XEROX®

MS™-DOS
OPERATING SYSTEM HANDBOOK

FOR 8" FLOPPY DISKS

16/8 PROFESSIONAL COMPUTER

610P72377

This Handbook is intended as a basic introduction to the use of Microsoft MS-DOS Version 2.0 on the Xerox 16/8 Professional Computer. It is not the intention or purpose of this Handbook to present a full description of MS-DOS. More complete texts on MS-DOS are generally available; the 16/8 is fully capable of executing all of the MS-DOS commands and functions.

This equipment generates and uses radio frequency energy. If not installed or used properly (in strict accordance with the instructions provided), this equipment may cause interference to radio communications. It has been tested and found to comply with the limits for Class B computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference.

Operation of this equipment in a residential area is likely to cause interference, in which case, the user will be required to take whatever measures necessary to correct the interference.

XEROX 16/8 PROFESSIONAL COMPUTER
MS™-DOS Operating System Handbook
For 8" Floppy Disk

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Action Cards

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HOW TO USE THIS HANDBOOK

This Handbook is a basic guide to using the MS™-DOS Operating System on your Xerox 16/8 Professional Computer. More detailed information on all MS-DOS features may be found in the **MS-DOS User's Guide** that came with your system.

This training is self-paced, so that you may proceed through the Handbook at your own learning speed. You should allow at least a couple of hours of uninterrupted study and practice time to complete the basic training.

At the back of this Handbook are tabs that summarize the steps used to perform different MS-DOS tasks on the 16/8. After completing the lessons in this Handbook, you can use the information on the tabs for quick reference.

If your 16/8 Professional Computer is new, be sure that you have set up your system as described in the "Installation Instructions" before beginning the exercises in this Handbook. Be sure you have gone through the CP/M®-80 and CP/M-86® Operating Systems Handbook before you begin to learn the MS-DOS operating system.

When you've finished the exercises, be sure to read the section titled "IMPORTANT FACTS YOU MUST KNOW" near the back of this Handbook.

The Xerox 16/8 Professional Computer

Your Xerox 16/8 Professional Computer is a powerful and versatile computing system, composed basically of two parts:

(1) **HARDWARE** - the physical parts that you can see (the keyboard, screen unit, disk drives, and printer); and

(2) **SOFTWARE** - the written instructions that tell the hardware what operations to perform. These instructions are recorded on disk.

The Xerox 16/8 Professional Computer uses two kinds of software that work closely together. The more obvious type of software is the **APPLICATION PROGRAM**. Application programs perform such specialized tasks as Accounting, Word Processing, Data Analysis, etc. and are purchased separately.

The least visible type of software is the **OPERATING SYSTEM**. The operating system makes the hardware and application programs work in harmony. The Xerox 16/8 Professional Computer uses several operating systems. This handbook explains the operating system called "**MS-DOS 2.0**", which means "Microsoft® Disk Operating System - Version 2.0".

This Handbook shows you how to use the features of MS-DOS and then explains how to put MS-DOS and Applications Software together on the same disk.

GETTING STARTED

MATERIALS NEEDED

- the CP/M SYSTEM DISK
- the MS-DOS Operating System disk (referred to as MS-DOS SYSTEM DISK) and the MS-DOS Utilities disk.
- three new blank (or erasable used) floppy disks

  Be sure you've purchased disks certified for **double density** recording to allow you to take advantage of the 16/8's full storage capability. (See the INTRODUCTION section of the **CP/M®-80 and CP/M-86® Operating Systems Reference Guide** if you would like more information about floppy disks.)

  The three blank disks will be used later: two will be used to make "backup" or working copies of the original MS-DOS disks. The third disk will be used for the examples contained in this handbook. **You should always make backup copies of important information, especially system software, and store the original in a safe place.**

Be sure to read the explanations provided with each step. Then, **DO** the actions in **BOLD** type (like the word **DETERMINE** below) to practice using the commands.

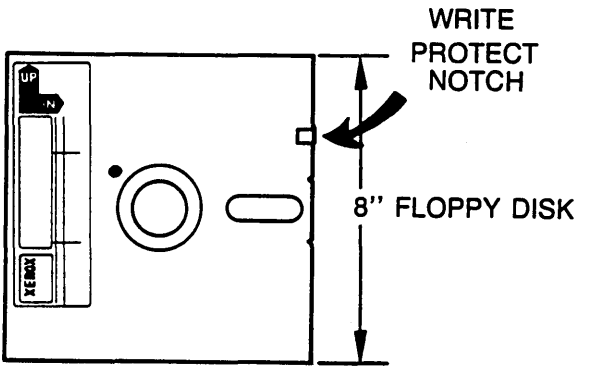
- **DETERMINE** if your disk drives are single or double-sided

  You can check the nine digit serial number plate on the bottom of the disk drive to determine this. A prefix of F10 indicates double-sided drives, while a 973 indicates single-sided drives. If your disk drives are double-sided, you should purchase disks that are certified for double-sided double-density recording.

Note: A single-sided disk drive **cannot** read or write on a double- sided disk.

- **CHECK** the WRITE PROTECT NOTCH on each of the disks (see the illustration below)

  Covering the WRITE PROTECT NOTCH with tape allows you to record, or "write" information on a disk.



- **BE SURE** the write protect tape is OFF your CP/M SYSTEM DISK and MS-DOS disks and ON your blank disks.

INSTALLING MS-DOS

In this section, you'll make backup copies and then install (customize) the MS-DOS disks. **This is a one-time procedure that only needs to be performed the first time you use MS-DOS.**

If someone else has installed these disks, continue on page 15.

Initialize the Blank Disks

CAUTION: INITIALIZING A DISK ERASES THE ENTIRE CONTENTS OF THE DISK. Anything recorded on it is lost. Before initializing a used disk, always check its DIRectory to be sure it is blank (or a disk you want to re-use).

- **PRESS** the **RESET** button on the back of your screen
- **INSERT** the CP/M SYSTEM DISK into Drive A
- **TYPE** the letters **LA** and PRESS the RETURN key

With the A> displayed on the screen,

- **TYPE** the command **INIT** and PRESS the RETURN key
- **INSERT** a blank (new or erasable) disk into drive B: and **TYPE** the letter **B**

Your screen should look similar to the one shown below.

```
Floppy Disk Initialization Utility vers Ø.43
Copyright 1982, Xerox Corporation

Touch <CTRL+C> or <ESC> to Exit

Enter physical disk drive to initialize (A or B) B

Available disk formats are:

82Ø-II        16/8

1)    or    5)    Single Density, Single Side
2)    or    6)    Single Density, Double Side
3)    or    7)    Double Density, Single Side
4)    or    8)    Double Density, Double Side

[ ] Please enter desired format.
```

Choose one of the eight disk formats, depending on the particular disks you are using and/or your storage requirements. However, as a general rule, the 820-II options (1-4) should be used to initialize disks that will be used primarily for 8-bit (CP/M-80) operations. The 16/8 options (5-8) should be used to initialize disks that will be used primarily for 16-bit (MS-DOS and CP/M-86) operations.

It is best to use one of the Double Density options (7 or 8), in order to take advantage of the 16/8's full storage capability. But, be sure that your disks are certified for double density recording before doing so. Also, check the label on your disk to see if it is single-sided or double-sided before proceeding.

See the INTRODUCTION section of your **CP/M®-80 and CP/M-86® Operating Systems Reference Guide** if you would like more information on disk formatting options.

- **TYPE** the number **7** (or **8**) to use the disk for MS-DOS applications.

When the screen displays the message **Are you ready to ERASE (initialize) the disk in physical drive B (Y/N)?**

- **PRESS** the **Y** key to indicate that "Yes, I am ready"

As the disk is being formatted, **Initializing track** or **Verifying track** messages will appear on the screen. When the 16/8 is finished, the message **0 Defective Sectors** should appear. When a disk has flawed sectors, it means it is damaged, and you should not use it.

When you see the final message:

"Touch <CTRL+C> or <ESC> to Exit. Touch any other key to continue.

- **TOUCH** the **SPACEBAR** to continue and **REPEAT** the procedure for the second blank disk, then

- **PRESS** the **ESC** key to exit the INITialization program and return to CP/M (after the second disk has been initialized)

- **LABEL** one of the disks **MS-DOS SYSTEM DISK** and the other disk **MS-DOS Utilities**

Make a Copy of the MS-DOS SYSTEM DISK

The **PIP** command is used to make a backup copy of the MS-DOS SYSTEM DISK.

Note: You can make as many copies of MS-DOS as you want for use in your 16/8. However, the Xerox licensing agreement prohibits making copies for use in other 16/8's.

To make a backup copy of the original MS-DOS SYSTEM DISK, perform the following steps:

From the A> prompt,

- **TYPE** the command **PIP** and PRESS the RETURN key

When **PIP** is loaded correctly, your screen will display an asterisk (*).

- **REMOVE** the CP/M SYSTEM DISK from Drive A
- **BE SURE** the write protect tape is OFF the original MS-DOS SYSTEM DISK before continuing.
- **INSERT** the original MS-DOS SYSTEM DISK in Drive A
- **INSERT** the newly initialized disk labeled MS-DOS SYSTEM DISK in Drive B
- **TYPE** the command **B:=C:*.*[OV]** and PRESS the RETURN key

  The MS-DOS operating system files are copied onto the disk in Drive B.

When the asterisk is displayed on the screen again, the copying is completed.

- **REMOVE** the original MS-DOS SYSTEM DISK from Drive A and store it in a safe place.
- **INSERT** the CP/M SYSTEM DISK in Drive A
- **PRESS** the RETURN key

  The A> will be displayed on the screen.

Put CP/M Operating System on MS-DOS SYSTEM DISK

Before the MS-DOS SYSTEM DISK can be used to load the 16/8 PC, it must have the CP/M operating system on it.

- **TYPE** the command **SYSGEN** and PRESS the RETURN key

- **TYPE** the letter **A** and PRESS the RETURN key (to indicate Drive A is the "source" disk drive)

- **TYPE** the letter **B** and PRESS the RETURN key (to indicate Drive B is the "destination" disk drive)

  Refer to the **CP/M®-80 and CP/M-86® Operating Systems Reference Guide** for a complete explanation of the SYSGEN command.

- **PRESS** the RETURN key to exit SYSGEN when finished

Parallel Printer Users ONLY **(If you have a serial printer, continue on the next page.)**

- **REMOVE** the CP/M SYSTEM DISK from Drive A and **PUT** a write protect tape on the write protect notch and **REINSERT** it in Drive A. To run the SUBMIT program, the write protect tape has to be on both of the disks.

- **TYPE** the following **B:** and PRESS the RETURN key
  You are now logged onto Drive B. The B> prompt is displayed on the screen.

- **TYPE** the command **SUBMIT PARALLEL** and PRESS the RETURN key
  This configures your disk for a parallel printer. This is a one time procedure. The screen will display the message PARALLEL PRINTER CONFIGURING.

When the B> prompt and cursor are displayed,

- **TYPE** the following **A:** and PRESS the RETURN key
  You are now logged back onto Drive A.

- **REMOVE** the CP/M SYSTEM DISK from Drive A and **REMOVE** the write protect tape and **REINSERT** it in Drive A.

- **CONTINUE** on the next page.

Configure the MS-DOS SYSTEM DISK

You are now going to configure your disk so that it will automatically load the MS-DOS SYSTEM DISK and also set the keyboard format for 8 data bits.

With the A> prompt displayed,

- **TYPE** the command **CONFIGUR** and PRESS the RETURN key
- **TYPE** the letter **A** and PRESS the RETURN key for the source drive
- **TYPE** the letter **B** and PRESS the RETURN key for the destination drive

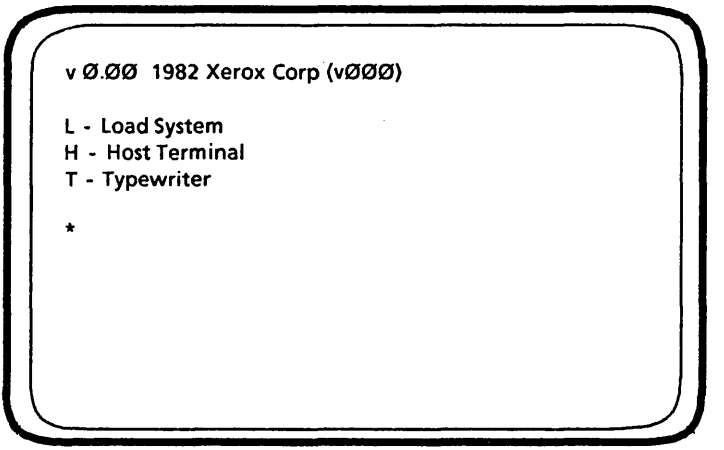
When the CONFIGUR option page is displayed:

- **TYPE** the number **1** for Record Restart Command
- **TYPE** the restart command **MS-LOAD** and PRESS the RETURN key
- **TYPE** the number **5** for Select Keyboard Data Format
- **SET** the keyboard format for 8 data bits (The SPACEBAR is used to change back and forth between 7 and 8 bits.)

  If necessary, option 3 on the CONFIGUR screen may be used to configure the communication port option for MS-DOS. Refer to the **CP/M®-80 and CP/M-86® Operating Systems Reference Guide** for a complete explanation of the CONFIGUR command.

- **PRESS** the **ESC** key twice when the keyboard is set at 8 bits
- **TYPE** the letter **S** to save the selections you just made

The "System Load Page" is displayed again.



- **OPEN** the disk drive doors
- **REMOVE** the CP/M SYSTEM DISK from Drive A
- **REMOVE** the MS-DOS SYSTEM DISK from Drive B
- **WRITE PROTECT** the MS-DOS SYSTEM DISK as follows:

  REMOVE the tape covering the WRITE PROTECT NOTCH of the disk. This will prevent an accidental write to this disk.

Format the MS-DOS Utilities Disk

Before you can make a backup copy of the MS-DOS Utilities disk, it has to be formatted for MS-DOS.

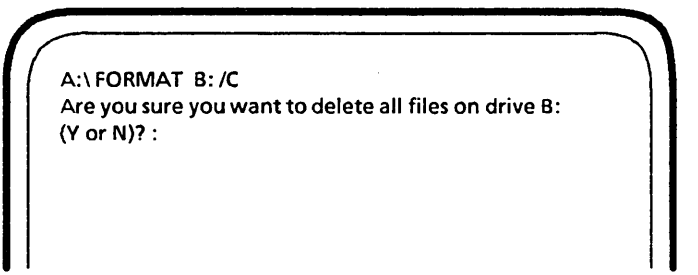
- **INSERT** the MS-DOS SYSTEM DISK into Drive A
- **TYPE** the letters **LA** and PRESS the RETURN key

  The screen will briefly display a message indicating that the 16/8 is loading CP/M 2.2 from the MS-DOS disk. A second message is then displayed indicating the 16/8 is loading a special program required to read the MS-DOS Utilities disk. This message will ask (prompt) you to remove the CP/M Boot disk (which is the MS-DOS SYSTEM DISK) and replace it with the MS-DOS Applications disk (which is the MS-DOS Utilities disk).
- **REMOVE** the MS-DOS SYSTEM DISK from Drive A
- **REMOVE** the write protect tape from the original MS-DOS Utilities disk
- **INSERT** the original MS-DOS Utilities disk in the Drive A
- **PRESS** the RETURN key

Since you are only following the install procedures, it is not necessary to enter the date and time.

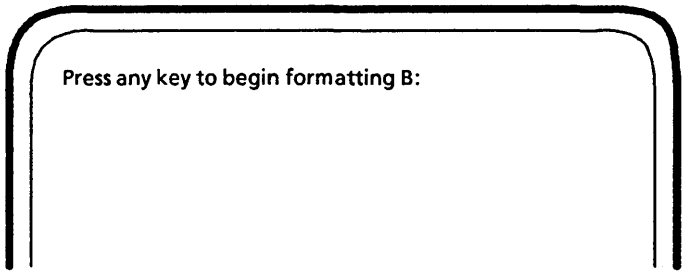
- **PRESS** the RETURN key until you see the MS-DOS prompt A:\□
- **INSERT** the initialized disk labeled MS-DOS Utilities in Drive B
- **TYPE** the command **FORMAT B:/C** and PRESS the RETURN key

The screen will displays the message:



- **TYPE** the letter **Y**

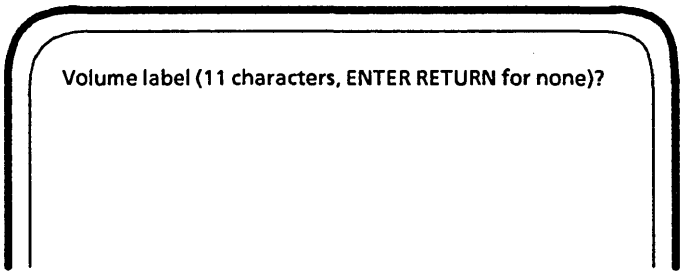
The screen displays the message:



- **PRESS** the **SPACEBAR**

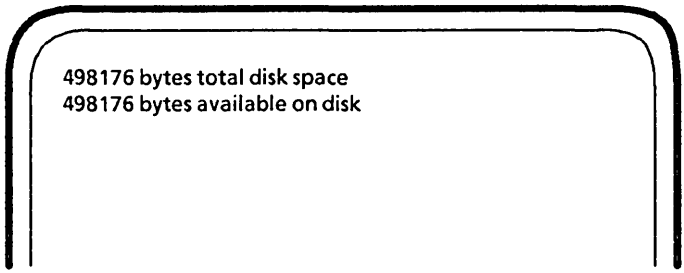
The screen displays the message **Checking for bad sectors** as it formats the disk in Drive B. The /C you entered in the FORMAT command tells MS-DOS to check the disk for bad blocks while it's formatting. If it finds any, it will present a message telling you so, as well as mark the bad blocks so they won't be used.

When formatting is finished, the screen displays the prompt:



- **TYPE** the words **MS-DOS UTIL**
- **PRESS** the RETURN key

The screen displays the amount of total disk space on your floppy disk and the amount of disk space available for use. For a single-sided, double-density 8" floppy disk, the message is similar to:



The floppy disk in Drive B is now formatted to accept MS-DOS files.

Make a Copy of the MS-DOS Utilities Disk

This is a three step procedure.

First, you need to create a sub-directory on the new MS-DOS Utilities disk in Drive B entitled BIN.

With the A:\ prompt displayed on the screen,

- **TYPE** the command **MKDIR B:BIN** and PRESS the RETURN key

Second, you need to copy the four files in the root directory of the original MS-DOS Utilities disk to the new MS-DOS Utilities disk.

- **TYPE** the command **COPY A:*.* B: /V** (be sure to type the spaces and punctuation exactly as shown) and PRESS the RETURN key

Lastly, you need to copy the files in the sub-directory BIN on the original MS-DOS Utilities disk to the new MS-DOS Utilities disk.

- **TYPE** the command **COPY A:BIN B:BIN /V** and PRESS the RETURN key

  This will take a few minutes because it is verifying each file as it is copied.

You now have a copy of the original MS-DOS Utilities disk.

- **REMOVE** the original MS-DOS Utilities disk from Drive A and store it in a safe place.

- **REMOVE** the new MS-DOS Utilities disk from Drive B

- **WRITE PROTECT** the MS-DOS Utilities disk as follows:

  REMOVE the tape covering the WRITE PROTECT NOTCH of the disk. This will prevent an accidental write to this disk.

LOADING MS-DOS

Two floppy disks are required to load the MS-DOS Operating System into the 16/8: the **MS-DOS SYSTEM DISK** and the **MS-DOS Utilities** disk.

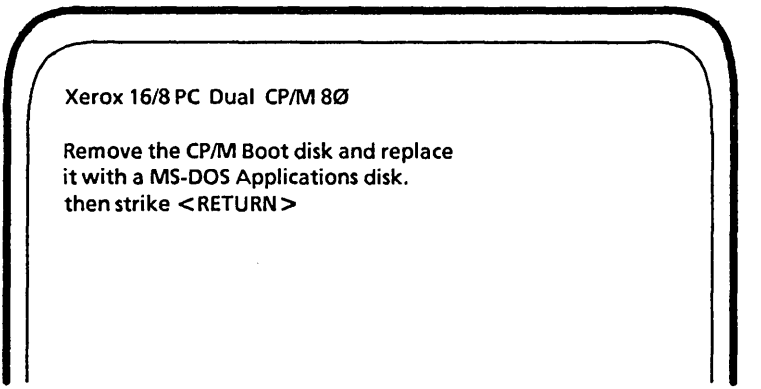
- **PRESS** the **RESET** button (on the back right side of the screen) to reset the system
- **INSERT** the MS-DOS SYSTEM DISK into the left disk drive (A)

With the cursor positioned beside the asterisk (*)

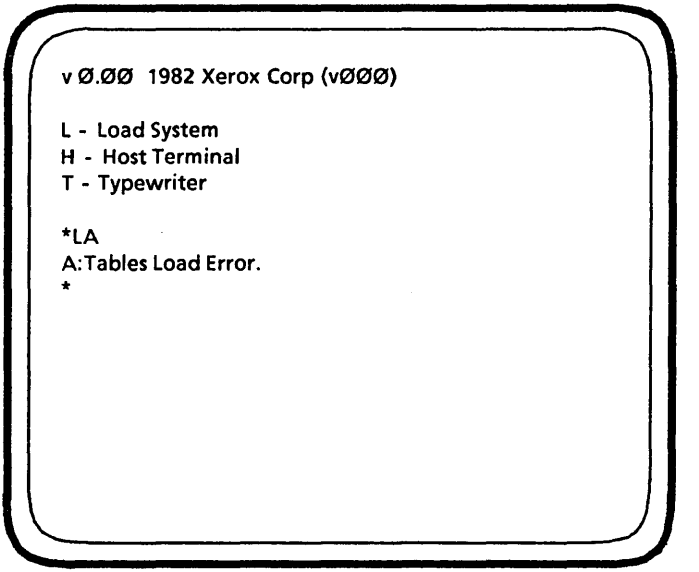
- **TYPE** the letters **LA** and PRESS the RETURN key

The screen will briefly display a message indicating that the 16/8 is loading CP/M 2.2 from the MS-DOS SYSTEM DISK.

A second message is then displayed, indicating that the 16/8 is loading a special program required to read the MS-DOS Utilities disk. This message will ask ("prompt") you to remove the MS-DOS SYSTEM DISK and insert the MS-DOS Utilities disk which is referred to as the MS-DOS Applications disk on the screen.



If your screen is correct as shown on the previous page, proceed to the next page. However, if your screen displays:



The 16/8 could not read the disk in Drive A. Remove the disk from the drive, make sure it's the **MS-DOS SYSTEM DISK** re-insert it with the arrows pointing up and in, and press the **RETURN** key.

If no new text appears on your screen within 30 seconds, and the small red light on the Disk Drive is on, the 16/8 is indicating that it cannot find a starting point on the disk. The disk is either the wrong disk, it's blank, or it's improperly inserted.

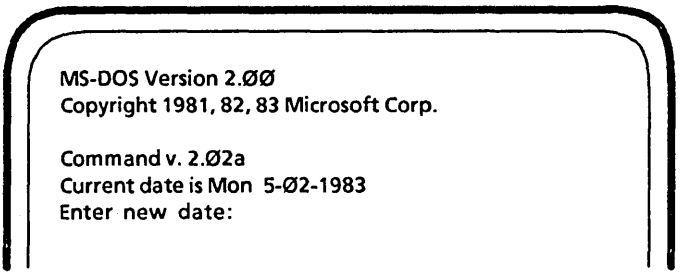
Remove the disk, press the **RESET** button (located on the back of the screen unit, lower right) and try again, beginning with the steps on page 15.

If your screen was correct, perform the following steps:

- **REMOVE** the MS-DOS SYSTEM DISK from Drive A
- **INSERT** the MS-DOS Utilities disk into the left disk drive (Drive A). Use the "Up" and "In" arrows as guides
- **PRESS** the RETURN key

The MS-DOS Operating System is loaded automatically after the RETURN key is pressed.

When MS-DOS is loaded correctly, your screen will display a prompt message similar to the following (if not, press the reset button on the back of your screen and return to page 15):



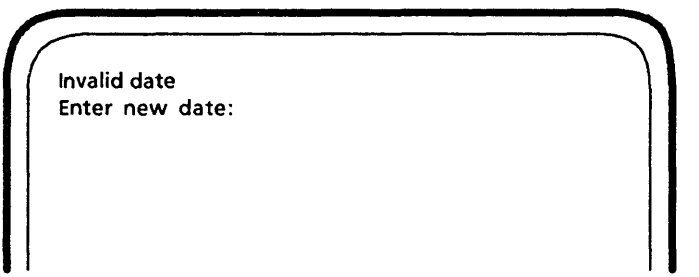
The steps for entering the correct date are listed on the next page. MS-DOS records the date shown on the screen on all files that are created or changed while MS-DOS is loaded. It's a good housekeeping practice to enter the correct date. You'll find it's much easier to keep track of your files.

Entering the Date

The correct date is entered in the format **MM/DD/YY** (that's Month/Day/Year). You don't have to enter the day of the week (like Mon in the example shown on the previous page). Just tell MS-DOS what date it is and it will figure out what day of the week it is.

- **TYPE** a number between **1** and **12** for the month
- **TYPE** a slash (/) or a dash (-)
- **TYPE** a number between **1** and **31** for the day of the month
- **TYPE** another slash (/) or dash (-)
- **TYPE** a number between **80** and **99** for the year. (You can enter the "19" if you wish, but it isn't necessary. Make a note that starting in the year 2000 you'll have to put in "20" and the year, if you're still using this version of MS-DOS !!)
- **PRESS** the RETURN key to set the MS-DOS system date to the date you have just entered above

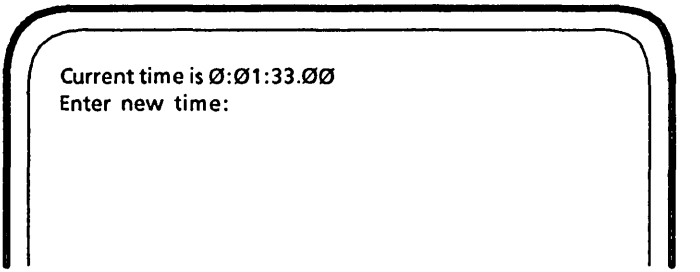
If, for some reason, MS-DOS doesn't understand the date you have entered, it will respond with the message:



If at first you don't succeed ... try again, carefully following the directions given above. MS-DOS will not accept an invalid date.

If you need to change the date the system is using any time MS-DOS is loaded, just enter the command DATE. The current date will be displayed on the screen and MS-DOS will give you the opportunity to change it.

When the date is entered correctly, the screen will display two additional lines similar to:



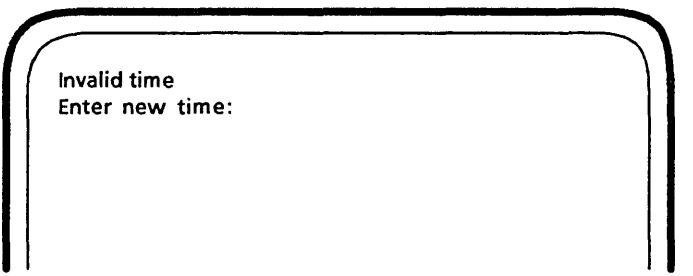
Entering the Time

The MS-DOS directory will display the time that you created or updated a file, so it's a good idea to have the time set. You may also bypass this entry by pressing the RETURN key; however, it is advisable to enter the correct time.

The correct time is entered in the format **HH:MM:SS.ss** (that's Hours, Minutes, Seconds, and hundredths of a second). Since the entry you make does not reset MS-DOS's internal clock until you press the RETURN key, you may preset the time to the nearest second if you wish, or you may enter just hours and minutes.

- **TYPE** a number between **00** and **23** for the hour. (MS-DOS uses a 24 hour, or "military" clock. For example, 1 PM is 13:00, 2 PM is 14:00, etc. Midnight is 00:00:00.00 for you night-owls !!)
- **TYPE** a colon **:**
- **TYPE** a number between **00** and **59** for the minutes
- **PRESS** the RETURN key to set the MS-DOS clock to the time you have just entered

As with the date, if MS-DOS doesn't like the way you entered the time, it will respond with the message:



Try again, using the directions given above. MS-DOS will not accept an invalid time, such as 25 hours or 63 minutes.

If you need to know the system time any time MS-DOS is loaded, just enter the command TIME. The system will respond with its current time and give you the option of entering a different time.

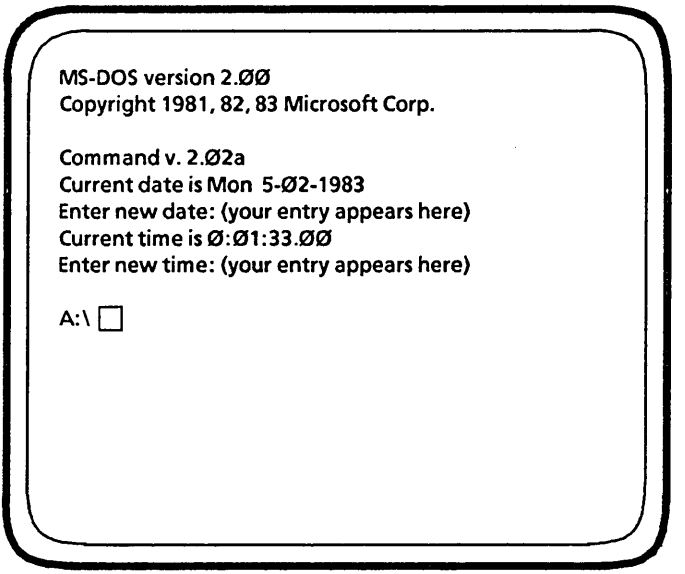
The MS-DOS Prompt Line

If the time is entered correctly, MS-DOS will respond with the MS-DOS prompt line (**A:**□) which tells you three things:

1. MS-DOS has loaded successfully
2. The left disk drive (Drive A) is the active or **default** drive
3. The 16/8 is ready for a MS-DOS command

The " □ " is the **cursor** and shows you where the next character you type will appear on the screen.

Your screen should now look like this:



The backslash " \" in the MS-DOS prompt indicates that you are in the root directory. When you start using sub-directories, the directory name will appear to the right of the backslash. See the **MS-DOS User's Guide** for a complete explanation of the tree-structured directories used by MS-DOS.

Finding Out What Is On A Disk

MS-DOS keeps a **directory** (list) of all the files stored on the disk. To look at the contents of any MS-DOS disk, use the **DIR** (directory) command.

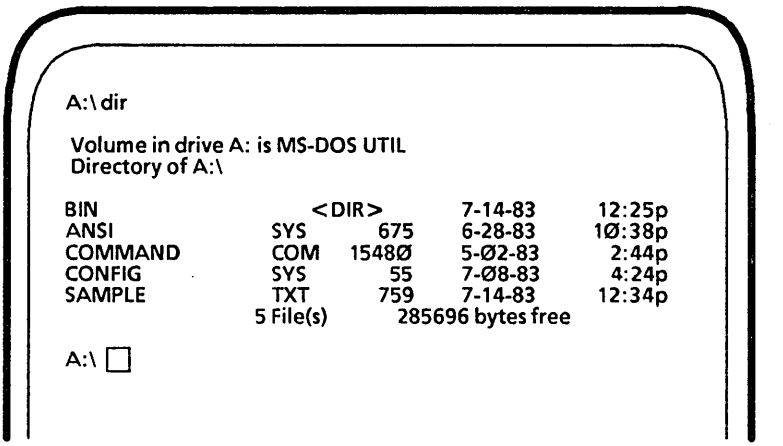
With the A:\ prompt displayed on the screen:

- **TYPE** the command **DIR** and PRESS the RETURN key

  To look at a directory for any disk (drive) other than the default drive, you must enter the drive designation (e.g., DIR B:).

The screen displays the directory of the specified disk; in this case, the **MS-DOS Utilities** disk in the left disk drive (Drive A).

Note: Your screen will look similar to, but not exactly like the example below.



The name of each file is indicated by the first group of letters on each line and the extension is the second group of letters. (For example, ANSI is a filename and SYS is an extension.) The third column contains the number of **bytes** in each file. The next two columns contain the date and time that the file was created or last updated. The number of files in the directory and the number of unused bytes remaining on the disk are shown on the last line of the directory.

To display the files in the sub-directory BIN, enter the command **DIR BIN** and press the RETURN key. The directory should look similar to this:

```
A:\ DIR BIN

  Volume in drive A: is MS-DOS UTIL
  Directory of A:\ bin

  .                   <dir>       7-14-83     12:25p
  ..                  <dir>       7-14-83     12:25p
  CHKDSK     COM      633Ø        2-Ø1-83      9:16a
  CREF       EXE      13824       6-Ø2-83      6:Ø6p
  DEBUG      COM      11764       2-Ø1-83     1Ø:13a
  DISKCOPY   COM      1419        2-14-83      4:39p
  EDLIN      COM      4389        2-Ø1-83      9:31a
  EXE2BIN    EXE      1649        2-Ø1-83      9:19a
  FC         EXE      2553        2-Ø1-83      9;36a
  FIND       EXE      5796        1-14-83      6:35p
  FORMAT     COM      4Ø53        7-Ø5-83      2:42p
  LINK       EXE      42368       1-Ø6-83      4:36p
  MORE       COM      4364        1-14-83      6:42p
  MASM       EXE      74112       4-Ø1-83      8:Ø3p
  PRINT      COM      38Ø8        2-Ø1-83     12:39p
  RECOVER    COM      2277        2-Ø1-83      2:22p
  SORT       EXE      1216        2-Ø8-83      7:Ø4p
  RDCPM      COM      1Ø239       7-Ø5-83      5:5Øp
          18 File(s)        285696 bytes free

  A: \□
```

The two entries listed as "." and ".." are used by MS-DOS to determine at what "level" it is and the "path" it must take to return to the root directory. For a complete explanation of the tree-structured directories used by MS-DOS, please refer to your **MS-DOS User's Guide.**

If there are more than 23 files in a directory, they cannot all be displayed on one screen; the first entries will scroll off the top of the screen. A variation of the directory command, DIR /P, halts the display when the screen is full. The prompt message **Strike a key when ready** appears at the bottom of the screen. To view the next 23 files in the directory press the SPACEBAR.

(It's a good idea to always press the spacebar whenever a program tells you to "press any key". There are certain key combinations that will produce undesired results. The worst thing the spacebar will do is insert a space!)

Another directory variation, DIR /W, displays five filenames on each line; however, it does not show the number of bytes in each file, or the date and time the file was created or last updated. In most instances, this variation does have the advantage that it lets you view all of the files on the disk on one screen.

Most of the files on the **MS-DOS Utilities** disk are **transient** or command programs (called **utilities**) that perform specific tasks. All the filenames in the directory with the **COM** extension are command program files. Command programs included in MS-DOS can only be used if they exist as files on your disk.

There are fourteen **resident** programs (also called **utilities**) which are not listed individually in the directory, but they are included in the MS-DOS operating system. They are used to display, create and edit files, copy disks, display time and date, etc. These utilities are:

CHDIR	Change Directory
CLS	Clear the Screen
COPY	Copy a File
DATE	Display or Change Date
DIR	List Directory
ERASE	Erase (Delete) a File
MKDIR	Make a new Directory
PATH	Set a Command Search Path
REN	Rename a File
RMDIR	Remove a Directory
TIME	Display or Change Time
TYPE	Display File
VERIFY	Verify Data Written to a Disk
VOL	Display Disk Volume Label

Printing the Directory of a Disk

Serial Printers ONLY

If you have a parallel printer, the CTRL + HELP command does not function. Continue on the next page.

You've looked at the directory on the screen. You can also print a copy of a directory. The printed directory gives you a quick reference to what is recorded on a disk without having to insert the disk in the system. It is a good idea to keep a printout of the directory with your disk when you store it.

To print a directory:

- **TURN ON** your printer

  If you have a Xerox 630 API Printer, the on/off switch is in the upper right corner on the back. (If you have a Xerox 620 Printer, the on/off switch is in the lower right corner on the front.)

- **INSERT** a sheet of paper in the printer, and if you have a Xerox 630 API or 620 printer, **PRESS** the **RESET** button on the front of the printer

- **TYPE** the command **DIR**

- **PRESS** the RETURN key

The directory is displayed on the screen. You may now print the directory. If the directory has too many entries to be displayed on a single screen, use the DIR /W option to print a wide listing, if you wish.

- **HOLD** down either **CTRL** key while you

- **PRESS** the **HELP** key

The directory will print out on the printer.

The CTRL + HELP command may be used to print anything that is displayed on the screen.

Parallel and Serial Printers

You can use the CTRL + P keys to print information on paper. Once the CTRL + P command is given, everything displayed on the screen from that point on will also print at the printer.

You can use this print instruction to print a DIRectory of a disk's contents.

- **INSERT** paper in the printer (and press RESET on your Xerox printer)
- **HOLD DOWN** either **CTRL** key while you **TYPE** the letter **P**

  (*nothing* seems to happen, but the printer has been activated electronically)
- **RELEASE** both keys
- **TYPE** the command **DIR**
- **PRESS** the RETURN key

The directory of the disk in Drive A will display on the screen and print at the printer. Any keystrokes you type from the keyboard will also print.

To turn the printer off,

- **HOLD DOWN** either **CTRL** key while you **TYPE** the letter **P**

  (nothing seems to happen, but the printer has been deactivated electronically)
- **RELEASE** both keys

File Types and File Names

A file can be any collection of data, text, or program instructions. All MS-DOS files are referenced by a filename, which can be up to 8 characters long, a period to separate the filename and the extension, and an optional 3-character file type or extension. A typical filename might be something like SAMPLE.TXT, which is one of the files on your MS-DOS Utilities disk.

In this manual, files will be designated by the notation filename.ext. Many files can share the same extension and several files may use the same filename if they have different extensions; however, **no two files on the same disk may have the same filename and the same extension.**

You can use any letter (**A-Z**), number (**0-9**), and the symbols **!, @, #, $, %, &, ( ), -, _, ',[,],** in making up filenames. The other symbols are **reserved**, as are a few special words. See the MS-DOS User's Guide for complete details.

When you must type the complete name of a file, separate the filename and the extension by a period (.), without any blank spaces.

Certain file types have a special meaning to MS-DOS and other programs available for use with MS-DOS. Some of these file types are:

COM Transient command (program) file
EXE Transient executable (program) file
SYS System file
BAK Created by EDLIN (the text editor) or application software as a backup copy of a file

For a more complete list of MS-DOS file types, see the MS-DOS User's Guide.

Program files are written in assembly language, a programming language that is easily understood by the computer. A language that is computer readable is usually stored in binary code and will not produce a readable display on the screen.

The Asterisk "*" and the Question Mark "?"

The asterisk "*" and the question mark "?" are called "wild card" characters because they can be used in place of other characters. The asterisk can take the place of several characters, while the question mark can be used in place of any other single character

The asterisk permits you to list files that have either a common filename, a common extension, or portions of either the filename or extension that are common. For example, if you are only interested in viewing the command file entries on the MS-DOS Utilities disk, the command DIR BIN*.COM will produce a similar list:

```
A:\ DIR BIN \*.COM

Volume in drive A is MS-DOS UTIL
Directory of A:\ bin

CHKDSK      COM      633Ø   2-Ø1-83    9:16a
DEBUG       COM     11764   2-Ø1-83   1Ø:13a
DISKCOPY    COM      1419   2-14-83    4:39p
EDLIN       COM      4389   2-Ø1-83    9:31a
FORMAT      COM      4Ø53   7-Ø5-83    2:42p
MORE        COM      4364   1-14-83    6:42p
PRINT       COM      38Ø8   2-1-83    12:39p
RECOVER     COM      2277   2-Ø1-83    2:22p
RDCPM       COM     1Ø239   7-Ø5-83    5:5Øp
          9 File(s)          285696 bytes free

A:\
```

The asterisk used in place of a filename tells MS-DOS that the filename is optional, as long as the extension is COM. You may also use the asterisk in place of the extension, or in place of part of a filename. If you want a listing of all files starting with the letter "S" for example, you would type the command DIR BIN\S*.* and press the RETURN key.

The question mark is also useful; however, it's different than the asterisk in that it permits only a single character to be substituted. To see how the question mark works,

- **TYPE** the command **DIR BIN\?OR?.*** and press the RETURN key.

The directory should include only the MORE.COM and SORT.EXE files. Now try the combination DIR BIN\?OR*.* and see how the question mark and the asterisk work together.

Formatting a Disk for Use With MS-DOS

Before floppy disks can be used with MS-DOS in the 16/8, they **must** be initialized using the CP/M Operating System INIT program and then formatted with the MS-DOS Operating System FORMAT program.

Initialize a Blank Disk

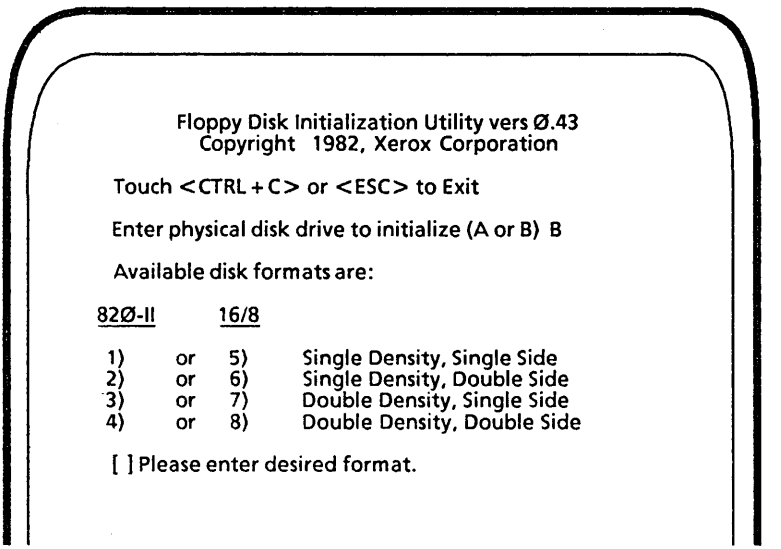
CAUTION: INITIALIZING A DISK ERASES THE ENTIRE CONTENTS OF THE DISK. Anything recorded on it is lost. Before initializing a used disk, always check its DIRectory to be sure it is blank (or a disk you want to re-use).

- **PRESS** the **RESET** button on the back of your screen
- **INSERT** the CP/M SYSTEM DISK into Drive A
- **TYPE** the letters **LA** and PRESS the RETURN key

With the A> displayed on the screen,

- **TYPE** the command **INIT** and PRESS the RETURN key
- **INSERT** a blank (new or erasable) disk into drive B: and **TYPE** the letter **B**

Your screen should look similar to the one shown below.



Choose one of the eight disk formats, depending on the particular disks you are using and/or your storage requirements. However, as a general rule, the 820-II options (1-4) should be used to initialize disks that will be used primarily for 8-bit (CP/M-80) operations. The 16/8 options (5-8) should be used to initialize disks that will be used primarily for 16-bit (MS-DOS and CP/M-86) operations.

It is best to use one of the Double Density options (7 or 8), in order to take advantage of the 16/8's full storage capability. But, be sure that your disks are certified for double density recording before doing so. Also, check the label on your disk to see if it is single-sided or double-sided before proceeding.

See the INTRODUCTION section of your **CP/M®-80 and CP/M-86® Operating Systems Reference Guide** if you would like more information on disk formatting options.

- **TYPE** the number **7** (or **8**) to use the disk for MS-DOS applications.

When the screen displays the message **Are you ready to ERASE (initialize) the disk in physical drive B (Y/N)?**

- **PRESS** the **Y** key to indicate that "Yes, I am ready"

As the disk is being formatted, **Initializing track** or **Verifying track** messages will appear on the screen. When the 16/8 is finished, the message **0 Defective Sectors** should appear. When a disk has flawed sectors, it means it is damaged, and you should not use it.

When you see the final message:

Touch <CTRL + C> or <ESC> to Exit. Touch any other key to continue.

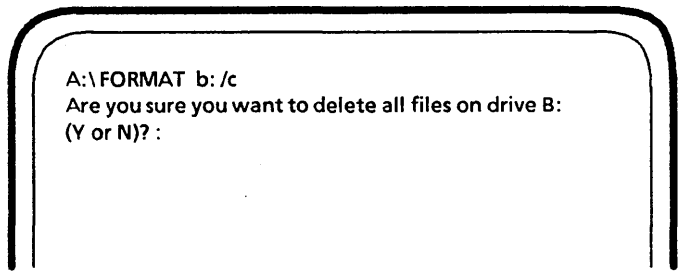
- **PRESS** the **ESC** key to exit the INITialization program and return to CP/M
- **REMOVE** the initialized disk from Drive B
- **LABEL** the disk as follows: MS-DOS PRACTICE DISK

Format the Initialized for MS-DOS

Now that you have initialized the disk with the CP/M program INIT, you need to format the disk with the MS-DOS FORMAT program.

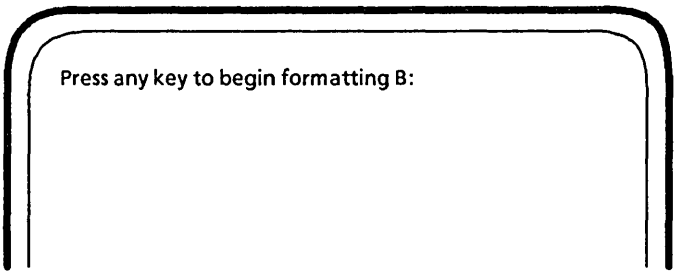
- **REMOVE** the CP/M SYSTEM DISK from Drive A
- **PRESS** the **RESET** button on the back of the screen
- **INSERT** the MS-DOS SYSTEM DISK in Drive A
- **TYPE** the letters **LA** and PRESS the RETURN key
- **REMOVE** the MS-DOS SYSTEM DISK from Drive A
- **INSERT** the MS-DOS Utilities disk in Drive A and PRESS the RETURN key
- **ENTER** the date and time
- **INSERT** the initialized disk labeled MS-DOS PRACTICE DISK into Drive B
- **ENTER** the command **FORMAT B:/C**
- **PRESS** the RETURN key

The screen displays the message:



- **TYPE** the letter Y

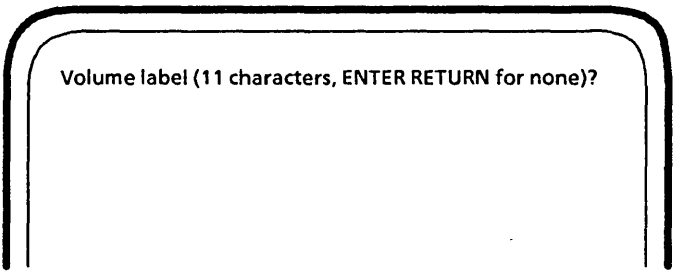
The screen displays the message:



- **PRESS** the **SPACEBAR**

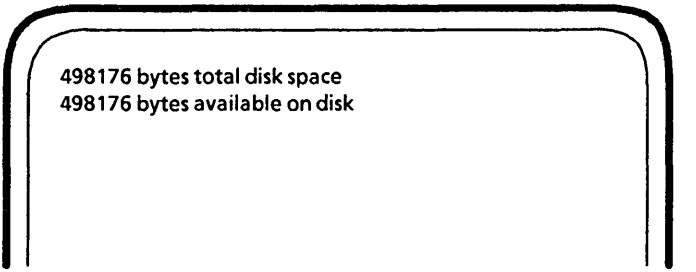
The screen displays the message **Checking for bad sectors** as it formats the disk in Drive B. The "/C" you entered in the FORMAT command tells MS-DOS to check the disk for bad blocks while it's formatting. If it finds any, it will present a message telling you so, as well as mark the bad blocks so they won't be used.

When formatting is finished, the screen displays the prompt:



- **TYPE** the words **MS-DOS PRAC**
- **PRESS** the RETURN key

The screen displays the amount of total disk space on your floppy disk and the amount of disk space available for use. For a single-sided, double-density 8" floppy disk, the message is similar to:



The floppy disk in Drive B is now formatted to accept MS-DOS files. This disk will be used for exercises later in the handbook.

Changing the Default Drive

When you give MS-DOS a command, or ask it to use a file, it searches the "default" drive for the command and/or the file. (The term "default" means that it uses the drive that the program specifies because you haven't specified one. In most cases where you have the opportunity to make a choice of any kind, if you don't make one the program will make the choice for you.)

If the command or file is not on the default drive, you will receive an "error" message such as **Bad command or filename** or **File not found**. These messages usually indicate that you did not tell MS-DOS to look in the right place. You must specify the drive on which a file is to be found when it's not located on the default drive. To do this, you need to change the default drive.

To change the default drive:

- **TYPE** the letter **B**
- **TYPE** a colon **:**
- **PRESS** the RETURN key

The MS-DOS prompt should now display the new default drive designation.

B: \□

Change the default drive back to A before proceeding.

- **TYPE** the letters **A:** and PRESS the RETURN key

REVIEW

- **MS-DOS** is one of the 16/8's **Operating Systems** - it controls the screen, keyboard and disk drives, and acts on any commands you type from the keyboard.

- The **write protect notch** can be used to protect software disks from accidental erasure. Disks are protected from erasure when the tape is off the notch.

- Disks should **never** be left in the disk drives while the 16/8 Professional Computer is being turned on or off.

- Commands are entered in the computer when the **RETURN** key is pressed.

- The **RESET** button is located on the back right side of the screen.

- Press **RESET** when changing operating systems.

- **Always** enter the correct date and time when first loading MS-DOS.

- A **prompt** is a message or symbol that the system displays when it is ready for your next command. Most often you will see the prompt, A:\. In this case, the A means that disk drive A is the active or default drive and the system is ready for your next command.

- The command **DIR** lists the files on a disk.

- The **CTRL+HELP** command will print whatever is displayed on the screen (for serial printers ONLY).

- For serial and parallel printers, the CTRL + P command can be used to print whatever is entered on the screen after the command is given. To turn the printer off, give the CTRL + P command again.

- **Transient** commands exist as separate files under MS-DOS; **resident** commands are an integral part of the operating system. Both types of programs are sometimes called **utilities**.

- A file can be data, text, or program instructions. The name of a file consists of a **filename** (up to 8 characters) and an optional period and 3-character **extension**.

- The asterisk "*" and the question mark "?" may be used as wild cards in designating filenames in a command like DIR.

Finding The Remaining Space On A Disk

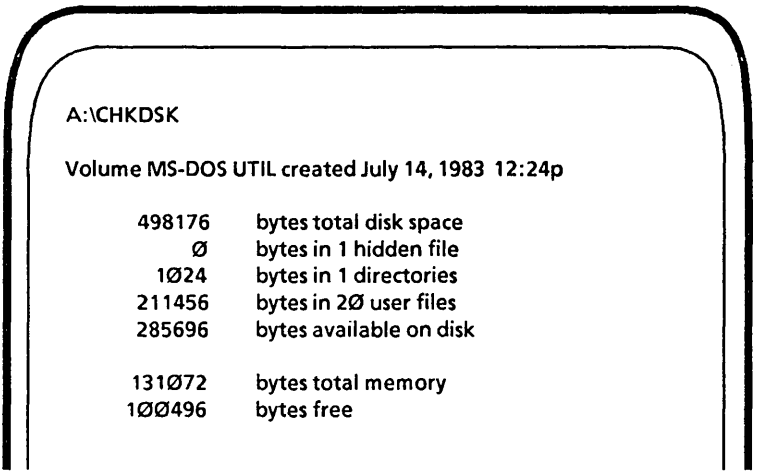
A disk is very much like a file cabinet. Each drawer in a file cabinet can hold only so many files. A file drawer could be measured by the number of letters or folders it will hold. In much the same way, a disk is measured by how many characters it will hold. In computer terms a character is a BYTE.

It is very important to check the amount of space on a floppy disk before you record any new information to be sure the disk has room for the new information.

In the exercise below, you will be using the CHKDSK command to find out how much space is on the disk in drive A. If you do not have the MS-DOS operating system loaded, please do so by following the instructions on page 15.

- **TYPE** the command **CHKDSK** and PRESS the RETURN key

The screen should display some statistics about your disk similar to the following:



The screen above shows that the disk in drive A has room for 285,696 more bytes of information (your number may vary).

The bottom two figures tell how much permanent memory is in your 16/8. Some of this memory is occupied by the resident programs of MS-DOS; however, the rest of it is available for use by other command programs, application programs, or data files.

Displaying A File On The Screen

Data files can be displayed on the screen by using the TYPE command. However, command files (such as CHKDSK.COM) do not produce a readable display because they are written in machine language (binary).

The first step in displaying a file (such as SAMPLE.TXT) on the screen is to use the DIRectory command to see if it is on the disk.

- **TYPE** the command **DIR** and PRESS the RETURN key

Now you will use the TYPE command to display it:

- **ENTER** the command **TYPE SAMPLE.TXT**

  Be sure to type a space after the command TYPE

- **PRESS** the RETURN key

NOTE: If the screen displays the message **Bad command or filename**, this means the 16/8 could not carry out the command. Retype the command, being careful to type the command and filename exactly as shown.

If the file is on the disk, and you have entered the TYPE command correctly, your screen should display something similar to the following:

```
A:\TYPE SAMPLE.TXT

Why should I want to learn this software? The marketplace is
overflowing with software. There is always a great need for
effective software that is applicable to individual needs. Let's
think about learning new applications with new needs. It does
not take great or infinite wisdom to discover efficiency. (Etc....)

A:  \
```

Copying A File To Another Disk

You can copy individual files from one disk to another with the COPY command.

- **BE SURE** the blank MS-DOS formatted disk labeled MS-DOS PRACTICE DISK is in the right disk drive

- **TYPE** the command **COPY SAMPLE.TXT B:**
  (Be sure to type a space after COPY and before B:)

Anytime a MS-DOS command involves a second drive, or a drive other than the default drive, you must specify the drive designator (letter) followed by a colon ":". In this case you are telling MS-DOS to copy the file SAMPLE.TXT from drive A to drive B.

- **PRESS** the RETURN key

Use the DIRectory command to see if the 16/8 did its job. The SAMPLE.TXT file should be in the B directory.

- **TYPE** the command **DIR B:**

- **PRESS** the RETURN key

To guarantee that a file is copied perfectly, an option can be specified which will cause MS-DOS to Verify (or check) each file after it copies it, comparing the copied file with the original file, and reporting any errors detected. To do this, you type /V at the end of the command line. To specify the /V option (or parameter), the command above would be typed as COPY SAMPLE.TXT B: /V. The /V option should be used when an important backup copy is made.

When the COPY command is used to copy files, two basic rules apply.

- The filename of the new file must be unique to the disk you are copying it to. If the disk already has a file with that name, the 16/8 will copy over the existing file, thus erasing it.

- The file you are attempting to copy must exist on the disk you specify, or the error message **FILE NOT FOUND** is displayed.

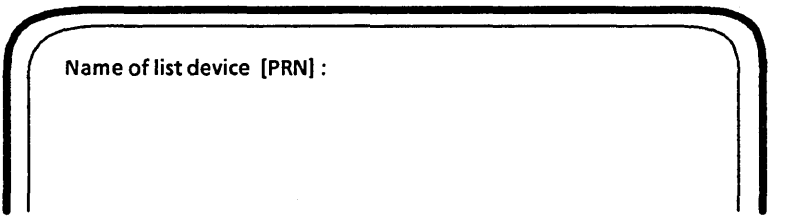
Printing a File

MS-DOS requires only that you give the command PRINT and the filename of the file you wish to print, as shown below:

- **TURN ON** your printer
- **INSERT** a sheet of paper in the printer

  If you have a Xerox 620 or Xerox 630 API printer, press the **RESET** button on the front of the printer
- **TYPE** the command **PRINT SAMPLE.TXT**
- **PRESS** the RETURN key

The first time you use the PRINT command the screen will display the message:



MS-DOS is telling you that it's going to use the device name PRN for your printer unless you want to give it another name. Since your disk is already configured for serial or parallel printer, you do not have to enter a device name.

- **PRESS** the RETURN key

The printer should print a copy of the file SAMPLE.TXT as follows:

Why should I want to learn this software? The marketplace is overflowing with software. There is always a great need for effective software that is applicable to individual needs. Let's think about learning new applications with new needs. It does not take great or infinite wisdom to discover efficiency. (Etc....)

Other data files may be printed in the same manner.

Changing The Name Of A File

Filenames can be up to eight characters long, but must contain no spaces. You can change the name of a file at any time by using the REN (rename) command.

In this example, you'll rename the file SAMPLE.TXT on the disk in Drive B as follows:

- **TYPE** the command
  REN B:SAMPLE.TXT B:EXAMPLE.TXT
- **PRESS** the RETURN key
- **TYPE** the command **DIR B:**
- **PRESS** the RETURN key

The Drive B directory should now have a file named EXAMPLE.TXT. The file SAMPLE.TXT should no longer appear in the directory. The same file contents are still there, it just has a different name.

The REN command can use the asterisk "*" and question mark "?" in the same way as described earlier. For example if you had a series of files named TEST1, TEST2, etc., and you wanted to rename them DATA1, DATA2, etc., you could enter the command as follows:

```
REN TEST? DATA?
```

All of the files would be changed from TEST to DATA with this single command (TEST1 would now be DATA1, etc.).

Erasing A File

There will be instances when a particular file is obsolete or of no value to you. You can erase files with the ERASE or DEL (delete) command.

ERASE the copy of the EXAMPLE.TXT file from Drive B. First, make sure that it's still there.

- **TYPE** the command **DIR B:**
- **PRESS** the RETURN key

Verify that the file EXAMPLE.TXT is in the Drive B directory.

- **TYPE** the command **ERASE B:EXAMPLE.TXT**
- **PRESS** the RETURN key

The 16/8 erases the file. When the A: \ prompt returns to the screen, the erasure is complete.

Check the contents of Drive B again to make sure the file was deleted (use the DIR command).

The same function is performed by the command DEL (delete).

Creating A New File
(Optional Exercise)

Although you will probably use an application program (such as Word Processing) to create files, MS-DOS has an editing program that you can use named EDLIN. The files can be programs, text, or any information that you record on the 16/8.

To call up EDLIN, type the command followed by the name of the file you wish to create or edit.

One very important consideration when creating files is the disk where the file is to be stored. Typing the destination disk drive name along with the filename (i.e., EDLIN B:FILENAME) tells the 16/8 you want to create a file called FILENAME on the disk in drive B.

Follow the steps below to create a file titled MYFILE with TXT as the extension on Drive B.

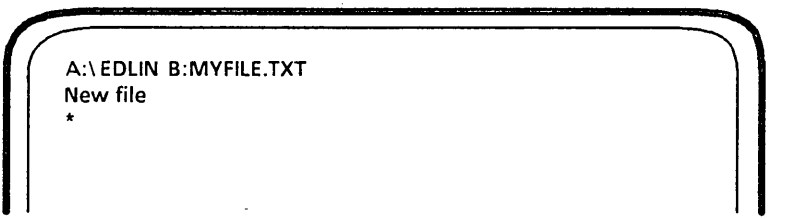
With the A:\ prompt displayed on the screen:

- **TYPE** the command **EDLIN B:MYFILE.TXT**

  Type a space after EDLIN, but do not type any spaces in the filename. Be sure to include the colon after B and the period after MYFILE.

- **PRESS** the RETURN key

The 16/8 recognizes this as a new file, because it does not find a file with the name MYFILE.TXT on Drive B. When EDLIN is ready for you to enter information in MYFILE, the screen displays:



The asterisk "*" is the EDLIN prompt. It indicates that EDLIN is ready to accept a command. The EDLIN commands are listed on the next page.

EDLIN Commands

A	Appends lines
C	Copies lines
D	Deletes lines
E	Ends editing
I	Inserts lines
L	Lists lines
M	Moves lines
P	Pages text
Q	Quits editing
R	Replaces lines
S	Searches text
T	Transfers text
W	Writes lines

All of the EDLIN commands and functions are explained in detail in the **MS-DOS User's Guide**. This section will show you how to perform the basic EDLIN functions of creating a file, entering text, and storing the edited file.

The insert command (I) is used to tell the 16/8 you want to type something in the file. EDLIN stores upper and lower case letters, or any other characters you enter, just as you type them.

- **TYPE** the letter **I**
- **PRESS** the RETURN key

The number 1: appears on the screen to indicate EDLIN is ready for your first line of text. Each time you type a line of text and press the RETURN key, EDLIN will display a new number for the next line of typing.

- **TYPE** the text shown below, pressing the RETURN key at the end of each line. Remember, you can use the BACKSPACE key to correct typing errors on the line you're typing.

  1:*This is line 1 of original file
  2:*This is line 2 of original file
  3:*This is line 3 of original file
  4:*This is line 4 of original file

When you're finished typing the text, use the CTRL+C command to tell EDLIN you're done. This takes you out of the INSERT I mode and returns you to EDLIN's command mode (the "*" prompt).

- **PRESS** the RETURN key to end the last line of typing, (if you have not done so already). At the next line number,
- **HOLD DOWN** either **CTRL** key
- **TOUCH** the **C** key
- **RELEASE** both keys

The CTRL+C command returns the EDLIN * prompt to the screen to let you know that the 16/8 is waiting for your next EDLIN command.

The file you just typed is in the 16/8's memory, but it has not yet been stored on the disk. To store the file on disk, give the END command by typing the letter E.

- **TYPE** the letter **E**
- **PRESS** the RETURN key

The A: prompt is displayed as the last line on the screen, indicating you are now out of the EDLIN program and that Drive A is active. Now check the DIRectory of Drive B to see that your file was stored.

- **TYPE** the command **DIR B:**
- **PRESS** the RETURN key

The file MYFILE.TXT should be listed in the Drive B directory.

If you are editing an existing file, EDLIN will make a backup (.BAK) file for MYFILE and store it along with the original MYFILE.TXT. The original file is stored in the backup file and the edited version assumes the original title, MYFILE.TXT.

See the MS-DOS User's Guide for a complete explanation of EDLIN.

REVIEW

- The command **DIR** lists the files on a disk.
- The **CHKDSK** command displays the amount of space used by the files you have put on the disk and the amount of space still available.
- The **TYPE** command will display a file on the screen.
- The **COPY** command allows files to be copied.
- The **PRINT** command prints a copy of the specified file on the printer.
- The name of a file can be changed with the **RENAME** (REN) command.
- The **ERASE** command (or DEL command) will delete unwanted files.
- The MS-DOS editor program, **EDLIN,** can be used to create or edit files.

How To Use Application Software

Application software is a term that refers to programs that perform functions outside MS-DOS. Accounts payable, word processing, spread sheet, communications, and programming languages are examples of application software programs.

MS-DOS (the operating system) is essential to the functioning of the 16/8 Professional Computer. Without the MS-DOS instructions, the system will not work!

Follow the procedures below for creating a backup copy of the application software disk:

- **LOAD** the CP/M Operating System and use the INIT command to initialize a blank disk (see page 30)
- **LOAD** the MS-DOS Operating System
- **TYPE** the command **FORMAT B:/V** and PRESS the RETURN key
- **TYPE** the letter **Y**
- **PRESS** the SPACEBAR to begin formatting
- **TYPE** the label of the disk and PRESS the RETURN key
- **TYPE** the command **COPY COMMAND.COM B: /V** and PRESS the RETURN key

  This file (COMMAND.COM) is the only MS-DOS file required on data and applications disks. Other MS-DOS files, such as ANSI.SYS or AUTOEXEC.BAT may be copied to applications disk, if desired.

Now you are ready to copy the files from the application software disk to your disk in Drive B.

- **REMOVE** the WRITE PROTECT tape from the original application software disk
- **REMOVE** the MS-DOS Utilities disk from Drive A
- **INSERT** the original application software disk in Drive A
- **TYPE** the command **COPY C:*.* B:/V** and PRESS the RETURN key

When the A:\ prompt is displayed,

- **REMOVE** the original application software disk and store it in a safe place
- **REMOVE** the newly create application software disk from Drive BTo load the application software disk,
- **PRESS** the **RESET** button on the back of the screen
- **INSERT** the MS-DOS SYSTEM DISK in Drive A
- **TYPE** the letters **LA** and PRESS the RETURN key

When the message appears about removing and inserting disks,

- **REMOVE** the MS-DOS SYSTEM DISK from Drive A
- **INSERT** the application software disk in Drive A
- **PRESS** the RETURN key
- **ENTER** the date and time

Some application software packages have installation procedures that need to be executed before you can actually load the application software into the system. Check the handbook or manual that came with the application software package for these procedures.

When the A:\ prompt is displayed,

- **TYPE** the name of the application software (e.g., dbase, ws, etc.) and PRESS the RETURN key

Use the manual that comes with the application software to learn the particulars of the software features.

IMPORTANT FACTS YOU MUST KNOW

This section of the Handbook explains some important facts you should know about disks, makes recommendations for using the 16/8 to your best advantage and reviews many of the important ideas covered in the previous sections.

NEVER leave a disk in the floppy disk drives when you turn the system on or off. It is possible to erase a disk if you do so.

If you want to clear the screen, use the MS-DOS command CLS. Do not use the on/off switch to clear the screen. If you turn off the system, count to ten slowly before you turn it on again.

To change operating systems (MS-DOS to CP/M or CP/M to MS-DOS), press the RESET button on the back of the screen unit.

MS-DOS Commands

If you need a quick reminder of the MS-DOS commands, the tabbed action cards at the back of this Handbook are useful as a quick reference.

Checking Disk Space

It is recommended that you use the CHKDSK program to check the space available on a disk before you create files, edit files, or run application software programs. If you run out of disk space, the file will not be saved.

- An 8" double density disk will hold 498,176 bytes (single-sided) and 1,011,712 bytes (double-sided)

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TASK: Load DOS from the disk in Drive A into the 16/8's memory.

ACTION: INSERT the **MS-DOS** disk into the left disk drive (A). TYPE **LA** and PRESS **RETURN**.

When prompted to do so, REMOVE the **MS-DOS** disk from Drive A. INSERT the **MS-DOS Utilities** disk into Drive A and PRESS **RETURN**.

When DOS is loaded, your screen displays the prompt:

```
MS-DOS version 2.00
Copyright 1981,82,83 Microsoft Corp.

Command v 2.02a
Current date is Mon 5-02-1983
Enter new date:
```

TYPE a number between **1** and **12** for the month. TYPE a slash (/) or dash(-). TYPE a number between **1** and **31** for the day of the month. TYPE another slash (/) or dash (-). TYPE a number between **80** and **99** for the year and PRESS **RETURN**.

The screen displays two additional lines similar to:

```
Current time is 0:01:33.00
Enter new time:
```

TYPE a number between **00** and **23** for the hour. TYPE a colon (:). TYPE a number between **00** and **59** for the minutes and PRESS **RETURN**.

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MS-DOS COMMAND INDEX

Use:	To:
CHKDSK B:	Check disk status of (available space on) disk in Drive B
CLS	Clear the Screen
COPY A:FILENAME.TYP B:FILENAME.TYP	Copy a file from the disk in Drive A to the disk in Drive B
DATE	Display or Change Date
DIR B:	List directory of disk in Drive B
DISKCOPY A: B:	Make a backup of the disk in Drive A onto the disk in Drive B
EDLIN A:FILENAME.TYP	Use the edit program to create/edit a file in Drive A
ERASE A:FILENAME.TYP	Erase (Delete) a file in Drive A
FORMAT B: /C	Format a floppy disk in Drive B for use with MS-DOS
PRINT A:FILENAME.TYP	Print a copy of a file on Drive A
REN B:OLDNAME.OLD NEWNAME.NEW	Rename a file on Drive B
TIME	Display or Change Time
TYPE B:FILENAME.TYP	Displays a file on screen
VOL	Display Disk Volume Label

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MS-DOS CONTROL COMMANDS

CONTROL commands may be used while typing any DOS command line. To generate a control command, type the letter while holding down the CTRL key.

Line editing functions are listed below:

CTRL+HELP	Copy entire contents of screen to the printer.
CTRL+X	Delete the entire line typed at the console.
ESC, V	Retype current command line.
CTRL+Z	End input from the console (EDLIN).
CTRL+ESC	Returns control to load page, similar to pressing RESET button.

The control functions CTRL+P and CTRL+S affect console output as described below:

CTRL+P	Copy all subsequent characters displayed on the screen to the printer. Output is sent to the printer (or list device) until the next CTRL+P is typed.
CTRL+S	Stop the screen display temporarily. Program execution and output continue when the next character is typed at the console (e.g., another CTRL+S). This feature is used to stop the display on the screen, in order to view a specific segment of output before continuing.

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TASK: Determine the space available on a disk.

ACTION: TYPE the command **CHKDSK** and PRESS **RETURN**.

RESULT: The screen displays statistics about your disk and memory space.

Example: A:\CHKDSK

```
Volume MS-DOS 2-0 created Jul 14, 1983 12:24p

    498176 bytes total disk space
         0 bytes in 1 hidden files
      1024 bytes in 1 directories
    211456 bytes in 20 user files
    285696 bytes available on disk

    131072 bytes total memory
    100496 bytes free
```

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TASK: Change the name of a file on a disk.

ACTION: TYPE the command **REN A:SAMPLE.TXT EXAMPLE.TXT** and PRESS **RETURN**.

RESULT: The Drive A directory should now have a file name **EXAMPLE.TXT**. The file **SAMPLE.TXT** should no longer appear in the directory. The same file is still there; it just has a different name.

Example: REN B:TEST DATA

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TASK: Copy DOS files to an application software program disk.

ACTION: LOAD DOS. INSERT the application software disk in the right disk drive (B). USE the **CHKDSK** command to check the available space on the application disk. COPY the COMMAND.COM file to the application software disk using the instruction.

COPY COMMAND.COM B:

This file (COMMAND.COM) is the only DOS file required on applications disks. Other DOS files, such as ANSI.SYS or AUTOEXEC.BAT may be copied to applications disk, if desired.

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TASK: Copy individual files from one disk to another or onto the same disk.

ACTION: TYPE the command **COPY A:SAMPLE.TXT B:** and PRESS **RETURN**.

Parameters can be appended after the filename (on the right) to invoke special optional features. See the MS-DOS User's Guide.

RESULT: Filename A:SAMPLE.TXT copied to the disk in Drive B under the filename B:SAMPLE.TXT.

Examples:

COPY A:FILENAME.TYP B:FILENAME.TYP	A copy of the file FILENAME.TYP from the disk in Drive A is made on the disk in Drive B with the name FILENAME.TYP
COPY FILENAME.TYP FILENAME.BAK	A copy of the file FILENAME.TYP from the disk in the active drive is made on the same disk with the extension BAK
COPY A:*.* B:	Copy all files from the disk in Drive A to the disk in Drive B.

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TASK: Display the contents of any DOS disk.

ACTION: TYPE the command **DIR B:** and PRESS **RETURN**.

RESULT: The screen displays the directory of the specified disk; in the case, the **MS-DOS Utilities** disk in the disk drive (Drive B).

```
A:\ dir b:

 Volume in drive B is MS-DOS 2-0
 Directory of B:\

BIN          <dir>          7-14-83   12:25p
ANSI     SYS        675     6-28-83   10:38p
COMMAND  COM      15480     5-02-83    2:44a
CONFIG   SYS         55     7-08-83    4:24p
SAMPLE   TXT        768     7-14-83   12:34p
       5 File(s)    285696 bytes free
```

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TASK: Display the contents of a file on the screen.

ACTION: TYPE the command **TYPE SAMPLE.TXT** and PRESS **RETURN**.

RESULT: Your screen should display something similar to the following:

```
A:\ TYPE SAMPLE.TXT

Why should I want to learn this Software? The marketplace is over-
flowing with software. There is always a great need for effective
software that is applicable to individual needs. Let's think about
learning new applications with new needs. It does not take great and
infinite wisdom to discover efficiency.
(Etc....)

A:\
```

TASK: Create a new file or edit an existing file.

ACTION: TYPE the command **EDLIN B:MYFILE.TXT** and PRESS **RETURN**.

RESULT: The 16/8 recognizes this as a new file, because it does not find a file with the name MYFILE.TXT on Drive B. When EDLIN is ready for you to enter information in MYFILE, the screen displays:

```
A:\EDLIN B:MYFILE.TXT
New file
*
```

The asterisk "*" is the EDLIN prompt. It indicates that EDLIN is ready to accept a command.

EDLIN Commands

A Appends lines
C Copies lines

D Deletes lines
E Ends editing
I Inserts lines
L Lists lines
M Moves lines
P Pages text
Q Quits editing
R Replaces lines
S Searches text
T Transfers text
W Writes lines

All of the EDLIN commands and functions are explained in detail in the 16/8 DOS User's Guide.

TO CREATE A NEW FILE

TYPE the letter **I** and PRESS **RETURN**.

The number **1:** appears on the screen to indicate EDLIN is ready for your first line of text. Each time you type a line of text and press the **RETURN** key, EDLIN inserts a new number for the next line of typing. To stop entering lines, enter **CTRL+C**. (HOLD DOWN either **CTRL** key, TOUCH the **C** key, and RELEASE both keys.)

TO STORE A NEW/REVISED FILE

The file you just typed/revised is in the 16/8's memory, but it has not yet been stored on the disk. To store the file on disk, TYPE the letter **E** and PRESS **RETURN**.

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TASK: Erase a file from a disk. This command is used to erase one or more files from a disk to make more space available.

ACTION: TYPE the command **ERASE B:SAMPLE.TXT** and PRESS **RETURN**.

RESULT: The 16/8 erases the file. When the `A:\` prompt returns to the screen, the erasure is complete.

Examples:

ERASE FILENAME.TYP	Erases the specified file from the active drive.
ERASE B:FILENAME.*	Erases all files with the filename FILENAME and any extension from the disk in Drive B.
ERASE B:*.*	Erases all files from the disk in Drive B.

Note: The same function is performed by using the DEL (delete) command.

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We use the following form to write the general form of a file specification:

d:filename.typ

where **d:** represents the optional drive specifier; **filename** represents the one-to-eight character filename; **.typ** represents the optional one-to-three character filetype. Valid combinations of the elements of a DOS file specification are shown in the following list.

filename
d:filename
filename.typ
d:filename.type

A "typical" filename might be something like "SAMPLE.TXT", which is one of the files on your MS-DOS System Disk.

You can use any letter (**A-Z**), number (**0-9**), and the symbols **!**, @, **#**, **$**, %, &, ( ), -, —, ", [,], in making up filenames. The other symbols are "reserved", as are a few special words. See the MS-DOS User's Guide for complete details.

Wild card characters:

? single character wild card; can take place of any character

* "fill right" with ?s no matter how many characters. The file reference *.* matches all files.

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TASK: Format (initialize) a disk.

ACTION: Make sure CP/M is loaded. TYPE the command **INIT** and PRESS **RETURN**.

Your screen should look similar to the one shown below.

Available disk formats are:

```
    Floppy Disk Initialization Utility vers 0.43
        Copyright (c) 1982, Xerox Corporation

Touch <CTRL+C> or <ESC> to Exit

Enter physical disk drive to initialize (A or B) B

Available disk formats are:

820-II          16/8
------          ----
1)    or         5)    Single Density,   Single Side
2)    or         6)    Single Density,   Double Side
3)    or         7)    Double Density,   Single Side
4)    or         8)    Double Density,   Double Side

[ ] Please enter desired format.
```

INSERT a blank (new) disk into the disk drive.

TYPE the number **7** (or **8**). When the message ''Are you ready to ERASE (initialize) the disk in physical drive A (Y/N)?'' appears on the screen, TYPE **Y**.

As the disk is being initialized, ``Initializing track'' or ``Verifying disk'' messages appear on the screen. When the 16/8 is finished, the message ``0 Defective Sectors'' should appear. When a disk has flawed sectors, it means it is damaged, and you should not use it.

When you see the final message: ``Touch CTRL+C or ESC to Exit, Touch any other key to continue,''.... REPEAT the procedure for another blank disk, or PRESS the **ESC** key to exit the INITialization program and return to CP/M.

RESET the computer by pressing the **RESET** button (located on the back of the screen unit, lower right)

TYPE **LA** and PRESS **RETURN**. The CP/M command prompt 'A>' is displayed on the screen. To load DOS from the disk drive into the 16/8's memory, ENTER the command **MS-LOAD** and wait for DOS to load. ENTER the date and time. INSERT an initialized disk into the disk drive. ENTER the command **FORMAT B: /C** and PRESS **RETURN**. The screen displays the message:

```
A:\ format b: /c
Are you sure you want to delete all files on drive B:
(Y or N)? :
```

TYPE the letter **Y**. The screen displays the message:

```
Press any key to begin formatting B:
```

PRESS the **SPACE BAR**.

When formatting is finished, the screen displays the prompt:

```
Volume label (11 characters, ENTER RETURN for none)?
```

TYPE any 11-character disk volume label and PRESS **RETURN**.

The screen displays the amount of total disk space on your disk and the amount of disk space available for use. The message is similar to:

```
498176 bytes total disk space
498176 bytes available on disk
```

Enter **Y** to format another disk.

Enter **N** to end the format utility.

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TASK: Print a copy of a file.

ACTION: TYPE the command **PRINT A:SAMPLE.TXT** and PRESS **RETURN**.

RESULT: The first time you use the PRINT command, the screen will display the message:

```
Name of list device [PRN]:
```

DOS is telling you that it's going to use the device name **"PRN"** for your printer unless you want to give it another name. If so, just enter the name and PRESS **RETURN**.

The printer prints a copy of the file SAMPLE.TXT. Other files may be printed in the same manner.

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TASK: Use the Xerox 630 (40 CPS) or Xerox 620 (20 CPS) printer as a typewriter.

ACTION: REMOVE any disks from the disk drive.

TURN ON your system, or PRESS the **RESET** button if it is already on.

INSERT paper in the printer.

TYPE the letter **T**, then PRESS **RETURN**.

TYPE just as you would on any typewriter.

Note: The LEFT MARGIN can be changed by using the space bar, or backspace key, to move to the desired position. PRESS the **ESC** key, then **9**.