEXEC.BAT file

Erase files that are not needed

You are now going to erase all the ScreenMate-related files from the copy of the MS-DOS with ScreenMate disk in Drive B.

- Type **B:** and press the Return key.

You are now logged onto Drive B. The system prompt will be **B>**.

- Type **ERASE XMATE*.***

Be sure you have the above command typed exactly as shown. You can use the Backspace (←) key to back up and erase typing errors.

- Press the Return key.

You also need to erase the AUTOEXEC.BAT file.

- Type **ERASE AUTOEXEC.BAT** and press the Return key.

Next erase the LOGO.COM file.

- Type **ERASE LOGO.COM** and press the Return key.

- Type `DIR /W` and press the Return key. The files on the disk are displayed.

Check to be sure the following files are on the disk:

COMMAND.COM
CONFIG.SYS
ANSI.SYS
MOUSE.COM
FDMAINT.EXE
FDMAINT.HLP
PRTDRV.COM
VDISK.SYS

- Type `A:` and press the Return key to log back onto Drive A.
- Remove the original MS-DOS with ScreenMate disk from Drive A (bottom drive).
- Insert the original Utilities and Help disk in Drive A (bottom drive) and close the drive door.

Do not remove the disk from Drive B (top drive).

Copy files from the Utilities and Help disk

You are now going to copy the files needed from the Utilities and Help disk onto the disk in Drive B.

- Type COPY A:C*.* B: /V and press the Return key.
- Type COPY A:F*.* B: /V and press the Return key.
- Type COPY A:MORE.COM B: /V and press the Return key.
- Type COPY A:PRINT.COM B: /V and press the Return key.
- Type COPY A:S*.* B: /V and press the Return key.
- Type COPY A:TREE.EXE B: /V and press the Return key.

After you have copied the files to the disk in Drive B,

- Remove the original disk from Drive A (bottom drive).
- Store the three original MS-DOS disks in a safe place.
- Remove the disk from Drive B (top drive) and label it **MS-DOS boot disk**. Do not write on the disk. Use the disk labels that came with the box of disks.

Create a new AUTOEXEC.BAT file

It is recommended that you create an AUTOEXEC.BAT file.

- Insert the newly created MS-DOS boot disk in Drive A (bottom drive) and close the drive door.

- Type COPY CON: AUTOEXEC.BAT and press the Return key.

You can use the Backspace key to make corrections before pressing the Return key.

The screen should look like this:

```
A>COPY CON: AUTOEXEC.BAT
```

```
—
```

This statement tells MS-DOS to copy the information entered at the keyboard into the AUTOEXEC.BAT file.

- Type ECHO OFF and press the Return key.

The screen will look like this:

```
A>COPY CON: AUTOEXEC.BAT  
ECHO OFF
```

```
—
```

This batch command tells the system not to echo (display) the commands in the batch file as they are executed.

- Type PROMPT \$P\$G and press the Return key.

This command changes the system prompt. Instead of getting the A > prompt, the system will tell you what directory you are currently working in. If you are in the root directory, the system prompt will be

```
A:\>
```


If you have a subdirectory entitled ACCTING and you change to that subdirectory, the prompt would be

```
A:\ACCTING>
```

The screen should look like this:

```
A>COPY CON: AUTOEXEC.BAT
ECHO OFF
PROMPT $P$G
```

—

- This command is entered only if you have a Xerox optical mouse.** Type MOUSE and press the Return key. This command activates the Xerox optical mouse driver.
- Type CLS and press the Return key. This command when executed will clear the screen.

```
A>COPY CON: AUTOEXEC.BAT
ECHO OFF
PROMPT $P$G
MOUSE (optional)
CLS
```

—

- Check your input for errors. If there is an error, press Ctrl + C and begin again.

If correct, you can save this file.

- Simultaneously hold down the Ctrl and Z keys. The ^Z is displayed on the screen.
- Press the Return key. The system displays the following message.

```
1 File(s) copied
```

The MS-DOS system prompt is displayed.

You can now reboot (load) the system from the MS-DOS boot disk you just created. See the next page for instructions.

Reboot the system

You can now boot (load) from the MS-DOS boot disk you just created.

- ▶ Insert the MS-DOS boot disk in Drive A (bottom drive) and close the drive door.

To reboot the system, you can either

- ▶ Press the Reset button located on the lower right-hand corner of the disk drive (processor).

Or

Simultaneously hold down the Alt and Ctrl keys while you press the Del key.

The resident diagnostics test is run. If you get an error message, contact your service representative. If you get the message,

Non system disk
Replace and press any key.

you may have inserted the wrong disk. Be sure you have inserted the MS-DOS boot disk and press the Spacebar.

When the system is loading correctly, the Xerox personal computer release level will be displayed and then the MS-DOS system prompt (A:\>) will display.

You need to set the date and time. See the "6. Configure Your System" section of this appendix.

If you have a color monitor (screen), you can also set the color. See the "6. Configure Your System" section of this appendix.

The "6. Configure Your System" section also contains information on how to change system hardware settings, such as printer and communications ports.

2. UPGRADE DUAL FLOPPY DISK DRIVE SYSTEM

This procedure is for users who are upgrading from MS-DOS 2.11 to MS-DOS 3.10 dual floppy disk drive systems only.

This is a one-time procedure. Check off the steps as you go through them.

You will do the following tasks and in the order given:

- Make backup disks
- Copy configuration set up

Make backup copies

When making backup copies of the MS-DOS 3.10 disks, **DO NOT copy over your 2.11 MS-DOS boot disk.** You will need this disk later on.

- Make backup copies of the MS-DOS 3.10 disks.

Do the steps on pages A-4 through A-18. After you reboot your system, return here and continue. **DO NOT** go to the "6. Configure Your System" section.

Copy system configuration setup

You can use your system configuration setup from your 2.11 MS-DOS boot disk. This way you do not have to go through the configuration process again.

Important: Remove and insert disks as instructed. **Do not** remove a disk unless you are instructed to do so.

You will need to load the CONFIGUR Utility into memory

From the MS-DOS system prompt,

- Type CONFIGUR and press the Return key.

The CONFIGUR Utility Main Menu is displayed as shown on the next page.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Source - Current Settings	F2 --> Configur Screen Attributes
F3 --> Configur Serial Ports	F4 --> Reroute Devices
F5	F6
F7	F8 --> Help
F9 --> Activate Changes	F10 --> Exit this program

Press function key to activate selection

- Remove the MS-DOS boot disk (3.10) from Drive A, insert it in Drive B and close the drive door.
- Insert the MS-DOS boot disk (2.11) in Drive A and close the drive door.
- Select F1 until Source - Drive A:.
- Select F9 to activate changes.

The Activate Menu is displayed as shown on the next page.

CONFIGUR UTILITY ver. x.xx
(c) Copyright 1984 Xerox Corporation

ACTIVATE MENU

F1	F2 --> Destination - Drive B:
F3 --> Temporarily Activate	F4 --> Save and Activate
F5	F6
F7	F8 --> Help
F9	F10 --> Return to Main Menu

Press function key to activate selection

To save the configuration on the 3.10 MS-DOS boot disk,

- Select F2 until Destination - Drive B:.

- Select F4. You are returned to the MS-DOS system prompt.

- Remove the two disks.

- Insert the newly created MS-DOS boot disk (3.10) in Drive A and close the drive door.

- Reboot the system.

You are now ready to use MS-DOS 3.10.

3.

NEW HARD DISK DRIVE SYSTEM

This procedure is for new hard disk drive systems only.

This procedure will erase everything on the hard disk if it has previously been used.

This is a one-time procedure. Check off the steps as you go through them. The steps must be performed in the order they appear.

If you are upgrading from MS-DOS 2.11 to MS-DOS 3.10, you need to go to "4. Upgrade Hard Disk Drive System" in this appendix.

Find the three MS-DOS disks that came with your system. The disks are labeled:

- MS-DOS with ScreenMate
- MS-DOS Utilities and Help
- MS-DOS Supplemental Programs

You will do the following tasks and in the order given:

- Write-protect the original disks
- Load the system
- Format the physical hard disk
- Partition the hard disk
- Format the MS-DOS partition(s)
- Copy the MS-DOS files to the hard disk
- Reboot the system

These tasks are described in order beginning on the next page.

Important: Remove and insert disks as instructed. **Do not** remove a disk unless you are instructed to do so.

Write-protect the original disks

Before making backup copies of your MS-DOS disks, make sure your original disks are write-protected.

Disks can have a small square notch on the side that is called the "write-protect" notch.

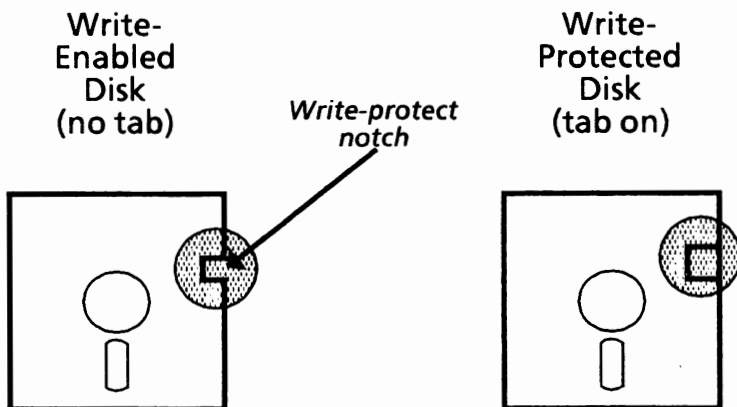
If your disks do not have a notch or if the notch is covered, the information on the disk can only be read. It cannot be accidentally erased, changed, or written over.

When you purchase disks, write-protect tabs (small tapes) were supplied with the disks. These tabs can be used to cover the write-protect notch.

When you want to add or erase information on a write-protected disk, you can remove the write-protect tab. A disk with no tab on the notch is "write-enabled".

See the illustrations below.

The shaded circle indicates the write-protect notch.



Load the system

When turning the system off and on, be sure there is no floppy disk in the floppy disk drive.

- Turn the system on.

A resident diagnostics test is run. If you get an error message or one of the tests fails, contact your service representative.

After the test is complete, the system displays

Primary Boot-Strap ...
Primary Boot-Strap DISK READ ERROR.

- Insert the MS-DOS with ScreenMate disk (boot disk) in Drive A (bottom drive) and close the drive door.

If you get the message,

Non system disk
Replace and press any key.

Or

DISK READ ERROR

you have either inserted the wrong disk or inserted the disk incorrectly. Be sure you have correctly inserted the disk labeled MS-DOS with ScreenMate and press the Spacebar. (*Note: Whenever you are prompted "Press any key ...", it is good practice to press the Spacebar.*) If you have inserted the correct disk and it does not load, contact your service representative.

When the system is loading correctly, the Xerox personal computer release level will be displayed, then you'll see the Xerox logo. After a short time, ScreenMate will be loaded and the screen will look similar to the one below.

06-27-84 01:30:21 pm				<p>Xerox ScreenMate - Version x.xx (c) COPYRIGHT 1984 Xerox Corporation</p>
User Mode				
USER MODE				
<p>F1-Directory F2-Run A Program F3-Show A File F4-Copy A File F5-Erase A File F6-Maint. Mode F7-Alter Command F8-Help F9-Exit</p>				
#	←→	PgUp	PgDn	<p>Make selections from the MODE MENU for User Utilities. Select EXIT to go to DOS.</p>

Format the physical hard disk

Formatting is the first step in preparing a new hard disk. The format function will check the hard disk for damaged or defective areas to protect you from data loss in the future.

You need to exit ScreenMate and go to MS-DOS.

- Press the F9 function key.

The system displays

To leave ScreenMate and enter DOS, press ESC or select Alter.

- Press the Esc key.

The MS-DOS system prompt (A>) is displayed.

The Xerox HDMAINT program is used to set up the hard disk for use.

- Remove the MS-DOS with ScreenMate disk.
- Insert the Utilities and Help disk and close the drive door.
- Type HDMAINT and press the Return key.

The Hard Disk Maintenance program is loaded into memory and the main menu is displayed on the screen as shown on the next page.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Partitioning	F2 --> Hard Disk 0
F3 --> Format MS-DOS Partition	F4 --> Format Physical Hard Disk
F5 --> Backup Files	F6 --> Restore Files
F7 --> Place into Shipping Mode	F8 --> Help
F9 --> Display Partition Status	F10 --> Exit this Program
Press function key to activate selection.	

- Select F4 for Format Physical Hard Disk.

The screen will look similar to the one on the next page.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation	
FORMAT PHYSICAL HARD DISK 0	
WARNING: Selected option will erase all partitions from the disk	
F3	F4
F5	F6
F7	F8 --> Help
F9 --> Execute Format	F10 --> Return to Previous Menu
Press function key to activate selection.	

- Select F9 to begin formatting.

The screen will display the following message:

All data will be lost. Do you want to continue? [N]

- Type the letter Y to continue with the format.

(If you realize you do not want to erase information on a previously used hard disk, type the letter N.)

When you type the letter Y, the following message is displayed:

Formatting Drive

The message will change to

Verifying Cylinder n

where n is a number.

It takes approximately 15 minutes for a 10 megabyte system and 25 minutes for a 20 megabyte system to format and verify a hard disk.

If either of the following messages appears, it means your hard disk is damaged. Contact your service representative. **Do not continue with the remaining steps in this manual.**

Bad Sector Table Overflow; Remaining flawed sectors will not be recorded.

Or

ERROR: Sector n of Track n is bad - Hard disk is unusable

where n is a number.

When formatting is complete and the hard disk passes the verification process, the following message is displayed.

Press function key to activate selection.
Format Complete.

- Select F10 to return to the Main Menu.

Next, you will need to partition the hard disk.

Partition the hard disk

Normally, you will dedicate the entire hard disk to MS-DOS and have only one large partition.

You can also divide the hard disk into up to four partitions. This would normally be done only when you'll be using other operating systems. The partitions can be MS-DOS partitions or other operating systems partitions.

Before partitioning your system, consider how you will be using it. After the hard disk has been partitioned and you have put files on it, it is not easy to go back and repartition the disk.

Each partition will have its own drive name. Depending on how you partition, the drive name(s) will be as follows:

<u>Number of Partitions</u>	<u>Drive Names</u>
1	C
2	C, D
3	C, D, E
4	C, D, E, F

After you have decided how you want your hard disk partitioned,

- Select F1.

The screen should look similar to the following.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation						
PARTITIONING HARD DISK 0						
PARTITION	TYPE	DRIVE	START	END	SIZE	STATUS
<input type="checkbox"/> F5	-->	Add MS-DOS Partition		<input type="checkbox"/> F6	-->	Delete MS-DOS Partition
<input type="checkbox"/> F7	-->	Designate Boot Partition		<input type="checkbox"/> F8	-->	Help
<input type="checkbox"/> F9	-->			<input type="checkbox"/> F10	-->	Return to Main Menu
Press function key to activate selection.						

(Note: This procedure is for adding MS-DOS partition(s) only. If you have another operating system, refer to its manual to learn how to set up its partition.)

- Select F5 to add an MS-DOS partition.

The system displays the message

Enter starting cylinder number [0]

The hard disk is measured in cylinders. There are 305 cylinders on a 10 megabyte disk and 611 cylinders on a 20 megabyte disk. The minimum size for an MS-DOS partition is 40 cylinders.

- If this is the first MS-DOS partition**, press the Return key to begin with cylinder 0.

If this is an additional MS-DOS partition, take the ending cylinder number of the previous partition (shown under END on the screen) and add 1 (one) to it to give you the starting cylinder number of the next partition. Type the starting cylinder number and press the Return key. Or, press Esc to exit without entering a number.

The system displays

Enter Partition size (in cylinders) [0]

- If you want only one MS-DOS partition on the disk**, type the number 305 for a 10 megabyte disk or 611 for a 20 megabyte disk and press the Return key.

If you want additional partitions, enter the number of cylinders you want allocated to this MS-DOS partition and press the Return key.

If you are going to have more than one MS-DOS partition, repeat the above steps for each partition. *(Note: Each added partition becomes partition 1.)*

Continue on the next page.

The screen will look similar to the following.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation						
PARTITIONING HARD DISK 0						
PARTITION	TYPE	DRIVE	START	END	SIZE	STATUS
1	MS-DOS(1)	C	0	304	305	UNFORMATTED
<i>(If you have more than one partition, they will be shown.)</i>						
F5	-->	Add MS-DOS Partition	F6	-->	Delete MS-DOS Partition	
F7	-->	Designate Boot Partition	F8	-->	Help	
F9	-->	Accept changes	F10	-->	Return to Main Menu	
Press function key to activate selection.						

Before continuing, be sure the MS-DOS partition you want to load (boot) from is the designated boot partition.

- Select F7 until the word "BOOT" is displayed by the drive name in the menu on your screen. This is usually Drive C.
- Select F9 to accept the partitioning setup.

The screen will look similar to the following.

HARD DISK MAINTENANCE PROGRAM Ver. x.xx
(c) Copyright 1984 Xerox Corporation

PARTITIONING HARD DISK 0

PARTITION	TYPE	DRIVE	START	END	SIZE	STATUS
1	MS-DOS(1)	C (BOOT)0	304	305		UNFORMATTED

(If you have more than one partition, they will be shown.)

F5 --> Add MS-DOS Partition

F7 --> Designate Boot Partition

F9 -->

F6 --> Delete MS-DOS Partition

F8 --> Help

F10 --> REBOOT system

Press function key to activate selection.

Remove the Utilities and Help disk, insert the MS-DOS with ScreenMate disk, and close the drive door.

Select F10 to reboot the system.

After the system reloads, you are in ScreenMate. To exit to MS-DOS,

Press the F9 function key.

Press the Esc key.

You now need to format the MS-DOS partition(s).

Format the MS-DOS partition(s)

This format function is different from the format performed earlier. During this format, the MS-DOS boot files can be copied to the hard disk so that you no longer need to boot from a floppy disk.

- Remove the MS-DOS with ScreenMate disk, insert the Utilities and Help disk, and close the drive door.
- Type HDMAINT and press the Return key. The Hard Disk Maintenance Program Main Menu is displayed.
- Select F3. The screen displays

HARD DISK MAINTENANCE PROGRAM Ver. x.xx (c) Copyright 1984 Xerox Corporation						
FORMAT MS-DOS PARTITION HARD DISK 0						
PARTITION	TYPE	DRIVE	START	END	SIZE	STATUS
1	MS-DOS(1)	C (BOOT)0	304	305		UNFORMATTED
<i>(If you have more than one partition, they will be shown.)</i>						
F5	--> System disk		F6	--> System Source A		
F7	--> Name Volume		F8	--> Help		
F9	--> Execute Format		F10	--> Return to Previous Menu		
Press function keys to cycle through selections.						

Normally, for one MS-DOS partition, you will use the format options without changes. The options are described below.

F5 is set to System disk. This makes the partition bootable; that is, you can load directly from the hard disk and not from a floppy disk. If you wanted the partition to be non-bootable, you could change the setting to Data disk by selecting F5.

The F6 setting cannot be changed. You must have a disk in Drive A.

F7 is set to Name Volume which allows you to enter up to 11 characters for a volume name for the MS-DOS partition. If you do not want a volume name, you can change the setting to No Volume Name by selecting F7.

When you have the desired option settings,

- Remove the Utilities and Help disk, insert the MS-DOS with ScreenMate disk, and close the drive door.
- Select F9.

The system displays

Enter Partition Number to FORMAT [0]

- If you have only one MS-DOS partition,** type the number 1 and press the Return key.

If you have more than one partition, enter the number of the partition to be formatted and press the Return key.

The system will ask for a volume name, if F7 is set to Name Volume.

Enter volume name []

- Type the volume name (i.e., MS-DOS boot)** and press the Return key.

The system begins formatting the MS-DOS partition.

When formatting is complete, the following is displayed.

Press function keys to cycle through selections.
Format complete.

If you have more than one MS-DOS partition, repeat the steps until all MS-DOS partitions are formatted.

When all MS-DOS partitions are formatted,

- Select F10 to return to the previous menu.**

You can now exit the Hard Disk Maintenance Program.

- Select F10 to exit the Hard Disk Maintenance Program.** The MS-DOS system prompt is displayed.

You are now ready to copy the MS-DOS files from the floppy disks to the hard disk.

Copy the MS-DOS files to the hard disk

The format function copied the MS-DOS boot files to the hard disk. Now you'll copy the remaining MS-DOS files from the three MS-DOS floppy disks.

First, you need to copy the CONFIG.SYS, ANSI.SYS, and VDISK.SYS files to the hard disk.

(Note: If your hard disk boot drive is not Drive C, be sure to replace the C: in the following commands with your boot drive.)

- Type `COPY A:*.SYS C: /V` and press the Return key.

Next, you need to make a subdirectory named BIN on the hard disk.

- Type `MD C:\BIN` and press the Return key.

You are now ready to copy files into the BIN subdirectory.

- Type `COPY A:*. * C:\BIN /V` and press the Return key.

The file names are displayed on the screen as they are copied to the BIN subdirectory. The /V tells the system to verify that the files are copied correctly.

When the `A>` prompt is displayed, copying is complete.

- Remove the MS-DOS with ScreenMate disk from Drive A.
- Insert the Utilities and Help disk in Drive A and close the drive door.
- Type `COPY A:*.* C:\BIN /V` and press the Return key.

Again, the file names are displayed as they are copied.

Finally, you will copy the files from the Supplemental Programs disk.

- Remove the Utilities and Help disk from Drive A.
- Insert the Supplemental Programs disk in Drive A and close the drive door.
- Type `COPY A:*.* C:\BIN /V` and press the Return key.

The file names are displayed as they are copied.

- Remove the Supplemental Programs disk from Drive A.
- Store the three original MS-DOS disks in a safe place.

The last step is to create a new AUTOEXEC.BAT file.

Create a new AUTOEXEC.BAT file

Log on to the hard disk.

- Type **C:** and press the Return key.

The system prompt changes to **C>**. You are now logged on to the hard disk.

It is recommended that you create a new **AUTOEXEC.BAT** file.

From the MS-DOS system prompt,

- Type **COPY CON: AUTOEXEC.BAT** and press the Return key.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT
```

—

The above statement tells MS-DOS to copy the information entered at the keyboard to the **AUTOEXEC.BAT** file.

- Type **ECHO OFF** and press the Return key.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT  
ECHO OFF
```

—

This batch file command tells the system not to echo (display) the commands in the batch file as they are executed.

- Type `PROMPT PG` and press the Return key.

This command changes the system prompt. Instead of getting the `C>` prompt, the system will tell you what directory you are currently working in. For example, when you are in the root directory, the system prompt will be

```
C:\>
```

If you have a subdirectory entitled `ACCTING` and you have changed to that subdirectory, the prompt would be

```
C:\ACCTING>
```

- Type `PATH = C:\BIN` and press the Return key.

Since you have put all of the MS-DOS external commands and Xerox utilities in the `BIN` subdirectory, this command tells the system to search the `BIN` subdirectory when these commands/utilities are issued no matter what directory you are in.

- This command is entered only if you have a Xerox optical mouse.** Type `MOUSE` and press the Return key. This command activates the Xerox optical mouse driver.

- Type `CLS` and press the Return key.

This command when executed will clear the screen.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT
ECHO OFF
PROMPT $P$G
PATH = C:\BIN
MOUSE      (optional)
CLS
```

Check to be sure there are no errors in the file. If there are errors, simultaneously press the Ctrl + C keys. You will exit to the system prompt without saving the file. Repeat the procedure.

If there are no errors, you can save this file.

- Simultaneously hold down the Ctrl and Z keys.

The ^Z is displayed on the screen.

- Press the Return key.

The system displays the following message.

1 File(s) copied

You are returned to the system prompt. You are ready to reboot the system. Go to the "Reboot the System" section on the next page and continue.

Reboot the system

To reboot the system from the hard disk, you can either

- ▶ Press the Reset button located on the lower right-hand corner of the disk drive (processor).

Or

Simultaneously hold down the Alt and Ctrl keys while you press the Del key.

The resident diagnostics test is run. If you get an error message, contact your service representative.

When the system is loading correctly, the Xerox personal computer release level will be displayed and then the MS-DOS system prompt (C:\>) will be displayed.

You need to go to the "6. Configure Your System" section to set the date and time for your system. You only have to set the date and time once because the system contains a battery-powered clock.

If you have a color monitor (screen), you can also set the color.

The "6. Configure Your System" section also contains information on how to change system hardware settings, such as printer and communication ports.

Notes:

4.

UPGRADE HARD DISK DRIVE SYSTEM

This procedure is for users who are upgrading from MS-DOS 2.11 to MS-DOS 3.10 hard disk drive systems only.

You will do the following tasks and in the order given:

*Save the current configuration setup of the system to floppy disk.

SYSGEN the hard disk drive.

*Save the configuration back to the hard disk drive.

Copy the MS-DOS 3.10 files to the hard disk.

Reboot from the hard disk drive.

*These two steps are **optional**. If you **do not** want to go through the configuration process again, you can save the current setup.

This is a one-time procedure. Check off the steps as you go through them.

Important: Remove and insert disks as instructed. **Do not** remove a disk unless you are instructed to do so.

With the system loaded with MS-DOS 2.11,

- Insert the MS-DOS with ScreenMate disk (3.10) in the floppy disk drive (Drive A) and close the drive door.
- Press the Reset button located on the lower right-hand corner of the disk drive (processor). MS-DOS 3.10 with ScreenMate is loaded into the system.

You need to exit to MS-DOS.

- Press the F9 function key.

The system displays

To leave ScreenMate and enter DOS, press ESC or select Alter.

- Press the Esc key.

The MS-DOS system prompt is displayed (A>).

- Remove the MS-DOS with ScreenMate disk (3.10) from Drive A.

- Insert the Utilities and Help disk (3.10) in Drive A and close the drive door.

If you do not want to save your current system configuration, go to the "SYSGEN the hard disk drive" instructions and continue.

Save current system configuration (optional)

You can use the current (MS-DOS 2.11) configuration setup of the system. This way you do not have to go through the configuration process again.

You need to load the CONFIGUR Utility into memory.

From the MS-DOS system prompt,

- Type CONFIGUR and press the Return key.

The CONFIGUR Utility Main Menu is displayed as shown on the next page.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Source - Current Settings	F2 --> Configur Screen Attributes
F3 --> Configur Serial Ports	F4 --> Reroute Devices
F5	F6
F7	F8 --> Help
F9 --> Activate Changes	F10 --> Exit this program

Press function key to activate selection

- Select F1 until Source - Drive C:. (Your drive may be different. If it is, substitute it for "C".)
- Select F9 to activate changes.

The Activate Menu is displayed as shown on the next page.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
ACTIVATE MENU	
F1	F2 --> Destination - Drive C:
F3 --> Temporarily Activate	F4 --> Save and Activate
F5	F6
F7	F8 --> Help
F9	F10 --> Return to Main Menu
Press function key to activate selection	

To save this configuration to floppy disk,

- Remove the Utilities and Help disk.
- Insert a formatted disk and close the drive door.
- Select F2 until Destination - Drive A:.
- Select F4. This will save the configuration to the floppy disk.
- Remove the disk from Drive A and set it aside for now. You will need it later.
- Insert the Utilities and Help disk in Drive A and close the drive door.

Continue on the next page.

SYSGEN the hard disk drive

You need to put the MS-DOS 3.10 operating system on the hard disk drive.

You will need to load the SYSGEN program into memory.

From the MS-DOS system prompt,

- Type **SYSGEN** and press the Return key.

The **SYSGEN** Main Menu is displayed as shown below.

SYSGEN Ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> System source disk A	F2 --> System destination disk B
F3	F4
F5	F6
F7	F8 --> Help
F9 --> Execute Sysgen	F10 --> Exit this Program
Press F1 and F2 to cycle through selection.	

- Select F1 until System source disk A.
- Select F2 until System destination disk C.
- Remove the Utilities and Help disk (3.10) from Drive A.
- Insert the MS-DOS with ScreenMate disk (3.10) in Drive A and close the drive door.
- Select F9 to execute SYSGEN.

The message

Executing...

appears briefly, and then the following message is displayed.

Writing system files.

When the process is complete, the following message is displayed.

Press F1 and F2 to cycle through selection.
System files transferred.

- Select F10 to exit the SYSGEN program.

If you saved your current system configuration, continue on the next page.

Otherwise, go to the "Copy MS-DOS with ScreenMate files to hard disk" instructions and continue.

Save current configuration to hard disk (optional)

You can now save the current configuration back to the hard disk drive.

- Remove the MS-DOS with ScreenMate disk (3.10) from Drive A.
- Insert the Utilities and Help disk (3.10) in Drive A and close the drive door.

From the MS-DOS system prompt,

- Type CONFIGUR and press the Return key. The CONFIGUR Utility Main Menu is displayed as shown below.
- Remove the Utilities and Help disk.
- Insert the disk you saved the current configuration to and close the drive door.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation																					
MAIN MENU																					
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">F1</td> <td style="padding-left: 10px;">--> Source - Current Settings</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F3</td> <td style="padding-left: 10px;">--> Configur Serial Ports</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F5</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F7</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F9</td> <td style="padding-left: 10px;">--> Activate Changes</td> </tr> </table>	F1	--> Source - Current Settings	F3	--> Configur Serial Ports	F5		F7		F9	--> Activate Changes	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; width: 40px; text-align: center;">F2</td> <td style="padding-left: 10px;">--> Configur Screen Attributes</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F4</td> <td style="padding-left: 10px;">--> Reroute Devices</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F6</td> <td></td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F8</td> <td style="padding-left: 10px;">--> Help</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">F10</td> <td style="padding-left: 10px;">--> Exit this program</td> </tr> </table>	F2	--> Configur Screen Attributes	F4	--> Reroute Devices	F6		F8	--> Help	F10	--> Exit this program
F1	--> Source - Current Settings																				
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Press function key to activate selection																					

- Select F1 until Source - Drive A:.
- Select F9 to activate changes. The Activate Menu is displayed as shown below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation																					
ACTIVATE MENU																					
<table style="width: 100%;"><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F1</td><td></td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F3</td><td>--> Temporarily Activate</td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F5</td><td></td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F7</td><td></td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F9</td><td></td></tr></table>	F1		F3	--> Temporarily Activate	F5		F7		F9		<table style="width: 100%;"><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F2</td><td>--> Destination - Drive A:</td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F4</td><td>--> Save and Activate</td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F6</td><td></td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F8</td><td>--> Help</td></tr><tr><td style="border: 1px solid black; padding: 5px; text-align: center;">F10</td><td>--> Return to Main Menu</td></tr></table>	F2	--> Destination - Drive A:	F4	--> Save and Activate	F6		F8	--> Help	F10	--> Return to Main Menu
F1																					
F3	--> Temporarily Activate																				
F5																					
F7																					
F9																					
F2	--> Destination - Drive A:																				
F4	--> Save and Activate																				
F6																					
F8	--> Help																				
F10	--> Return to Main Menu																				
Press function key to activate selection																					

To save this configuration,

- Select F2 until Destination - Drive C:.
- Select F4. This will permanently save this configuration on the hard disk.
- Remove the disk from Drive A.
- Insert the MS-DOS with ScreenMate disk in Drive A and close the drive door.

Continue on the next page.

Copy MS-DOS with ScreenMate files to hard disk

You are now ready to copy the MS-DOS 3.10 files to the hard disk.

If you have a unique CONFIG.SYS file, you may want to rename it before continuing (i.e., REN C:CONFIG.SYS CONFIG.TMP). This will prevent this file from being overwritten.

First, you need to copy the CONFIG.SYS, ANSI.SYS, and VDISK.SYS files to the hard disk.

(Note: If your hard disk boot drive is not Drive C, be sure to replace the C: in the following commands with your boot drive.)

- Type `COPY A:*.* C: /V` and press the Return key.

You are now ready to copy files into the BIN subdirectory.

- Type `COPY A:*.* C:\BIN /V` and press the Return key.

The file names are displayed on the screen as they are copied to the BIN subdirectory. The /V tells the system to verify that the files are copied correctly.

When the `A>` prompt is displayed, copying is complete.

Copy Utilities and Help files to hard disk

- Remove the MS-DOS with ScreenMate disk from Drive A.
- Insert the Utilities and Help disk in Drive A and close the drive door.
- Type `COPY A:*.* C:\BIN /V` and press the Return key.

Again, the file names are displayed as they are copied.

Copy Supplemental Programs files to hard disk

- Remove the Utilities and Help disk from Drive A.
- Insert the Supplemental Programs disk in Drive A and close the drive door.
- Type `COPY A:*.* C:\BIN /V` and press the Return key.

The file names are displayed as they are copied.

- Remove the Supplemental Programs disk from Drive A.
- Store the three original MS-DOS disks in a safe place.

Continue on the next page.

Reboot the system

If you did not rename your CONFIG.SYS file, continue with "To reboot ..." below.

If you renamed your CONFIG.SYS file, you need to

- Type C: and press the Return key to log onto the hard disk. The system prompt changes to C>. You are now logged on to the hard disk.
- Type ERASE CONFIG.SYS and press the Return key to erase the CONFIG.SYS file you just copied.
- Type REN CONFIG.TMP CONFIG.SYS to rename your file back to CONFIG.SYS. Where CONFIG.TMP would be replaced with the name that you gave the file. You are now ready to reboot your system.

To reboot from the hard disk, you can either

- Press the Reset button located on the lower right-hand corner of the disk drive (processor).

Or

Simultaneously press the Alt and Ctrl keys while you press the Del key.

The resident diagnostics test is run. If you get an error message, contact your service representative.

When the system is loading correctly, the Xerox personal computer release level will be displayed and then the MS-DOS system prompt (C:\>) will be displayed.

You are now ready to work with MS-DOS 3.10.

Notes:

5. **UPGRADE FROM ScreenMate 2.11 TO MS-DOS 3.10**

These procedures are for users who are upgrading from MS-DOS with ScreenMate 2.11 to MS-DOS without ScreenMate 3.10.

Dual floppy disk drive system

Follow the instructions given in the "2. Upgrade dual floppy disk drive system" section of this appendix to become an MS-DOS without ScreenMate user.

If you have a color screen and have completed the above section, you can use the CONFIGUR utility to select your screen colors. See "6. Configure your system" in this appendix for instructions on selecting screen colors.

Hard disk drive system

You will do the following tasks and in the order given:

*Save the current configuration setup of the system to floppy disk.

SYSGEN the hard disk drive.

*Save the configuration back to the hard disk drive.

Copy the MS-DOS 3.10 files to the hard disk.

Create a new AUTOEXEC.BAT file.

Reboot from the hard disk drive.

*These two steps are **optional**. If you **do not** want to go through the configuration process again, you can save the current setup.

This is a one-time procedure. Check off the steps as you go through them.

Important: Remove and insert disks as instructed. **Do not** remove a disk unless you are instructed to do so.

With the system loaded with MS-DOS with ScreenMate 2.11,

- Insert the MS-DOS with ScreenMate disk (3.10) in the floppy disk drive (Drive A) and close the drive door.
- Press the Reset button located on the lower right-hand corner of the disk drive (processor). MS-DOS 3.10 with ScreenMate is loaded into the system.

You need to exit to MS-DOS.

- Press the F9 function key.

The system displays

To leave ScreenMate and enter DOS, press ESC or select Alter.

- Press the Esc key.

The MS-DOS system prompt is displayed (A>).

- Remove the MS-DOS with ScreenMate disk (3.10) from Drive A.

- Insert the Utilities and Help disk (3.10) in Drive A and close the drive door.

If you do not want to save your current system configuration, go to the "SYSGEN the hard disk drive" instructions and continue.

Save current system configuration (optional)

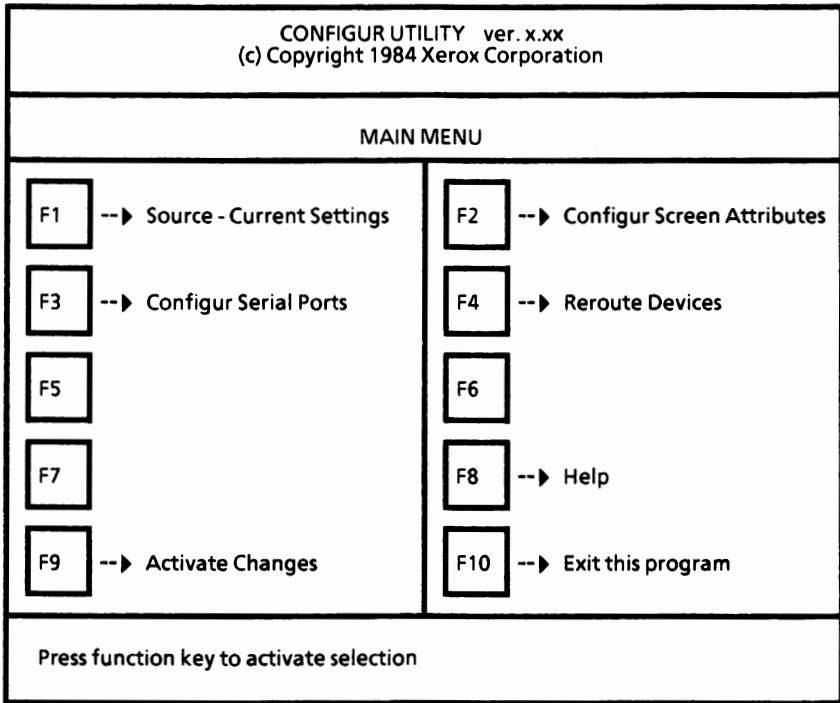
You can use the current (MS-DOS 2.11) configuration setup of the system. This way you do not have to go through the configuration process again.

You need to load the CONFIGUR Utility into memory.

From the MS-DOS system prompt,

- Type CONFIGUR and press the Return key.

The CONFIGUR Utility Main Menu is displayed as shown on the next page.



- Select F1 until Source - Drive C:. (Your drive may be different. If it is, substitute it for "C".)
- Select F9 to activate changes.

The Activate Menu is displayed as shown on the next page.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
ACTIVATE MENU	
F1	
F3 --> Temporarily Activate	F2 --> Destination - Drive C:
F5	F4 --> Save and Activate
F7	F6
F9	F8 --> Help
	F10 --> Return to Main Menu

Press function key to activate selection

To save this configuration to floppy disk,

- Remove the Utilities and Help disk.
- Insert a formatted disk and close the drive door.
- Select F2 until Destination - Drive A:.
- Select F4. This will save the configuration to the floppy disk.
- Remove the disk from Drive A and set it aside for now. You will need it later.
- Insert the Utilities and Help disk in Drive A and close the drive door.

Continue on the next page.

SYSGEN the hard disk drive

You need to put the MS-DOS 3.10 operating system on the hard disk drive.

You will need to load the SYSGEN program into memory.

From the MS-DOS system prompt,

- Type **SYSGEN** and press the Return key.

The **SYSGEN** Main Menu is displayed as shown below.

SYSGEN Ver. x.xx (c) Copyright 1984 Xerox Corporation																					
MAIN MENU																					
<table style="width: 100%;"><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F1</td><td style="padding: 2px;">--> System source disk A</td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F3</td><td></td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F5</td><td></td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F7</td><td></td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F9</td><td style="padding: 2px;">--> Execute Sysgen</td></tr></table>	F1	--> System source disk A	F3		F5		F7		F9	--> Execute Sysgen	<table style="width: 100%;"><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F2</td><td style="padding: 2px;">--> System destination disk B</td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F4</td><td></td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F6</td><td></td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F8</td><td style="padding: 2px;">--> Help</td></tr><tr><td style="border: 1px solid black; padding: 2px; text-align: center;">F10</td><td style="padding: 2px;">--> Exit this Program</td></tr></table>	F2	--> System destination disk B	F4		F6		F8	--> Help	F10	--> Exit this Program
F1	--> System source disk A																				
F3																					
F5																					
F7																					
F9	--> Execute Sysgen																				
F2	--> System destination disk B																				
F4																					
F6																					
F8	--> Help																				
F10	--> Exit this Program																				
Press F1 and F2 to cycle through selection.																					

- Select F1 until System source disk A.
- Select F2 until System destination disk C.
- Remove the Utilities and Help disk (3.10) from Drive A.
- Insert the MS-DOS with ScreenMate disk (3.10) in Drive A and close the drive door.
- Select F9 to execute SYSGEN.

The message

Executing...

appears briefly, and then the following message is displayed.

Writing system files.

When the process is complete, the following message is displayed.

Press F1 and F2 to cycle through selection.
System files transferred.

- Select F10 to exit the SYSGEN program.

If you saved your current system configuration, continue on the next page.

Otherwise, go to the "Copy MS-DOS with ScreenMate files to hard disk" instructions and continue.

Save current configuration to hard disk (optional)

You can now save the current configuration back to the hard disk drive.

- Remove the MS-DOS with ScreenMate disk (3.10) from Drive A.
- Insert the Utilities and Help disk (3.10) in Drive A and close the drive door.

From the MS-DOS system prompt,

- Type CONFIGUR and press the Return key. The CONFIGUR Utility Main Menu is displayed as shown below.
- Remove the Utilities and Help disk.
- Insert the disk you saved the current configuration to and close the drive door.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --> Source - Current Settings	F2 --> Configur Screen Attributes
F3 --> Configur Serial Ports	F4 --> Reroute Devices
F5	F6
F7	F8 --> Help
F9 --> Activate Changes	F10 --> Exit this program
Press function key to activate selection	

- Select F1 until Source - Drive A:.
- Select F9 to activate changes. The Activate Menu is displayed as shown below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
ACTIVATE MENU	
<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F1</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F3 --> Temporarily Activate</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F5</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F7</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F9</div> </div>	<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F2 --> Destination - Drive A:</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F4 --> Save and Activate</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F6</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F8 --> Help</div> <div style="border: 1px solid black; padding: 2px 10px; display: inline-block;">F10 --> Return to Main Menu</div> </div>
Press function key to activate selection	

To save this configuration,

- Select F2 until Destination - Drive C:.
- Select F4. This will permanently save this configuration on the hard disk.
- Remove the disk from Drive A.
- Insert the MS-DOS with ScreenMate disk in Drive A and close the drive door.

Continue on the next page.

Copy MS-DOS with ScreenMate files to hard disk

You are now ready to copy the MS-DOS 3.10 files to the hard disk.

If you have a unique CONFIG.SYS file, you may want to rename it before continuing (i.e., REN C:CONFIG.SYS CONFIG.TMP). This will prevent this file from being overwritten.

(Note: If your hard disk boot drive is not Drive C, be sure to replace the C: in the following commands with your boot drive.)

Type COPY A:*. * C: /V and press the Return key.

The file names are displayed on the screen as they are copied to the root directory. The /V tells the system to verify that the files are copied correctly.

When the A> prompt is displayed, copying is complete.

Copy Utilities and Help files to hard disk

- Remove the MS-DOS with ScreenMate disk from Drive A.
- Insert the Utilities and Help disk in Drive A and close the drive door.
- Type `COPY A:*.* C: /V` and press the Return key.

Again, the file names are displayed as they are copied.

Copy Supplemental Programs files to hard disk

- Remove the Utilities and Help disk from Drive A.
- Insert the Supplemental Programs disk in Drive A and close the drive door.
- Type `COPY A:*.* C: /V` and press the Return key.

The file names are displayed as they are copied.

- Remove the Supplemental Programs disk from Drive A.
- Store the three original MS-DOS disks in a safe place.

Continue on the next page.

Create a new AUTOEXEC.BAT file

Log on to the hard disk.

- Type **C:** and press the Return key.

The system prompt changes to **C>**. You are now logged on to the hard disk.

It is recommended that you create a new **AUTOEXEC.BAT** file.

From the MS-DOS system prompt,

- Type **COPY CON: AUTOEXEC.BAT** and press the Return key.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT
—
```

The above statement tells MS-DOS to copy the information entered at the keyboard to the **AUTOEXEC.BAT** file.

- Type **ECHO OFF** and press the Return key.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT
ECHO OFF
—
```

This batch file command tells the system not to echo (display) the commands in the batch file as they are executed.

- Type `PROMPT PG` and press the Return key.

This command changes the system prompt. Instead of getting the `C>` prompt, the system will tell you what directory you are currently working in. For example, when you are in the root directory, the system prompt will be

```
C:\>
```

If you have a subdirectory entitled `ACCTING` and you have changed to that subdirectory, the prompt would be

```
C:\ACCTING>
```

- Type `PATH = C:\` and press the Return key.

This command tells the system to search the root directory when these commands/utilities are issued no matter what subdirectory you are in.

- This command is entered only if you have a Xerox optical mouse.** Type `MOUSE` and press the Return key. This command activates the Xerox optical mouse driver.

- Type `CLS` and press the Return key.

This command when executed will clear the screen.

The screen should look similar to

```
C>COPY CON: AUTOEXEC.BAT
ECHO OFF
PROMPT $P$G
PATH = C:\
MOUSE      (optional)
CLS
```

Check to be sure there are no errors in the file. If there are errors, simultaneously press the Ctrl + C keys. You will exit to the system prompt without saving the file. Repeat the procedure.

If there are no errors, you can save this file.

- Simultaneously hold down the Ctrl and Z keys.

The ^Z is displayed on the screen.

- Press the Return key.

The system displays the following message.

1 File(s) copied

You are returned to the system prompt. You are ready to reboot the system. Go to the "Reboot the System" section on the next page and continue.

Reboot the system

If you did not rename your CONFIG.SYS file, continue with "To reboot ..." below.

If you renamed your CONFIG.SYS file, you need to

- Type ERASE CONFIG.SYS and press the Return key to erase the CONFIG.SYS file you just copied.
- Type REN CONFIG.TMP CONFIG.SYS to rename your file back to CONFIG.SYS. Where CONFIG.TMP would be replaced with the name that you gave the file. You are now ready to reboot your system.

To reboot from the hard disk, you can either

- Press the Reset button located on the lower right-hand corner of the disk drive.

Or

Simultaneously press the Alt and Ctrl keys while you press the Del key.

The resident diagnostics test is run. If you get an error message, contact your service representative.

When the system is loading correctly, the Xerox personal computer release level will be displayed and then the MS-DOS system prompt (C:\>) will be displayed. You are now ready to work with MS-DOS 3.10.

If you have a color screen, you can use the CONFIGUR Utility to select the screen colors. See "6. Configure your system" on next page for instructions.

Notes:

6. CONFIGURE YOUR SYSTEM

This section tells you how to

Set the date and time.

Configure the screen attributes.

Configure the serial port for communications or a serial printer.

Reroute devices for serial printers.

Follow the instructions on the next page to set the time and date in your computer.

Then use the Hardware Charts on pages A-78 and A-79 to determine what settings need to be changed to make the software match your hardware.

Set the date and time

The computer has a battery-powered clock which will keep track of the time and date once you have set them.

From the MS-DOS system prompt (i.e., A:\>),

- ▶ Type `DATE` and press the Return key.

The system displays

```
Current date is Fri 11-08-1985
Enter new date (mm-dd-yy):
```

- ▶ Type in the current date (i.e., 2/21/85 or 2-21-85) and press the Return key.

- ▶ Type `TIME` and press the Return key.

The system displays

```
Current time is 21:45:14.66
Enter new time:
```

The correct time is entered in the format HH:MM:SS.ss (that's Hours, Minutes, Seconds, and hundredths of a second.)

MS-DOS uses a 24 hour, or "military" clock. For example, 1 PM is 13:00 hours, 2:30 PM is 14:30 hours, etc.

- ▶ Type in the current time (i.e., 8:00 for 8 AM, 14:30 for 2:30 PM) and press the Return key.

Now continue with "Configure the hardware" on the next page.

Configure the hardware

The CONFIGUR Utility is used to change system hardware settings, such as set screen colors and to prepare the printer and communications ports.

Check the charts on the next two pages to see if you need to configure your hardware.

These charts cover base systems with

- Monochrome (non-color) or color screen
- Parallel or serial printer
- Communications or No communications
- One parallel port
- One serial port

Locate your system's hardware under the Hardware column. Then go to the sections listed, in the order that they are listed, and follow the steps to configure the system for your hardware.

Hardware chart - monochrome screen

HARDWARE	SECTIONS TO DO
Monochrome screen Parallel printer No communications	The software is already configured to work with this hardware. However, if you decide you want to use reverse video (black characters on a white background), you may change the configuration using the selections listed below. Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) Activate changes (A-97)
Monochrome screen Parallel printer Communications	Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) <i>(Only if reverse video is desired)</i> Configure serial port(s) (A-86) Activate changes (A-97)
Monochrome screen Serial printer only	Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) <i>(Only if reverse video is desired)</i> Configure serial port(s) (A-86) Reroute devices (A-91) Activate changes (A-97)

Hardware chart - color screen

HARDWARE	SECTIONS TO DO
Color screen Parallel printer No communications	You may use the steps below to change the color of the screen for MS-DOS (not application software). Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) Activate changes (A-97)
Color screen Parallel printer Communications	Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) <i>(Only for MS-DOS)</i> Configure serial port(s) (A-86) Activate changes (A-97)
Color screen Serial printer only	Load the CONFIGUR utility (A-80) Select source of the configuration (A-81) Configure the screen attributes (A-82) <i>(Only for MS-DOS)</i> Configure serial port(s) (A-86) Reroute devices (A-91) Activate changes (A-97)

Load the CONFIGUR utility

The first step in CONFIGUR is bringing up (loading) the CONFIGUR menu.

If you have a dual floppy disk drive system, be sure the MS-DOS boot disk is in Drive A and MS-DOS is loaded. The A:\> should be displayed. When you save the configuration, the destination drive will be Drive A.

- ▶ Type CONFIGUR and press the Return key.

The CONFIGUR Utility Main Menu is displayed as illustrated below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
MAIN MENU	
F1 --▶ Source - Current Settings	F2 --▶ Configur Screen Attributes
F3 --▶ Configur Serial Ports	F4 --▶ Reroute Devices
F5	F6
F7	F8 --▶ Help
F9 --▶ Activate Changes	F10 --▶ Exit this program
Press function key to activate selection	

Select source of the configuration

With the CONFIGUR Utility Main Menu displayed, you can select the source of the configuration.

The options are:

<u>Option</u>	<u>Description</u>
Current Settings	The current (in memory) settings.
Drive d	where d is the drive names available on your system

- ▶ Select F1 until the desired drive is displayed for the source.

If your system is brand new and this is first time you have used the CONFIGUR Utility, select Current Settings as the source.

When you have selected the source, you can configure your hardware, as described in each of the following sections.

<u>SECTION</u>	<u>PAGE</u>
Configure the screen attributes	A-82
Configure serial port(s)	A-86
Reroute devices	A-91
Activate changes	A-97

Configure the screen attributes

Attributes are the characteristics of the screen. You can change the screen attributes to best suit your personal needs. With the CONFIGUR Utility Main Menu displayed,

- ▶ Select F2. The Configure Screen Attributes Menu is displayed.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
CONFIGURE SCREEN ATTRIBUTES MENU	
F1 --> Screen Type - Color	F2 --> Screen Width 80 Columns
F3 --> Foregrnd Color <input type="text" value="HIW"/>	F4 --> Backgrnd Color <input type="text" value="BLA"/>
F5	F6
F7	F8 --> Help
F9 --> Accept this Configuration	F10 --> Return to Main Menu
Press function keys to cycle through selections	

If you have a color display, go to page A-84 and continue.

If you have a monochrome (non-color) display, continue on the next page.

Monochrome (non-color) display

Follow the instructions below to configure the screen attributes for a monochrome display.

The Screen Type should be set to Monochrome.

- ▶ Select F1 until Monochrome is displayed if it is not already displayed.

The Screen Width of 80 Columns is recommended since some software packages will not work properly with a screen width of 40 columns.

The Characters displayed on the screen can be set to Normal (white characters on a dark background) or Reverse Video (black characters on a light background).

- ▶ Select F3 until the desired character attribute is selected.

When you have finished selecting the screen attributes,

- ▶ Select F9 to accept this configuration.

The following message is displayed.

Configuration accepted.

- ▶ Select F10 to return to the main menu.

(Note: If you select F10 before selecting F9, the screen attributes will return to the previous settings.)

Color display

Follow the instructions below to configure the screen attributes for a color display. The colors you select will display while you're using MS-DOS, but will not be used by your application software programs.

The Screen Type should be set to Color.

- ▶ Select F1 until Color is displayed if it is not already displayed.

The screen will look similar to the one below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
CONFIGURE SCREEN ATTRIBUTES MENU	
F1 --> Screen Type - Color	F2 --> Screen Width 80 Columns
F3 --> Foregrnd Color <input type="text" value="HIW"/>	F4 --> Backgrnd Color <input type="text" value="BLA"/>
F5	F6
F7	F8 --> Help
F9 --> Accept this Configuration	F10 --> Return to Main Menu
Press function keys to cycle through selections	

The Screen Width of 80 Columns is recommended since some software packages will not work properly with a screen width of 40 columns.

The Color selections are displayed on the menu as 'mini' screens. Select each color until you determine which color combinations look best.

To select colors for your screen:

- ▶ Select F3 until the desired foreground color is selected.

Foreground colors are white, black, blue, green, cyan, red, magenta, brown, gray, light blue, light green, light cyan, light red, light magenta, yellow, and high-intensity white.

(Note: If you are an MS-DOS with ScreenMate user, it is recommended that the foreground color be high-intensity white, any light color, yellow or grey.)

- ▶ Select F4 until the desired background color is selected.

Background colors are black, blue, green, cyan, red, magenta, brown, white.

When you have finished selecting the screen attributes,

- ▶ Select F9 to accept this configuration.

The following message is displayed.

Configuration accepted.

- ▶ Select F10 to return to the main menu.

(Note: If you select F10 before selecting F9, the screen attributes will return to the previous settings.)

Configure serial port(s)

If you have a serial device connected (i.e., printer, modem) to your system, you need to configure the serial port(s).

With the CONFIGUR Utility Main Menu displayed,

- ▶ Select F3.

The CONFIGUR Serial Ports Menu is displayed.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
CONFIGUR SERIAL PORTS MENU	
F1 --> Serial Port 1	F2 --> Device - XRX620
F3 --> Baud Rate - 1200	F4 --> Stop Bits - 1
F5 --> Word Length - 7	F6 --> Parity - Even
F7 --> Protocol	F8 --> Help
F9 --> Accept this Configuration	F10 --> Return to Main Menu
Press function keys to cycle through selections	

First, you need to select the serial port you are going to be configuring. Only ports that are actually in the system will be available for configuration. If your system has only one serial port, selecting F1 will not allow any other selection.

- ▶ Select F1 until the desired serial port is displayed.

You can select F2 to display suggested settings for the device displayed. The settings can still be changed. The device options are XRX620, XRX610C, CUSTOM, and XRX630, which are for the Diablo 620 printer, Memorywriter 610, other printers, and Diablo 630 printer, respectively.

- ▶ Select F2 until the desired device is selected.

Next, you need to set the following parameters. Refer to the serial device (i.e., printer, modem) manual for the required settings.

- ▶ Select F3 until the desired Baud Rate is selected.

The baud rates available are 110, 150, 300, 600, 1200, 2400, 4800, 9600.

- ▶ Select F4 until the desired Stop Bits is selected.

The stop bits available are 1 or 2.

- ▶ Select F5 until the desired Word Length is selected.

The word length settings available are 7 or 8.

- ▶ Select F6 to select the Parity.

The parity settings are odd, even or none.

When you have selected the serial port and set the parameters for that port, you need to set the protocol. Refer to the serial device manual for the protocol settings.

- ▶ Select F7 to display the Protocol menu as illustrated below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
PROTOCOL MENU	
F1 --> Soft Protocol - Xon/Xoff	F2
F3 --> Data Terminal Rdy - High	F4 --> Request to Send - High
F5 --> Clear to Send - High	F6 --> Carrier Detect - High
F7	F8 --> Help
F9 --> Accept this Configuration	F10 --> Return to Previous Menu

Press function keys to cycle through selections

You need to set the following protocol parameters.

- ▶ Select F1 until the desired Soft Protocol is selected.

Options are Xon/Xoff, None, or E/TX/ACK

- ▶ Select F3 until the desired Data Terminal Rdy is selected.

Options are High, Low or Ignore.

- ▶ Select F4 until the desired Request to Send is selected.

Options are High, Low or Ignore.

- ▶ Select F5 until the desired Clear to Send setting is selected.

Options are High, Low or Ignore.

- ▶ Select F6 until the desired Carrier Detect is selected.

Options are High, Low or Ignore.

When the protocol parameters are set,

- ▶ Select F9 to accept the configuration.

The following message is displayed.

Configuration accepted.

- ▶ Select F10 to return to the CONFIGUR Serial Ports Menu.

(Note: If you select F10 before selecting F9, the parameters will return to the previous settings.)

When you have set all the parameters for this serial port, you can accept this configuration.

- ▶ Select F9 to accept the configuration.

The following message is displayed.

Configuration accepted.

(Note: If you select F1 or F10 before selecting F9, the parameters will return to the previous settings.)

If you have more than one serial port, you need to repeat the previous steps for each serial port.

Once you have set the parameters for each serial port, you need to return to the CONFIGUR Utility Main Menu.

- ▶ Select F10 to return to the CONFIGUR Utility Main Menu.

Reroute devices

With the CONFIGUR Utility Main Menu displayed,

- ▶ Select F4. The Reroute Devices Menu is displayed.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
REROUTE DEVICES MENU	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>F1 --▶ Display Current Routing</p> <p>F3 --▶ Redirect Printer</p> <p>F5 --▶ Redirect Comm</p> <p>F7</p> <p>F9</p> </div> <div style="width: 45%;"> <p>F2</p> <p>F4</p> <p>F6</p> <p>F8 --▶ Help</p> <p>F10 --▶ Return to Main Menu</p> </div> </div>	
Press function key to activate selection	

To display current routing, go to the next page.

If you have a serial printer, you will have to redirect the printer. Go to page A-93.

If you have more than one serial port with communication devices connected, you need to redirect communications. Go to page A-95.

Display current routing

With the Reroute Devices Menu displayed,

- ▶ Select F1.

The current routing is displayed. The screen will look similar to the one below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation	
DISPLAY ROUTING MENU	
LPT1 Routed to Parallel Port 1	COM1 Routed to Serial Port 1
LPT2 Routed to Serial Port 1	COM2 Routed to Serial Port 1
LPT3 Routed to Serial Port 1	COM3 Routed to Serial Port 1
Press [F10] to return to Reroute Devices Menu.	

To return to the Reroute Devices Menu,

- ▶ Press the F10 function key.

Redirect printer(s)

With the Reroute Devices Menu displayed,

- ▶ Select F3.

The Redirect Printer Menu is displayed. The screen will look similar to the one below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation			
REDIRECT PRINTER MENU			
F1	LPT1	to	F2 --> Parallel Port 1
F3	LPT2	to	F4 --> Serial Port 1
F5	LPT3	to	F6 --> Serial Port 1
F7			F8 --> Help
F9	--> Accept this Configuration		F10 --> Return to Reroute Menu
Press function keys to cycle through selections			

The software will support one parallel port and three serial ports, but only the port options you have available on your system will be displayed when you select F2, F4 or F6.

If you have a serial printer only and no other serial ports, you need to set LPT1 to Serial Port 1. LPT2 and LPT3 should also be set to Serial Port 1.

To reroute the printer device(s),

- ▶ Select F2 to select the routing for LPT1.
- ▶ Select F4 to select the routing for LPT2.
- ▶ Select F6 to select the routing for LPT3.

When the printer routing is set,

- ▶ Select F9 to accept the configuration.

The following message is displayed.

Configuration accepted.

- ▶ Select F10 to return to the Reroute Devices Menu.

(Note: If you select F10 before selecting F9, the parameters will return to the previous settings.)

You are returned to the Reroute Devices Menu.

- ▶ Select F10 to return to the CONFIGUR Utility Main Menu.

Redirect communications device

With the Reroute Devices Menu displayed,

- ▶ Select F5.

The Redirect Comm Menu is displayed. The screen will look similar to the one below.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation			
REDIRECT COMM MENU			
F1	COM1	to	F2 --> Serial Port 1
F3	COM2	to	F4 --> Serial Port 1
F5	COM3	to	F6 --> Serial Port 1
F7			F8 --> Help
F9	--> Accept this Configuration		F10 --> Return to Reroute Menu
Press function keys to cycle through selections			

The software will support three serial ports, but only the port options you have available on your system will be displayed when you select F2, F4 or F6.

To reroute the communications device,

- ▶ Select F2 to select the routing for COM1.
- ▶ Select F4 to select the routing for COM2.
- ▶ Select F6 to select the routing for COM3.

When the communications routing is set,

- ▶ Select F9 to accept the configuration.

The following message is displayed.

Configuration accepted.

- ▶ Select F10 to return to the Reroute Devices Menu.

(Note: If you select F10 before selecting F9, the parameters will return to the previous settings.)

You are returned to the Reroute Devices Menu.

- ▶ Select F10 to return to the CONFIGUR Utility Main Menu.

Activate changes

With the CONFIGUR Utility Main Menu displayed,

- ▶ Select F9.

The Activate Menu is displayed.

CONFIGUR UTILITY ver. x.xx (c) Copyright 1984 Xerox Corporation																					
ACTIVATE MENU																					
<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F1</td><td></td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F3</td><td>--▶ Temporarily Activate</td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F5</td><td></td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F7</td><td></td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F9</td><td></td></tr> </table>	F1		F3	--▶ Temporarily Activate	F5		F7		F9		<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F2</td><td>--▶ Destination - Drive d:</td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F4</td><td>--▶ Save and Activate</td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F6</td><td></td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F8</td><td>--▶ Help</td></tr> <tr><td style="border: 1px solid black; width: 40px; height: 40px; text-align: center;">F10</td><td>--▶ Return to Main Menu</td></tr> </table>	F2	--▶ Destination - Drive d:	F4	--▶ Save and Activate	F6		F8	--▶ Help	F10	--▶ Return to Main Menu
F1																					
F3	--▶ Temporarily Activate																				
F5																					
F7																					
F9																					
F2	--▶ Destination - Drive d:																				
F4	--▶ Save and Activate																				
F6																					
F8	--▶ Help																				
F10	--▶ Return to Main Menu																				
Press function key to activate selection																					

You can either temporarily activate this configuration or save and activate.

To temporarily activate the configuration,

- ▶ Select F3.

You are returned to the MS-DOS system prompt.

This configuration will be active until the system is rebooted.

To save and activate the configuration,

- ▶ Select F2 until the destination (where you want it saved) drive is displayed. (Use A if your system has dual floppy disk drives. Use C if your system has a hard disk drive.)

- ▶ Select F4.

You are returned to the MS-DOS system prompt.

This configuration will be active every time you load your system.

REPARTITIONING OF THE HARD DISK

APPENDIX B

Notes:

If you ever need to repartition your hard disk, you will need to perform the following tasks.

This procedure will erase all files on the hard disk.

Use the Xerox HDMAINT program to

- Backup the files that you want to keep from the hard disk to floppy disks.
- Delete the MS-DOS partition(s).
- Add the MS-DOS partition(s).
- Designate boot partition.
- Format the MS-DOS partition(s).
- Restore the backed up files from floppy disks to the hard disk.

Notes:

COMMAND EQUIVALENCY CHART -- XEROX vs IBM

APPENDIX C

Notes:



PC-DOS	XEROX
ASSIGN	*ASSIGN
BACKUP	HDMAINT or *BACKUP
COMP	FC
DISKCOMP	*DISKCOMP
DISKCOPY	FDMAINT or *DISKCOPY
FDISK	HDMAINT
FORMAT	FDMAINT or *FORMAT
GRAPHICS	*GRAPHICS
MODE	CONFIGUR or *MODE
RESTORE	HDMAINT or *RESTORE
SYS	SYSGEN or *SYS
TREE	TREE
Not available	SETPRT
Not available	SOFTKEYS

*Be sure to read the documentation on these commands before using them. They are described in Appendix I.

Notes:

ERROR MESSAGES

APPENDIX D

Notes:

Disk errors

A number of error messages have to do with reading from or writing to devices such as disks or printers. These messages all take the same form, which is:

type error reading/writing device
Abort, Retry, Ignore?

where *type* represents one of the following:

Bad call format
Bad command
Bad unit
Data
Disk
No paper
Non-DOS disk
Not ready
Read fault
Sector not found
Seek
Write fault
Write protect

When you receive one of these messages, do **one** of the following:

Enter **A** for Abort. The system ends the program that requested the read or write.

Enter **R** for Retry. The system tries the read or write operation again.

Enter **I** for Ignore. The system ignores the error and attempts to continue the program. (This method may cause loss of data.)

These device error messages are described in alphabetical order along with the rest of the error messages in the following appendix.

Error messages

filename

Contains *n* non-contiguous blocks.

(CHKDSK)

The file or files you named are not written sequentially on disk.

***filename* could not be created.**

The disk is full, the directory is full, a protected file is present on the disk or a subdirectory of the same name exists on the disk. Try a new disk, erase unneeded files; or try a different file name.

***filename* exists. Overwrite? [N]**

(SoftKeys)

This is a safety message for the save operation. If you are sure you want to replace the file in question, type Y; otherwise, type N and save the file under another file name.

***filename* is cross-linked on cluster**

(CHKDSK)

A cluster has been assigned to more than one file. Make a copy of the file you want to keep, and then delete both files that are cross-linked.

***filename* not found.**

(SoftKeys)

The file name entered was not found. Check the spelling and verify that the file exists.

***filename.HLP* needed on this disk.**

This file, which contains the help text, is not present on the disk. Copy this file to the disk.

Access denied

An attempt has been made to write to a read only file.

All specified file(s) are contiguous
(CHKDSK)

The file or files you named are all written sequentially on disk.

Allocation error, size adjusted
(CHKDSK)

The file allocation table (FAT) contains an invalid cluster number. The file is truncated at the end of the last valid cluster. CHKDSK has automatically performed the only remedy available at this point.

Ambiguous switch : z
(LINK)

The character in z identifies more than one linker parameter.

Amount read less than size in header
(EXE2BIN)

The file is smaller than its header indicates. Recompile (or reassemble) and relink the program.

An internal failure has occurred
(LINK)

The linker program has failed. Report the conditions of the failure to your service representative.

Attempt to access data outside of segment bounds,
possibly bad object module
(LINK)

An invalid object file has been specified.

Bad call format error
(device error)

A request header of incorrect length was passed to a device driver. Contact your service representative.

**Bad command error
(device error)**

A device driver has issued an invalid command to the named device. Contact your service representative.

**Bad command or file name
(MS-DOS)**

The entered command is not recognized by DOS. It is either misspelled or not present on the specified drive.

**Bad numeric parameter
(LINK)**

The value specified with the /STACK parameter is not a valid numeric constant.

**Bad or missing command interpreter
(MS-DOS)**

The MS-DOS disk being loaded does not contain the file COMMAND.COM in the root directory.

**Bad or missing *filename*
(MS-DOS)**

One of the following conditions occurred during startup:

The device driver named in the DEVICE=parameter does not exist in CONFIG.SYS.

A break address has been set which is out of bounds for the machine.

An error occurred during loading of the driver.

**Bad Sector Table Overflow; Remaining flawed sectors will not be recorded.
(HDMINT)**

If you get this message when you are formatting the physical hard disk, it means your hard disk is bad (not usable). Contact your service representative.

Bad Track Table Overflow; Remaining flawed tracks will not be recorded.

(HDMINT)

If you get this message when you are formatting the physical hard disk, it means your hard disk is bad (not usable). Contact your service representative.

Bad unit error

(device error)

An invalid subunit number has been sent to a device driver. Contact your service representative.

Batch file missing

(MS-DOS)

A file being processed in batch mode is no longer present. It may have been removed or erased during processing. The batch stops and returns control to MS-DOS.

Baud rate must be 110, 150, 300, 600, 1200, 2400, 4800 or 9600.

(CONFIGUR)

An invalid baud rate was entered. Enter a valid baud rate.

BF

(DEBUG)

The specified flag code setting is invalid. Reenter the Register (RF) command with the correct code.

BP

(DEBUG)

More than ten breakpoints were specified for the Go (G) command. Reenter the GO command with ten or fewer breakpoints.

BR
(DEBUG)

An invalid register name has been specified. Reenter the register (R) command with a valid register name.

Cannot access an ASSIGNED device
(commands)

The **ASSIGN *drive1* = *drive2*** command was executed prior to the attempted execution of the command. Execute **ASSIGN** with no parameters to restore the original drive letter assignment. Then try to execute the command again.

Cannot add a partition, partition table full
(HDMaint)

The hard disk may be divided into a maximum of four partitions. Do not attempt to create a fifth partition.

Cannot Chdir to *filename*
Tree past this point not processed
(CHKDSK)

CHKDSK is traveling the tree structure of the directory and is unable to proceed to the specified directory. All subdirectories and files under this directory will not be verified.

Cannot Chdir to root
Processing cannot continue
(CHKDSK)

CHKDSK is traveling the tree structure of the directory and is unable to return to the root directory. CHKDSK is not able to continue checking the remaining subdirectories to the root. Try to restart MS-DOS. If this error persists, the disk is unusable.

Cannot *command* to a network device.
(commands)

The *command* cannot be executed through the network. Where *command* can be COPY, FORMAT, SYS, SYSGEN, or VERIFY.

Cannot continue without PRTPW.DAT on default disk.
(SETPRT)

The PRTPW.DAT file is not on the disk or you are not logged onto the disk or partition containing SETPRT. Copy PRTPW.DAT to the default disk or log onto the disk containing SETPRT and then run the program.

Cannot COPY a system file. Press RETURN to continue.
(ScreenMate)

You have tried to copy the XERBIO.COM or XERDOS.COM file. Press the RETURN key to continue.

Cannot delete a path which has files or directories in it.
(ScreenMate)

In Delete a Dir, you tried to delete a path, but the directory contains files or other paths. You must delete all files first and any subdirectories within that path.

Cannot do binary reads from a device
(COPY)

The /B switch has been used with the name of a device. Place a /A switch after the device name to copy in ASCII mode.

Cannot edit .BAK file - rename file
(EDLIN)

You have tried to edit a file that has a .BAK extension. Either edit the more up to date version of the file, or rename the .BAK file before attempting to edit it.

Cannot find library file
Enter new drive letter:
(LINK)

The specified library is not present on the current drive. Enter the drive containing the library.

Cannot find object file
Change diskette hit ENTER
(LINK)

The specified object module is not present on the disk.

Cannot format partition -- previously formatted.
(HDMaint)

An attempt was made to format a partition which has already been formatted. This process is not permitted. If you are repartitioning your hard disk, see Appendix B.

Cannot load COMMAND, system halted
(MS-DOS)

The available memory map has been destroyed while loading the command processor. Reboot MS-DOS.

Cannot nest response file
(LINK)

It is not possible to use a filespec within an automatic response file.

Cannot open *filename*
(PRINT)

Either MS-DOS cannot find the specified file to print or the file does not exist. Check the command for a valid file name.

Cannot open list file
(LINK)

A list file cannot be opened because the disk or directory is full.

**Cannot open overlay
(LINK)**

An overlay cannot be opened because the disk or directory is full.

**Cannot open response file
(LINK)**

The specified response file does not exist.

**Cannot open temporary file
(LINK)**

The directory or disk is full, hence the linker cannot create the VM.TMP file. Insert a new formatted disk. Do not remove the disk that will receive the LIST.MAP file.

**Cannot recover . entry, processing continued
(CHKDSK)**

The . entry ("working" directory) is defective.

**Cannot recover .. entry, processing continued
(CHKDSK)**

The .. entry (parent directory) is defective.

**Cannot RENAME a system file. Press RETURN to continue.
(RENAME)**

You tried to rename the XERBIO.COM or XERDOS.COM file. Press the Return key to continue.

**Cannot route COM to parallel port.
(CONFIGUR)**

Communications was directed to a parallel port. Communications may be directed only to serial ports. Redirect communications to a serial port.

Cannot split screen with all attributes displayed
(ScreenMate)

Attempt to split the screen with all file attributes displayed. You need to go to the Screen Maint. and select something other than all attributes.

CD must be L, H, or I.
(CONFIGUR)

An invalid value for Carrier Detect was entered. Enter a valid value.

Content of destination lost before copy
(COPY)

A file to be used as a source file to the copy command has been overwritten prior to completion of the copy. Example: COPY A + B B which destroys B before it can be copied.

Critical errors make this disk unusable.
(FDMAINT, DISKCOMP, DISKCOPY or FORMAT)

Sectors on the disk that are required for system use are flawed. Never use this disk.

CTS must be L, H, or I.
(CONFIGUR)

An invalid value for Clear to Send was entered. Enter a valid value.

Data error
(device error)

Data could not be read/written correctly because of a faulty disk. Restart MS-DOS and try to RECOVER the disk.

Destination disk is write-protected.

A write-protect tab is used on the destination disk. Remove the tab or use another disk.

Destination disk or drive not ready.

The drive door is open, or there is no disk in the drive. Insert a disk and/or close the drive door.

**Destination drive unable to match source format.
(DISKCOPY or FDMAINT)**

Tried to copy a high-capacity floppy disk to a standard floppy disk drive. Use the high-capacity drive as the source and destination drive.

**DF
(DEBUG)**

Conflicting codes have been specified for a single flag. A flag can be changed only once for each Register (RF) command.

Directory not found or cannot be created.

The specified directory could not be found on the source disk. Retry the operation. If the directory is still not found, examine your disk. Ensure that the path is correct.

**Directory is totally empty, no . or ..
(CHKDSK)**

The specified directory does not contain references to "working" and parent directories. Delete the specified directory and recreate it.

**Disk already has split file, insert another disk, and press
RETURN
(HDMaint)**

When backing up, there cannot be two split files on a disk. Insert a formatted disk and press the Return key.

**Disk boot failure
(MS-DOS)**

MS-DOS cannot be loaded from the disk in Drive A. Retry, or if that fails, use another disk.

Disk error
(device error)

An error has occurred reading from or writing to a disk. Attempt to correct the problem and retry this operation.

Disk error reading FAT
(CHKDSK)

An error occurred during a read operation on the file allocation table.

Disk error writing FAT
(CHKDSK)

An error occurred while CHKDSK was trying to update the file allocation table. Copy the disk and retry the procedure. If this does not work, try to RECOVER the disk. If this does not work, the disk is irreparably damaged.

Disk full. To complete file, insert next disk and press RETURN.
(HDMaint)

The floppy disk ran out of space before the last file was stored. Insert a formatted disk in the drive, close the drive door and press the Return key.

Disk full - write not completed
(EDLIN)

The disk you are using does not have enough space to save all of the file. Part of the file may have been saved on the disk, but the remainder that has not been saved is lost. This is an unrecoverable error. Repeat your edit using a disk with sufficient storage space.

Disk is full
(ScreenMate)

Writing to a disk which does not have sufficient storage left to receive the file.

**Disk is write protected
(CONFIGUR or SETPRT)**

A write-protect tab is on the disk. Remove the tab or use another disk and retry the function.

**Disk is write protected. Check disk and retry.
(ScreenMate)**

Disk is write-protected and an attempt to write to the disk is made. Remove the disk and remove the write-protect tab from the disk and retry. Or, insert a write-enabled disk.

Disk not ready.

There is no disk in the drive. Insert disk, close the drive door, and try again.

Disk or drive not ready.

The door to the floppy drive is open, or there is no disk in the drive. Insert disk, close the drive door, and execute the program again.

**Divide overflow
(MS-DOS)**

A divide by zero was attempted, or an internal logic error has occurred. The system continues as if Ctrl + Break had occurred.

**Drive not ready.
(CONFIGUR or SETPRT)**

The drive door is open. Close the drive door and try again.

**Drive not ready
(PRINT)**

If this message appears while PRINT attempts to disk access, PRINT keeps trying until the drive is ready. Any other error cancels the current file. In this case, an error message is printed on your printer.

Drive not ready. Check disk and retry.
(ScreenMate)

The door to the floppy drive is open, or there is no disk in the drive. Insert disk, close the drive door and execute the program again. Also, check to see that the disk has been inserted properly.

DTR must be L, H, or I.
(CONFIGUR)

An invalid value for Data Terminal Ready was entered. Enter a valid value.

Dup record too complex
(LINK)

There is a problem with an object module created from an assembler source program. A single dup requires 1024 bytes before expansion. Debug the source program; then rerun the linker.

Duplicate file name or File not found
(RENAME)

An attempt has been made to rename a file with a file name that already exists on the destination disk, or the file to be renamed could not be found on the specified drive.

Duplicate path name. Please re-enter
(ScreenMate)

In Make a directory, an attempt was made to create a path identical to an existing path. Enter a new path.

End of input file
(EDLIN)

The entire file was read into memory. If the file is read in sections, this message indicates the last section of the file is in memory.

**Entry error
(EDLIN)**

The EDLIN command was entered incorrectly.
Reenter the command.

**Entry has a bad attribute (or size or link)
(CHKDSK)**

This message may be preceded by one or two periods to indicate which subdirectory is invalid. If you have specified the /F switch, CHKDSK will attempt to correct the error.

**Error found in reserved system space.
(FDMAINT or FORMAT)**

This message would come up in the format section with the option "Reserve System Space". It means that there was a file error while writing the dummy system files to the disk. Rerun the format program.

**Error in EXE file
(MS-DOS)**

The file contains erroneous relocation information create by LINK. The file may have been altered after creation.

**Error in EXE/HEX file
(DEBUG)**

The EXE or HEX file contained invalid characters or records.

**Error on read attempt
(CONFIGUR or SETPRT)**

An error occurred while the disk was being read. Use another disk.

**Error on write attempt
(CONFIGUR or SETPRT)**

An error occurred while the disk was being written to. Use another disk.

Error reading from destination disk.
(DISKCOMP)

The destination disk is defective. Verify the destination disk and copy good files to another disk.

Error reading from source disk.
(DISKCOMP, DISKCOPY, FDMAINT or FORMAT)

The source disk is defective. Verify the source disk and copy good files to another disk.

Error writing to destination disk.
(DISKCOPY, FDMAINT or FORMAT)

The destination disk is defective. Restart the copy procedure with another disk.

Error - Destination disk or drive not ready.
(SYS)

The door to the floppy drive is open or there is no disk in the drive. Insert disk, close the drive door, and execute the program again.

Error - Insufficient memory.
(SYS)

When doing a SYS and the source and destination disks are the same floppy drive, there must be enough memory available in the system to temporarily store the system files. This message is shown where there is not enough memory to store all of the system files. Use different drives for the source and destination.

Error - The destination disk is write protected.
(SYS)

The destination disk has a write-protect tab on it. Remove the write-protect tab and execute program again.

Error - the disk is not MS-DOS formatted.
(SYS)

The destination disk is not an MS-DOS formatted disk. Use an MS-DOS formatted disk.

Error - The system file (s) were not found on drive
(SYS)

The disk specified as the source disk does not contain the system file(s). Be sure you have the MS-DOS boot disk in the source drive and execute the program again.

ERROR - ANSI.SYS REQUIRED, BUT NOT LOADED.
(SoftKeys)

The CONFIG.SYS file of the booted system is either missing or did not contain the line `DEVICE=ANSI.SYS`; or the ANSI.SYS file is missing. Supply the missing file or line and reboot MS-DOS.

ERROR ... Check if proper ANSI.SYS is loaded.
(SoftKeys)

The CONFIG.SYS file of the booted system is either missing or did not contain the line `DEVICE=ANSI.SYS`; or the ANSI.SYS file is missing. Supply the missing file or line and reboot MS-DOS.

ERROR ... Disk Full. File not saved.
(SoftKeys)

The disk specified to receive the saved file either did not have enough free space to contain the file or did not have an empty directory entry available. If possible, erase some unneeded files and try again.

ERROR ... Maximum definition size reached.
(SoftKeys)

The new definition has reached the end of the display line. If possible, spread the definition across two or more SoftKeys.

**ERROR ... Not enough room to add new definition.
(SoftKeys)**

The total size of the SoftKeys key definitions has exceeded the size of the area reserved in ANSI.SYS for this purpose. Reduce the total size of the key definitions to fit the limit.

**Error, 1 or more sectors failed to copy properly.
(DISKCOPY or FDMAINT)**

A hardware error or defective media is the probable cause. Restart the copy procedure.

**Error, destination disk or drive not ready.
(SYSGEN)**

The door to the floppy drive specified as the destination is open or there is no disk in that drive. Insert a disk and/or close the drive door.

**Error, disk or drive not ready.
(FDMAINT or FORMAT)**

The drive door is open or there is no disk in the drive. Insert a disk and/or close the drive door.

**Error, file not found.
(SoftKeys)**

The file name is misspelled or the file is not in the specified path. Correct the spelling or the path and try again.

**Error, hard disk system source and destination.
(SYSGEN)**

A hard disk partition was named as the system source and destination. Change either the source drive or destination drive.

Error, insufficient memory available.
(DISKCOPY, FDMAINT, FORMAT or SYSGEN)

When doing one of the commands mentioned above and the source and destination disk are the same floppy drive, there must be enough memory available in the system to temporarily store files. This message is shown where there is not enough memory to store all of the files. Use different drives for the source and destination.

Error, one or more sectors failed to compare properly.
(DISKCOMP)

One or more sectors contain different information when the disks were compared. This message is to inform you that there is a difference between the disks. If you want an exact copy of a disk, use FDMAINT or DISKCOPY.

Error, source and destination must be floppy drives.
(DISKCOPY)

An attempt was made to DISKCOPY to a hard disk. You can only DISKCOPY floppy disks.

Error, the destination disk is write protected.

The destination disk has a write-protect tab on it. Remove the write-protect tab and execute program again.

Error, the disk did not format properly.
(FDMAINT or FORMAT)

A hardware error was detected during the physical format process. Try to run the format program again.

Error, the disk is not MS-DOS formatted.
(DISKCOPY, FDMAINT, FORMAT, or SYSGEN)

The destination disk is not an MS-DOS formatted disk. Use an MS-DOS formatted disk.

Error, the system file(s) were not found on drive.
(FDMAINT, FORMAT, or SYSGEN)

The disk specified as the source disk does not contain the system file(s). Be sure you have the MS-DOS boot disk in the source drive and execute the program again.

ERROR: current directory not found on source
(HDMAINT)

The directory you named to back up cannot be found. Check to be you entered the correct directory and try again.

ERROR: disk is write protected. Correct and press RETURN,
or ESC to abort.
(HDMAINT)

The destination disk has a write-protect tab on it. Remove the write-protect tab and execute program again.

ERROR: disk not MS-DOS formatted. Press ESC to abort.
(HDMAINT)

The destination disk is not an MS-DOS formatted disk. Use an MS-DOS formatted disk.

ERROR: disk or drive not ready. Correct and press RETURN,
or ESC to abort.
(HDMAINT)

The door to the floppy drive is open or there is no disk in the drive. Insert disk, close the drive door, and press the Return key.

ERROR: Disks must be sequential. Replace and press
RETURN, or ESC to abort.
(HDMAINT)

The file being restored to the hard disk is backed up on more than one disk. The wrong disk in the sequence has been inserted. Insert the correct disk and continue.

ERROR: floppy disk must be in Source drive.
(HDMaint)

The source drive does not contain a floppy disk. Insert a floppy disk in the source drive and continue.

ERROR: Sector 1 of Track 0 is bad -- hard disk is not usable.
(HDMaint)

When formatting the physical hard disk and this message displays, the hard disk is bad. Contact your service representative.

ERROR: source and destination cannot be the same.
(HDMaint)

The same drive was specified for both the source and the destination. Specify a different source or destination drive.

ERROR: source and destination drives are the same.
(HDMaint)

The same drive was specified for both the source and the destination. Specify a different source or destination drive.

ERROR: system files were not found.
(HDMaint)

The system files were not found. Be sure you have the MS-DOS boot disk in the source drive and execute the program again.

ERROR: system files were not found on drive.
(HDMaint)

The disk specified as the source disk does not contain the system file(s). Be sure you have the MS-DOS boot disk in the source drive and execute the program again.

ERROR: target disk full. Restore program terminated.
(HDMaint)

The disk you are restoring to is full. If necessary, erase any unneeded files from that disk and then try to restore again.

ERROR: the disk did not format properly
(HDMaint)

A hardware error was detected during the physical format process. Try to run the format program again.

ERROR: floppy disk is not a backup disk. Replace and press RETURN, or ESC.
(HDMaint)

The backup control file was not found on the floppy disk. Replace the floppy disk with a valid backup disk.

Errors found, F parameter not specified.
Corrections will not be written to disk
(CHKDSK)

As the /F parameter was not used, an analysis of the disk will be made and the results displayed, but no corrections will be written to the disk.

Errors on list device indicates that it may be offline.
Please check it.
(PRINT)

Your printer is off.

Excess parameter(s).
(CONFIGUR)

The command line has too many entries.
Reenter the command line.

**EXEC failure
(MS-DOS)**

One of the following conditions occurred while reading a file from disk:

Read error occurred.

The FILES=parameter in the configuration file (CONFIG.SYS) is not large enough. Increase the value and restart MS-DOS.

**EXE/HEX file cannot be written
(DEBUG)**

The data would require a backwards conversion that DEBUG does not support.

**fc: *filename* longer than *filename*
(FC)**

One of the files is longer than the other in a binary comparison.

**fc: cannot open *filename* - No such file or directory
(FC)**

One of the files does not exist. Check the directory for the correct file name.

**fc: incompatible switches
(FC)**

The switches specified are not compatible, i.e., /b and /l. Do not combine binary and ASCII comparison switches.

**fc: no differences encountered
(FC)**

The files are the same.

**fc: out of memory
(FC)**

There is not enough memory to perform the comparison.

File allocation table bad for drive x
Abort, Retry, Ignore?
(MS-DOS)

See Device Errors at the beginning of this appendix. If the error persists, the disk should be reformatted.

File cannot be converted
(EXE2BIN)

The input file specified does not have the correct format for conversion.

File cannot be copied onto itself
(COPY)

A request was made to COPY a file and place the copy (with the same name) in the same directory as the source file. Either change the name given to the copy or put it on another disk or directory.

File creation error
(MS-DOS and commands)

An unsuccessful attempt was made to add a new file to the directory. Run CHKDSK to determine the cause of the error.

FILE ERROR: current file omitted. Press RETURN to continue, or ESC to abort.
(HDMaint)

A file error or hardware error occurred during the transfer of a file. Write down the name of the current file and transfer it separately.

File error, file not loaded.
(SoftKeys)

The file may contain an unreadable block or is not a SoftKeys file. Recreate the file or be sure the file is a SoftKeys file.

File error, system was not completely transferred.

An error with the file handler or a hardware error has occurred. Restart the program procedure.

**File incomplete. Insert next disk in sequence and press RETURN, or ESC.
(HDMANT)**

When restoring a split file and get this message, insert next sequential disk, close the drive door and press the Return key.

**File name must be specified
(EDLIN)**

You did not specify a file name when you started EDLIN. Specify a file name.

**File not found
(EDLIN)**

The file specified in the Transfer command does not exist. Check your file name selection and try again.

**File not found
(MS-DOS and commands)**

The file named in a command does not exist on the disk in the specified drive. Check your file name entry or drive selection and try again.

**File table bad
(MS-DOS)**

If this error is issued, you have to reboot the system.

**FIND: File not found filename
(FIND)**

The file name specified does not exist on the specified drive. Check your file name entry or drive selection and try again.

FIND: Invalid number of parameters
(FIND)

A "string" was not specified. Reenter the command with the search string enclosed in quotes.

FIND: Invalid Parameter *name*
(FIND)

A parameter was specified that does not exist. Reenter the command with a valid parameter.

FIND: Read error in *filename*
(FIND)

An error occurred when FIND tried to read the file specified. Reattempt the command after correcting an obvious problem (disk drive door open, no disk, etc.). Try to RECOVER the file.

FIND: Syntax error
(FIND)

An illegal "string" was entered. Reenter the correct string enclosed in quotes.

First cluster number is invalid, entry truncated
(CHKDSK)

An invalid pointer to the data area has been found in the file whose name precedes this message. If /F was specified, the file is truncated to zero length. This is an irrecoverable error.

Fixup offset exceeds field width
(LINK)

An assembly language instruction refers to an address with a short instruction instead of a long instruction. Edit the assembler source program and process it again.

**Fixups needed-base segment (hex):
(EXE2BIN)**

The source (.EXE) file contained information indicating that a load segment is required for the file. Specify the absolute segment address at which the finished module is to be located.

**Flaw in system area start partition after cylinder
(HDMaint)**

There is a flaw in the system area. So, start your partition after the cylinder specified.

**FOR cannot be nested
(Batch)**

It is not possible to have more than one for subcommand on one command line.

**Foregrnd and backgrnd colors can't be the same.
(CONFIGUR)**

The same color was specified for both foreground and background. Specify different colors.

**Function aborted; Bad Disk
(HDMaint)**

The hard disk is unusable. Contact your service representative.

**Function must be SCREEN, PORT, or REROUTE.
(CONFIGUR)**

The first entry on the command line is not valid. Reenter the command line.

**Hard disk full. Restore program terminated.
(HDMaint)**

There was not enough room on the hard disk to hold all of the files. Terminate the program and delete unwanted hard disk files.

**Has invalid cluster, file truncated
(CHKDSK)**

The specified file contains an invalid data area pointer. If the /F parameter was used, the file is truncated at the last valid data block.

Help file not available.

This file, which contains the help text, is not present on the disk. Copy this file to the disk.

**Incorrect DOS version
(commands)**

You cannot run this command on this version of MS-DOS.

**Incorrect number of parameters ... cannot evaluate.
(CONFIGUR)**

The required minimum number of entries was not entered on the command line. Reenter the command line.

**Input file read error
(LINK)**

An invalid object file has been entered in the command line.

**Insufficient disk space
(MS-DOS and commands)**

There is not enough free space on the disk to contain the new file. Use another disk. There may have been some loss of data as a result of the operation that caused this error message to display.

**Insufficient memory
Processing cannot continue
(commands)**

There is not enough memory to perform the specified operation.

Insufficient room in root directory
Erase files in root and repeat Chkdsk
(CHKDSK)

CHKDSK cannot create an entry in the root directory for saving lost chains as files (see message "X lost clusters found in Y chains - convert lost chains to files (Y/N?)" because the root directory is full. You should copy some files from the root directory to another disk, delete these files, and then reexecute CHKDSK.

Insufficient space for file. Insert next disk and press RETURN.
(HDMaint)

This message is from the Backup Files portion of HDMaint. This prompt means that the floppy disk is full but there are still more files to write. Insert a formatted floppy disk and press the Return key.

Insufficient space on disk
(DEBUG)

A write command was issued to a disk that does not have enough free space to hold the data being written.

Intermediate file error during pipe
(MS-DOS)

One of the following errors has occurred:

One or both intermediate MS-DOS files cannot be created because the root directory is full.

The piping files do not exist.

There is insufficient space on the disk for the data being piped.

Remove some files from the root directory and retry. If this fails, a piping file has been erased. Correct the program and retry.

Internal error
(FC)

This message indicates an internal logic error in the FC utility. If this error is returned, you have to reboot the system.

Invalid command line
(DISKCOPY)

An invalid command line was entered. Reenter a valid command line.

Invalid date
(DATE)

You have tried to enter an invalid date or delimiter.

Invalid destination drive.
(SYS)

The destination drive specified is not valid. Reenter the command with a valid drive name.

Invalid device
(CTTY)

The specified device name is invalid in MS-DOS.

Invalid directory
(MS-DOS)

The directory you specified either does not exist or is invalid. Check to see that you entered the directory name correctly.

Invalid drive in search path
(MS-DOS)

One of the paths specified in the PATH command contains an invalid drive name. This error occurs during execution, not during the PATH command.

**Invalid drive or filename
(EDLIN)**

A valid drive or file name was not specified when invoking EDLIN.

**Invalid drive specification
(MS-DOS and commands)**

An invalid drive specifier was specified in a command line. Check your entry and try again.

**Invalid format file
(LINK)**

An error has been found in a library.

**Invalid number of parameters
(commands)**

You have specified the wrong number of parameters on the command line. Check the syntax of the command you are using and try again.

**Invalid numeric parameter
(LINK)**

A character other than a digit has been included in a numeric parameter.

**Invalid object module
(LINK)**

Object modules are incorrectly formed or incomplete.

**Invalid parameter
or Invalid parameter list
(commands)**

The parameter entered for a command was incorrect. Check the syntax of the command you are using and try again.

**Invalid partition sector signature
(HDMaint)**

An attempt was made to partition a disk before performing the physical format operation. Perform a physical format on the hard disk.

**Invalid path
(Xerox TREE)**

A directory whose name is in another directory cannot be accessed by TREE. Use CHKDSK with /V to determine the error in the directory structure.

**Invalid path, not directory, or directory not empty
(RMDIR)**

The directory cannot be removed as the path contains an invalid name, or the directory is not empty. The current directory cannot be removed.

**Invalid path, or filename
(COPY)**

A directory or file name that does not exist has been specified.

**Invalid sub-directory entry
(CHKDSK)**

The subdirectory that you have specified either does not exist or is invalid. Check to see that you have entered the subdirectory name correctly.

**Invalid switch : z
(LINK)**

The characters in z do not identify a valid linker parameter.

**Invalid time
(TIME)**

You have tried to enter an invalid time or delimiter.

**Invalid working directory
Processing cannot continue
(CHKDSK)**

Your disk is bad. Replace the disk or make a copy from your backup disk.

**Is cross-linked on cluster
(CHKDSK)**

You have two files cross-linked. Make a copy of the file you want to keep, and then delete both files that are cross-linked.

**Key entered may not be redefined.
(SoftKeys)**

Certain keys are not allowed to be redefined, as this could adversely affect SoftKeys or the operation of MS-DOS. Use a different key.

**Label not found
(Batch)**

A non-existent label has been specified in a GOTO command within the batch file.

**Line too long
(EDLIN)**

During a Replace (R) command, the string given as the replacement caused the line to expand beyond the 254-character limit. The Replace command is ended abnormally.

Split the long line into shorter lines; then reissue the Replace command.

**List output is not assigned to a device
(PRINT)**

The list device you have specified is invalid. Subsequent attempts will return the same message until a valid device is specified. Specify a valid list device.

**Memory allocation error
Cannot load COMMAND, system halted
(MS-DOS)**

The available memory map has been destroyed. You must restart MS-DOS.

**Memory control blocks destroyed
(MS-DOS)**

Self-explanatory.

**MS-DOS not found on default drive
(Startup)**

Self-explanatory.

**MS-DOS partition already exist
(HDMaint)**

The disk already has a partition allocated to MS-DOS. If you are repartitioning, see Appendix B.

**MS-DOS partition does not exist
(HDMaint)**

An attempt was made to delete an MS-DOS partition from a disk that does not have one. Check to make sure the correct partition is selected.

**Must specify destination number
(EDLIN)**

A destination line number was not specified for a Copy or Move command. Reenter the command correctly.

**New file
(EDLIN)**

This message is printed if EDLIN does not find a file with the name you specified. If you are creating a new file, ignore this message. If you do not intend to create a new file, check to see that you correctly typed the file name of the file you wish to edit.

**No allocated file space on the destination drive.
(SYS or SYSGEN)**

The system files must use the first two directory entries on the disk. They were not available. Save any data on the disk to another disk. Then reformat the disk with reserve system file space and restart the system.

**No hard disk present, run terminated.
(HDMaint)**

You cannot run the HDMaint utility due to one of the following conditions:

No hard disk is attached.

The hard disk is present in the expansion unit but the unit is not switched on.

The hard disk is incorrectly installed.

**No files match filespec
(PRINT)**

You have entered a file specification for files to add to the print queue, but no files match your entry. Check your file names and try again. Note: If there are no files in the print queue, a message does not appear.

**No free handles
(MS-DOS)**

You have tried to load a second copy of the command processor, but too many files are currently open. Increase the size of the FILES=parameter in the configuration file (CONFIG.SYS) and reload MS-DOS.

**No object modules specified
(LINK)**

You have not specified any object modules for the linker.

**No paper error
(device error)**

The printer is either not switched on or is out of paper. Check the printer and try again.

**No parameters specified, value unchanged.
(CONFIGUR)**

A parameter was specified with no value. Reenter the command with a value.

**No room in directory for file
(EDLIN)**

The directory of the specified disk is already full, or the specified disk drive or file name is illegal. Use another disk or check your entry and try again.

**No room in disk directory
(DEBUG)**

The directory of the specified disk is already full.

**No SOFTKEYS definitions found.
(SoftKeys)**

Attempted to print before any keys were defined. Use one of the functions that will define SoftKeys.

**No space available
(HDMaint)**

An attempt to allocate an MS-DOS partition on a disk that is already fully allocated has been made. If you are repartitioning, see Appendix B.

Non-DOS disk.

The disk is not an MS-DOS disk or is not a recognized format (8 x 512 or 9 x 512). Use an MS-DOS disk or a disk with the proper format.

**Non-DOS disk error
(device error)**

The file allocation table contains invalid information. The disk must be reformatted.

Non-executable file

The file you tried to run is not an executable program file.

Non-MS-DOS disk

The disk is not an MS-DOS disk or is not a recognized format (8 x 512 or 9 x 512). Use an MS-DOS disk or a disk with the proper format.

**Non system disk.
Replace and press any key.**

The disk you used to load the system is not a boot disk. Insert the boot disk and retry.

**Not enough room to merge the entire file
(EDLIN)**

There was not enough room in memory to enable a Transfer command to merge the entire contents of a file.

**Not found
(EDLIN)**

The search string was not found in the specified line range, or no further occurrences were found after resuming.

**Not ready
(PRINT)**

If this message occurs when PRINT attempts a disk access, PRINT will keep trying until the drive is ready. Any other error causes the current file to be cancelled. An error message would be output on your printer in such a case.

**Not ready error
(device error)**

The named device is not available for the read/write operation required.

\OD\OACONFIGUR will not run properly.
\OD\OA\OD\OAProper ANSI.SYS file not loaded.
\OD\OAUse CONFIG.SYS to load it.
(CONFIGUR)

The ANSI.SYS file is not in the system. Load ANSI.SYS in the CONFIG.SYS file.

**Out of environment space
(MS-DOS)**

There is not enough room in the program environment to accept more data. If this error is issued, you must reboot the system.

**Out of memory
(MS-DOS and commands)**

Self-explanatory.

**Out of space on list file
(LINK)**

There is not enough space on the disk to hold the list file.

**Out of space on run file
(LINK)**

There is not enough space on the disk to hold the run file.

**Out of space on VM.TMP
(LINK)**

There is not enough space on the disk to allow the VM.TMP file to be expanded.

**Partial file on floppy omitted. Press RETURN to continue,
or ESC.
(HDMaint)**

When restoring files, the disk contains a section of a split file but not the first section. This section is not restored to the hard disk.

**Parity must be E, O, or N.
(CONFIGUR)**

An invalid value for Parity was entered. Enter a valid value.

**Pathname too long
(Xerox TREE)**

The path is too long.

**Path not found
(MS-DOS)**

The path is not found. Be sure you have entered the correct path.

Please check that you have a CONFIG.SYS file in your root directory that contains the line:

device = ansi.sys
and that the ansi.sys file is present.
(SoftKeys)

The CONFIG.SYS file of the booted system is either missing or did not contain the line DEVICE = ANSI.SYS; or the ANSI.SYS file is missing. Supply the missing file or line and reboot MS-DOS.

**Port number not valid for this machine.
(CONFIGUR)**

A port number was specified that is not valid for use with the designated hardware. Enter a port number which is appropriate for your system.

Primary Boot-Strap DISK READ ERROR.
(startup)

The system is waiting for you to insert a boot disk.

PRINT queue is full
(PRINT)

You have tried to place more than ten files in the print queue.

Probable non-DOS disk
Continue (Y/N)?
(CHKDSK)

The disk you are using is a non-DOS disk. You must indicate whether or not you want CHKDSK to continue processing. This error message usually means that the File Allocation Table (FAT) is bad.

Program too big to fit in memory
(LINK)

The load module is too large for the linker to process.

Protocol must be X, E, or N.
(CONFIGUR)

An invalid value for Protocol was entered. Enter a valid value.

Read error in: filename
(commands)

The command could not read the entire file.

Read fault
(device error)

MS-DOS cannot read the requested data from the named device.

Remaining parameters cannot be validated due to previous error.

(CONFIGUR)

An invalid parameter was found in the command line. Reenter the command line.

Requested stack size exceeds 64K

(LINK)

You have tried to specify a stack size greater than 64K bytes.

REROUTE \22assignment\22 contains the following error(s):

(CONFIGUR)

An error exists in the information report title. No action.

resynch failed. Files are too different.

(FC)

The number of lines in the internal line buffer is less than the number of consecutive, differing lines. You should specify the /lb # switch with a larger number if you want to display all of the file differences.

RTS must be L, H, or I.

(CONFIGUR)

An invalid value for Request to Send was entered. Enter a valid value.

Screen type must be C or M.

(CONFIGUR)

An invalid display type was entered. Enter either C or M, depending on whether your display is Color or Monochrome.

Sector not found

(device error)

The sector containing the data cannot be found, usually due to a defective area on the disk.

**Sector size too large in file filename
(Startup)**

The device sector size defined in the device driver file name exceeds the system limit.

**Seek error
(device error)**

The disk driver cannot find the proper track on the disk.

**Segment size exceeds 64K
(LINK)**

You have tried to combine identically named segments resulting in a segment requirement of more than the addressing limit of 64 Kbytes.

**Selected disk not sysgen'd. Try another.
(CONFIGUR)**

The selected disk did not have the system files on it. Select another disk.

Source disk or drive not ready.

The drive door is open or there is no disk in the drive. Insert a disk and/or close the drive door.

**Stack size exceeds 65535 bytes
(LINK)**

The specified stack size exceeds the system limit.

**Stop bits must be 1 or 2.
(CONFIGUR)**

An invalid value to Stop Bits was entered. Enter a valid value.

**Symbol defined more than once
(LINK)**

Two or more modules have defined the same symbol name.

**Symbol table capacity exceeded
(LINK)**

Very many, and/or very long names were entered exceeding the limit of approximately 25 Kbytes.

**Syntax error
(MS-DOS)**

You have entered a command in the incorrect format.

**Syntax must be as in \22LPT1 = SER1\22 without embedded spaces.
(CONFIGUR)**

The rerouting parameters were entered incorrectly. Reenter the command line.

**The destination disk did not format properly.
(DISKCOPY, FDMAINT or FORMAT)**

A hardware error occurred during the floppy Format routine. Restart the Copy procedure or run Format on the destination disk.

**The disks are not of the same format.
(DISKCOMP, DISKCOPY or FDMAINT)**

The source and destination disks have different number of sides or sectors. Reformat the destination disk to match the source.

**This is not a valid SOFTKEYS file.
(SoftKeys)**

A non-SoftKeys file name has been specified inadvertently. If misspelled, try again. Otherwise, examine the file contents for the proper format.

**Too many external symbols in one module
(LINK)**

There are too many external symbols in one module. The limit is 256 external symbols per module.

Too many groups
(LINK)

Too many groups are defined. The limit is ten.

Too many libraries specified
(LINK)

Too many libraries have been renamed. The limit is eight libraries.

Too many open files
(MS-DOS)

Use the `BUFFERS=` command in `CONFIG.SYS` to correct.

Too many overlays
(LINK)

The system limit of the overlays has been exceeded.

Too many public symbols
(LINK)

There are too many public symbols in one module. The limit is 1024 public symbols.

Too many segments or classes
(LINK)

You have too many segments or classes in your source files. The limit is 256 (segments and classes taken together).

Unable to create directory
(MKDIR)

The specified subdirectory cannot be created due to one of the following conditions:

The subdirectory already exists.

One of the subdirectory paths could not be found.

The root directory is full.

Unexpected end-of-file on library
(LINK)

There is probably an error in the library file.

Unexpected end-of-file on VM.TMP
(LINK)

The disk containing VM.TMP is not present in the drive.

Unknown background color.
(CONFIGUR)

An invalid background color was entered.
Enter a valid background color.

Unknown character attribute.
(CONFIGUR)

An invalid character attribute was entered.
Enter N (normal) or R (reverse video).

Unknown disk unit
(SETPRT)

A nonexistent drive was specified. Select a drive that exists.

Unknown foreground color.
(CONFIGUR)

An invalid foreground color was entered.
Enter a valid foreground color.

Unknown intensity.
(CONFIGUR)

An invalid value for Intensity was entered.
Enter H (high) or L (low).

Unknown logical device.
(CONFIGUR)

An invalid value for Logical Device was entered. Enter a valid value.

Unknown physical port.
(CONFIGUR)

An invalid physical port was entered. Enter a valid value.

Unrecoverable error in directory
Convert directory to file (Y/N)?
(CHKDSK)

A directory has been found to be unusable. If you respond Y, CHKDSK will convert the bad directory into a file. You can then fix the directory yourself or delete it. If you respond N, you may not be able to write to or read from the bad directory.

Unresolved externals: *list*
(LINK)

The external symbols listed were not defined in the modules or library files. Do not attempt to run the file created by the linker.

Unspecified fault.
(CONFIGUR)

An unknown type of disk error has occurred. Restart the program.

usage: fc [/a]/[b]/[c]/[l]/[b n]/[w]/[t]/[n]/[NNNN] file1 file2
(FC)

The wrong number of options have been specified on the FC command line or one of the switches specified is invalid.

Valid boot sector not found on hard disk drive.
(SYSGEN)

There is a hardware error, or the hard disk was not Xerox-formatted. Reallocate the MS-DOS partition on the hard disk.

VM.TMP is an illegal filename and has been ignored
(LINK)

You cannot use VM.TMP as an object module.

**WARNING: existing file has been modified since backup,
restore anyway [Y/N]
(HDMaint)**

This is a safety message. It warns you of files that have been modified since backup. This way you cannot overwrite the modified file unless you want to.

**Warning: no stack segment
(LINK)**

None of the object modules specified contain a statement allocating stack space, but you entered the /STACK switch.

**Warning: read error on EXE file
(EXE2BIN)**

The input file has not been read correctly.

**Warning: Segment of absolute or unknown type
(LINK)**

There is a bad object module or an attempt has been made to link modules that the linker cannot handle, for example, an absolute object module.

**Width must be 40 or 80.
(CONFIGUR)**

An invalid value for screen width was entered. Enter a valid value.

**Word size must be 7 or 8 bits.
(CONFIGUR)**

An invalid number of bits for Word Length was entered. Enter a valid value.

**Write error in TMP file
(LINK)**

No more disk space remains to expand the VM.TMP file.

Write error on Run file
(LINK)

There is not enough disk space for the run file.

Write fault
(device error)

MS-DOS cannot successfully write data from/to the named device.

Write protect
(device error)

You have tried to write data to a disk that is write-protected.

XXXXerror in file yyyy
(PRINT)

A disk error of type XXXX occurred when reading data from the file yyyy. This message is listed on the printer and printing then stops.

X lost clusters found in y chains
Convert lost chains to files (Y/N)?
(CHKDSK)

Clusters have been found that do not correspond to a file.

If you respond Y, CHKDSK will create a file in the root directory for you to resolve this problem (files created by CHKDSK are named FILEnnnn.CHK). If you did not specify the /F switch, CHKDSK does nothing.

If you respond N and have specified the /F switch, CHKDSK will display:

X bytes disk space freed

If you respond N and have not specified the /F switch, CHKDSK displays:

X bytes disk space would be freed

USING EDLIN

APPENDIX E

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In this appendix, you will learn how to use EDLIN, the line editor program. You can use EDLIN to create, change, and display files, whether they are source program or text files.

You can use EDLIN to:

- Create new files and save them on disk.
- Update existing files and save both the updated and original files.
- Delete, edit, insert, and display lines in a file.
- Search for, delete, or replace text within one or more lines in a file.

The text in files created or edited by EDLIN is divided into lines, each line can be up to 253 characters long.

Line numbers are generated and displayed by EDLIN during the editing process, but are not actually present in the saved file.

When you insert lines, all line numbers following the inserted text advance automatically by the number of lines being inserted.

When you delete lines in a file, all line numbers following the deleted text decrease automatically by the number of lines deleted. As a result, lines are always numbered consecutively in your file.

2.

HOW TO START EDLIN

The format of the EDLIN command is:

EDLIN *filespec* [/B]

New File

If EDLIN does not find this file on the specified drive, EDLIN will create a new file with the specified name. The following message and prompt will be displayed:

New file

*

—

Notice that the prompt for EDLIN is an asterisk (*).

You can now type lines of text into your new file. To begin entering text, you **must** type an I (Insert) command and press the Return key to insert lines. The I command is discussed later in this appendix.

Existing File

If you want to edit an existing file, *filespec* would be the name of the file you want to edit. When EDLIN finds the file you specify on the designated or default drive, the file will be loaded into memory. If the entire file can be loaded, the following message and prompt is displayed:

End of input file

*

—

You can then edit the file using EDLIN editing commands.

If the file is too large to be loaded into memory, EDLIN will load lines until memory is 3/4 full, then display the * prompt. You can edit the portion of the file that is in memory.

To edit the remainder of the file, you must save some of the edited lines on disk to free memory; then EDLIN can load the unedited lines from disk into memory. Refer to the Write and Append commands in this appendix for the procedure.

Ending an editing session

When you complete the editing session, you can save the original and the updated (new) files by using the End command. The End command is discussed in this appendix. The original file is renamed with an extension of .BAK, and the new file has the file name and extension you specify in the EDLIN command. The original .BAK file will not be erased until the end of the editing session, or until disk space is needed by the editor (EDLIN).

Do not try to edit a file with a file name extension of .BAK because EDLIN assumes that any .BAK file is a backup file. If you find it necessary to edit such a file, rename the file with another extension using the MS-DOS RENAME command (refer to "Rename file(s)" in the HOW TO WITH MS-DOS section), then start EDLIN and specify the new filespec.

/B switch

This is an optional switch.

Normally, EDLIN will stop loading the file when the first Ctrl + Z (end-of-file mark) is encountered in the file's text. If you want to edit a file that is known to contain embedded Ctrl + Z characters, you would use the /B switch. EDLIN then processes the entire file regardless of any embedded end-of-file marks.

3. SPECIAL EDITING KEYS

The special editing keys and template discussed in "Chapter 3. Editing and Function Keys" of the USING MS-DOS section can be used to edit your text files. These keys are discussed in detail in this chapter.

The table on the next page summarizes the commands, codes, and functions. Descriptions of the special editing keys follow the table.

Special editing keys table

Function	Key	Description
Copy one character	F1	Copies one character from the template to the new line.
Copy up to character	F2 c	Copies all characters from the template to the new line, up to the specified character (c).
Copy template	F3	Copies all remaining characters in the template to the screen.
Skip one character	Del	Does not copy (skips over) a character.
Skip up to character	F4 c	Does not copy (skips over) the characters in the template, up to the specified character (c).
Void current input	Ctrl + [voids the current input; leaves the template unchanged.
Insert mode	Ins	Pressing the Ins key once, enters the insert mode.
Replace mode		Pressing the Ins key again, exits the insert mode and enters the replace mode.
New template	F5	Makes the new line the new template.
Quit input	Ctrl + C	Exits the current input, returns to EDLIN prompt and template is unchanged.

F1 key

Pressing the F1 key copies one character from the template to the current line.

When the F1 key is pressed, one character is inserted in the current line and insert mode is automatically turned off.

Example:

Assume that the screen shows:

```
1:*This is a sample file.  
1:* _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Pressing the F1 key copies the first character of the template (T) to the second line.

```
template      1:*This is a sample file.  
F1           1:*T _
```

Each time the F1 key is pressed, one more character appears.

Pressing F1 again would display.

```
1:*This is a sample file.  
1:*Th _
```

Pressing F1 a third time would display.

```
1:*This is a sample file.  
1:*Thi _
```

F2 key

Pressing the F2 key and typing a character copies multiple characters up to a given character from the template to the current line.

The given character (c) is the next character typed after the F2 key is pressed. The given character (c) is not copied or displayed on the screen.

Pressing the F2 key causes the cursor to move to the given character that is specified in the command. If the template does not contain the given character, nothing is copied.

Pressing F2 also automatically turns off insert mode.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*_
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Pressing the F2 key and then typing the letter p copies all characters up to the letter p in the template to the second line as shown below.

```
template      1:*This is a sample file.
F2 p          1:*This is a sam_
```

F3 key

Pressing the F3 key copies all remaining characters from the template to the current line.

Regardless of the cursor position at the time the F3 key is pressed, the rest of the line displays, and the cursor is positioned after the last character on the line.

Also, insert mode is automatically turned off.

Example:

Assume that the screen shows:

```
1:*This is a sample file.  
1:*  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Pressing the F3 key copies all characters from the template (shown in the upper line displayed) to the line with the cursor (the lower line displayed) as shown below.

```
template      1:*This is a sample file.  
F3           1:*This is a sample file.  _
```

Del key

Pressing the Del key skips over one character in the template.

Each time you press the Del key, one character is not copied from the template. The action of the Del key is similar to the F1 key, except that Del skips a character in the template rather than copying it to the current line.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Pressing the Del key skips over the first character (T). Nothing noticeable happens on the screen. The cursor position does not change and only the template is affected.

```
template 1:*This is a sample file.
Del       1:*  _
```

To see how much of the line has been skipped over, press the F3 key, which moves the cursor beyond the last character of the line.

```
F3       1:*This is a sample file.
         1:*his is a sample file.  _
```

F4 key

Pressing the F4 key and typing a character skips over multiple characters up to a given character in the template.

The given character is not copied and is not shown on the screen. If the template does not contain the given character, nothing is skipped over. The action of the F4 key is similar to the F2 key, except that F4 skips over the characters in the template rather than copying them to the current line.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Pressing the F4 key and then typing the letter p skips over all the characters in the template up to the letter p. Nothing noticeable happens on the screen. The cursor position does not change and only the template is affected.

```
template      1:*This is a sample file.
F4 p          1:*  _
```

To see how much of the line has been skipped over, press the F3 key, which moves the cursor beyond the last character of the line.

```
F3           1:*This is a sample file.
             1:*ple file.  _
```


Ctrl+[keys

Simultaneously pressing the Ctrl + [keys voids the current input and empties the current line, but it leaves the template unchanged.

Ctrl + [also displays a backslash (\), carriage return, and line feed, and turns insert mode off. The cursor (indicated by the underline) is positioned at the beginning of the line.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*
  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Assume that you want to replace the line "This is a sample file." by typing "Sample file". The screen would display

```
template      1:*This is a sample file.
typed text    1:*Sample file
              _
```

Then you decided that you wanted it to be "This is a sample address file."

To cancel the line you just typed (Sample file), and to keep "This is a sample file.", simultaneously press the Ctrl + [keys. Notice that a backslash displays on the "Sample file" line to tell you it has been cancelled.

```
1:*This is a sample file.
Ctrl+[        1:*Sample file\
              _
```

You can now edit the original line.

Ins key

When you start to edit a line, replace mode is in effect. That is, each character you type replaces a character in the template. If the Return key is pressed, the remainder of the template will be deleted.

If you want to insert text and not replace it, you would use the Ins key.

Pressing the Ins key once causes EDLIN to enter the insert mode. The current cursor position in the template is not changed. The cursor does move as each character is inserted. However, when you have finished inserting characters, the cursor will be positioned at the same character in the template as it was before the insertion began. Thus, characters are inserted in front of the character to which the cursor points.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Assume that you press the F2 and f keys:

```
template      1:*This is a sample file.
F2 f          1:*This is a sample  _
```

Now press the Ins key and type in the characters "edit" and a space:

```
1:*This is a sample file.
Ins edit space 1:*This is a sample edit  _
```

Ins key - (cont'd)

If you now press the F3 key, the rest of the template is copied to the line:

```

F3          1:*This is a sample edit
           1:*This is a sample edit file. _

```

If you pressed the Return key before pressing F3, the remainder of the template would be truncated, and the current line would end at the end of the insert:

```

Return     1:*This is a sample edit
           1:*This is a sample edit
           *
           _

```

To exit insert mode and enter the replace mode, simply press the Ins key again.

Below is an example of inserting and replacing text in a template.

Assume that the screen shows:

```

           1:*This is a sample file.
           1:* _

```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line. Assume that you press F2 m, Ins lary, Ins space tax, and then F3:

```

template   1:*This is a sample file.
F2 m       1:*This is a sa _
Ins lary   1:*This is a salary _
Ins space tax 1:*This is a salary tax _
F3         1:*This is a salary tax file. _

```

Notice that you inserted lary and replaced mple with a space and tax. If you type characters that extend beyond the length of the template, the remaining characters in the template will be automatically appended when you press F3.

F5 key

Pressing the F5 key copies the current line to the template. The contents of the old template are deleted and a new template is created.

Pressing F5 outputs an @ ("at" sign character), a carriage return, and a line feed. The current line is also emptied and insert mode is turned off.

F5 performs similarly to the Ctrl + [keys, except that the template is changed and an @ ("at" sign) is displayed instead of a \ (backslash).

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*
  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line. Assume that you press F2 m, Ins lary, Ins space tax, and then F3.

```
template      1:*This is a sample file.
F2 m          1:*This is a sa
Ins lary      1:*This is a salāry
Ins space tax 1:*This is a salary tāx
F3            1:*This is a salary tax file.
  _
```

At this point, assume that you want this line to be the new template, so you press the F5 key:

```
F5            1:*This is a sample file.
              1:*This is a salary tax file.@
  _
```

The @ indicates that this new line is now the new template. Additional editing can be done using the new template.

Ctrl + C keys

Simultaneously pressing the Ctrl + C keys quits the current input, returns to the EDLIN prompt, and the template is unchanged.

Example:

Assume that the screen shows:

```
1:*This is a sample file.
1:*  _
```

At the beginning of the editing session, the cursor (indicated by the underline) is positioned at the beginning of the line.

Assume that you want to replace the line "This is a sample file." by typing "Sample file". The screen would display

```
template      1:*This is a sample file.
typed text    1:*Sample file  _
```

Then you decide you do not want to change it at all.

To cancel the line you just typed (Sample file), and to keep "This is a sample file.", simultaneously press the Ctrl + C keys.

```
Ctrl + C      1:*This is a sample file.
               1:*Sample file^C
               *
               _
```

4. COMMAND INFORMATION

EDLIN commands perform editing functions on lines of text. The following list contains information you should read before you use EDLIN commands.

1. Paths are acceptable in commands. For example, typing EDLIN \JOEMEMO.TXT will allow you to edit the MEMO.TXT file in the subdirectory JOE.
2. You can reference line numbers relative to the current line (the line with the asterisk). Use a minus sign with a number to indicate lines before the current line. Use a plus sign with a number to indicate lines after the current line. For example:

-10, +10L

This command lists 10 lines before the current line, the current line, and 10 lines after the current line.

3. Multiple commands may be issued on one command line. When you issue a command to edit a single line using a line number, a semicolon must separate commands on the line. Otherwise, one command may follow another without any special separators. In the case of Search or Replace command, the string may be ended by a Ctrl + Z instead of a Return.

Examples:

The following command line edits line 15 and then displays lines 10 through 20 on the screen.

15;-5, +5L

The command line in the next example searches for "This house" and then displays five lines before and five lines after the line that contains the matched string. If the search fails, then the displayed lines are those line numbers relative to the current line.

Note that the current line (the line with the asterisk) must be before the line or lines that contain the search string.

SThis house <Ctrl + Z>-5, + L

4. You can type EDLIN commands with or without a space between the line number and command. For example, to delete line 6, the command 6D is the same as 6 D.
5. It is possible to insert a control character (such as Ctrl + C) into text by using the quote character Ctrl + V before it while in insert mode. Ctrl + V tells MS-DOS to recognize the next capital letter typed as a control character. It is also possible to use a control character in any Search or Replace command by using the special quote character.

Examples:

S<Ctrl + V>Z

will find the first occurrence of Ctrl + Z in a file

R<Ctrl + V>Z<Ctrl + Z>dog

will replace all occurrences of Ctrl + Z in a file by dog

S<Ctrl + V>C<Ctrl + Z>cat

will replace all occurrences of Ctrl + C by cat

It is possible in insert Ctrl + V into the text by typing Ctrl + V + V.

6. The Ctrl+Z character ordinarily tells EDLIN, "This is the end of the file." If you have Ctrl+Z characters elsewhere in your file, you must tell EDLIN that these other control characters do not mean end-of-file. Use the /B switch to tell EDLIN to ignore any Ctrl+Z characters in the file and to show you the entire file. For example,

```
A:\>edlin myfile.dat /b
```

will ignore all Ctrl+Z characters in the MYFILE.DAT file.

Edlin commands

The EDLIN commands are summarized in the following table. They are also described in further detail following the description of command options.

Command	Purpose
<line>	Edits line number
A	Appends lines
C	Copies lines
D	Deletes lines
E	Ends editing
I	Inserts lines
L	Lists text
M	Moves lines
P	Pages text
Q	Quits editing
R	Replaces lines
S	Searches text
T	Transfers text
W	Writes lines

Command options

Several EDLIN commands accept one or more options. The effect of a command option varies, depending on with which command it is used. The following list describes each option.

line#

line# indicates a line number that you type. Line numbers **must** be separated by a comma or a space from other line numbers, other options, and from the command.

line# may be specified one of three ways:

Number

Any number less than 65534. If a number larger than the largest existing line number is specified, then *line#* means the line after the last line number.

Period (.)

If a period is specified for *line#*, then *line#* means the current line number. The current line is the last line edited, and is not necessarily the last line displayed. The current line is marked on your screen by an asterisk (*) between the line number and the first character.

Pound (#)

The pound sign indicates the line after the last line number. If you specify # for *line#*, this has the same effect as specifying a number larger than the last line number.

Return

A carriage return entered without any of the *line#* specifiers listed above directs EDLIN to use a default value appropriate to the command.

Command options - (cont'd)

?

The question mark option directs EDLIN to ask you if the correct string has been found. The question mark is used only with the Replace and Search commands. Before continuing, EDLIN waits for either a Y or Return for a yes response, or for any other key for a no response.

string

string represents text to be found, to be replaced, or to replace other text. The *string* option is used only with the Search and Replace commands. Each *string* must be ended by a Ctrl+Z or a Return (see the Replace command for details). No spaces should be left between strings or between a string and its command letter, unless you want those spaces to be part of the string.

Append

Adds the specified number of lines from disk to the file being edited in memory. The lines are added at the end of lines that are currently in memory.

The format for Append is

[n]A

This command is meaningful only if the file being edited is too large to fit into memory. As many lines as possible are read into memory for editing when you start EDLIN.

To edit the remainder of the file that will not fit into memory, lines that have already been edited must be written to disk. Then you can load unedited lines from disk into memory with the Append command. Refer to the Write command in this chapter for information on how to write edited lines to disk.

Notes:

1. If you do not specify the number of lines to append, lines will be appended to memory until available memory is 3/4 full. No action will be taken if available memory is already 3/4 full.
2. The message End of input file is displayed when the Append command has read the last line of the file into memory.

Copy

Copies a range of lines to a specified line number. The lines can be copied as many times as you want by using the *count* option.

The format for Copy is

`[line#], [line#], line#, [count]C`

If you do not specify a number in the count option, EDLIN copies the lines one time. If the first or the second *line#* is omitted, the default is the current line. The file is renumbered automatically after the copy.

The line numbers must not overlap or you will get an Entry error message. For example, 3,20,15C would result in an error message.

Examples:

Assume that the following file exists and is ready to edit:

- 1: This is a sample file
- 2: used to show copying lines.
- 3: See what happens when you use
- 4: the Copy command
- 5: (the C command)
- 6: to copy text in your file.

You can copy this entire block of text by issuing the following command:

`1,6,7C`

This will copy lines 1 through 6 and duplicate them one time beginning on line 7.

Copy - (cont'd)

The result is:

- 1: This is a sample file
- 2: used to show copying lines.
- 3: See what happens when you use
- 4: the Copy command
- 5: (the C command)
- 6: to copy text in your file.
- 7: This is a sample file
- 8: used to show copying lines.
- 9: See what happens when you use
- 10: the Copy command
- 11: (the C command)
- 12: to copy text in your file.

If you want to place the text within other text, the third *line#* option should specify the line before which you want the copied text to appear. For example, assume that you want to copy lines and insert them within the following file:

- 1: This is a sample file
- 2: used to show copying lines.
- 3: See what happens when you use
- 4: the Copy command
- 5: (the C command)
- 6: to copy text in your file.
- 7: You can also use Copy
- 8: to copy lines of text
- 9: to the middle of your file.
- 10: End of sample file.

Copy - (cont'd)

The command 3,6,10C results in the following file:

- 1: This is a sample file
- 2: used to show copying lines.
- 3: See what happens when you use
- 4: the Copy command
- 5: (the C command)
- 6: to copy text in your file.
- 7: You can also use Copy
- 8: to copy lines of text
- 9: to the middle of your file.
- 10: See what happens when you use
- 11: the Copy command
- 12: (the C command)
- 13: to copy text in your file.
- 14: End of sample file.

Delete

Deletes a specified range of lines in a file.

The format for Delete is

`[line#] [,line#]D`

If the first *line#* is omitted, that option will default to the current line (the line with the asterisk next to the line number).

If the second *line#* is omitted, then just the first *line#* will be deleted.

When lines have been deleted, the line immediately after the deleted section becomes the current line and has the same line number as the first deleted *line#* had before the deletion occurred.

Examples:

Assume that the following file exists and is ready to edit:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
  •
  •
  •
25: (the D and I commands)
26: to edit the text
27: in your file.
```

To delete multiple lines, type:

```
5,24D
```

Delete - (cont'd)

The result is:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: *(the D and I commands)
- 6: to edit the text
- 7: in your file.

To delete a single line, type:

6D

The result is:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: *in your file.

Next, delete a range of lines from the following file:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: *See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit the text
- 7: in your file.

To delete a range of lines beginning with the current line (which is line number 3), type:

,6D

The result is:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: *in your file.

Notice that the lines are automatically renumbered.

Edit

Edits line of text.

The format of Edit is

[*line#*]

When a line number is typed, EDLIN displays the line number and text; then, on the line below, EDLIN redisplayes the line number. The line is now ready for editing. You may use any of the EDLIN editing commands to edit the line. The existing text of the line serves as the template until the Return key is pressed.

If no line number is typed (that is, if only the Return key is pressed), the line after the current line (marked with an asterisk (*)) is edited. If no changes to the current line are needed and the cursor is at the beginning or end of the line, press the Return key to accept the line as is.

WARNING

**If the Return key is pressed
while the cursor is in the middle of the
line, the remainder of the line is deleted.**

Example:

Assume that the following file exists and is ready to edit:

```
1: This is a sample file.  
2: used to show  
3: the editing of line  
4: four.
```

```
*  
—
```

Edit - (cont'd)

To edit line 4, type:

4

The contents of the line are displayed with a cursor below the line:

4:*four.

4:*
 _

Now, using the special editing keys, type:

Ins number Space

4: number

F3 Return

4: number four.

5:*
 _

End

Ends the editing session.

The format for End is

E

This command saves the edited file on disk, renames the original input file filename.BAK, and then exits EDLIN. If the file was created during the editing session, no .BAK file is created.

The E command takes no options. Therefore, you cannot tell EDLIN on which drive to save the file. The drive you want to save the file on must be selected when the editing session is started. If the drive is not selected when EDLIN is started, the file will be saved on the disk in the default drive. You can still copy the file to a different drive using the MS-DOS COPY command.

You must be sure that the disk contains enough free space for the entire file. If the disk does not contain enough free space, the write will be aborted and the edited file lost, although part of the file might be written out to the disk.

Example:

```
*E  
A:\>
```

After execution of the E command, the MS-DOS default drive prompt (for example, A:\>) is displayed.

Insert

Inserts text immediately before the specified *line#*.

The format for Insert is

`[line#]I`

If you are creating a new file, the I command must be given before text can be typed (inserted). Text begins with line number 1. Successive line numbers appear automatically each time you press the Return key.

EDLIN remains in insert mode until Ctrl + C is typed. When the insert is completed and insert mode has been exited, the line immediately following the inserted lines becomes the current line. All line numbers following the inserted section are incremented by the number of lines inserted.

If *line#* is not specified, the default will be the current line number and lines will be inserted immediately before the current line.

If *line#* is any number larger than the last line number, or if a pound sign (#) is specified as *line#*, the inserted lines will be appended to the end of the file. In this case, the last line inserted will become the current line.

See examples on the next few pages.

Insert - (cont'd)Examples:

Assume that the following file exists and is ready to edit:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit text
- 7: in your file.

*
—

To insert text before a specific line that is not the current line, type:

7I

The result is:

7:*
—

Type the new text for line 7 and press the Return key:

7:*and renumber lines

Then to end the insertion, press Ctrl + C on the next line:

8:*^C

*
—

Now type L to list the file. The result is:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit text
- 7: and renumber lines
- 8:*in your file.

Insert - (cont'd)

To insert lines immediately before the current line, type I.

The result is:

```
8:* _
```

Now, insert the following text and terminate with a Ctrl + C on the next line:

```
8: so they are consecutive
9:*^C
```

Now to list the file and see the result, type L and press the Return key:

```
1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
6: to edit text
7: and renumber lines
8: so they are consecutive
9:*in your file.
```

To append new lines to the end of the file, type:

```
10I
```

This produces the following:

```
10:* _
```

Now, type the following new lines:

```
10: The Insert command can place new lines
11: in the file; there's no problem
12: because the line numbers are dynamic;
13: they'll go all the way to 65533.
```

End the insertion by pressing Ctrl + C on line 14. The new lines will appear at the end of all previous lines in the file.

Insert - (cont'd)

Now list all the lines, type:

1,L

and press the Return key.

The result is:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit text
- 7: and renumber lines
- 8: so they are consecutive
- 9: in your file.
- 10: The Insert command can place new lines
- 11: in the file; there's no problem
- 12: because the line numbers are dynamic;
- 13: they'll go all the way to 65533.

List

Lists a range of lines, including the two lines specified.

The format for List is

[line#] [line#]L

Default values are provided if either one or both of the options are omitted. If you omit the first option, as in:

,line#L

the display will start 11 lines before the current line and end with the specified *line#*. The beginning comma is required to indicate the omitted first option.

If the specified *line#* is more than 11 lines before the current line, the display will be the same as if you omitted both options.

If you omit the second option, as in

line#L

23 lines will be displayed, starting with the specified *line#*.

If you omit both parameters, as in

L

23 lines will be displayed--the 11 lines before the current line, the current line, and the 11 lines after the current line. If there are less than 11 lines before the current line, more than 11 lines after the current line will be displayed to make a total of 23 lines.

List - (cont'd)Examples:

Assume that the following file exists and is ready to edit:

```

1: This is a sample file
2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
.
.
.
15: *The current line contains an asterisk.
.
.
.
26: to edit text
27: in your file.
```

To list a range of lines without reference to the current line, type *line#,line#L*:

```
2,5L
```

The result is:

```

2: used to show dynamic line numbers.
3: See what happens when you use
4: Delete and Insert
5: (the D and I commands)
```

To list a range of lines beginning with the current line, type a period (.) then a comma and L:

```
.,L
```

The result is:

```

15: *The current line contains an asterisk.
.
.
.
26: to edit text
27: in your file.
```

List - (cont'd)

To list a range of 23 lines centered around the current line, type only L:

L

The result is:

4: Delete and Insert
5: (the D and I commands)

•

•

13: The current line is listed in the middle.

14: the current line remains unchanged.

15: *The current line contains an asterisk.

•

•

•

26: to edit text

Move

Moves a range of text to the line specified.

The format for Move is

[line#] , [line#] , line#M

Use the Move command to move a block of text (from the first *line#* to the second *line#*) to another location in the file. The lines are renumbered according to the direction of the move. For example,

, + 25,100M

moves the text from the current line plus 25 lines to line 100. If the line numbers overlap, EDLIN will display an Entry error message.

To move lines 20-30 to line 100, type:

20,30,100M

Page

Pages through a file 23 lines at a time.

The format for Page is

[line#] [line#]P

If the first *line#* is omitted, that number will default to the current line plus one.

If the second *line#* is omitted, 23 lines will be listed.

The new current line becomes the last line displayed and is marked with an asterisk.

Quit

Quits the editing session, does not save any editing changes, and exits to the MS-DOS operating system.

The format for Quit is

Q

EDLIN prompts you to make sure you don't want to save the changes.

Type Y if you want to quit the editing session. No editing changes are saved and no .BAK file is created. Refer to the End command in this chapter for information about the .BAK file.

Type N if you want to continue the editing session.

Note: When started, EDLIN erases any previous copy of the file with an extension of .BAK to make room to save the new copy. If you reply Y to the Abort edit (Y/N)? message, your previous backup copy will no longer exist.

Example:

```
*Q
Abort edit (Y/N) ?Y
A:\> _
```

Replace

Replaces all occurrences of a string of text in the specified range with a different string of text or blanks.

The format for Replace is

`[line#] [,line#] [?]Rstring1 <Ctrl + Z>string2`

As each occurrence of *string1* is found, it is replaced by *string2*. Each line in which a replacement occurs will be displayed. If a line contains two or more replacements, then the line will be displayed once for each occurrence. When all occurrences of *string1* in the specified range are replaced by *string2*, the R command terminates and the asterisk prompt reappears.

If you want to replace one string of text with another string, the two strings must be separated by a Ctrl + Z. The second string can be ended with a carriage return.

If you do not specify *string1*, the Replace command assumes the "old" (any previous) value. If this is the first Replace done during the session, and you do not specify *string1*, the command ends. If you do not specify *string2*, end *string1* with a carriage return.

If you omit the first line option, EDLIN will select a default line that is one line after the current line. The default for the second line argument is #. Remember that # means the line after the last line of the file.

Replace - (cont'd)

If you end *string1* with a Ctrl + Z and do not specify *string2*, EDLIN assumes you want blank spaces for *string2*. For example,

```
Rdogs<Ctrl + Z>
```

will delete occurrences of "dogs", but

```
Rdogs and  
R
```

will replace "dogs" with the previous *string2* and the previous *string1* becomes the previous *string2*. (Note that *previous* here refers to an earlier *string* specified either in a Search or a Replace command.)

If the question mark (?) option is given, the Replace command will stop at each line with a string that matches *string1*, display the line with *string2* in place, and then display the prompt O.K.? If you press Y or the Return key, then *string2* will replace *string1*, and the next occurrence of *string1* will be found. Again, the O.K.? prompt, will be displayed. This process will continue until the end of the range or until the end of the file. After the last occurrence of *string1* is found, EDLIN displays the asterisk prompt.

If you press any key besides Y or the Return key after the O.K.? prompt, the *string1* will be left as it was in the line, and Replace will go to the next occurrence of *string1*. If *string1* occurs more than once in a line, each occurrence of *string1* will be replaced individually, and the O.K.? prompt will be displayed after each replacement. In this way, only the desired *string1* will be replaced, and you can prevent unwanted substitutions.

Replace - (cont'd)

Examples:

Assume that the following file exists and is ready for editing:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit text
- 7: in your file.
- 8: The Insert command can place new lines
- 9: in the file; there's no problem
- 10: because the line numbers are dynamic;
- 11: they'll go all the way to 65533.

To replace all occurrences of "and" with "or" in lines 2 through 12, type:

2,12 Rand<Ctrl + Z>or

and press the Return key.

The result is:

- 4: Delete or Insert
- 5: (the D or I commands)
- 5: (the D or I commors)
- 8: The Insert commor can place new lines

Notice that line 5 has two replacements and is shown twice.

Replace - (cont'd)

In the previous example, some unwanted substitutions have occurred. To avoid these and to confirm each replacement, the same original file can be used with a slightly different command.

To replace only certain occurrences of "and" with "or", type:

```
2? Rand <Ctrl + Z>or
```

The result is:

```
4: Delete or Insert
O.K.? Y
5: (the D or I commands)
O.K.? Y
5: (the D or I commors)
O.K.? N
8: The insert commor can place new lines
O.K.? N
*
—
```

Now, type the List command (L) to see the result of all these changes:

```
•
•
4: Delete or Insert
5: (the D or I commands)
•
8: The Insert command can place new lines
•
•
```

Search

Searches the specified range of lines for a specified string of text.

The format for Search is

`[line#] [,line#] [?]Sstring`

The *string* must be ended with a Return. The first line that matches *string* is displayed and becomes the current line.

If the question mark option is not specified, the Search command will terminate when a match is found.

If no line contains a match for *string*, the message Not found will be displayed.

If the question mark option (?) is included in the command, EDLIN will display the first line with a matching string; it will then prompt you with the message O.K.?. If you press either the Y or the Return key, the line will become the current line and the search will terminate. If you press any other key, the search will continue until another match is found, or until all lines have been searched and the Not found message is displayed.

If you do not type the first line number, EDLIN selects the line after the current line.

If you do not type the second line number, the second line defaults to # (the line after the last line of the file).

If you omit a search string, EDLIN uses the text from any previous Search or Replace command.

If this is the first Search or Replace command you've used this session, and you do not specify a search string, the Search command ends immediately.

Search - (cont'd)

Examples:

Assume that the following file exists and is ready for editing:

- 1: This is a sample file
- 2: used to show dynamic line numbers.
- 3: See what happens when you use
- 4: Delete and Insert
- 5: (the D and I commands)
- 6: to edit text
- 7: in your file.
- 8: The Insert command can place new lines
- 9: in the file; there's no problem
- 10: because the line numbers are dynamic;
- 11: they'll go all the way to 65533

To search for the first occurrence of the string "and", type

2,12 Sand

and press the Return key.

The following line is displayed:

4: Delete and Insert

To get the "and" in line 5, modify the search command by typing:

<F3>,12 Sand

and press the Return key.

The search then continues from the line after the current line (line 4), since no first line was given.

The result is:

5: (the D and I commands)

Search - (cont'd)

To search through several occurrences of a string until the correct string is found, type:

1, ? Sand

The result is:

4: Delete and Insert
O.K.? _

If you press any key (except Y or Return), the search continues, so type N here:

O.K.? N

Continue:

5: (the D and I commands)
O.K.? _

Now press Y to terminate the search:

O.K.? Y
*
_

To search for string "and" without the verification (O.K.?), type:

Sand

EDLIN will report a match and will continue to search for the same string when you retype the Search command and press the Return key:

S

EDLIN reports another match, if there is one.

S

EDLIN displays Not found at the end of the search.

Note that *string* defaults to any string specified by a previous Replace or Search command.

Transfer

Inserts (merges) the contents of a file into the file currently being edited at a specific line number. If the line number is omitted, then the current line will be used.

The format for Transfer is

[line#]Tfilespec

This command is useful if you want to put the contents of a file into another file or into the text you are typing. The transferred text is inserted at the line number specified by *line#* and the lines are renumbered.

Write

Writes a specified number of lines to disk from the lines that are being edited in memory. Lines are written to disk beginning with line number 1.

The format for Write is

`[n]W`

This command is meaningful only if the file you are editing is too large to fit into memory. When you start EDLIN, EDLIN reads lines into memory until memory is 3/4 full.

To edit the remainder of your file, you must write edited lines in memory to disk. Then you can load additional unedited lines from disk into memory by using the Append command.

Note: If you do not specify the number of lines, lines will be written until memory is 3/4 full. No action will be taken if available memory is already more than 3/4 full. All lines are renumbered, so that the first remaining line becomes line number 1.

6.

ERROR MESSAGES

When EDLIN finds an error, one of the following error messages is displayed:

Cannot edit .BAK file--rename file

You attempted to edit a file with a file name extension of .BAK. .BAK files cannot be edited because this extension is reserved for backup copies.

If you need the .BAK file for editing purposes, you must either RENAME the file with a different extension; or COPY the .BAK file and give it a different file name extension.

Disk Full--file write not completed

You gave the End command, but the disk did not contain enough free space for the whole file. EDLIN aborted the End command and returned you to the operating system. Some of the file may have been written to the disk.

Only a portion (if any) of the file has been saved. You should probably delete that portion of the file and restart the editing session. The file will not be available after this error.

Always be sure that the disk has sufficient free space for the file to be written to disk **before** you begin your editing session.

Entry error

The last command typed contained an error.

Retype the command with the correct format and press the Return key.

File Creation Error

The EDLIN temporary file cannot be created.

Check to make sure that the directory has enough space to create the temporary file. Also, make sure that the file does not have the same name as a subdirectory in the directory where the file to be edited is located.

File name must be specified

You did not specify a file name when you started EDLIN.

Type EDLIN and then a file name.

File not found

The file name specified during a Transfer command was not found.

Specify a valid file name when issuing a Transfer command.

Insufficient memory

There is not enough memory to run EDLIN.

You must free some memory by writing files to disk or by deleting files before restarting EDLIN.

Type a Write command and then an Append command to free memory.

Invalid drive or file name

You have not specified a valid drive or file name when starting EDLIN.

Specify the correct drive or file name.

Invalid Parameter

You specified a switch other than /B when starting EDLIN.

Specify the /B switch when you start EDLIN.

Line too long

During a Replace command, the string given as the replacement caused the line to expand beyond the limit of 253 characters. EDLIN aborted the Replace command.

Divide the long line into two lines, then try the Replace command again.

Must specify destination line number

A destination line number was not specified for a Copy or Move command.

Retype the command with a destination line number.

No room in directory for file

When you attempted to create a new file, either the file directory was full or you specified an illegal disk drive or an illegal file name.

Check the command line that started EDLIN for illegal file name or illegal disk drive entry. If the command is no longer on the screen and if you have not yet typed a new command, the EDLIN start command can be recovered by pressing the F3 key.

If your command line contains no illegal entries, run the CHKDSK program for the specified disk drive. If the status report shows that the disk directory is full, remove the disk. Insert a another formatted disk and continue.

Not enough room to merge the entire file

There was not enough room in memory to hold the file during a Transfer command.

You must free some memory by writing some files to disk or by deleting some files before you can transfer this file.

USING THE LINKER PROGRAM

APPENDIX F

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1.

INTRODUCTION

In this section, you will learn about MS-LINK. It is recommended that you read the entire section before you use MS-LINK.

If you are not going to compile and link programs, you do not need to read this section.

The MS-DOS linker (called LINK) is a program that:

- Combines separately produced object modules into one relocatable load module---a program you can run.

- Searches library files for definitions of unresolved external references.

- Resolves external cross-references.

- Produces a listing that shows both the resolution of external references and error messages.

2.

OVERVIEW OF MS-LINK

When you write a program, you write it in source code. This source code is passed through a compiler which produces object modules. The object modules must be passed through the link process to produce machine language that the computer can understand directly. This machine language is in the form required for running programs.

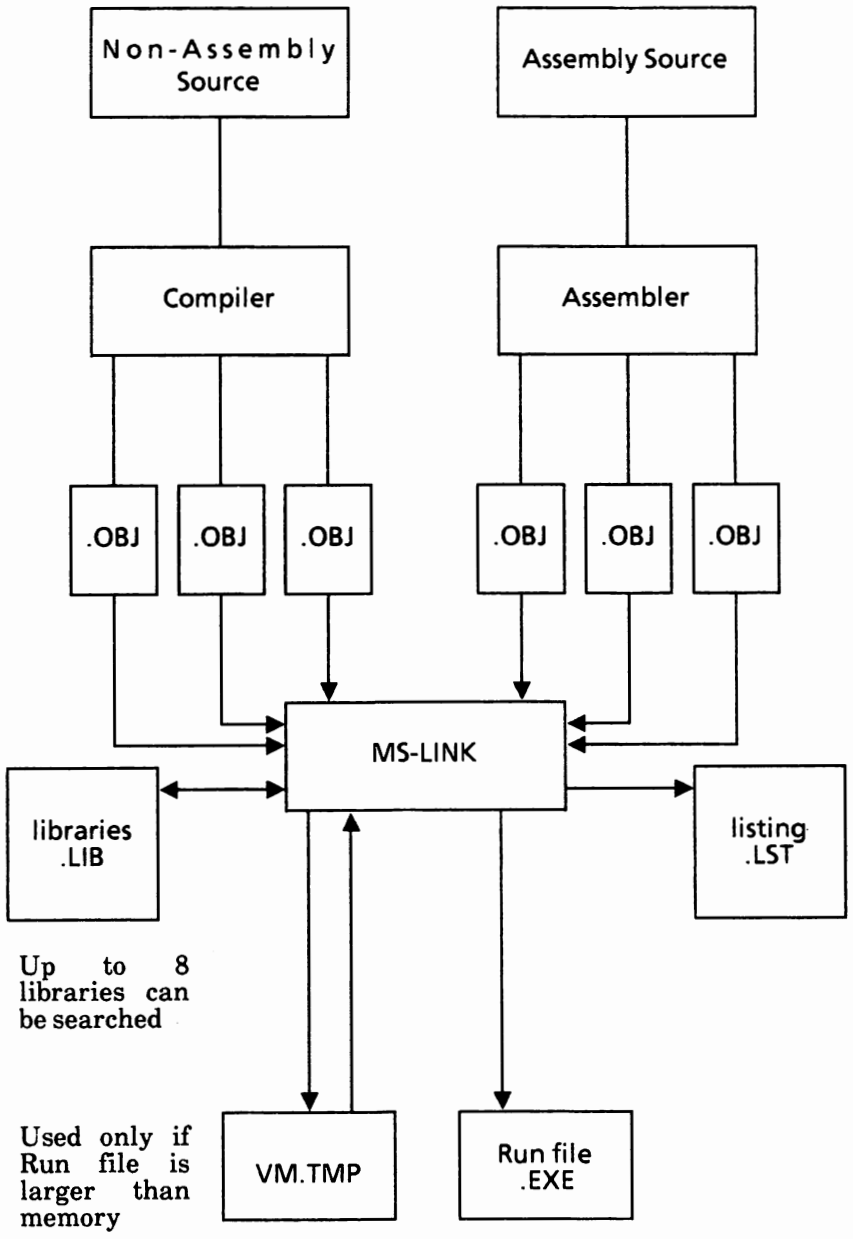
You may wish to link (combine) several programs and run them together. Each of your programs may refer to a symbol that is defined in another object module. This reference is called an external reference.

MS-LINK combines several object modules into one relocatable load module, or Run file (called an .EXE or executable file). As it combines modules, MS-LINK makes sure that all external references between object modules are defined. MS-LINK can search several library files for definitions of any external references that are not defined in the object modules.

MS-LINK also produces a List file that shows external references resolved, and it also displays any error messages.

MS-LINK uses available memory as much as possible. When available memory is exhausted, MS-LINK creates a temporary disk file named VM.TMP.

The illustration on the next page shows the various parts of the MS-LINK operation.

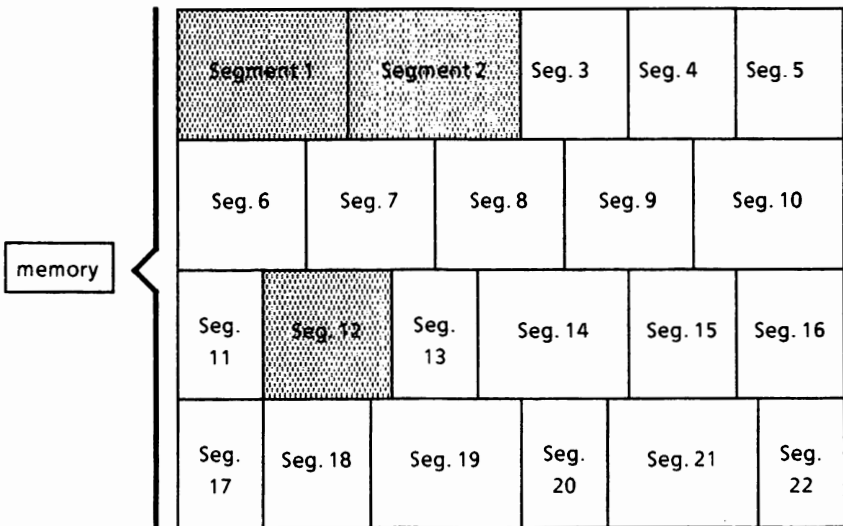


3.

DEFINITIONS

Some of the terms used in this section are explained below to help you understand how MS-LINK works. Generally, if you are linking object modules compiled from BASIC, Pascal, or a high-level language, you will not need to know these terms. If you are writing and compiling programs in assembly language, however, you will need to understand MS-LINK and the definitions described below. The section MS-LINK in Microsoft's Macro Assembler Manual also contains useful information on how MS-LINK works.

In MS-DOS, memory can be divided into segments, classes, and groups. The following illustrates these concepts.



shaded area = a group (64K bytes addressable)

Example:

	<u>Segment Name</u>	<u>Segment Class Name</u>
Segment 1	PROG.1	CODE
Segment 2	PROG.2	CODE
Segment 3	PROG.3	DATA

Note that segments 1, 2, and 12 have different segment names but may or may not have the same segment class name. Segments 1, 2, and 12 form a group with a group address of the lowest address of segment 1 (i.e., the lowest address in memory).

Each segment has a segment name and a class name. MS-LINK loads all segments into memory by class name from the first segment encountered to the last. All segments assigned to the same class are loaded into memory contiguously.

During processing, MS-LINK references segments by their addresses in memory (where they are located). MS-LINK does this by finding groups of segments.

A group is a collection of segments that fit within a 64K byte area of memory. The segments do not need to be contiguous to form a group (see illustration). The address of any group is the lowest address of the segments in that group. At link time, MS-LINK analyzes the groups, then references the segments by the address in memory of that group. A program may consist of one or more groups.

If you are writing in assembly language, you may assign the group and class names in your program. In high-level languages (BASIC, COBOL, FORTRAN, Pascal), the naming is done automatically by the compiler.

Refer to Microsoft's Macro Assembler Manual for information on how to assign group and class names and on how MS-LINK combines and arranges segments in memory.

MS-LINK

Works with one or more input files

Produces two output files

May create a temporary disk file

May be directed to search up to eight library files

For each type of file, you may give a three-part file specification. The format for MS-LINK file specifications is the same as that of a disk file:

[d:]filename[.ext]

where:

d: is the optional drive designation. Permissible drive designations for MS-LINK are A: through O:. The colon is always required as part of the drive designation.

filename is any legal file name of one-to-eight characters.

.ext is an optional one-to-three character extension to the file name. The period is always required as part of the extension.

Input File Extensions

If no file name extensions are given in the input (object) file specifications, MS-LINK will recognize the following extensions by default:

.OBJ	Object
.LIB	Library

Output File Extensions

MS-LINK appends the following default extensions to the output (Run and List) files:

.EXE	Run (may not be overridden)
.MAP	List (may be overridden)

VM.TMP (Temporary) File

MS-LINK uses available memory for the link session. If the files to be linked create an output file that exceeds available memory, MS-LINK will create a temporary file, name it VM.TMP, and put it on the disk in the default drive. If MS-LINK creates VM.TMP, it will display the message:

VM.TMP has been created.
Do not change diskette in drive, d:

Once this message has been displayed, you must not remove the disk from the default drive until the link session ends. If the disk is removed, the operation of MS-LINK will be unpredictable, and MS-LINK might display the error message:

Unexpected end of file on VM.TMP

The contents of VM.TMP are written to the file named following the Run File: prompt. VM.TMP is a working file only and is deleted at the end of the linking session.

WARNING: Do not use VM.TMP as a file name for any file. If you have a file named VM.TMP on the default drive and MS-LINK requires the VM.TMP file, MS-LINK will delete the VM.TMP already on disk and create a new VM.TMP. Thus, the contents of the previous VM.TMP file will be lost.

5.

HOW TO START MS-LINK

MS-LINK requires two types of input:

A command to start MS-LINK

Responses to command prompts

In addition, seven switches control MS-LINK features. Usually, you will type all the commands to MS-LINK on the keyboard. As an option, answers to the command prompts and any switches may be contained in a response file. Command characters can be used to assist you while giving commands to MS-LINK.

MS-LINK may be started in any of three ways:

Method 1:

Type the commands in response to individual prompts.

Format: LINK

Method 2:

Type all commands on the line used to start MS-LINK.

Format: LINK filenames[/switches]

Method 3:

Create a response file that contains all the necessary commands and tell MS-LINK where that file is when you start MS-LINK.

Format: LINK @filespec

Method 1: Prompts

To start MS-LINK with Method 1, type:

LINK

MS-LINK will be loaded into memory. MS-LINK will then display four text prompts that appear one at a time. You answer the prompts to command MS-LINK to perform specific tasks.

At the end of each line, you may type one or more switches, preceded by the switch character, a slash (/).

The command prompts are summarized below and described in more detail in the "Command Prompts" section.

Object Modules [.OBJ]:

List .OBJ files to be linked. They must be separated by blank spaces or plus signs (+). If a plus sign is the last character typed, the prompt will reappear. There is no default; a response is required.

Run File [Object-file.EXE]:

Give file name for executable object code. The default is first-object-filename.EXE. You cannot change the output extension.

List File [Run-file.MAP]:

Give file name for listing. The default is RUN filename.

Libraries []:

List file names to be searched, separated by blank spaces or plus signs (+). If a plus sign is the last character typed, the prompt will reappear. The default is to search for default libraries in the object modules. Extensions will be changed to .LIB.

Method 2: Command Line

To start MS-LINK using Method 2, type all commands on one line. The entries following LINK are responses to the command prompts. The entry fields for the different prompts must be separated by commas. Use the following syntax:

`LINK object-list,runfile,listfile,lib-list[/switch...]`

The entries following LINK are responses to the command prompts. The entry fields for the different prompts must be separated by commas.

where:

`object-list` is a list of object modules, separated by plus signs.

`runfile` is the name of the file to receive the executable output.

`listfile` is the name of the file to receive the listing.

`lib-list` is a list of library modules to be searched.

`/switch` refers to optional switches, which may be placed following any of the response entries (just before any of the commas or after the `lib-list`, as shown).

To select the default for a field, simply type a second comma with no spaces between the two commas (see example on next page).

Example:

```
LINK FUN + TEXT + TABLE/P/M,,FUNLIST,COM.LIB
```

This command causes MS-LINK to be loaded, then the object modules FUN.OBJ, TEXT.OBJ, and TABLE.OBJ are loaded. MS-LINK then pauses (as a result of using the /P switch). MS-LINK links the object modules when you press any key, and produces a global symbol map (the /M switch); defaults to FUN.EXE Run file; creates a List file named FUNLIST.MAP; and searches the Library file COM.LIB.

Method 3: Response File

To start MS-LINK with Method 3, type:

```
LINK @filespec
```

where:

filespec is the name of a response file. A response file contains answers to the MS-LINK prompts (shown in Method 1) and may also contain any of the switches. When naming a response file, the use of file name extensions is optional. Method 3 permits the command that starts MS-LINK to be entered from the keyboard or within a batch file without requiring you to take any further action.

To use this option, you must create a response file containing several lines of text, each of which is the response to an MS-LINK prompt. The responses must be in the same order as the MS-LINK prompts discussed in Method 1. If desired, a long response to the Object Modules: or Libraries: prompt may be typed on several lines by using a plus sign (+) to continue the same response onto the next line.

Use switches and command characters in the response file the same way as they are used for responses typed on the keyboard.

When the MS-LINK session begins, each prompt will be displayed in order with the responses from the response file. If the response file does not contain answers for all the prompts, (in the form of file names, the semicolon command character or carriage returns), MS-LINK will display the prompt which does not have a response, then wait for you to type a legal response. When a legal response has been typed, MS-LINK continues the link session.

Example:

```
FUN TEXT TABLE CARE
/PAUSE/MAP
FUNLIST
COBLIB.LIB
```

This response file tells MS-LINK to load the four object modules named FUN, TEXT, TABLE, and CARE. MS-LINK pauses before producing a public symbol map to permit you to swap disks (see discussion under /PAUSE in the "Switches" section before using this feature). When you press any key, the output files will be named FUN.EXE and FUNLIST.MAP. MS-LINK will search the library file COBLIB.LIB, and will use the default settings for the switches.

6. COMMAND CHARACTERS

MS-LINK provides three command characters.

- + Use the plus sign (+) to separate entries and to extend the current line in response to the Object Modules: and Libraries: prompts. A blank space may be used to separate object modules.

To type a large number of responses (each may be very long), type a plus sign/Enter at the end of the line to extend it. If the plus sign/Enter is the last entry following these two prompts, MS-LINK will prompt you for more module names. When the Object Modules: or Libraries: prompt appears again, continue to type responses. When all the modules to be linked and libraries to be searched have been listed, be sure the response line ends with a module name and a Return and not a plus sign/Return.

Example:

```
Object Modules [.OBJ]: FUN TEXT TABLE  
CARE + Enter  
Object Modules [.OBJ]:  
FOO + FLIPFLOP + JUNQUE + Enter  
Object Modules [.OBJ]:  
CORSAIR Enter
```

;

To select default responses to the remaining prompts, use a single semicolon (;) followed immediately by a carriage return at any time after the first prompt (Run File:). This feature saves time and overrides the need to press a series of Return keys.

Note: Once the semicolon has been typed and entered (by pressing the Return key), you can no longer respond to any of the prompts for that link session. Therefore, do not use the semicolon to skip some prompts. To skip prompts, use the Return key.

Example:

```
Object Modules [.OBJ]: FUN TEXT TABLE  
CARE Enter  
Run Module [FUN.EXE]: ;Enter
```

No other prompts will appear, and MS-LINK will use the default values including FUN.MAP for the List file.

Ctrl + C Use the Ctrl + C keys to abort the link session at any time. If you type an erroneous response, such as the wrong file name or an incorrectly spelled file name, you must press Ctrl + C to exit MS-LINK then restart MS-LINK. If the error has been typed but you have not pressed the Return key, you may delete the erroneous characters with the Backspace key, but for that line only.

MS-LINK asks you for responses to four text prompts. When you have typed a response to a prompt and pressed the Return key, the next prompt appears. When the last prompt has been answered, MS-LINK begins linking automatically without further command. When the link session is finished, MS-LINK exits to the operating system. When the operating system prompt appears, MS-LINK has finished successfully. If the link session is unsuccessful, MS-LINK will display the appropriate message.

MS-LINK prompts you for the names of Object, Run, and List files, and for Libraries. The prompts are listed in order of appearance. The default response is shown in square brackets ([]) following the prompt, for prompts which can default to preset responses. The Object Modules: prompt has no preset file name response and requires you to type a file name.

Object Modules [.OBJ]:

Type a list of the object modules to be linked. MS-LINK assumes by default that the file name extension is .OBJ. If an object module has any other file name extension, the extension must be given. Otherwise, the extension may be omitted.

Modules must be separated by plus signs (+).

Remember that MS-LINK loads segments into classes in the order encountered. You can use this information to set the order in which the object modules will be read by MS-LINK. Refer to Microsoft's Macro Assembler Manual for more information on this process.

Run File [First-Object-filename.EXE]:

Typing a file name will create a file for storing the Run (executable) file that results from the link session. All Run files receive the file name extension .EXE, even if you specify an extension other than .EXE.

If no response is typed to the Run File: prompt, MS-LINK uses the first file name typed in response to the Object Modules: prompt as the RUN file name.

Example:

Run File [FUN.EXE]: B:PAYROLL/P

This response directs MS-LINK to create the Run file PAYROLL.EXE on the disk in Drive B. Also, MS-LINK will pause, which allows you to insert a disk to receive the Run file.

List File [Run-Filename.MAP]:

This List file contains an entry for each segment in the input (object) modules. Each entry also shows the addressing in the Run file.

The default response is the Run file name with the default file name extension .MAP.

Libraries []:

The valid responses are up to eight library file names or simply a carriage return. A carriage return means default library search. Library files must have been created by a library utility. Consult the **MS-LIB** section of Microsoft's Macro Assembler Manual for information on library files. **MS-LINK** assumes by default that the file name extension is **.LIB** for library files.

Library file names must be separated by blank spaces or plus signs (+).

MS-LINK searches library files in the order listed to resolve external references. When it finds the module that defines the external symbol, **MS-LINK** processes that module as another object module.

If **MS-LINK** cannot find a library file on the disks in the disk drives, it will display the message:

Cannot find library *library-name*
Type new drive letter:

Press the letter for the drive designation (for example, B).

8.

MS-LINK SWITCHES

The seven MS-LINK switches control various MS-LINK functions. Switches must be typed at the end of a prompt response, regardless of which method is used to start MS-LINK. Switches may be grouped at the end of any response, or may be scattered at the end of several. If more than one switch is typed at the end of one response, each switch must be preceded by a slash (/).

All switches may be abbreviated. The only restriction is that an abbreviation must be sequential from the first letter through the last typed; no gaps or transpositions are allowed. For example:

<u>Legal</u>	<u>Illegal</u>
/D	/DSL
/DS	/DAL
/DSA	/DLC
/DSALLOCA	/DSALLOCT

/DSALLOCATE

Using the /DSALLOCATE switch tells MS-LINK to load all data at the high end of the Data Segment. Otherwise, MS-LINK loads all data at the low end of the Data Segment. At runtime, the DS pointer is set to the lowest possible address to allow the entire DS segment to be used. Use of the /DSALLOCATE switch in combination with the default load low (that is, the /HIGH switch is not used) permits the user application to dynamically allocate any available memory below the area specifically allocated within DGroup, yet to remain addressable by the same DS pointer. This dynamic allocation is needed for Pascal and FORTRAN programs.

Note: Your application program may dynamically allocate up to 64K bytes (or the actual amount of memory available) less the amount allocated within DGroup.

/HIGH

Use of the /HIGH switch causes MS-LINK to place the Run file as high as possible in memory. Otherwise, MS-LINK places the Run file as low as possible.

Important: Do not use the /HIGH switch with Pascal or FORTRAN programs.

/LINENUMBERS

The /LINENUMBERS switch tells MS-LINK to include in the List file the line numbers and addresses of the source statements in the input modules. Otherwise, line numbers are not included in the List file.

Note: Not all compilers produce object modules that contain line number information. In these cases, of course, MS-LINK cannot include line numbers.

/MAP

/MAP directs MS-LINK to list all public (global) symbols defined in the input modules. If /MAP is not given, MS-LINK will list only errors (including undefined globals).

The symbols are listed alphabetically. For each symbol, MS-LINK lists its value and its segment:offset location in the Run file. The symbols are listed at the end of the List file.

/PAUSE

The **/PAUSE** switch causes MS-LINK to pause in the link session when the switch is encountered. Normally, MS-LINK performs the linking session from beginning to end without stopping. This switch allows you to swap the disks before MS-LINK outputs the Run (.EXE) file.

When MS-LINK encounters the **/PAUSE** switch, it displays the message:

About to generate .EXE file
Change disks hit any key

MS-LINK resumes processing when you press any key.

Caution: Do not remove the disk which will receive the List file, or the disk used for the VM.TMP file, if one has been created.

/STACK:number

number represents any positive numeric value (in hexadecimal radix) up to 65536 bytes. If a value from 1 to 511 is typed, MS-LINK will use 512. If the **/STACK** switch is not used for a link session, MS-LINK will calculate the necessary stack size automatically.

All compilers and assemblers should provide information in the object modules that allows the linker to compute the required stack size.

At least one object (input) module must contain a stack allocation statement. If not, MS-LINK will display the following error message:

WARNING: NO STACK STATEMENT

/NO

/NO is short for **NODEFAULTLIBRARY-SEARCH**. This switch tells **MS-LINK** to not search the default (product) libraries in the object modules. For example, if you are linking object modules in Pascal, specifying the **/NO** switch tells **MS-LINK** to not automatically search the library named **PASCAL.LIB** to resolve external references.

9. SAMPLE MS-LINK SESSION

This sample shows you the type of information that is displayed during an MS-LINK session.

In response to the MS-DOS prompt, type:

LINK

The system displays the following messages and prompts (your answers are underlined):

```
Object Modules [.OBJ]: IO SYSINIT  
Run File [IO.EXE]:  
List File [NUL.MAP]: IO /MAP  
Libraries [.LIB]: ;
```

Notes:

- By specifying /MAP, you get both an alphabetic listing and a chronological listing of public symbols.
- By responding PRN to the List File: prompt, you can redirect your output to the printer.
- By specifying the /LINE switch, MS-LINK gives you a listing of all line numbers for all modules. (Note that the /LINE switch can generate a large volume of output.)
- By pressing the Return key in response to the Libraries: prompt, an automatic library search is performed.

Once MS-LINK locates all libraries, the linker map displays a list of segments in the order of their appearance within the load module.

The list might look like this:

Start	Stop	Length	Name
00000H	009ECH	09EDG	CODE
009F0H	01166H	0777H	SYSINITSEG

The information in the Start and Stop columns shows the 20-bit hex address of each segment relative to location zero. Location zero is the beginning of the load module.

The addresses displayed are not the absolute addresses where these segments are loaded. Consult Microsoft's Macro Assembler Manual for information on how to determine where relative zero is actually located, and also on how to determine the absolute address of a segment.

Because the /MAP switch was used, MS-LINK displays the public symbols by name and value. For example,

ADDRESS	PUBLICS_BY_NAME
009F:0012	BUFFERS
009F:0005	CURRENT_DOS_LOCATION
009F:0011	DEFAULT_DRIVE
009F:000B	DEVICE_LIST
009F:0013	FILES
009F:0009	FINAL_DOS_LOCATION
009F:000F	MEMORY_SIZE
009F:0000	SYSINIT

ADDRESS	PUBLICS BY VALUE
009F:0000	SYSINIT
009F:0005	CURRENT_DOS_LOCATION
009F:0009	FINAL_DOS_LOCATION
009F:000B	DEVICE_LIST
009F:000F	MEMORY_SIZE
009F:0011	DEFAULT_DRIVE
009F:0012	BUFFERS
009F:0013	FILES

For more information on MS-LINK, refer to Microsoft's Macro Assembler Manual.

All errors cause the link session to abort. After the cause has been found and corrected, MS-LINK must be rerun. The following error messages are displayed by MS-LINK.

ATTEMPT TO ACCESS DATA OUTSIDE OF SEGMENT BOUNDS, POSSIBLY BAD OBJECT MODULE

There is probably a bad Object file.

BAD NUMERIC PARAMETER

Numeric value is not in digits.

CANNOT OPEN TEMPORARY FILE

MS-LINK is unable to create the file VM.TMP because the disk directory is full. Insert a new disk. Do not remove the disk that will receive the List.MAP file.

ERROR: DUP RECORD TOO COMPLEX

DUP record in assembly language module is too complex. Simplify DUP in assembly language program.

ERROR: FIXUP OFFSET EXCEEDS FIELD WIDTH

An assembly language instruction refers to an address with a short instruction instead of a long instruction. Edit assembly language source and reassemble.

INPUT FILE READ ERROR

There is probably a bad Object file.

INVALID OBJECT MODULE

An object module(s) is incorrectly formed or incomplete (as when assembly is stopped in the middle).

PROGRAM SIZE OR NUMBER OF SEGMENTS EXCEEDS CAPACITY OF LINKER

The total size may not exceed 384K bytes and the number of segments may not exceed 255.

REQUESTED STACK SIZE EXCEEDS 64K

Specify a size greater than or equal to 64K bytes with the /STACK switch.

SEGMENT SIZE EXCEEDS 64K

64K bytes is the addressing system limit.

SYMBOL DEFINED MORE THAN ONCE

MS-LINK found two or more modules that define a single symbol name.

SYMBOL TABLE CAPACITY EXCEEDED

Very many and/or very long names were typed, exceeding the limit of approximately 25K bytes.

TOO MANY EXTERNAL SYMBOLS IN ONE MODULE

The limit is 256 external symbols per module.

TOO MANY GROUPS

The limit is 10 groups.

TOO MANY LIBRARIES SPECIFIED

The limit is 8 libraries.

TOO MANY PUBLIC SYMBOLS

The limit is 1024 public symbols.

TOO MANY SEGMENTS OR CLASSES

The limit is 256 (segments and classes taken together).

UNRESOLVED EXTERNALS: list

The external symbols listed have no defining module among the modules or library files specified.

VM READ ERROR

This is a disk error; it is not caused by MS-LINK.

WARNING: NO STACK SEGMENT

None of the object modules specified contains a statement allocating stack space, but you typed the /STACK switch.

WARNING: SEGMENT OF ABSOLUTE OR UNKNOWN TYPE

There is a bad object module or an attempt has been made to link modules that MS-LINK cannot handle (e.g., an absolute object module).

WRITE ERROR IN TMP FILE

No more disk space remains to expand the VM.TMP file.

WRITE ERROR ON RUN FILE

Usually, there is not enough disk space for the Run file.

Notes:

ADVANCED CONFIGUR

APPENDIX G

TABLE OF CONTENTS

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5. Error messages	G-8

1.

INTRODUCTION

The Xerox CONFIGUR utility can also be executed in batch mode. You may specify configuration parameters at the command line, and the system will implicitly use the current machine settings as the source. The configuration is modified as indicated by the parameters, and these parameters are temporarily activated.

At the command line, enter the parameters to be used for the configuration according to the format displayed below:

CONFIGUR function (appropriate parameter list)

Enter the batch command according to the following guidelines.

- The command and arguments may be entered in any combination of upper and lower case letters. The system does not make any distinction.
- The command name CONFIGUR is entered first.
- Separated by exactly one space is one of the three function keywords, followed by the list of appropriate arguments that define the required configuration.
- Each item in the list must be separated by exactly one space.
- You may omit any arguments that you do not want to change by inserting an asterisk (*) in its place.
- Any unchanged values at the end of the list do not require an entry.

The functions are as follows:

<u>Function</u>	<u>Definition</u>
SCREEN	Set screen attributes
PORT	Configure serial port(s)
REROUTE	Reroute devices

Each function has its own parameter list. The following chapters define the format for each parameter.

Examples:

```
A:\>configur screen c yel blu
```

The above example temporarily configures the screen color.

```
A:\>configur port 2 1200 * * e
```

The above example temporarily configures a serial port. Notice that asterisks replace two arguments not to be changed, but their position must be saved for correct parity selection. Trailing arguments are not required.

2. SET SCREEN ATTRIBUTES

The screen parameter options listed below are dependent upon the screen type:

c = color

m = monochrome (non-color)

The format is as follows:

CONFIGUR SCREEN c foregrnd backgrnd width

CONFIGUR SCREEN m char width

The last argument is not required if no change is desired.

<u>Abbrev.</u>	<u>Definition</u>	<u>Values</u>
char	Character attribute	n = normal r = reverse video
foregrnd	Foreground color	(only first 3 letters are required) BLAck, BLUe, GREn, CYAn, RED, MAGenta, BROwn, WHItE, GRAY, LTBlue, LTGreen, LTCyan, LTRed, LTMagenta, YELlow, HIWhite
backgrnd	Background color	(only first 3 letters are required) BLAck, BLUe, GREn, CYAn, RED, MAGenta, BROwn, WHItE
width	Screen width	40 = 40 columns 80 = 80 columns

3. CONFIGURE SERIAL PORT(S)

The format is as follows:

CONFIGUR PORT num speed stop word parity
prot cd cts dtr rts

Asterisks can be used to replace arguments not to be changed. Trailing arguments are not required.

<u>Abbrev.</u>	<u>Definition</u>	<u>Values</u>
num	Port number	1, 2 or 3 (depending on machine configuration)
speed	Baud rate of port	110, 150, 300, 600, 1200, 2400, 4800 or 9600
stop	Stop bits	1 or 2
word	Word length	7 or 8
parity	Parity check	e = even parity o = odd parity n = no parity check
prot	Software protocol	x = XON/XOFF e = ETX/ACT n = no protocol
cd	Carrier detect	l = low active bit h = high active bit i = ignore this bit
cts	Clear to send	l = low active bit h = high active bit i = ignore this bit
dtr	Data terminal ready	l = low active bit h = high active bit i = ignore this bit
rts	Request to send	l = low active bit h = high active bit i = ignore this bit

4. REROUTE DEVICES

The format is as follows:

CONFIGUR REROUTE logical device = port spec

Spaces are not allowed between the equal sign and either logical device or port spec files. COM1, COM2, and COM3 may not be routed to a parallel port (PAR1).

<u>Parameter</u>	<u>Values</u>
logical device	LPT1, LPT2, LPT3, COM1, COM2, COM3
port spec	SER1, SER2, PAR1

5.

ERROR MESSAGES

If an error is detected during processing, the command line is displayed; the incorrect field is highlighted. An explanation is displayed below the command line.

If the function field is incorrect, usage for each function is displayed:

```
CONFIGUR SCREEN c foregrnd, backgrnd,  
width
```

```
CONFIGUR SCREEN m char width
```

```
CONFIGUR PORT num speed stop word parity  
prot cd cts dtr rts
```

```
CONFIGUR REROUTE logical device = port spec
```

If the function is correct but has incorrect parameters, the incorrect field(s) will be highlighted and an explanation will be given. For example:

```
Incorrect port NUMBER.  
Incorrect WORD length.
```

(Note: For some combinations of foreground and background colors, the characters in the highlight fields may blink. This is a normal condition.)

SET SYSTEM DEFAULTS (CONFIG.SYS)

APPENDIX H

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Introduction

The CONFIG.SYS file is used to configure your system at startup.

The following commands are used in the CONFIG.SYS file:

BREAK	Sets extended checking of Ctrl + C.
BUFFERS	Sets the number of sector buffers.
COUNTRY	Allows for international time, date and currency.
DEVICE	Installs device drivers.
FCBS	Specifies the number of file control blocks that can be concurrently open.
LASTDRIVE	Sets the maximum number of drives that you may access.
SHELL	Begins execution of the shell from a specific file.

The CONFIG.SYS file contains commands that are used to configure your system at startup. MS-DOS searches the root directory of the drive it was started from for the CONFIG.SYS file.

If the file is found, MS-DOS reads the file and interprets the commands within the file.

If the file is not found, default values are assigned to the configuration commands.

When you create/modify a CONFIG.SYS file, it does not take effect until you reboot the system.

How to create a CONFIG.SYS file

You can create a CONFIG.SYS file using an editor (such as EDLIN) or the MS-DOS COPY CON command.

The steps below describe how to create a CONFIG.SYS file using the COPY CON command.

The CONFIG.SYS file **must** be created in the root directory of the boot disk.

- ▶ With the MS-DOS system prompt displayed, type:

copy con config.sys

- ▶ Press the Return key.

- ▶ Type the configuration commands you want in the file. Press the Return key after you type each command.

- ▶ When you are ready to save the file, simultaneously press the Ctrl and Z keys and then press the Return key. This exits the COPY CON command and saves the file.

BREAK command

Sets extended Ctrl + C check.

The format for BREAK is

BREAK = [ON | OFF]

Depending on the program you are running, Ctrl + C may be used to stop an activity. For example, to stop sorting a file.

Normally, MS-DOS checks to see if Ctrl + C has been typed while it is reading from the keyboard, writing on the screen or to a printer.

Setting BREAK to ON allows Ctrl + C checking to be extended to other functions such as disk reads and writes.

The default is **BREAK = OFF**.

BUFFERS command

Allows you to set the number of disk buffers that MS-DOS allocates in memory at the time you start the system.

The format for BUFFERS is

`BUFFERS = x`

A disk buffer is a block of memory where MS-DOS can hold data being read from or written to a disk when the amount of data is not an exact multiple of sector size.

The default number of buffers is 2.

For applications such as word processors, a number between 10 and 20 will provide the best performance.

If you plan to create a lot of subdirectories, increase the buffers value to between 20 and 30.

COUNTRY command

Allows MS-DOS to use international time, date, currency, and case conversion.

The format for COUNTRY is

COUNTRY = *xxx*

xxx is the three-digit international country code.

The default value is the U.S. country code of 001.

DEVICE command

Installs the device driver contained in the specified file to the system list.

A device driver is a file that contains all the code to implement a particular device.

The format for DEVICE is

DEVICE = *filespec*

filespec is the name of the device driver file.

You can install the following types of device drivers:

User-developed device drivers (optional)

ANSI.SYS character device driver
(mandatory)

VDISK.SYS device driver (optional)

User-developed device drivers (optional)

Use the DEVICE = *filespec* in the CONFIG.SYS file for each device driver you have written. This will load the drivers when you start MS-DOS.

DEVICE command - cont'd

ANSI.SYS (mandatory)

For MS-DOS to operate properly on the Xerox personal computer, you **must** install the ANSI.SYS file in the CONFIG.SYS file with the following command:

```
device = ansi.sys
```

This command causes MS-DOS to replace all keyboard input and screen output support with the ANSI escape sequences.

The ANSI escape sequences are described in Appendix J.

VDISK.SYS (optional)

VDISK.SYS is a device driver that acts like a disk drive by using a portion of the computer's memory for storing data. These disks are called "virtual disks".

Features

Virtual disks perform quickly because they operate at the speed of the computer's memory. With VDISK.SYS, you can do the following:

- You can install more than one virtual disk and refer to each with a drive letter, the same way you refer to your disk drives. For example, if you have a dual floppy disk drive, the drives are A and B, the first virtual disk is referred to as C, the second as D, and so on.

DEVICE command - cont'd

VDISK.SYS (optional) - cont'd

Features - cont'd

- Use the extended memory as one or more virtual disks if you have extended memory installed on your computer.
- Specify the size of the memory to be used, the sector size, and the number of directory entries it contains.
- Place a volume LABEL on each to identify it.

Cautions

Each virtual disk you create increases the resident size of MS-DOS for the VDISK.SYS device driver plus the size of the buffer you specify, if the driver is installed in low memory.

You lose the contents of a virtual disk if you reboot or lose the power on your computer.

Virtual disks cannot be formatted since each disk is installed in the formatted form.

VDISK.SYS format

You **must** include the following statement in your CONFIG.SYS file in order to install the VDISK device driver:

```
DEVICE = VDISK.SYS [bbb] [sss] [ddd] [/E [:m]]
```

See the next page for a description of each parameter.

DEVICE command - cont'd

VDISK.SYS (optional) - cont'd

Parameters**bbb**

bbb is the virtual disk size in K bytes, specified by a decimal value between 1 and the amount of memory available on your computer. The default for *bbb* is 64K bytes.

The amount of memory used for a virtual disk may be adjusted for the following conditions:

- If there is less than 64K of available memory, you receive an error message and the virtual disk is not installed.
- If the virtual disk size specified is less than 1K byte or greater than the total amount of memory on your computer, the virtual disk defaults to 64K.
- If the virtual disk size leaves less than 64K of memory, then VDISK adjusts the size of the virtual disk so that 64K of memory is available.

sss

The *sss* is the sector size in bytes which can be 128, 256, or 512. VDISK uses the default size of 128 if you omit or enter an incorrect size for this parameter.

DEVICE command - cont'd

VDISK.SYS (optional) - cont'd

Parameters - cont'd

ddd

The *ddd* is the maximum number of files in a directory that a virtual disk can contain. You may have any number of files between 2 and 512.

The default is 64 files.

VDISK uses one of the directory entries to hold a volume label.

VDISK adjusts your entry under the following conditions:

- If your entry is not a multiple of the sector size [*sss*], then your entry is adjusted upwards to the nearest sector size boundary.

For example, if you specify 10 directory entries (files) and your sector size is 128, VDISK generates 12 directory entries. The 12 entries at 32 bytes each round up to a multiple of 128 byte sectors.

- If the value is too small to hold the file allocation table, the directory and two additional sectors, the directory size is adjusted downward by a sector at a time.

If the directory size reaches one sector and is still too large for the specified virtual disk size, VDISK issues an error message and the device utility will not install the virtual disk.

DEVICE command - cont'd

VDISK.SYS (optional) - cont'd

Parameters - cont'd**/E**

The /E tells VDISK to use extended memory. Extended memory is memory at or above 1M bytes.

The virtual disk buffer is in extended memory and the device driver is installed in low memory.

You can install more than one virtual disk in extended memory. To do this, you **must** include more than one DEVICE = VDISK.SYS command in the CONFIG.SYS file. The first device driver is installed in the 1M byte boundary. The second driver follows the first and so on.

This parameter is valid for computers with extended memory only. Using this parameter with a computer that does not have extended memory causes an error message to display and results in the virtual disk not being installed.

m

The *m* is the maximum number of sectors [sss] of data VDISK transfers at a time.

The values for *m* are 1 through 8, with 8 being the default.

Interrupt servicing stops when VDISK operates in extended memory. If frequent interrupts occur during data transfers, some interrupts can be lost.

DEVICE command - cont'd

VDISK.SYS (optional) - cont'd

Parameters - cont'd

m - cont'd

In order to isolate this problem, install VDISK in non-extended memory. If the problem is resolved, adjust the *m* parameter in extended memory until no interrupts are lost.

If an *m* of 1 and *sss* of 128 does not improve the problem, then VDISK cannot be used in extended memory.

VDISK.SYS output

After you create your CONFIG.SYS file including the VDISK command, the next time you start MS-DOS VDISK displays the following messages:

```
VDISK Version x.x virtual disk d:  
Buffer size:      x KB  
Sector size:     x  
Directory entries: x
```

These messages indicate the

drive letter (*d*:) assigned to the virtual disk
virtual disk size
virtual sector size
number of directory entries for the virtual disk

Example

```
device = vdisk.sys 160 512 64
```

This installs a 160K byte virtual disk with 512 byte sectors and 64 directory entries.

FCBS command

Allows you to determine the number of FCBS (File Control Blocks) that can be concurrently open.

The format for FCBS is

FCBS = *x*,*y*

x represents the number of files opened by File Control Blocks that can be open at any one time. The default value for *x* is 4. Allowed values are from 1 to 255

y specifies the number of files opened by FCBS that MS-DOS cannot close automatically if an application tries to open more than *x* files by FCBS. The first *y* files opened by FCBS are protected from being closed. The default value is 0. Allowed values are from 1 to 255.

FILES command

Specifies the maximum number of files that can be open concurrently.

The format for FILES is

FILES = *x*

x represents the number of open files that the system calls can access.

x can be any number between 8 and 255. The default value is 8.

LASTDRIVE command

Sets the maximum number of drives that you may access.

The format for LASTDRIVE is

LASTDRIVE = *x*

x can be any letter from A to Z. It represents the last valid drive letter that MS-DOS may accept. The default value is E.

The minimum number is equal to the number of drives you have installed on your computer.

SHELL command

This command begins execution of the shell (top-level command processor) from a file defined by the specified *filespec*.

The format for SHELL is

SHELL = *filespec*

This command should be used by system programmers who write their own command processor (the MS-DOS file named COMMAND.COM). MS-DOS will start the processor specified in *filespec* instead of reading the standard COMMAND.COM.

Sample CONFIG.SYS file

A typical configuration file might look like this:

```
buffers = 10
files = 10
device = ansi.sys
break = on
shell = c:\bin\command.com a:\bin /p
lastdrive = z
```

The BUFFERS and FILES commands are set to 10.

The ANSI.SYS device driver is installed.

The extended Ctrl + C is set.

This file also sets the MS-DOS command EXEC to the COMMAND.COM file located in the \BIN directory on Drive C (hard disk). The C:\BIN tells COMMAND.COM where to look for itself when it needs to reread from disk. The /P switch tells COMMAND.COM that it is the first program running on the system so that it can process the MS-DOS EXIT command.

The last logical drive on the system is set to Drive Z.

Notes:



IBM-RELATED COMMANDS

APPENDIX I

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ASSIGN command

WARNING: Do not use this command during normal use of MS-DOS because the ASSIGN command hides the true device type from commands that require actual drive information.

The ASSIGN command allows you to perform disk operations on drives other than the drives specified in a program.

ASSIGN is an external MS-DOS command that is stored as a file on disk.

The format for the ASSIGN command is:

ASSIGN [*drive1* = *drive2*]

drive1 is the drive to which reads and writes are currently sent.

drive2 is the drive to which you want reads and writes to be sent.

For example, if you have a program that uses Drive A and Drive B only and you have a hard disk drive system (Drive C), you need to be able to read and write to Drive C with this program and not to Drives A and B. The following command

```
C:\>assign a = c b = c
```

enables you to use Drive C instead of Drives A and B. All references to Drives A and B will now go to Drive C.

You should always reset drives back to their original assignments when you are through running the program that called for the reassignment. To reset all drives back to their original assignments, type ASSIGN and press the Return key.

BACKUP command

The BACKUP command backs up one or more files from a disk to another disk. The drive names of the disks must be different.

BACKUP is an external MS-DOS command that is stored as a file on disk.

The format for the BACKUP command is:

```
BACKUP d:[path][filename.ext] d:  
[S] [M] [D:mm-dd-yy]
```

The first *d*: specifies the drive that contains the files to back up (source).

[path][filename.ext] specifies the name of the file you want to back up.

The second *d*: specifies the drive that will contain the backed up files (destination). The new files are added to the old files on a backup disk.

/S backs up subdirectory files in addition to the files in the specified or "working" directory.

/M backs up files that have been modified since the last backup.

/D backs up files that have been modified on or after the specified date. The format of the date is mm-dd-yy.

DISKCOMP command

The DISKCOMP command compares the contents of one floppy disk to the contents of another floppy disk.

DISKCOMP is an external command that is stored as a file on disk.

The format for the DISKCOMP command is:

```
DISKCOMP [d: [d:]] [/1] [/8]
```

The first *d*: specifies the drive that contains the source disk.

The second *d*: specifies the drive that contains destination disk.

/1 compares only the first side of the floppy disks, even if the disks and drives are double-sided.

/8 compares only 8 sectors per track, even if the first disk contains 9 sectors per track.

The same drive or different drive names can be used with this command.

If the same drive name is specified, a one-drive comparison is performed. The system will prompt you when to insert disks. The system waits for you to press the Spacebar before it continues.

The comparison is track-for-track compare. A message is displayed if the tracks are not equal.

When the comparison is complete, the system displays

```
Compare more diskettes (Y/N)?
```

Type Y to compare more disks. The comparison will be done on the same drives you originally specified.

Type N to exit the command.

DISKCOPY command

The DISKCOPY command copies the contents of one floppy disk to another floppy disk.

DISKCOPY is an external MS-DOS command that is stored as a file on disk.

The format for the DISKCOPY command is:

```
DISKCOPY [d: [d:]] [/1]
```

The first *d:* specifies the drive that contains the source disk.

The second *d:* specifies the drive that contains the destination disk.

/1 copies only the first side of the floppy disk, even if the disk is double-sided.

The same drive or different drive names can be used with this command.

If the same drive name is specified, a one-drive copy is performed. The system will prompt you when to insert disks. The system waits for you to press the Spacebar before it continues.

When the copying is complete, the system displays

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

Type Y to copy more disks. The copy will be done on the same drives you originally specified.

Type N to exit the command.

See the notes on the next page.

DISKCOPY command - cont'd

Notes:

1. If you omit both drive names, a one-drive copy operation is performed on the default drive.
2. If you omit the second drive name, the default drive is used as the destination drive.
3. If you omit the second drive name and specify the default drive as the source drive, a one-drive copy operation is performed.
4. Disks that have had a lot of files created and deleted on them become fragmented, because disk space is not allocated sequentially. The first free sector found is the next sector allocated, regardless of its location on the disk.

A fragmented disk can cause slowness due to delays in finding, reading, or writing a file. If this is the case, it is recommended that you use the COPY command, instead of DISKCOPY, to copy your disk. Because the COPY command copies files sequentially to a disk, the new disk will not be fragmented. The command

```
A:\>copy a:*. * b:
```

copies all files from the disk in Drive A to the disk in Drive B. The files are copied sequentially to the disk in Drive B.

5. DISKCOPY automatically determines the number of sides and sectors per track to copy, based on the source drive and disk.

FORMAT command

The **FORMAT** command formats the disk in the specified drive to accept MS-DOS files.

Formatting destroys all data on the disk. Be sure of the disk you want to format. It is recommended that you **do not** enter **FORMAT** without a drive name. You could unintentionally destroy all of the data on the disk in the default drive.

FORMAT is an external MS-DOS command that is stored as a file on disk.

The format for the **FORMAT** command is:

```
FORMAT [d:] [/S] [/1] [/8] [/V] [/B] [/4]
```

d: specifies the drive that contains the disk to be formatted.

/S copies the operating system files from the disk in the default drive to the new disk in the following order:

```
XERBIO.COM  
XERDOS.COM  
COMMAND.COM
```

If the MS-DOS boot disk is not in the default drive, **FORMAT** prompts you to insert a system disk in the default drive.

/1 formats a floppy disk for single-sided use regardless of the drive type.

/8 formats a disk for 8 sectors per track.

/V gives the disk a volume label. It is recommended that you use the **/V** switch.

FORMAT command - cont'd

/B formats a floppy disk for 8 sectors per track with space allocated for the XERBIO.COM and XERDOS.COM system files. It does not place these files on the disk. It allocates space so that any version of MS-DOS can be placed on the disk through that version's SYS command. If **/B** is not used, only MS-DOS 3.10 can be placed on the disk through the SYS command.

/4 formats a double-sided disk for use in a high capacity drive. Disks formatted with the **/4** switch may be not be reliably read or written in a double-sided drive.

When the copying is complete, the system displays

Copy another (Y/N)?

Type **Y** to copy more disks. The copy will be done on the same drives you originally specified.

Type **N** to exit the command.

GRAPHICS command

Allows you to print the contents of a graphics display screen to a graphics printer. This command increases the resident size of MS-DOS in memory.

GRAPHICS is an external command that is stored as a file on disk. The format for the GRAPHICS command is:

GRAPHICS [/R] [/B]

Use /R to print black and white as shown on your monitor. When you do not specify this parameter, the default is to print black as white and white as black.

Use /B to print background color.

Press the Shift + PrtSc keys to print the screen contents on the printer.

If the screen is in text mode, the text is printed in under 30 seconds.

If the screen is in the graphics mode, each time the PrtSc key is pressed, the following things occur:

In the 320x200 color graphics mode, the screen contents are printed in up to four shades of gray.

In the 640x200 color graphics mode, the screen is printed sideways on the paper. The upper right corner of the screen is printed on the upper left corner of the paper.

Printing may take as long as three minutes.

To invoke the screen print from a program, use the following coding example:

```
PUSH BP
INT 5
POP BP
```

MODE command

MODE performs three functions:

Sets the mode of operation on a printer or on a display connected to a Color/Graphics Monitor Adapter.

Sets options for an Asynchronous Communications Adapter.

Routes printer output to an Asynchronous Communications Adapter.

MODE is an external command that is stored as a file on disk.

The MODE command has four format options:

Option 1

MODE LPT#:[*n*] [, [*m*] [, *P*]]

Option 2

MODE *n*

or

MODE [*n*],*m* [, *T*]

Option 3

MODE COM*n*:*baud* [, *parity* [, *databits* [, *stopbits* [, *P*]]]]

Option 4

MODE LPT# : = COM*n*

A missing or invalid *n* or *m* parameter means that the mode of operation for that parameter is not changed.

MODE command - cont'd

When used in Option 1, 3, or 4, the MODE command causes printer and Asynchronous Communications Adapter intercept code to be made resident in memory. This code increases the size of MS-DOS in memory.

Option 1 (for the printer)

MODE LPT#:[*n*],[*m*],[*P*]

where:

is 1, 2, or 3 (printer number)
n is 80 or 132 (characters per line)
m is 6 or 8 (lines per inch vertical spacing)
P specifies continuous retry on timeout errors

For example:

mode lpt1:132,8

sets the mode of operation of printer 1 to 132 characters per line and 8 lines per inch vertical spacing.

The power-on default options for the printer are 80 characters per line and 6 lines per inch.

The retry loop can be stopped by pressing Ctrl + Break.

To stop timeout errors from being continuously retried when you have entered *P*, you must use MODE Option 1 without specifying *P*.

MODE command - cont'd

Option 2

(for switching display adapters and setting the display mode of a Color/Graphics Monitor Adapter)

MODE *n*

or

MODE [*n*],*m*[,*T*]

where:

n is 40, 80, BW40, BW80, CO40, CO80, or MONO

40 sets the display width to 40 characters per line (for Color/Graphics Monitor Adapter).

80 sets the display width to 80 characters per line (for Color/Graphics Monitor Adapter).

BW40 switches the active display adapter to the Color/Graphics Monitor Adapter, and sets the display mode to Black and White (disables color) with 40 characters per line.

BW80 switches the active display adapter to the Color/Graphics Monitor Adapter, and sets the display mode to Black and White (disables color) with 80 characters per line.

CO40 switches the active display adapter to the Color/Graphics Monitor Adapter, enables color, and sets the display width to 40 characters per line.

CO80 switches the active display adapter to the Color/Graphics Monitor Adapter, enables color, and sets the display width to 80 characters per line.

MODE command - cont'd

Option 2 - cont'd

MONO switches the active display adapter to the Monochrome Display Adapter (which always has display width of 80 characters per line).

m is R or L (shift display right or left).

T requests a test pattern used to align the display.

For readability, you can shift the display one character (for 40 columns) or two characters (for 80 columns) in either direction.

If you specify T in the MODE command, a prompt asks you if the screen is aligned properly. If you enter Y, the command ends. If you enter N, the shift is repeated followed by the same prompt.

For example,

```
mode 80,R,T
```

sets the mode of operation to 80 characters per line and shifts the display two character positions to the right. The test pattern is displayed to give you the opportunity to further shift the display without having to enter the command again.

MODE command - cont'd

Option 3

(for Asynchronous Communications Adapter)

```
MODE COMn:baud[,parity[,databits
[,stopbits[,P]]]]
```

where:

n is either 1 or 2 (Asynchronous Communications Adapter number)

baud is 110, 150, 300, 600, 1200, 2400, 4800, or 9600 (*Note: Only the first two digits are required; subsequent digits are ignored.*)

parity is either N (none), O (odd), or E (even). The default is E.

databits is either 7 or 8. The default is 7.

stopbits is either 1 or 2. If *baud* is equal to 110, the default is 2. If *baud* does not equal 110, the default is 1.

These are the protocol parameters. They are used to initialize the Asynchronous Communications Adapter. When you specify the protocol, you **must** specify at least the baud rate. The other parameters can be omitted, with the defaults accepted, by entering only commas. For example:

```
mode com1:12,N,8,1,P
```

sets the mode of operation to 1200 baud rate, no parity, eight databits, and one stopbit. To use the defaults listed in the definition above, you enter:

```
mode com1:12,,,P
```

The *parity* defaults to even, the *databits* defaults to seven, and the *stopbits* defaults to one.

MODE command - cont'd

Option 3 - cont'd

The P option indicates that the asynchronous adapter is being used for a serial interface printer. If you enter the P, timeout errors are continuously retried. You can stop the retry loop by pressing Ctrl + Break. To stop the timeout errors from being continuously retried when you have entered P, you must reinitialize the asynchronous adapter without entering the P.

Option 4

(to redirect parallel printer output to an Asynchronous Communications Adapter)

MODE LPT#: = COMn

where:

is either 1, 2, or 3 (printer)

n is either 1 or 2 (Asynchronous Communications Adapter number)

All output directed to printer LPT# is redirected to the Asynchronous Adapter n.

Before you can use MODE to redirect parallel printer output to a serial device, you must initialize the Asynchronous Communications Adapter by using Option 3. If that serial device is a printer, your serial initialization command should also include the P parameter.

MODE LPT#:[n],[m] disables the redirection for the printer designated by the #.

RESTORE command

The RESTORE command restores one or more backup files from a disk to another disk.

RESTORE is an external MS-DOS command that is stored as a file on disk.

The format for the RESTORE command is:

```
RESTORE d: [d:][path]filename[.ext]
[/S] [/P]
```

d: specifies the drive that contains the backup files (source).

[d:][path]filename[.ext] specifies where you want to restore the files and what files from the source to restore.

/S restores all files in subdirectories in addition to the files in the specified directory. This includes subdirectories at all levels beyond the specified directory.

/P causes RESTORE to prompt you before restoring files that have been modified since they were last backed up or that are marked read-only. You can then choose to restore the file or not.

RESTORE **without** */P* **does not** overwrite (restore) files that have been modified.

RESTORE **with** */P* will prompt you **before** restoring a file that has been modified.

SYS command

The **SYS** command transfers the MS-DOS operating system files from the disk in the default drive to the disk in the specified drive.

SYS is an external MS-DOS command that is stored as a file on disk.

The format for the **SYS** command is:

SYS d:

d: specifies the drive that you want to transfer the operating system files to.

The directory of the disk in the specified drive must be completely empty, or the disk must have been formatted by a **FORMAT d:/S** or **FORMAT d:/B** command to contain directory entries for the MS-DOS files **XERBIO.COM** and **XERDOS.COM**.

SYS transfers the **COMMAND.COM** file to the destination disk. The **CONFIG.SYS** and the **ANSI.SYS** files also need to be on the disk for proper operation. You need to copy these two files to the disk.

*Note: **SYS** lets you transfer a copy of the operating system files to an application program disk designed to use MS-DOS, but sold without it. In this case, the space required for the MS-DOS files has already been allocated, although the MS-DOS files are not actually present. The **SYS** command transfers the files to the allocated space.*

ANSI ESCAPE SEQUENCES

APPENDIX J

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Introduction

An ANSI escape sequence is a series of characters (beginning with an escape character or keystroke) that you can use to define functions to MS-DOS. Specifically, you can reassign keys, change graphics functions, and affect cursor movement.

This appendix explains how the ANSI escape sequences are defined for MS-DOS.

Notes:

1. MS-DOS uses a default value when you do not specify a value.
2. Pn represents "numeric parameter". This is a decimal number specified with ASCII digits.
3. Ps represents "selective parameter". This is any decimal number that is used to select a subfunction. Multiple subfunctions may be selected by separating the parameters with semicolons.
4. Pl represents "line parameter". This is a decimal number specified with ASCII digits.
5. Pc represents "column parameter". This is a decimal number specified with ASCII digits.

Cursor functions

The following escape sequences affect the cursor position on the screen.

CUP - Cursor position

Esc [Pl ; Pc H

HVP - Horizontal and vertical position

Esc [Pl ; Pc f

CUP and HVP move the cursor to the position specified by the parameters. The first parameter specifies the line number, and the second parameter specifies the column number. The default value is 1. When no parameters are specified, the cursor moves to the home position.

CUU - Cursor up

Esc [Pn A

This sequence moves the cursor up one line without changing columns. The value of Pn sets the number of lines moved. The default value for Pn is 1. MS-DOS ignores the CUU sequence if the cursor is already on the top line.

CUD - Cursor down

Esc [Pn B

This sequence moves the cursor down one line without changing columns. The value of Pn sets the number of lines moved. The default value for Pn is 1. MS-DOS ignores the CUD sequence if the cursor is already on the bottom line.

Cursor functions - cont'd

CUF - Cursor forward

Esc [Pn C

The CUF sequence moves the cursor forward one column without changing lines. The value of Pn sets the numbers of columns moved. The default value for Pn is 1. MS-DOS ignores the CUF sequence if the cursor is already in the far right column.

CUB - Cursor backward

Esc [Pn D

This escape sequence moves the cursor back one column without changing lines. The value of Pn sets the number of columns moved. The default value for Pn is 1. MS-DOS ignores the CUB sequence if the cursor is already in the far left column.

DSR - Device status report

Esc [6 n

The console driver will output a CPR sequence (see below) on receipt of the DSR escape sequence.

CPR - Cursor position report (from console driver to system)

Esc [Pn ; Pn R

The CPR sequence reports current cursor position using standard input. The first parameter specifies the current line and the second parameter specifies the current column.

Cursor functions - cont'd

SCP - Save cursor position

Esc [s

The current cursor position is saved. This cursor position can be restored with the RCP sequence (see below).

RCP - Restore cursor position

Esc [u

This sequence restores the cursor position to the value it had when the console driver received the SCP sequence.

Save current attributes

Esc [1 s

The console driver will save the character attributes (intensity, underlining, blink, color) currently in use. These attributes may be restored with the "Restore saved attributes" sequence below.

Restore saved attributes

Esc [1 u

This sequence restores the attribute used in writing characters on the screen to the attribute value most recently saved using the "Save current attributes" sequence above.

Cursor functions - cont'd

Set screen size

Esc [Pn ; Pn r

This sequence is used in this version to support a 66 line full page display. The first parameter specifies the first line on the display to be used (currently ignored and defaulting to 1) and the second parameter specifies the last line to be used. The defaults are 1 and 25.

Screen size report

Esc [c

The console driver will generate a screen size report sequence to standard input upon receipt of this sequence. The screen size report sequence will contain the current screen size in the following format: ESC [Pn ; Pn R where the first parameter is the first line on the screen used (only 1 in this version) and the second parameter is the last line used.

Disable cursor display

Esc [> 5 h

This sequence causes the console driver to make the cursor invisible on the screen.

Enable cursor display

Esc [> 5 l (letter el, not numeral one)

This sequence causes the console driver to make the cursor visible on the screen.

Erasing

The entire ANSI display erasing sequence set is supported.

Erase from cursor to end of display

Esc [0 J (or Esc [J)

This sequence causes the console driver to erase that portion of the display from the cursor to the end of the display (including the cursor position). The cursor is not moved.

Erase from beginning of display to cursor

Esc [1 J

This sequence causes the console driver to erase that portion of the display from the beginning of the display to the cursor position (including the cursor position). The cursor is not moved.

Erase display

Esc [2 J

This sequence causes the console driver to erase the entire display. The cursor is moved into the home position (upper left corner of the display).

Erase from cursor to end of line

Esc [0 K (or Esc [K)

This sequence causes the console driver to erase that portion of the display from the cursor position to the end of the current line (including the cursor position). The cursor is not moved.

Erasing - cont'd

Erase from beginning of line to cursor

Esc [1 K

This sequence causes the console driver to erase that portion of the display from the beginning of the current line to the cursor position (including the cursor position). The cursor is not moved.

Erase line

Esc [2 K

This sequence causes the console driver to erase the entire current line. The cursor is not moved.

Modes of operation

The following escape sequences affect screen graphics.

SGR - Set graphics rendition

Esc [Ps ; ... ; Ps m

The SGR escape sequence calls the graphic functions specified by the parameters described below. The graphic functions remain until the next occurrence of an SGR escape sequence.

<u>Parameter</u>	<u>Function</u>
0	All attributes off
1	Bold on
3	Swap foreground and background colors. This will give true reverse video on color displays.
4	Underscore on (monochrome display only)
5	Blink on
7	Reverse video on
8	Concealed on
30	Black foreground
31	Red foreground
32	Green foreground
33	Yellow foreground
34	Blue foreground
35	Magenta foreground
36	Cyan foreground
37	White foreground
40	Black background
41	Red background
42	Green background
43	Yellow background
44	Blue background
45	Magenta background
46	Cyan background
47	White background

(continued on next page)

Modes of operation - cont'd

<u>Parameter</u>	<u>Function</u>
------------------	-----------------

The next 8 sequences will give the proper result only if port 3D8 bit 5 is clear. (It defaults to being set.)

48	gray background
49	light red background
50	light green background
51	yellow background
52	light blue background
53	light magenta background
54	light cyan background
55	high intensity white background
81	bold off
84	underscore off
85	blink off
87	reverse video off

Note that due to the limitations imposed by the display hardware related to the management of display attributes, only bold and blink sequences are truly independent. Reverse video (as opposed to swap) is the state in which the foreground is black and the background is white; the original colors are lost. Underscore is the state in which the foreground color is blue; the original foreground color is lost. Reverse video off is white on black; underscore off is white foreground. To undo the swap, just swap again.

Modes of operation - cont'd

SM - Set mode

```

      Esc [ = Ps h
or    Esc [ = h
or    Esc [ = 0 h
or    Esc [ ? 7 h

```

The SM escape sequence changes the screen width or type to one of the following:

<u>Parameter</u>	<u>Function</u>
0	40x25 black and white
1	40x25 color
2	80x25 black and white
3	80x25 color
4	320x200 color
5	320x200 black and white
6	640x200 black and white
7	wrap at end of line
64	set 640x400 graphic mode with 80x25 character set
72	set 640x400 graphic mode with 80x50 character set

RM - Reset Mode

```

      Esc [ = Ps 1
or    Esc [ = 1
or    Esc [ = 0 1
or    Esc [ ? 7 1

```

Parameters for RM are the same as for SM, except that parameter 7 will reset the wrap at the end of line mode.

Keyboard reassignment

The control sequence is:

```

Esc [ Pn ; Pn ; ... Pn p
or   Esc [ "string" ; p
or   Esc [ Pn ; "string" ; Pn ; Pn ; "string" ; Pn p
or   any other combination of strings and
      decimal numbers

```

The final code in the control sequence (p) is one reserved for private use by the ANSI 3.64-1979 standard.

The first ASCII code in the control sequence defines which code is being mapped. The remaining numbers define the sequence of ASCII codes generated when this key is intercepted. Note that there is one exception: if the first code in the sequence is zero (NUL), then the first and second code make up an extended ASCII redefinition.

Examples:

The following example reassigns the Q and q key to the A and a key (and vice versa):

```

Esc [ 6 5 ; 8 1 p   A becomes Q
Esc [ 9 7 ; 1 1 3 p a becomes q
Esc [ 8 1 ; 6 5 p   Q becomes A
Esc [ 1 1 3 ; 9 7 p q becomes a

```

The next example reassigns the F10 key to a Dir command followed by a carriage return:

```

Esc [ 0 ; 6 8 ; " d i r " ; 1 3 p

```

The 0;68 is the extended ASCII code for the F10 key; 13 decimal is a carriage return.

Keyboard reassignment - cont'd

Disable keyboard reassignment

Esc [0 q

This sequence will cause the console driver to pass keyboard information straight through without any modification.

Enable keyboard reassignment

Esc [1 q

This sequence will cause the console driver to resume processing on keyboard information.

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