



Burroughs

XE 500 BTOS

Operations Guide

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About This Guide

Purpose

This guide provides information on performing those XE 500 BTOS tasks which are routinely performed by anyone using the XE 500 system. It provides the information necessary to

- Start up the system.
- Execute routine master commands.
- Protect XE 500 files.
- Print a file.
- Recover from simple operator errors.

Scope

This manual describes only those XE 500 BTOS tasks which are routinely performed by anyone using the system. It is not intended to be an exhaustive description of the commands available through the operating system. If a comprehensive listing is desired, this guide should be used in conjunction with the *XE 500 BTOS Administration Guide*.

Audience

The audience for this guide is anyone who requires information on performing routine BTOS operations on the XE 500. Typical users include

- System operators.
- System programmers.
- System administrators.

Prerequisites

The system operator, programmer, or system administrator should possess a basic background and understanding of the XE 500.

How to Use This Guide

The manual covers the following topics:

- **An Overview of XE 500 BTOS.** Refer to Section 1 for an introduction and overview of XE 500 BTOS.
- **Starting up the system.** Refer to Section 2 for information on the start-up procedure.
- **Executing routine master commands.** Refer to Section 3 through Section 6 for specific details on executing routinely used master commands.
- **Using disk cartridges.** Refer to Section 7 for information on using disk cartridges.
- **Establishing file protection.** Refer to Section 8 for information on protecting your files.
- **Recovering from errors.** Refer to Section 9 for information on interpreting status messages and recovering from simple operator errors.

Organization

This guide comprises the following sections:

Section 1: Overview of XE 500 BTOS provides a brief introduction to XE 500 BTOS, including a description of the differences between XE 500 BTOS and workstation BTOS software.

Section 2: Starting Up the System describes using the XE 500 front panel controls and procedures for powering up and powering down the system. Procedures for booting up the XE 500 and workstations connected to the XE 500 are also described.

Section 3: Functional Breakdown of Master Commands presents a complete listing of all the available master commands and provides references as to where information on executing each master command can be found. This section also describes how to execute a master command from the BTOS Executive command line.

Section 4: Managing XE 500 Files provides descriptions of the master commands which are routinely used to perform file operations on XE 500 files.

Section 5: Using XE 500 Printers provides a description of printer spooler operations and explains how to print files. This section also provides a description of the MSpooler Status utility and the subcommands available through it.

Section 6: Using XE 500 Tape Drives describes using half-inch tape and quarter-inch cartridge (QIC) tape on the XE 500. This section also describes the procedure for copying files between an XE 500 directory and half-inch or QIC tape.

Section 7: Using Disk Cartridges describes how to use disk cartridges.

Section 8: Establishing Security for XE 500 Files explains how to password protect files that are located on the XE 500.

Section 9: Status Messages and Error Recovery provides an overview of system status messages in the XE 500 system. It also describes how to recover from simple operator error.

A Glossary and an Index follow Section 9.

Results

The XE 500 BTOS user will be able to:

- Start up the XE 500 system.
- Manage, print, and protect files, using routinely used master commands.
- Use half-inch tape, disk cartridges, and quarter-inch cartridge (QIC) tape on the XE 500.

Related Product Information

BTOS Standard Software Operations Guide. This guide contains introductory, procedural, and reference information for using the standard features of the workstation version of BTOS.

BTOS Standard Software Operations Quick Reference Guide. This guide provides a comprehensive list of the commands which are available through the workstation version of BTOS. It also includes a brief explanation of how to execute each command.

BTOS Status Codes Reference Manual. This manual lists the system status codes, describes the problem to which each code refers and, if applicable, suggests how to recover.

XE 500 BTOS Administration Guide. This guide describes the tasks which the system administrator is required to perform on the XE 500 system.

XE 500 BTOS Installation and Implementation Guide. This guide provides information on implementing XE 500 BTOS system software.

XE 500 BTOS Operations Reference Manual. This manual provides a comprehensive list of the commands which are available through the XE 500 version of BTOS. It also includes a brief explanation of how to execute each command.

XE 520 System Capabilities Overview. This guide describes the XE 520 BTOS system software and hardware features.

Conventions Used in This Manual

In procedures, data that you are to enter at the keyboard are shown between quotation marks ("") or as indented text. The quotation marks themselves should not be entered unless specifically stated in the text.

Variables are shown in italics. For example, in the tape file formats, half-inch tape file names appear in the format

[tapexy]m

in which x, y, and m are variables. In this particular example, x, y, and m represent numerical values which are determined by a specific tape drive and file mark.

BTOS commands are shown in boldface.

In BTOS command forms, optional fields and parameters are enclosed in square brackets.

Contents

About This Guide	v
Purpose	v
Scope	v
Audience	v
Prerequisites	v
How to Use this Guide	vi
Organization	vi
Results	vii
Related Product Information	vii
Conventions Used in this Manual	viii
Section 1: Overview of XE 500 BTOS	1-1
XE 500 BTOS Enhancements	1-1
The XE 500's Processing Environment	1-1
Differences Between XE 500 and Workstation-only BTOS	1-2
XE 500 Disk and Volume Naming Conventions	1-3
Disk Drives and Volumes	1-3
Volume Names	1-3
Disk Drive Device Names	1-3
Referencing XE 500 Device Names	1-3
XE 500 Master Commands	1-4
When to Use Master Commands	1-4
Printing Files	1-5
Accessing an XE 500 Tape Drive	1-6
Establishing Security Procedures	1-6
Section 2: Starting Up the System	2-1
XE 500 Controls	2-1
Powering Up the XE 500	2-4
Booting Up a Workstation from the XE 500	2-5
Booting Up a Workstation (With Local Stand-alone BTOS Software Installed)	2-6
Booting Up a Workstation (No Local Stand-alone BTOS Software Installed)	2-8
Booting Up a B 22 with a Local Mass Storage Unit	2-8
Determining the Workstation's Operating System Number	2-9
Handling Workstation Bootup Problems	2-10
Powering Down the XE 500	2-11

Section 3: Functional Breakdown of Master Commands	3-1
Installing the System Software	3-1
Configuring the System	3-2
Managing Secondary Partitions	3-2
Managing Cluster Activity	3-2
Managing XE 500 Volume Structures	3-3
Managing XE 500 File Systems	3-3
Managing XE 500 Files	3-4
Archiving XE 500 Files	3-4
Creating Configuration Files for XE 500 I/O Devices	3-5
Using XE 500 Printers	3-5
Using Quarter-Inch Cartridge (QIC) Tapes	3-6
Using the Command Line Interpreter	3-6
Monitoring System Operations and Performance	3-6
Using a Master Command	3-7
Moving the Cursor Within a Command Form	3-7
Entering Values on Optional Fields	3-7
Using Wild Card Characters	3-7
Executing a Master Command	3-8
Section 4: Managing XE 500 Files	4-1
Listing Files	4-1
Executing the MFiles Command	4-2
An Example of Using the MFiles Command	4-4
Copying Files Between XE 500 Directories	4-5
Executing the MCopy Command	4-5
An Example of Using the MCopy Command	4-8
Deleting Files	4-9
Executing the MDelete Command	4-9
An Example of Using the MDelete Command	4-11
Renaming Files	4-11
Executing the MRename Command	4-12
Examples of Using the MRename Command	4-14
Displaying File Version Information	4-16
Executing the MVersion Command	4-17
Example of Using the MVersion Command	4-19
Maintaining DAM, RSAM, and ISAM Files	4-20
Executing the MMaintain Files Command	4-21
An Example of Using the MMaintain Files Command	4-23

Section 5: Using XE 500 Printers	5-1
Printing a File	5-1
Printing Workstation Files on an XE 500 Printer	5-2
Direct Printing	5-2
Using the MSpooler Status Utility	5-3
When to Use MSpooler Status or Spooler Status	5-4
Entering Parameter Values for Subcommands	5-4
Executing the MSpooler Status Command	5-6
Displaying the Main Status Report	5-7
Displaying the Queue Status Report	5-8
Displaying the Printer Status Report	5-10
Executing MSpooler Status Subcommands	5-11
Aligning a Form	5-12
Cancelled a Print Request	5-12
Deleting a Print Request	5-13
Entering a Password	5-14
Freeing a Printer Channel	5-15
Halting a Printer	5-16
Displaying the Main Status Report	5-16
Specifying a New Printer	5-17
Printing a File	5-20
Displaying the Queue Status Report	5-23
Restarting a Printer	5-23
Displaying the Printer Status Report	5-24
Section 6: Using XE 500 Tape Drives	6-1
Using Half-Inch Tapes	6-1
Handling Half-Inch Tapes	6-1
Operating the Half-Inch Tape Drive	6-1
Using QIC Tapes	6-2
Handling QIC Tapes	6-2
Operating the QIC Tape Drive	6-4
Inserting a QIC Tape	6-5
Removing a QIC Tape	6-6
Tape File Formats	6-6
Half-Inch Tape File Names	6-7
Examples of Half-Inch Tape File Names	6-9
Naming a Specific Tape Drive Configuration File	6-10
QIC Tape File Names	6-10
Reading Files From the QIC Tape	6-10
Writing Files to the QIC Tape	6-11
Naming a Specific Tape Drive Configuration File	6-11
Copying Files Between an XE 500 Directory and	
Half-Inch or QIC Tape	6-11
Executing the MTape Copy Command	6-12
Erasing Data from a QIC Tape	6-14
Retensioning a QIC Tape	6-14

Section 7: Using Disk Cartridges	7-1
Handling Disks	7-1
Operating the Cartridge Slot	7-2
Inserting a Disk Cartridge	7-4
Removing a Disk Cartridge	7-5
 Section 8 Establishing Security for XE 500 Files	 8-1
Setting File Protection Levels	8-2
Assigning a File Password	8-3
Executing the MSet File Protection Command	8-4
Examples of Using the MSet File Protection Command	8-6
Accessing a Password Protected File	8-7
 Section 9: Status Messages and Error Recovery	 9-1
System Status Reporting	9-1
Interpreting General Status Messages	9-2
Recovering from System Errors	9-3
 Index	 1
 Glossary	 1

Illustrations

2-1	XE 500 Base Enclosure Front Panel with Disk Cartridge Drive	2-2
2-2	XE 500 Enclosure POWER ON/OFF Switch	2-4
4-1	MFiles Command Form	4-2
4-2	Sample MFiles Command Form	4-4
4-3	Sample MFiles Command Display	4-4
4-4	MCopy Command Form	4-6
4-5	Sample MCOPY Command Form	4-8
4-6	MDelete Command Form	4-10
4-7	Sample MDelete Command Form	4-11
4-8	MRename Command Form	4-12
4-9	MRename Command Form (Sample A)	4-14
4-10	MRename Command Form (Sample B)	4-15
4-11	MVersion Command Form	4-17
4-12	Sample MVersion Command Form	4-19
4-13	Sample MVersion Command Display	4-19
4-14	MMaintain Files Command Form	4-21
4-15	Sample MMaintain Files Command Form	4-23
4-16	Sample MMaintain Files Log	4-23
5-1	MSpooler Status Command Form	5-6
5-2	Sample Main Status Report	5-8
5-3	Sample Queue Status Report	5-9
5-4	Sample Printer Status Report	5-11
6-1	Components of a QIC Tape	6-3
6-2	QIC Tape Write Protect Plug Positions	6-3
6-3	The QIC Tape Drive	6-4
6-4	Inserting the QIC Tape	6-5
6-5	Counting SP and DP Boards When Identifying Half-Inch Tape Drives	6-8
6-6	Identifying Half-Inch Tape Drives	6-9
6-7	MTape Copy Command Form	6-12
7-1	A Disk Cartridge	7-2
7-2	The Disk Cartridge Slot	7-3
7-3	Inserting the Disk Cartridge	7-5
8-1	The MSet File Protection Command Form	8-4
8-2	MSet File Protection Command Form (Sample A) ..	8-6
8-3	MSet File Protection Command Form (Sample B) ..	8-7

Tables

2-1	Keyswitch Positions on the XE 500	2-3
2-2	Workstation BTOS Operating System Numbers	2-10
3-1	Master Commands for Managing Secondary Partitions	3-2
3-2	Master Commands for Managing Volume Structures	3-3
3-3	Master Commands for Managing File Systems	3-3
3-4	Master Commands for Managing Files	3-4
3-5	Master Commands for Archiving XE 500 Files	3-4
3-6	Master Commands for Controlling QIC Tapes	3-6
4-1	MFiles Command Fields	4-3
4-2	MCopy Command Fields	4-7
4-3	MDelete Command Fields	4-10
4-4	MRename Command Fields	4-13
4-5	MVersion Command Fields	4-18
4-6	MMaintain Files Command Form	4-22
5-1	MSpooler Status Command Field	5-7
5-2	Select Queue Subcommand Parameter Description	5-9
5-3	Select Printer Subcommand Parameter Description	5-10
5-4	Delete Print Request Subcommand Parameter Descriptions	5-14
5-5	Enter Password Subcommand Parameter Description	5-15
5-6	New Printer Subcommand Parameter Descriptions	5-19
5-7	Print File Subcommand Parameter Descriptions	5-21
5-8	Restart Printer Subcommand Parameter Description	5-24
6-1	MTape Copy Command Fields	6-13
8-1	BTOS Protection Levels	8-3
8-2	MSet File Protection Command Fields	8-5

Overview of XE 500 BTOS

An XE 500 BTOS system includes an XE 500 that supports workstation clusters. Typically, the XE 500 also has built-in disks for data storage and has printers connected to it. The XE 500 may also support a magnetic tape drive, storage module device (SMD) drives in the XE 500 base enclosure or an MD3 enclosure, and modems.

For a complete description of the XE 500 BTOS software and hardware features, refer to your *XE 520 System Capabilities Overview*.

XE 500 BTOS Enhancements

The XE 500 enhances the BTOS workstation environment with such features as

- Access to, and support of, more disk storage.
- Backup facilities using high storage capacity quarter-inch cartridge (QIC) tapes or half-inch magnetic tapes.
- Support for additional printers.
- Support of larger workstation networks.

In addition, application programs developed using earlier versions of BTOS software can be utilized in the new environment.

THE XE 500's Processing Environment

The XE 500 uses a technique called "parallel processing" to perform its functions. This means that there are several processor boards within the XE 500 running simultaneously, each of which is dedicated to carrying out specific duties. For example, the File Processor (FP) board handles all data transfers between the XE 500's built-in disks and other elements of the system; the Cluster Processor (CP) board handles communications between the XE 500 and the workstation clusters. Each of the XE 500 processors runs a version of BTOS that is tailored to its function within the system.

The XE 500 system also uses a technique called *distributive processing*. This means that the computer processing is distributed among separate hardware elements within the total system. In the XE 500 system, computer processing is performed by the XE 500 and each workstation that is part of the system.

To clarify the idea of distributive processing further, each time you boot up a workstation, the XE 500 sends a specific version of BTOS to the workstation. The workstation then runs its version of BTOS locally in its own hardware. Therefore, each workstation runs independently, except when it calls on services that are available at the XE 500 or another workstation.

Differences Between XE 500 BTOS and Workstation-only BTOS

This subsection describes the aspects of XE 500 BTOS that are different than the BTOS that runs in a workstation-only environment. Unless mentioned in this section, workstation BTOS within the XE 500 environment operates as described in the *BTOS Standard Software Operations Guide*.

The XE 500 BTOS software is similar to the Burroughs workstation BTOS; however, the XE 500 BTOS software includes many enhanced capabilities:

- A set of master commands (M commands) that execute at the XE 500.
- XE 500 printer spoolers, which provide central printer access to all workstation users.
- Facilities for communication among workstations.
- Depending on your system configuration, access to large data storage capacity devices.

XE 500 Disk and Volume Naming Conventions

Unless they are protected for security reasons, workstation users have access to all XE 500 disk drives, which include built-in disks and SMD disk drives. The conventions used for naming disks and volumes are described below.

Disk Drives and Volumes. Once a disk drive is properly formatted to accept data, it is said to contain a volume. The term *disk drive* refers to the hardware device; *volume* refers to the complete file system unit of information stored on the disk. Each formatted disk in the system has a volume associated with it.

BTOS frequently allows the device name of the disk drive and the volume name to be used interchangeably when referring to the information stored on the disk.

Volume Names. A volume name is assigned to a disk when it is initialized using the **MIVolume** command.

Disk Drive Device Names. Burroughs assigns disk drive device names that correspond to their physical location in the system.

XE 500 internal disk drives are denoted by the device names d0, d1, d2, and so on, depending on the enclosure disk drive slot in which they are located.

Some XE 500 base enclosure models can contain two SMD drives, and each MD3 enclosure can contain three SMD drives. The SMD drives in a base enclosure are denoted by the default device names s0 and s1. Depending on their location in the MD3, the SMD drives are denoted by the device names s2, s3, and so on.

The disk drive device names can be changed by the system administrator. Ask your system administrator for the disk device names used in your system.

Referencing XE 500 Device Names. If you have a hard disk drive attached locally to your workstation, it may be assigned the same device name as one of the XE 500 disk drives. If this is the case with your system, always precede the XE 500 device name with an exclamation mark (!) to avoid ambiguity.

For example, if you have a workstation hard disk with the device name "d0" and the XE 500 disk cartridge drive's device name is also "d0," use "!d0" when referring to the XE 500 disk cartridge drive.

XE 500 Master Commands

The XE 500 runs a set of commands called *master* commands. The term *master* derives from the fact that the XE 500 is considered the master, or controlling, workstation in the workstation clusters.

Master commands are prefixed with the letter "M." For this reason, master commands are also sometimes referred to as M commands.

Master commands execute functions that run locally within the XE 500, for example, copying a file from one XE 500 disk to another or backing up an XE 500 volume to disk cartridges.

Many master commands correspond to workstation commands and use the same command name except that they are preceded by an "M." Some master commands do not have a corresponding workstation command; these usually pertain to the unique features available with the XE 500-based BTOS environment.

When to Use Master Commands

The XE 500 BTOS master commands perform operations on the XE 500 in a manner similar to those performed by BTOS on a local workstation. When a master command name corresponds to a workstation command name (for example, **MFiles** and **Files**), you can use either command for files on an XE 500 disk. However, when executing a command on XE 500 files, the master commands may perform more efficiently than their workstation counterparts.

In order to determine whether you should use a workstation command or the corresponding master command, observe the following guidelines:

- ❑ If the command moves files between a workstation and the XE 500, you must use the workstation command. For example, when copying files from a floppy drive to an XE 500 disk, use **Copy**, not **MCopy**.

- If the command operates on elements that are completely local to the workstation, use the workstation command.
- If the command operates on elements that are completely local to the XE 500, use the master command.
- For some master commands, you can use the corresponding workstation command to perform the same function. For example, you can use Copy to copy files between XE 500 disk-based volumes. However, because the command actually originates from the workstation, requiring additional message and data transfers between the workstation and the XE 500, the command could take longer to execute than if you used the corresponding master command **MCopy**.

Note: Access to master commands may be restricted to one user at a time. If this is the case with your system and someone else is executing a master command, you may be prompted that your command cannot be executed. Ask your system administrator if such a restriction applies to your system.

For a more detailed description of master commands, refer to Section 3.

Printing Files

The XE 500 does not support direct printing to printers connected to it. You must use printer spoolers to send printing jobs to XE 500 printers. Refer to Section 5 for information about how to use XE 500 printer spoolers.

Although direct printing to printers connected to the XE 500 is not supported, you can still use direct printing with printers connected to your workstation. You can also use spooled printing with workstation printers, as is described in the *BTOS Standard Software Operations Guide*.

Accessing an XE 500 Tape Drive

XE 500 BTOS provides commands that allow you to access a magnetic tape drive connected to the system. These commands are

- MTape Backup Volume**
- MTape Copy**
- MTape Restore**
- MTape Selective Backup**

These commands are similar to the corresponding workstation commands **Backup Volume**, **Copy**, **Restore**, and **Selective Backup**, except, of course, that they execute data transfers between XE 500 disk drives and a tape loaded in the tape drive.

Section 6 describes tape file name conventions and how to use the **MTape Copy** command. Because the other tape master commands are used to archive files, they are described in the *XE 500 BTOS Administration Guide*.

Establishing Security Procedures

It is assumed that you may want to establish security procedures for volumes, directories, and files that are local to your workstation. This information is contained in the *BTOS Standard Software Operations Guide*.

Because the XE 500 is probably being shared by a number of users, it is the system administrator's responsibility to set up security measures for XE 500 facilities and file systems. However, users may also want to password protect files. For this reason, procedures for password-protecting files are discussed in Section 8 of this manual.

Procedures for password-protecting volumes and directories, and setting up other security measures are provided in the *XE 500 BTOS Administration Guide*.

Starting Up the System

This section describes how to perform the following tasks:

- Use the XE 500 front panel controls.
- Power up and power down the XE 500 enclosures.
- Boot up the XE 500.
- Boot up a workstation from the XE 500.

The discussion of the start-up procedure assumes that you know how to power up and down any Burroughs BTOS-based workstations that are part of the system. It also assumes that you know how to use floppy disks with the workstation floppy disk drives. If you are unfamiliar with the operation of these workstations, read through the related workstation training material.

XE 500 Controls

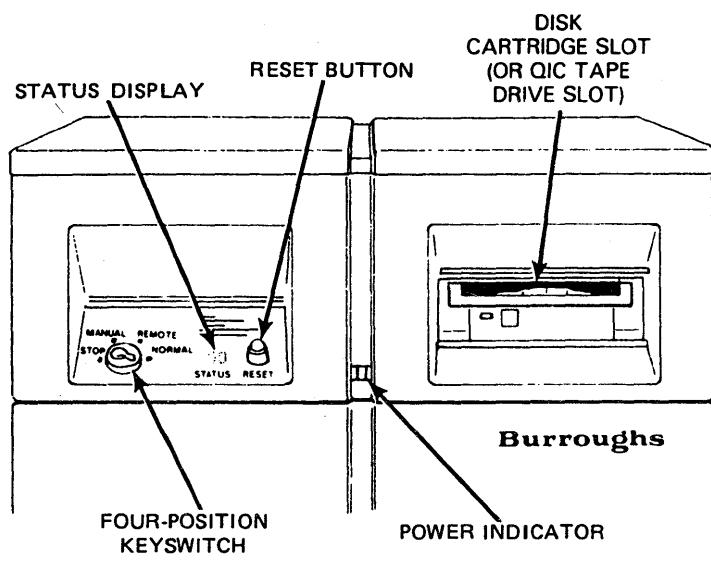
All of the XE 500 controls, except the POWER ON/OFF switch, are part of the base enclosure front panel.

The front panel, shown in Figure 2-1, is located just above the front door of the base enclosure.

The front panel consists of the following components:

- Four-position keyswitch.
- STATUS display.
- RESET button.
- Power indicator.
- Disk cartridge or quarter-inch cartridge (QIC) tape drive slot (optional).

Figure 2-1 Sample XE 500 Base Enclosure Front Panel
with Disk Cartridge Drive



The keyswitch setting determines the operating mode of the XE 500. The control panel keys that were packed with the XE 500 are used to turn the keyswitch.

Select the operating mode by turning the key to the desired position. Lock the keyswitch at a selected position by removing the key.

The keyswitch positions are defined in Table 2-1.

Table 2-1 Keyswitch Positions on the XE 500

Keyswitch Position	XE 500 Operating Mode
STOP	Places the system in a reset state and prevents anyone from using the system.
MANUAL	Enables the RESET button and boots the system in manual mode.
REMOTE	Used during initial system software installation. Once software is installed, this keyswitch position is also used when troubleshooting system problems.
NORMAL	Disables the RESET button and boots the system in NORMAL mode.

Because having the keyswitch at MANUAL enables the RESET button, which could be accidentally pressed during system operation, it is recommended that you use the NORMAL keyswitch position. If you have to reset the system for any reason, you can do so by turning the key to STOP and then back to NORMAL.

The STATUS display shows status codes that indicate the operating status of the system. The significance of these codes is discussed in the XE 500 bootup procedure presented later in this section.

The power indicator lights up when the system has been turned on and the internal power supply is operating properly.

Removable media can be used to load system software. They also provide a backup storage facility for the BTOS file system. Depending on the base enclosure model, your system may accept disk cartridges or QIC tapes. If the base enclosure does not have a disk cartridge or QIC tape drive slot, the removable medium for your system is half-inch tape. Procedures for using tape drives are given in Section 6 and procedures for using disk cartridges are given in Section 7.

Powering Up the XE 500

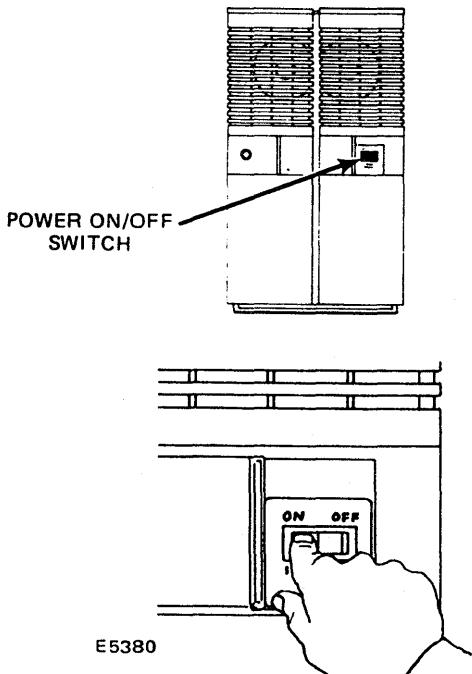
Power up the XE 500 system by performing the following procedure.

Caution: Whenever you power up the XE 500, make sure that the removable medium drive is empty and the keyswitch is set to STOP.

Referring to Figure 2-2, locate the POWER ON/OFF switch at the rear of each enclosure in the system.

Turn on power to the XE 500 by pressing the POWER ON/OFF button of each enclosure to ON. When powering up enclosures in a multi-enclosure system, start with the base enclosure, then power up the second enclosure, the third enclosure, and so on.

Figure 2-2 XE 500 Enclosure POWER ON/OFF Switch



Once there is power to the system,

- The power indicator at the front panel of each enclosure should be lit.
- The STATUS display at the base enclosure should show the value "00."
- You should be able to hear the fans and feel a steady flow of air from the rear ventilation grille of each enclosure.

If any of these three conditions do not occur after turning on power to the XE 500, contact your system administrator.

Once the enclosures are powered up, you boot (start) up the system by turning the keyswitch from STOP to MANUAL, REMOTE, or NORMAL, depending on the operating mode in which you want the system to run. Refer to Table 2-1 and to the *XE 500 BTOS Administration Guide* for more information on operating modes.

Booting Up a Workstation from the XE 500

A workstation can be operated as a stand-alone computer or as a cluster workstation tied to a master. The version of workstation BTOS that is loaded into the workstation determines whether the workstation operates in stand-alone or cluster mode. How you boot up your workstation determines the version of workstation BTOS that is loaded into the workstation.

All workstations connected to the XE 500 must be run as cluster workstations. The XE 500 serves as the master, providing services that can be shared by the cluster workstations connected to it.

To configure your workstation to run in cluster mode, a separate boot-up procedure must be followed for each of the three workstation configurations. The three workstation configurations are listed below:

- A workstation on which master workstation software has been installed. Master workstation software is a stand-alone version of workstation BTOS that contains a [sys]<sys>SysImage.sys file.
- A workstation with no stand-alone BTOS in its local file system.
- A B 22 workstation with a local mass storage unit.

Booting Up a Workstation (With Stand-Alone BTOS Software Installed)

Your workstation may have stand-alone workstation BTOS stored on a local hard disk or floppy disk. If it does, the workstation loads that operating system into its CPU's onboard memory when it is powered up or its reset button is pressed. It is then considered to be running in stand-alone mode.

However, to have access to the XE 500's storage devices and a local hard disk, you must configure your workstation as a cluster workstation. You do this by simply booting up your workstation according to the procedure which is described below. This procedure downloads (sends) the workstation cluster-mode version of BTOS from the XE 500 to your workstation.

The advantage of having the stand-alone operating system available is that the workstation can be still be used if the XE 500 is shut down. When the XE 500 is brought up again, though, the workstation must be rebooted using the procedure described below to return it to the cluster mode.

***Caution:** If a workstation connected to the XE 500 is trying to operate as a master (that is, if a workstation with stand-alone workstation software is booted up locally while the XE 500 is operating), the system will crash.*

- 1 Be sure that the XE 500 is powered on and has booted up (that is, a "20" appears in the STATUS display).
- 2 Press and hold the space bar at the workstation keyboard.

While holding down the space bar, power up the workstation. (If you are just trying to reboot the workstation while it is already powered on, hold down the space bar as you press the workstation's reset button.)

Release the space bar.

- 3 The system displays the Read Only Memory (ROM) number and then a stream of characters (for example, B, C, D, L, M, P, T:) on the terminal screen. The cursor appears after the colon. Respond to this prompt by typing the letter "T" (the T stands for "type" of operating system).
- 4 The system displays "OS:" and the cursor appears after the colon of this prompt. In addition, the recommended operating system (OS) number may also be displayed.

This prompt is a request for the operating system number of the workstation. Refer to the subsection "Determining the Workstation's Operating System Number," later in this section, to get the appropriate number for the workstation.

When you have determined the operating system number, enter that number after the "OS:" prompt and press the RETURN key.

- 5 The system responds by displaying the string of characters again. With the cursor appearing after the colon, enter a "B" at the keyboard (the B stands for "boot").
- 6 The system responds by displaying "L" followed by a series of periods (...). This response indicates that the workstation is going through the boot-up process.

After about a minute, the signon form appears on the screen. The workstation is ready to be used as part of the XE 500 system.

Note: If you have been running your workstation as a stand-alone while the XE 500 is shut down, you must reboot your workstation when the XE 500 is running again to return it to the cluster mode.

Booting Up a Workstation (With No Local Stand-alone BTOS Software Installed)

If your workstation does not have a stand-alone version of BTOS stored locally on a hard disk or floppy disk, use the following procedure to boot it up from the XE 500.

- 1 Be sure that the XE 500 is powered on and has booted up (that is, a "20" appears in the STATUS display).
- 2 Power up the workstation.

The workstation automatically boots-up from the XE 500 at power up or when the reset button is pushed.

The system responds by displaying "L" followed by a series of periods (...). This response indicates that the workstation is going through the boot-up process. After about a minute, the signon form appears on the screen. The workstation is ready to be used as part of the XE 500 system.

Booting Up a B 22 with a Local Mass Storage Unit

Use the following procedure to boot up a B 22 workstation that has a local mass storage unit from the XE 500. This procedure will allow the B 22 to use the hard disk drives and eight-inch floppy drive of the mass storage unit while operating in the XE 500 environment.

- 1 Be sure that the XE 500 is powered on and has booted up (that is, a "20" appears in the STATUS display).
- 2 Turn on power to the workstation. This initiates the workstation boot-up process. Do not turn on power to the mass storage unit at this time.

The workstation boots up automatically from the XE 500. After about a minute, the signon form appears on the screen.

Note: If you do not need access to the mass storage unit, your workstation is now booted up. You can skip steps 3 through 8. If you need access to the mass storage unit, go on to step 3.

- 3 Turn on the mass storage unit.

- 4 Wait at least 15 seconds to allow the disks to reach operating speed.

Then, sign on to the B 22 by pressing the GO key.

- 5 The BTOS command form appears on the screen.

Using the keyboard, enter the word "bootstrap" in the command form.

Then, press the RETURN key.

- 6 The Bootstrap form appears on the screen.

In the highlighted field next to the line "File to bootstrap from," enter the following file name:

[sys]<sys>Ws001>SysImage.sys

- 7 Press the GO key.

The B 22 will reboot from the XE 500.

- 8 After about a minute, the signon form appears on the screen again. Both the workstation and the mass storage unit can now be used within the XE 500 system.

Determining the Workstation's Operating System Number

When a workstation is booted from the XE 500, the XE 500 loads the workstation's operating system (or system image) into the workstation's local memory. This operating system governs the operation of the workstation.

BTOS has been modified to make it compatible with the different hardware configurations of the workstations. Therefore, there are unique versions of BTOS for the different workstation models and configurations. Table 2-2 lists the workstations and their corresponding BTOS operating system numbers.

Table 2-2 Workstation BTOS Operating System Numbers

Workstation Model	Operating System Number
B 27 (with local hard disk drive)	125
B 27 (with local dual floppy drives)	126
B 27 (without local disk drives)	127
B 28 (with local hard disk drive)	240
B 28 (with local dual floppy drives)	241
B 28 (without local disk drives)	242
B 26 (with local hard disk drive)	250
B 26 (with local dual floppy drives)	251
B 26 (without local disk drives)	252
B 21-4, -5, or -6	253
B 21-2 or -3	254
B 21-1	255

To determine the workstation model number, locate the Burroughs identification plate on the workstation. For B 21s and B 22s, the plate is located at the rear of the workstation base. For B 25s, the plate is located under the removable panel on the left side of the CPU module.

Handling Workstation Bootup Problems

You may encounter a problem while trying to boot up a workstation.

As part of the bootup process, the workstation runs through a self-diagnostic test. If an error message appears on the screen, refer to the *BTOS Status Codes Reference Manual*.

If you know or suspect that you have responded to a system prompt with incorrect information, simply reboot the workstation and complete the rest of the bootup procedure.

If you reboot the workstation and are still receiving unexpected system information or prompts,

- Be sure that you are using the proper bootup procedure.
- For a workstation with a local system image, be sure that you have correctly determined the workstation model/type and the correct operating system number for that type.

Powering Down the XE 500

To power down the XE 500, follow the procedure which appears below:

- 1 Make sure all users are logged off and workstations and peripheral devices (that is, printers) are turned off.
- 2 Make sure there is no removable medium currently mounted.
- 3 Turn the keyswitch to the base enclosure to STOP.
- 4 Power down each enclosure in the system, starting with the enclosure farthest from the base enclosure.

The power indicator(s) should go off, the STATUS display should go off, and the fans should stop operating.

Functional Breakdown of Master Commands

In addition to the local workstation BTOS commands described in the *BTOS Standard System Operations Guide*, there are a number of master commands that execute on the XE 500.

This section provides a functional breakdown of all the master commands. In addition to listing the available commands, this breakdown helps you decide which master command to use for a given operation.

Because many of the master commands are used to administer the XE 500 system, their use may be restricted to the system administrator. The administrative functions that use these commands are described in the *XE 500 BTOS Administration Guide*.

Descriptions of using specific master commands to execute routine system operations are provided in Sections 4 through 7 of this manual.

Master commands which are used during system installation and implementation are described in the *XE 500 BTOS Installation and Implementation Guide*.

The *XE 500 BTOS Operations Reference Manual* contains a complete listing of all the master commands, as well as brief explanations on how to execute each command. This manual also directs you to where a complete description of each master command can be found.

Installing System Software

The **MSysLoad** command invokes a menu-driven utility through which XE 500 system software can be installed onto the system disk from the workstation.

Configuring the System

The **MAdminAgent Status** command provides status information about the AdminAgents running in the XE 500.

The **MBtos Config** command invokes a menu-driven utility that allows you to create and modify system configuration files.

For further information on these commands, refer to the *XE 500 BTOS Installation and Implementation Guide*.

Managing Secondary Partitions

Several master commands allow you to create, load, and obtain information about secondary partitions. A secondary partition is an area of processor memory in which you can install an application. The master commands that can be used to manage secondary partitions are listed below in Table 3-1.

Table 3-1 Master Commands for Managing Secondary Partitions

Secondary Partition Management Task	Master Command
Create a secondary partition	MCreate Partition
Install an application on a secondary partition	MInstall Server
Obtain status information about the secondary partitions	MPartition Status

For further information on these commands, refer to the *XE 500 BTOS Administration Guide*.

Managing Cluster Activity

Several master commands allow you to suspend and resume cluster activity. For example, these master commands can be used when installing software.

The **MDisable Cluster** command allows you to suspend cluster activity.

The **MResume Cluster** command allows you to resume cluster activity.

For further information on these commands, refer to the *XE 500 BTOS Administration Guide*.

Managing XE 500 Volume Structures

Three of the master commands allow you to manage the volume structures of the XE 500 disks. Table 3-2 lists the volume management tasks and the associated master commands.

Table 3-2 Master Commands for Managing Volume Structures

Volume Management Task	Master Command
Checking a disk for possible bad spots that were not included in the most recent volume initialization's bad spot listing.	MDisk Verify
Initializing a volume	MIVolume
Listing the known bad spots of a volume	MVolume Report
For further information on performing these volume management tasks, refer to the <i>XE 500 BTOS Administration Guide</i> .	

Managing File Systems

Several master commands allow you to manage the file systems on XE 500 disks. Table 3-3 lists file management tasks and the associated master commands.

Table 3-3 Master Commands for Managing File Systems

File System Management Task	Master Command
Changing the name of an XE 500 volume	MChange Volume Name
Creating an XE 500 directory	MCreate Directory
Removing an XE 500 directory	MRemove Directory
Setting the protection level of an XE 500 directory.	MSet Directory Protection
Getting status about a volume (for example, date created, date last modified, available free memory, list of directories)	MVolume Status

For further information on performing these file system management tasks, refer to the *XE 500 BTOS Administration Guide*.

Managing XE 500 Files

Several master commands allow you to manage XE 500 files. Table 3-4 lists file management tasks and the associated master commands.

Table 3-4 Master Commands for Managing Files

File Management Task	Master Command
Copying files between XE 500 disk-based file systems	MCopy
Deleting files on an XE 500 disk	MDelete
Listing the files in an XE 500 directory	MFiles
Maintaining DAM, RSAM, or ISAM files	MMaintain Files
Renaming files on an XE 500 disk	MRename
Assigning file protection levels and passwords	MSet File Protection
Copying files between an XE 500 disk and a magnetic tape	MTape Copy
Displaying a file's version information	MVersion

For information on performing these file management tasks, refer to Section 4.

Archiving XE 500 Files

Several master commands allow you to archive files on XE 500 disks. The archive versions of these files may be stored on another XE 500 disk or on a magnetic tape; therefore, there is a "tape" version of each archive command. Table 3-5 lists file archiving tasks and the associated master commands.

Table 3-5 Master Commands for Archiving XE 500 Files

Archiving Task	Master Commands
Backing up an entire XE 500 volume	MBackup Volume, MTape Backup Volume
Backing up selected files from an XE 500 volume	MSelective Backup, MTape Selective Backup
Restoring archived files to an XE 500 volume	MRestore, MTape Restore

For further information on archiving XE 500 files, refer to the *XE 500 BTOS Administration Guide*.

Creating Configuration Files for XE 500 I/O Devices

The **MCreate Configuration File** command invokes a menu-driven utility that allows you to create configuration files for XE 500 input/output (I/O) devices such as printers, tape drives, and modems.

For further information on creating configuration files for XE 500 I/O devices, refer to the *XE 500 BTOS Installation and Implementation Guide*.

Using XE 500 Printers

The **MSpooler Status** command invokes a menu-driven utility that allows you to get status information about printer spooler activity and to print files using selected print queues and printers.

You can create character translation files for a serial printer with the **MMake Translation File** command.

The Queue Manager controls the various queues in which related tasks are stored for processing. For example, the Queue Manager controls the queues that are used to handle print requests made through printer spoolers. Use the **MInstall Queue Manager** command to install the Queue Manager and the **MDeinstall Queue Manager** to remove the Queue Manager.

For further information on using the **MSpooler Status** command, refer to Section 5. Information on using the **MMake Translation File**, the **MInstall Queue Manager**, and the **MDeinstall Queue Manager** commands can be found in the *XE 500 BTOS Installation and Implementation Guide*.

Using Quarter-Inch Cartridge (QIC) Tapes

Several master commands allow a user to control the operation of the QIC tape drive only. The master commands that can be used to perform operations on a QIC tape are listed below in Table 3-6.

Table 3-6 Master Commands for Controlling QIC Tapes

QIC Tape Operation	Master Command
Erase all data on the tape	MQic Erase
Pack the tape in the cartridge	MQic Retension

For further information on these commands, refer to Section 6.

*Note: The other tape commands (for example, **MTape Copy**) also work for QIC tapes.*

Using the Command Line Interpreter

Both the **MCLI** and the **MCdtlO** commands allow you to access to the command line interpreter (CLI).

The major difference between the MCLI utility and the MCdtlO utility is that the MCLI utility can activate CLI on a processor without requiring the termination of the AdminAgent running on the same processor.

For further information on these commands, refer to the *XE 500 BTOS Administration Guide*.

Monitoring System Operations and Performance

The **MHistogram** command samples a processor's central processor unit (CPU) activity and provides information for determining CPU performance.

The **MPStat** command monitors communications between the various processors on the system.

The **MPerc** command provides short descriptions of each BTOS error code.

The **MPLog** command displays a listing of the [sys]<sys>log.sys file, which keeps a running account of system error conditions.

For further information on these commands, refer to the *XE 500 BTOS Administration Guide*.

Using a Master Command

The following subsections describe procedures and conventions for using master commands. Their operation is similar to workstation BTOS commands.

Moving the Cursor Within a Command Form

You can move the cursor down through the fields of a command form by pressing the RETURN key or the DOWN ARROW cursor key.

You can move the cursor up through the fields by pressing the UP ARROW cursor key.

When the cursor is in the last field of a form, pressing the RETURN key or the DOWN ARROW key causes the cursor to move to the first field.

Entering Values on Optional Fields

Command forms may contain optional fields. Optional fields are enclosed in square brackets ([]).

It is not necessary to fill out an optional field to execute a function. Optional fields which accept yes or no answers are configured with a default value. Other types of optional fields are either configured with default values or do not require an entry.

Using Wild Card Characters

You can use the same wild card characters in file specifications for XE 500 BTOS as are used on BTOS workstation software. For information on using the wild card characters, refer to the *BTOS Standard Software Operations Guide*.

Executing a Master Command

To execute a master command, use the following procedure:

- 1 Enter the name of the master command, or an unambiguous abbreviation of it, in the BTOS Executive command field.
- 2 If the master command has a command form, press the RETURN key. Then go on to step 3.

If the master command does not have a command form, press the GO key to execute the master command.

- 3 Fill in the appropriate fields of the command form. The field at which the cursor is located is indicated by the lightened rectangular box.

Make sure that you have filled in all fields that require an entry.

- 4 Press the GO key to execute the command.

Normally the command sends messages to the workstation screen to inform you of the command's execution status.

Depending on the command being executed, a report or listing may also be generated by the command and sent to the screen. These commands usually provide the option of sending the report or listing to a printable file so that you can have a hard copy of the information.

Note: If you execute an MCommand and the message "Warning! Default path is not accessible from Master" appears on your screen, it means you are not logged onto an XE 500 directory. The information you may require to complete the command is unobtainable.

Before continuing any further, cancel the command by pressing the FINISH key and change your path to a valid XE 500 directory.

For more information about executing specific master commands, refer to Sections 4 through 7 of this manual and the *XE 500 BTOS Administration Guide*.

Managing XE 500 Files

XE 500 BTOS provides master commands for performing file operations on XE 500 files. This section describes the various master commands that are most frequently used to manage XE 500 files. The file management tasks that you can perform are listed below:

- Listing the files contained in an XE 500 directory.
- Copying files between XE 500 directories.
- Deleting files.
- Renaming files.
- Displaying file version information.
- Maintaining DAM, RSAM, and ISAM files.

Listing Files

To list the files in an XE 500 directory, use the **MFiles** command.

You can list one file or, by using a wild card character in the file name designation, list a group of files. If you press the GO key after entering the command name and bypass the command form, a list of files in the current working directory is displayed.

The **MFiles** command also provides the option of including more detailed information about the files when they are listed. This detailed information includes

- The file length.
- The number of disk sectors required to store the file (a sector equals 512 bytes).
- The date the file was last modified.
- The protection level at which the file is set.
- The total number of sectors that all the files in the directory use.

Executing the MFiles Command

To execute the **MFiles** command, type "MFiles" in the Executive command field.

If you want to list the files of the directory in the current path with no details, press the GO key. The list of files appears on the screen.

If you want to list the files in a directory other than that of the current path, display file details, or save or print file information, press the RETURN key. The system displays the **MFiles** command form shown in Figure 4-1.

The **MFiles** command form has one mandatory field and three optional fields (enclosed in square brackets). Refer to Table 4-1 for information about each field.

When you complete the **MFiles** command form, press the GO key. The system displays the file information.

Figure 4-1 MFiles Command Form

```
MFiles
  File list
  [Details]
  [Print file]
  [Wide display?]
```

Table 4-1 MFiles Command Fields

Field	Action/Explanation
File list	The default is the asterisk wild card character (*). It directs the system to display the file names in the directory of the current path. To display information about specific files or files in a directory other than that of the current path, enter the file name(s) or complete file specification.
[Details?]	The default (no) directs the system to display each file name only. Enter "Yes" to display details about each file (access dates, protection level, and so on).
[Print file]	If you accept the default, the system does not store or print the MFiles information; it is sent to the terminal screen only. To store the information in a file from which you can later display or print the information, enter a file name for the print file. If the specified print file already exists, the existing print file is deleted and a new file is created in its place. If it does not exist, the file is created. To send the information directly to a device such as a printer, enter an appropriate print queue name. The information is copied to a temporary print file and sent to the specified print queue. The print queue name must be enclosed in square brackets (for example, [spl]).
[Wide display?]	Specify "Yes" to display details, such as access dates, protection mode, and so on, in a 132-column format. Note that if the workstation screen has only the 80-column format, the lines will be "folded."

An Example of Using the MFiles Command

To list and show details of all the files in the directory <memos> that exists on disk [office], the **MFiles** command form would appear as is shown in Figure 4-2. A sample of the file information you might expect to be displayed appears in Figure 4-3.

Figure 4-2 Sample MFiles Command Form

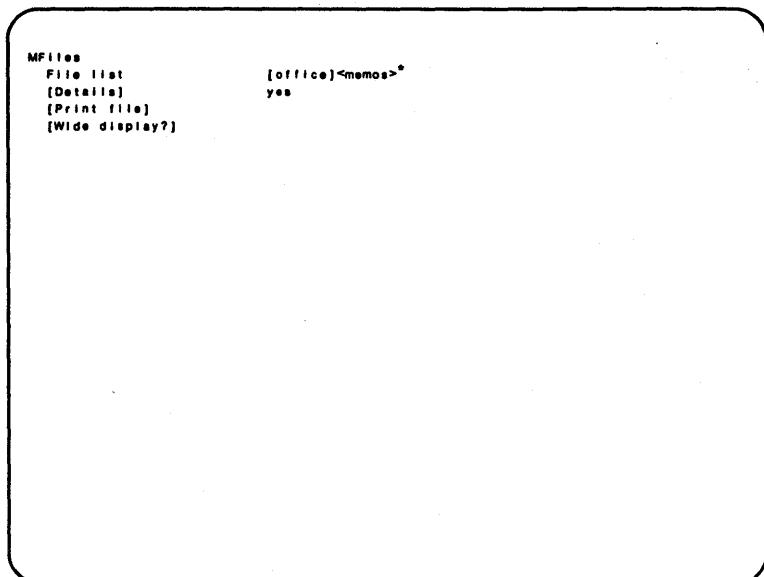


Figure 4-3 Sample MFiles Command Display

	Length	Sectors	Last Modified	Protection
[office]<memos>gs1	1264	22	April 1, 1986 8:39AM	15
[office]<memos>gs2	7264	14	April 6, 1986 10:39AM	15
[office]<memos>drg	2048	4	July 26, 1986 7:39PM	15
[office]<memos>euh	8704	17	July 31, 1986 3:17PM	15

Copying Files Between XE 500 Directories

To copy files between or within XE 500-based directories, use the **MCopy** command.

You can copy one file or, by using a wild card character in the file name designation, copy groups of files.

By default, the **MCopy** command copies the specified files without prompting for confirmation. If the file to which you want to copy already exists, **MCopy** prompts you for whether you want to overwrite the existing file.

The command form has optional fields in which you can specify that you want to be prompted to confirm each file copy operation and/or that you want existing files automatically overwritten.

Executing the MCopy Command

To execute the **MCopy** command, type "MCopy" in the Executive command field and press the RETURN key. The system displays the **MCopy** command form shown in Figure 4-4.

The **MCopy** command form has two mandatory fields and two optional fields (enclosed in square brackets). Refer to Table 4-2 for information about each field.

When you complete the **MCopy** command form, press the G0 key. The system copies the file(s) according to your specifications.

Figure 4-4 MCopy Command Form

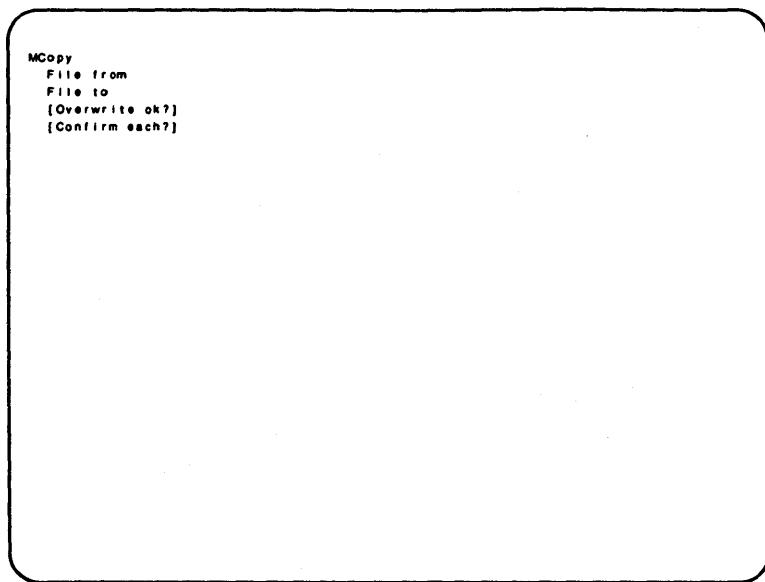


Table 4-2 MCOPY Command Fields

Field	Action/Explanation
File from	Enter the name of the file(s) which you wish to copy. You can use a wild card character to designate a group of names in the directory or the file name part of the file specification, but not both. To copy multiple files, enter the file names separated by spaces.
File to	Enter the file name to which you wish to copy the file(s). If the file does not exist, the system creates it. If you used a wild card character in the "File from" field, you must use it again here in the same part of the file specification.
[Overwrite ok?]	If you enter multiple file names in the "File from" field, you must enter the same number of file names in corresponding order in this field. The system copies the first file named in the "File from" field to the first in the "File to" field, the second to the second, and so forth. If you leave this field blank and a file named in the File to field already exists, the system prompts you for confirmation before overwriting the file.
[Confirm each?]	If you specify "No" and MCOPY finds that a file named in the "File to" field already exists, MCOPY informs you that it did not copy the file. MCOPY then moves on to process the next file. Enter "Yes" if you wish to overwrite an existing file named in the "File to" field. The system overwrites (destroys) the contents of the existing file and continues the copy operation. The default is no; you are not prompted to confirm each copy operation. Enter "Yes" to receive prompts confirming each copy operation. When prompted, confirm the copy by pressing the GO key, deny it (and go to the next file) by pressing the CANCEL key, or stop copying files by pressing the FINISH key.

An Example of Using the MCopy Command

To copy all files in the <account> directory that contain the characters "july" to the <payroll> directory, the **MCopy** command form would appear as is shown in Figure 4-5.

Figure 4-5 Sample MCopy Command Form

```
MCopy
File from          <account>"july"
File to           <payroll>"july"
[Overwrite ok?]
[Confirm each?]
```

Note that by specifying "Yes" in the "[Overwrite ok?]" field, any existing files in the <payroll> directory with the same name as an <account> directory file will be overwritten automatically.

Deleting Files

You can permanently delete a file or list of files from a volume and directory by using the **MDelete** command. When you delete a file, the system permanently destroys the contents of the files. You cannot recover the files.

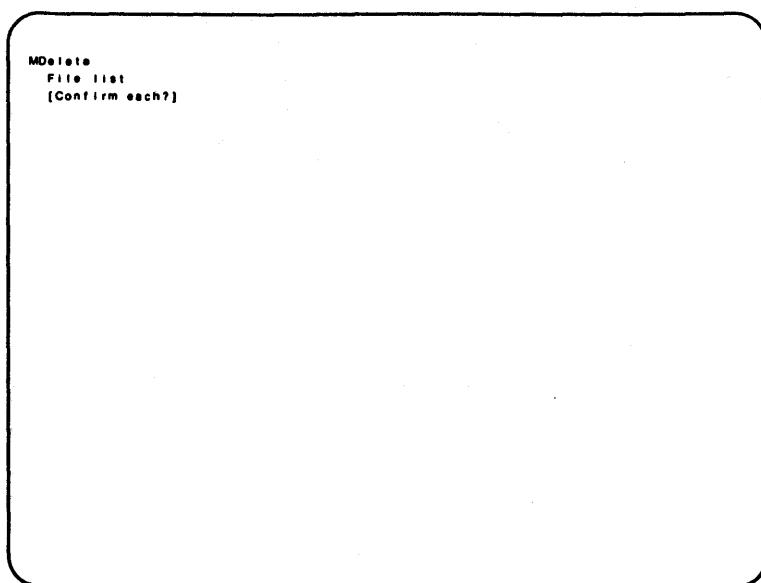
Executing the MDelete Command

To execute the **MDelete** command, type "MDelete" in the Executive command field and press the RETURN key. The system displays the **MDelete** command form shown in Figure 4-6.

The **MDelete** command form has a mandatory field and an optional field (enclosed in square brackets). Refer to Table 4-3 for information about each field.

***Caution:** Be careful when using wild card characters with the **MDelete** command; you may unintentionally destroy many files. Setting the confirmation option ensures that the system deletes only the files you want it to.*

When you complete the **MDelete** command form, press the GO key. If you entered "Yes" in the "Confirm each?" field, the system then displays prompts to confirm each file's deletion. Press the GO key to confirm deletion, the CANCEL key to deny, and the FINISH key to stop the command.

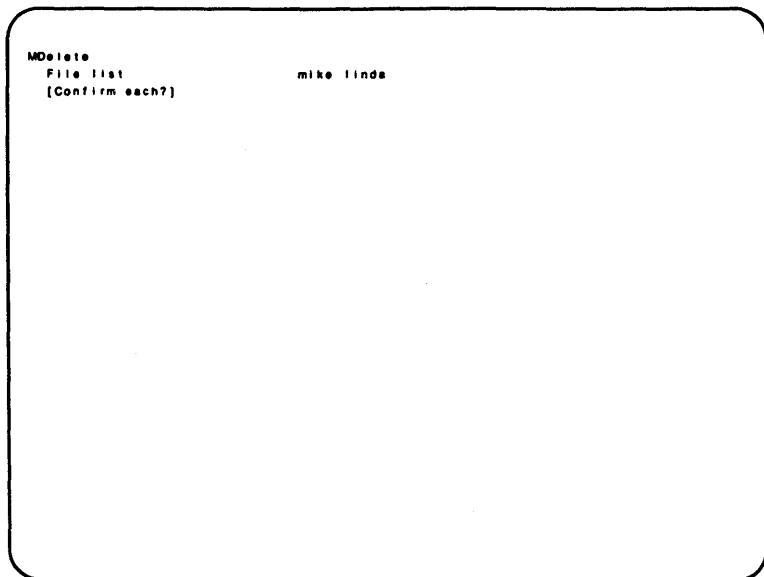
Figure 4-6 MDelete Command Form**Table 4-3 MDelete Command Fields**

Field	Action/Explanation
File List	Enter the name(s) of the file(s) you want to delete. You can use a wild card character to designate a group of names in the directory or the file name part of the file specification, but not both.
[Confirm each?]	The default for this field is no; the system does not prompt you to confirm each file you want to delete. Enter "Yes" if you want to confirm each file before the system deletes it. When prompted, confirm each deletion by pressing the GO key, deny it (and go to the next file) by pressing the CANCEL key, or stop deleting files by pressing the FINISH key.

An Example of Using the MDelete Command

To delete the files Mike and Linda from the currently logged in directory <personnel>, the **MDelete** command form would appear as is shown in Figure 4-7. The system would not display a confirmation prompt before deleting either file.

Figure 4-7 Sample MDelete Command Form



Renaming Files

Use the **MRename** command to rename XE 500 files or to move XE 500 files between directories.

You can rename one file or, by using a wild card character in the file name designation, rename groups of files.

By default, the **MRename** command renames the specified files without prompting for confirmation. However, if you are renaming a file to the name of an existing file, the **MRename** command prompts you to indicate whether you want to overwrite the existing file.

The **MRename** command form has optional fields in which you can specify that you want to be prompted to confirm each file rename operation and that you want existing files automatically overwritten.

Executing the MRename Command

To execute the **MRename** command, type "MRename" in the Executive command field and press the RETURN key. The system displays the **MRename** command form shown in Figure 4-8.

The **MRename** command form has two mandatory fields and two optional fields (enclosed in square brackets). Refer to Table 4-4 for information about each field.

When you complete the **MRename** command form, press the GO key. The system renames the file(s) as you have specified.

Figure 4-8 MRename Command Form

MRename
Old file name
New file name
[Overwrite ok?]
[Confirm each?]

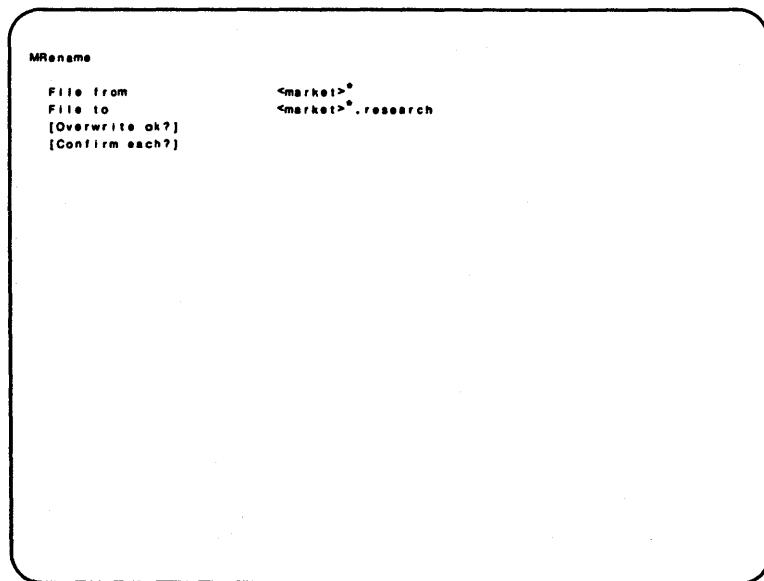
Table 4-4 MRename Command Fields

Field	Action/Explanation
Old file name	Enter the name of the file that you want to rename. You can use a wild card character to designate a group of names in the directory or the file name part of the file specification, but not both.
	To change the names of multiple files, enter the file names separated by spaces.
New file name	Enter the new name for the file. You can use the wild card character in this field. However, if you used it in the "Old file name" field, you must use it again here in the same part of the file specification.
	If you entered multiple file names in the "Old file name" field, you must enter the same number of destination file names in corresponding order.
[Overwrite ok?]	If you leave this field blank and there is an existing file with the same name as that in the "New file name" field, the system prompts you as to whether you want the existing file overwritten.
	If you enter "No" in this field, the system does not overwrite any previously existing files. If a file name you entered in the "New file name field" already exists, the system displays a message informing you that the copying did not occur because the file name already exists.
	Enter "Yes" to have an existing file with the same name as that in the "New file name" field automatically overwritten with the file in the "Old file name" field. The file listed in the "New file name" field is overwritten by the file listed in the "Old file name" field.
[Confirm each?]	The default is no; the system does not prompt you to confirm each MRename operation. Enter "Yes" to receive prompts to confirm each rename operation. When you complete the command form and press the GO key, the system displays the confirmation prompts. Press the GO key to confirm renaming a file, the CANCEL key to deny, or the FINISH key to stop the command.

Examples of Using the MRename Command

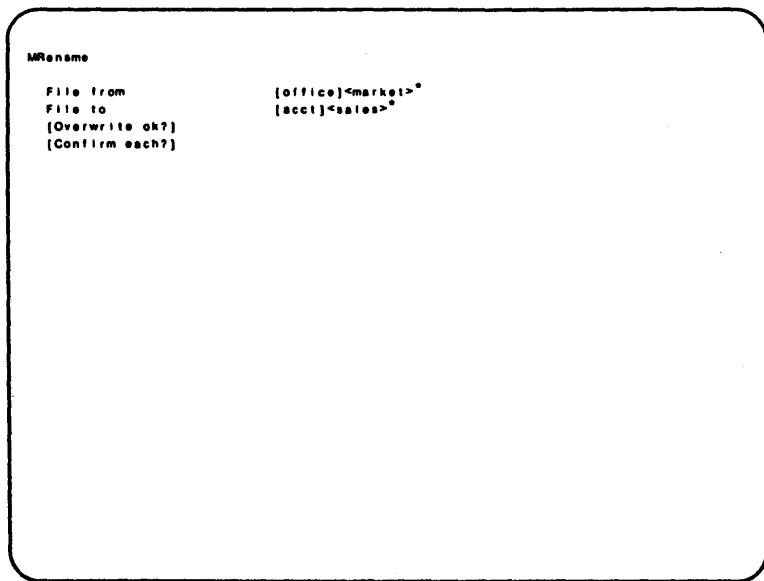
To add the suffix ".research" to all files in the <market> directory, the **MRename** command form would appear as is shown in Figure 4-9.

Figure 4-9 MRename Command Form (Sample A)



To move files from the [office]<market> directory to the [acct]<sales> directory, the **MRename** command form would appear as is shown in Figure 4-10.

Figure 4-10 M Rename Command Form (Sample B)



Displaying File Version Information

Many files that you use may be created through a software application program such as a wordprocessor or a spreadsheet. When software applications are improved or updated, they are normally assigned a release, or version number. This version number allows you to keep track of the revision level of the software application.

These software applications may automatically include their version number in any file created through them. For example, all files created with Multiplan™ contain the version number for that release of Multiplan.

To obtain this version information about XE 500 files created through such applications, use the **MVersion** command.

With the **MVersion** command you can list version information about one file or, by using a wild card character in the file name designation, list a group of files.

The command form provides the option of also creating a printable file of the version information.

The format of the version information is a listing of the specified files with their version numbers. If a file does not have a version number, a question mark (?) is given in place of a number.

Executing the MVersion Command

To execute the **MVersion** command, type "MVersion" in the Executive command field and press the RETURN key. The system displays the **MVersion** command form shown in Figure 4-11.

The **MVersion** command form has two optional fields (enclosed in square brackets). Refer to Table 4-5 for information about each field.

When you complete the **MVersion** command form, press the GO key. A listing of the specified files with their version numbers will appear on screen.

Figure 4-11 MVersion Command Form

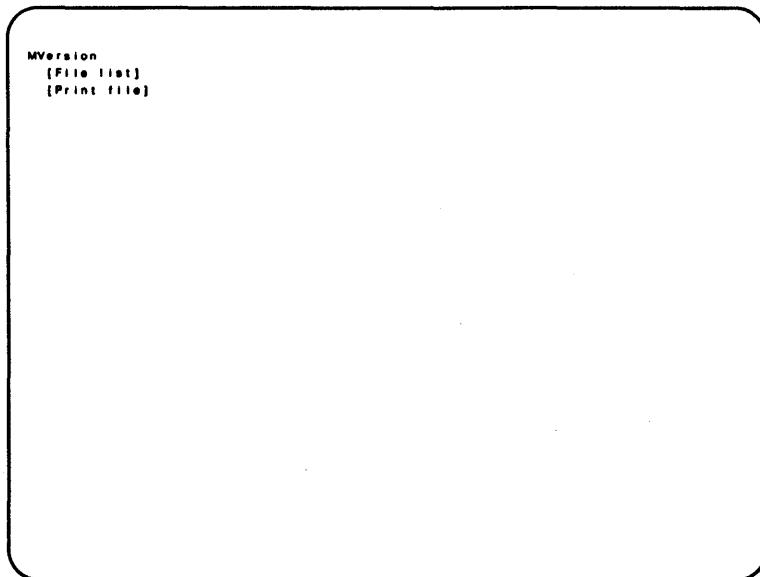


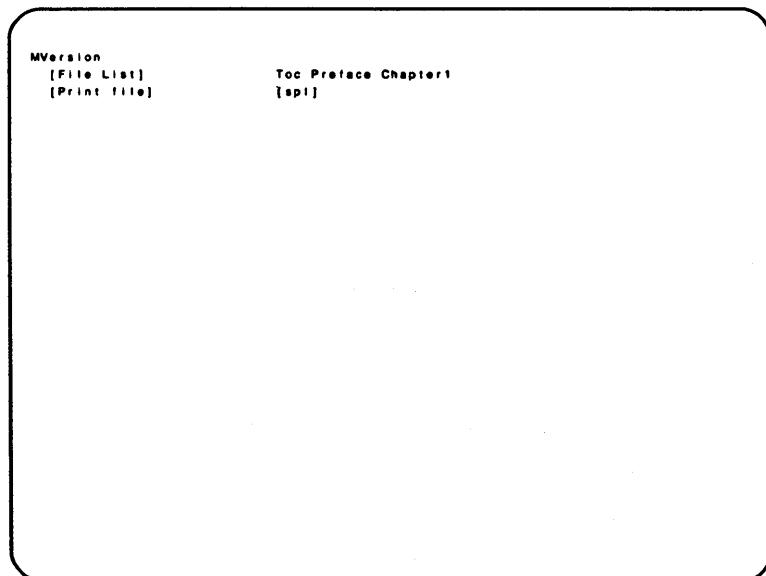
Table 4-5 MVersion Command Fields

Field	Action/Explanation
[File list]	The default is the asterisk wild card character (*). If you accept the default, version information about all files in the current working directory is displayed.
	To display information about specific files or files in a directory other than that of the current path, enter the file name(s) or complete file specification.
[Print file]	If you accept the default, the system does not store or print the MVersion information; it is sent to the workstation screen only. To store the information in a file from which you can later display or print the information, enter a file name for the print file. If the specified print file already exists, the new information is appended to it. If it does not exist, the print file is created.

An Example of Using the MVersion Command

To obtain and print version information about the files Toc, Preface, and Chapter 1 in the current working directory, [win]<Jones>, the **MVersion** command form would appear as is shown in Figure 4-12.

Figure 4-12 Sample MVersion Command Form



The information from the sample **MVersion** command would appear as is shown in Figure 4-13.

Figure 4-13 Sample MVersion Command Display

```
[win]<Jones>Toc.....5.0.4  
[win]<Jones>Preface.....?  
[win]<Jones>Chapter1.....4.0
```

The file Preface was not created with an application that assigns version numbers.

Maintaining DAM, RSAM, and ISAM Files

Use the **MMaintain File** command to modify and read Direct Access Method (DAM) files, Record Sequential Access Method (RSAM) files, or the data store files of Indexed Sequential Access Method (ISAM) data sets. **MMaintain File** can verify the file structure, remove malformed records, and remove deleted records.

The **MMaintain File** command also allows you to produce a log showing verification of the file structure. The **MMaintain File** log lists the following information:

- Number of records processed.
- Number of bytes of data processed.
- Logical file address.
- Length of any malformed records.

The log displays while you are using the **MMaintain File** command; you can also copy it to a printable file.

Executing the MMaintain Files Command

To execute this command, type "MMaintain Files" in the Executive command field and press the RETURN key. The system displays the **MMaintain Files** command form shown in Figure 4-14.

The **MMaintain Files** command form has one mandatory field and four optional fields (enclosed in square brackets). Refer to Table 4-6 for information about each field.

When you complete the **MMaintain Files** command form, press GO to execute the command.

Figure 4-14 MMaintain Files Command Form

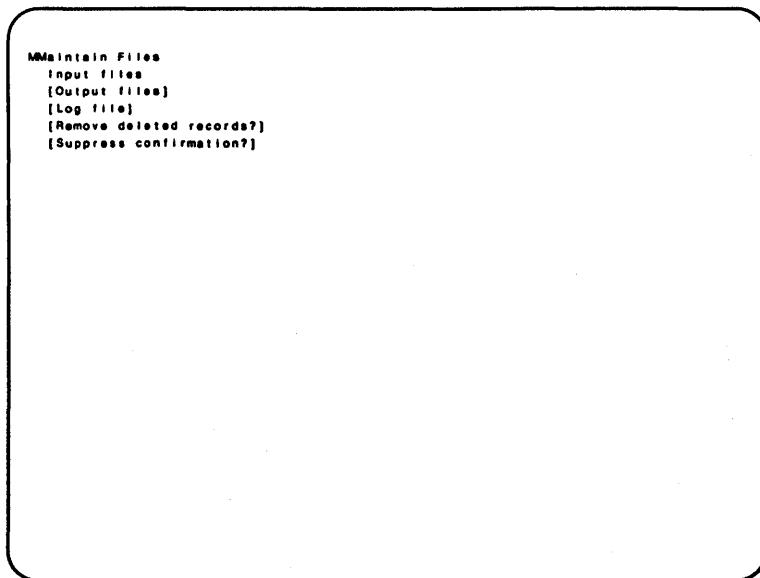


Table 4-6. MMaintain Files Command Form

Field	Action/Explanation
Input files	Enter one or more data files. This is a list of names of one or more data files (RSAM, DAM, or ISAM data store) to be maintained. Separate more than one file with spaces. If you enter parameters in the "Input Files" field only, the system verifies the file structure and displays a log of the verification on the terminal screen.
[Output files]	This is the name of the file to which well-formed input records are copied. The default varies depending on your input files. If all files are readable using DAM, the output file is a DAM file; otherwise the output file is an RSAM file. If an output file exists, the system overwrites the file. To change the default, enter a file name.
[Log file]	The default directs the system to display the log at the workstation screen only. To direct the system to save the log, specify a file name. You can then print the log by printing that file. The log lists the number of records processed, the number of bytes of data processed, the logical file address, and length of any malformed records.
[Remove deleted records?]	The default value is no. If the output file is an RSAM file, the system ignores deleted and malformed records. If the output file is a DAM file, the system places deleted and malformed records in the output file. Enter "Yes" to override the default for a DAM file. The system does not place deleted or malformed records in the DAM output file.
[Suppress confirmation?]	The default value is no. When a malformed record appears in the input file, the system displays a message specifying its file address and length. It prompts you to either skip the malformed record and keep processing the input file or to terminate processing. Enter "Yes" to override the default. When a malformed record appears in the input file, the system proceeds with user interaction.

An Example of Using the MMaintain Files Command

To verify the structure of the file [office]<market>euh.rsam and print the resulting report, the MMaintain Files command form would appear as is shown in Figure 4-15.

Figure 4-15 Sample MMaintain Files Command Form

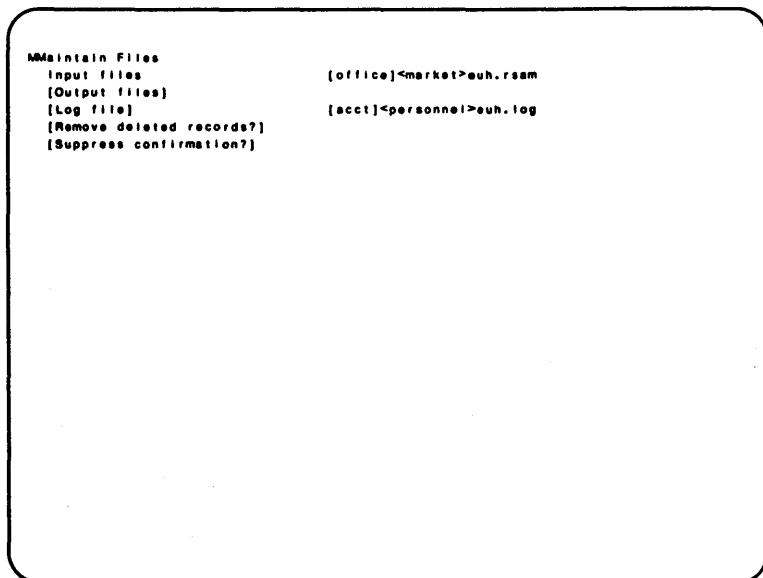


Figure 4-16 is a sample MMaintain Files log.

Figure 4-16 Sample MMaintain Files Log

```
Malformed input record in input file 0 at Lfa 512
189 bytes skipped before properly-formed record was found.
85 records read.
2835 bytes read.
```


Using XE 500 Printers

The printers connected to an XE 500 processor board (either a CP or TP) are controlled by a printer spooler running on that processor. A printer spooler can also run locally at your workstation to control any printers connected to the workstation. Regardless of where they are run, all printer spoolers in the system are controlled by the XE 500 Queue Manager.

Files to be printed must be sent to a print queue associated with the desired printer.

The system administrator is responsible for setting up the print queues used on the system. To obtain a list of the print queues available to you, either ask your system administrator or use the **MSpooler Status** utility's subcommand **Print Report**.

Printing a File

Files can be sent to a print queue for printing in several different ways.

- Use the workstation **Print** command. If you specify an XE 500 printer queue, the print file must be stored on an XE 500 volume.
For information on executing the **Print** command, refer to the *BTOS Standard Software Operations Guide*.
- Use the **MSpooler Status** command. The **MSpooler Status** utility invoked by this command contains menus that allow you to print files. Refer to "Using the **MSpooler Status Utility**" later in this section.
- Specify a print queue name in the "File to" field of the following BTOS command forms: **MCopy**, **MTape Copy**, **Copy**, and **Append**. The print queue name must appear in square brackets (for example, [spl]).
For example, you can specify a print queue name in the "File to" field of the **MCopy** command instead of a file name. The file specified in the "File from" field is copied to a temporary file, which is sent to the print queue for printing.

- Specify a print queue name in the "Print file" or "Log file" field of any BTOS command form. The print queue name must appear in square brackets (for example, [spl]). The report or log generated by the command is copied to a temporary file, which is sent to the print queue for printing.

For example, you can specify a print queue name in the "Print file" field of the **MFiles** command instead of a file name. The files listing is copied to a temporary file and sent to the print queue for printing.

- Use the print facility that is part of an application program.

An example of such a facility is the printer menu of the WRITEone word processor. This printer menu can be configured to interface with the XE 500 printer spoolers.

To configure XE 500 printer spoolers with a print facility, refer to the application's supporting documentation.

Printing Workstation Files on an XE 500 Printer

Files stored locally at a workstation cannot be printed on an XE 500 printer using the **Print** or **MSpooler Status** commands. You can use these commands to submit a print request to a printer spooler at the XE 500; however, the file to be printed must be stored on an XE 500 volume.

To print a file stored locally at your workstation, use the **Copy** or the **Append** command. Enter the name of the local workstation file you want to print in the "File from" field and the name of the desired print queue in square brackets (for example, [spl]) as the "File to" parameter. The file is copied to a temporary print file at the XE 500 and sent to the indicated print queue.

Direct Printing

The XE 500 does not support direct printing to printers connected to it. You must use printer spoolers to send printing jobs to XE 500 printers. However, you can still use direct printing with printers connected to your workstation.

Using the MSpooler Status Utility

The **MSpooler Status** command invokes the MSpooler Status utility. This utility allows you to display status information on the spooler. The following three status reports can be obtained:

- Main Status report.**
- Queue Status report.**
- Printer Status report.**

Along with status information, each status report also contains a list of the subcommands which can be executed through that report. A complete list of the subcommands available to all three reports appears below. Note that all subcommands may not be executed through each report.

- Align Form.**
- Cancel Print.**
- Delete Print Request.**
- Enter Password.**
- Free Printer Channel.**
- Halt Printer.**
- Main Status Display.**
- New Printer.**
- Print File.**
- Select Queue.**
- Restart Printer.**
- Select Printer.**

For a listing of which subcommands can be accessed through each status report, refer to the sample status reports displayed in Figure 5-2, Figure 5-4, and Figure 5-6.

When to Use MSpooler Status or Spooler Status

Except for the three subcommands listed below, you can use either the MSpooler Status utility or the Spooler Status utility. However, remember that subcommands executed through the MSpooler Status utility cannot access files stored locally at the workstation.

The following three subcommands must be executed from the processor (that is, the XE 500 or a workstation) to which the printer is connected:

- New Printer
- Free Printer Channel
- Enter Password

Therefore, if the printer you are using is attached to the XE 500, the MSpooler Status utility must be used to execute any of these three subcommands. Otherwise, you can use the Spooler Status utility to perform various printing tasks.

Entering Parameter Values for Subcommands

The procedure for executing the **MSpooler Status** subcommands is somewhat different from the procedure typically used for executing master commands. Although a subcommand executes in a similar manner as a master command, how you enter the parameter values is different.

After activating an MSpooler Status subcommand, the entire command field is not displayed. Instead, only the subcommand's first parameter appears at the bottom of the screen. If a parameter is optional, the default value appears in brackets to the right of the parameter.

Above the parameter, the system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

To enter a specific value, type it in and press the RETURN key. To enter the default value, leave the parameter blank and press the RETURN key. The next parameter in that subcommand's sequence appears only after you have entered some value (whether you specify one or accept the default) for the preceding parameter.

After making an entry for each of a subcommands's parameters, the system must acknowledge the value entered for each parameter. It does this by requiring you to scroll through the parameter entries by pressing the RETURN key. The system signifies its acknowledgment by displaying brackets around each parameter entry. This also gives you the opportunity to review the values you have specified.

If you attempt to execute the subcommand without making an entry for each of the parameters, the system returns to the previous status report.

Wait until the final parameter value appears in brackets. Then to continue with the subcommand press the GO key (despite the contradictory prompt).

Note: If you press the RETURN key and pass the last parameter entry, the initial parameter reappears on the screen. Use the RETURN key to once again scroll through all of the parameters. When the last one is displayed, press the GO key.

Before executing the subcommand, the system displays the following message:

```
(<GO>/<ESC>Y to continue, <CANCEL>/N = Deny, <FINISH>/Q =
Exit Program)
```

Finally, to execute the subcommand, press the GO key once again.

Note: If you press the GO key before the system acknowledges all of the parameter entries (that is, before pressing the RETURN key and reviewing the entries in brackets), the terminal emits an alarm and the last character of the current parameter entry is deleted.

Refer to the subsection "Executing MSpooler Status Subcommands" for a detailed description of each subcommand.

Executing the MSpooler Status Command

To execute the MSpooler Status command and invoke the MSpooler Status utility, type "MSpooler Status" in the Executive command field and press the RETURN key. The system displays the initial MSpooler Status command form shown in Figure 5-1. (To directly invoke the MSpooler Status utility and avoid the initial MSpooler Status command form, press the GO key.)

The initial MSpooler Status command form has one optional field (enclosed in square brackets). Refer to Table 5-1 for information about this field.

When you complete the MSpooler Status command form, press the GO key. This invokes the MSpooler Status utility, and the system displays the Main Status report.

Figure 5-1 MSpooler Status Command Form

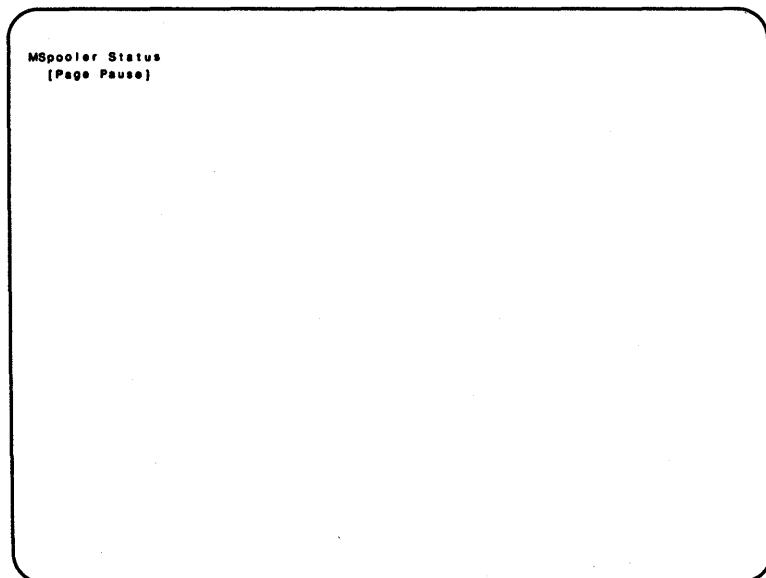


Table 5-1 MSpooler Status Command Field

Field	Action/Explanation
[Page Pause]	If you enter "Yes" or leave this field blank, you will be prompted to press the NEXT PAGE key to display the next screenful of information when the utility is running. If you specify "No" and the information to be displayed takes more than one screen, the information scrolls without pausing until the last screenful is displayed. "Next page" prompts during the MSpooler Status utility can be caused by specifying "No" in the "Suppress pause between pages?" field of the Screen Setup (or Video) command, or by specifying "Yes" in the "Page Pause" field of the MSpooler Status command. Therefore, if you have requested page pauses through both commands, you will be prompted twice for "next page" during the MSpooler Status utility. To eliminate page pauses, specify no page pauses in both the Screen Setup (or Video) and MSpooler Status commands.

Displaying the Main Status Report

The Main Status report displays the names, queue names, and the printing status (printing, paused, and so on) of each printer in the system.

The Main Status report also allows access to the following three subcommands:

- New Printer.**
- Select Queue.**
- Select Printer.**

After invoking **MSpooler Status**, the Main Status report is displayed. A sample Main Status report is shown in Figure 5-2. (For a description of executing the **Main Status Display** subcommand, refer to the subsection "Executing MSpooler Status Subcommands.")

Figure 5-2 Sample Main Status Report

Printer Name	Queue Name	Status
LETTER80	SPLB	Printing [d1]<sys>text
DOTMATRIX	SPL	Idle
LETTER132	SPLB	Paused Please enter appropriate password [d2]<private>letter

Commands:
<Enter command character shown, or <RETURN> to refresh screen>
N - New Printer Q - Select Queue S - Select Printer
Please enter option:

To activate the **New Printer** subcommand, press the N key; to activate the **Select Queue** subcommand, press the Q key; and to activate the **Select Printer** subcommand, press the S key. For a complete description of the **New Printer** subcommand, refer to the subsection "Executing MSpooler Status Subcommands."

The subcommands **Select Queue** and **Select Printer** are discussed in the following subsections.

Displaying the Queue Status Report

The Queue Status report displays detailed status information of the files contained in a specified scheduling queue. It also allows access to five subcommands:

- **Delete Print Request.**
- **Main Status Display.**
- **Print File.**
- **Select Queue.**
- **Select Printer.**

To display the Queue Status report, execute the **Select Queue** subcommand. To do so, bring up the Main Status report (or the Printer Status report) and press the Q key. The system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial **Select Queue** subcommand parameter "Queue name."

The **Select Queue** subcommand has only one parameter. It requires you to specify the queue name on which you want status information. Refer to Table 5-2 for information on completing this parameter.

After specifying the queue name, press the RETURN key. The "Queue name" prompt is displayed again. This time the specified queue name appears in brackets. To display the Queue Status report, press the GO key (despite the contradictory prompt).

Table 5-2 Select Queue Subcommand Parameter Description

Parameter	Action/Explanation
Queue name:	Enter the name of the scheduling queue for which you want status information displayed.

A sample Queue Status report appears in Figure 5-3.

Figure 5-3 Sample Queue Status Report

```
Queue: SPLB
Served by: LETTER80, LETTER132
Files Queued                               Priority
[d1]<sys>text                            5
[d2]<private>letter                         5
Commands:
<Enter command character shown, or <RETURN> to refresh screen>
D - Delete Print Request      P - Print File     S - Select Printer
M - Main Status Display       Q - Select Queue
Please enter option:
```

For a complete description of the subcommands which you can access through the Queue Status report, refer to the subsection "Executing MSpooler Status Subcommands."

Displaying the Printer Status Report

The Printer Status report displays detailed status information for a specified printer and the files listed in the associated scheduling queue. The Printer Status report also allows you to access all twelve **MSpooler Status** subcommands.

To display the Printer Status report, execute the **Select Printer** subcommand. To do so, bring up either the Main Status or the Queue Status report and press the S key. The system displays the prompt

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial **Select Printer** subcommand parameter "Printer name."

The **Select Printer** subcommand has one mandatory parameter. It requires you to specify the printer name for which you want status information. Refer to Table 5-3 for information on completing this parameter.

After specifying the printer name, press the RETURN key. The "Printer name" prompt is displayed again. This time the specified printer name appears in brackets. To display the Printer Status report, press the GO key (despite the contradictory prompt).

Table 5-3 Select Printer Subcommand Parameter Description

Field	Action/Explanation
Printer name:	Enter the name of the printer for which you want status information displayed (for example, serial).

A sample Printer Status report appears in Figure 5-4.

Figure 5-4 Sample Printer Status Report

```
Printer: LETTER80
Status: Printing [d1]<sys>text
Printer Description: Serial, Standard print wheel, standard
forms
Configuration File: [sys]<sys>SpIBconfigCp00.sys
Location: Local at XE500 Processor Slot 64
Queue: SPLB
Served by: LETTER80, LETTER132
Files Queued          Priority
[d1]<sys>text           5
[d2]<private>letter        5

Commands:
<Enter command character shown, or <RETURN> to refresh screen>
A - Align Form           F - Free Printer   P - Print File
C - Cancel Print          H - Halt Printer   Q - Select Queue
D - Delete Print Request  M - Main Status    R - Restart Printer
E - Enter Password         N - New Printer   S - Select Printer
Please enter option:
```

For a complete description of the subcommands which you can access through the Printer Status report, refer to the subsection "Executing MSpooler Status Subcommands."

Executing MSpooler Status Subcommands

The twelve **MSpooler Status** subcommands which are accessed through the various status reports are described in this subsection.

Note that some subcommands are executed simply by typing the appropriate command character in response to the "Please enter option:" prompt. Others require that you provide values for certain parameters before the subcommand can be executed.

Setting parameter values for the MSpooler subcommands requires you to follow the procedures which were described earlier in the subsection "Entering Parameter Values for Subcommands."

Aligning a Form

The **Align Form** subcommand allows you to reprint the first page of a file after you have halted the printer and manually adjusted the form alignment at the printer. Halt the printer by issuing the **Halt Printer** subcommand. (The **Halt Printer** subcommand is described later in this subsection.) After reprinting the first page, the printer pauses once more to allow you to realign the form if necessary.

This subcommand can be accessed through the Printer Status report.

To activate the **Align Form** subcommand, press the A key. The system displays the following prompt:

```
(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q=
Exit Program)
```

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility. If you press the GO key, the system reprints the first page of the document.

To continue printing without making additional pauses, use the **Restart Printer** subcommand, described in this subsection.

Cancelling a Print Request

The **Cancel Print** subcommand allows you to cancel the current printing request and terminate the printing operation. If you use this subcommand to cancel the printing of a temporary file (with the suffix .tmp), the system deletes the file.

This subcommand can be accessed through the Printer Status report.

To activate the **Cancel Print** subcommand, press the C key. The system displays the following prompt:

```
(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q=
Exit Program)
```

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility. When you press the GO key, a brief delay can occur before the printer stops.

Deleting a Print Request

The **Delete Print Request** subcommand allows you to delete a specified queue entry from the scheduling queue.

This subcommand can be accessed through either the Queue Status report or the Printer Status report.

To activate the **Delete Print Request** subcommand, press the D key. The system displays the prompt

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial subcommand parameter "File list."

The **Delete Print Request** subcommand has one mandatory and one optional parameter. A complete listing of this subcommand's parameters appears below.

File list:

Confirm each? [NO]

Information on making entries for these parameters can be found in Table 5-4.

After making your entry for the first parameter, "File list," press the RETURN key. Beneath the "File list" parameter, the second parameter, "Confirm each," appears. Make your entry and press the RETURN key again.

Now the initial "File list" prompt is displayed again. This time the specified file list appears in brackets. Press the RETURN key once more and the answer specified for the "Confirm each" parameter also appears in brackets. To continue with the subcommand, press the GO key (despite the contradictory prompt).

The system displays the file names you want deleted from the scheduling queue and the following prompt appears on your screen:

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Table 5-4 Delete Print Request Subcommand Parameter Descriptions

Parameter	Action/Explanation
File list:	Enter the list of files or file specification(s) you previously requested for printing. If you use the wild card character (*) in the "File list" field to delete all files from the queue, the system deletes the currently printing file in addition to the others.
Confirm each? [NO]	The default is no; confirmation is not required before deleting each file from the print request. Enter "Yes" to confirm the deletion of each file from the print request.

Entering a Password

The **Enter Password** subcommand allows you to enter a password when the printer responds to a security mode request given in the **MSpooler Status** utility's **Print File** subcommand or the BTOS Executive **Print** command. The system does not print the file until you provide the appropriate password.

This subcommand can be accessed through the Printer Status report.

To activate this subcommand, press the E key. The system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial subcommand parameter "Password."

The **Enter Password** subcommand has only one parameter. Refer to Table 5-5 for information on making an entry for this parameter.

After making your entry, press the RETURN key. The initial "Password" prompt is displayed again. This time the specified password (represented by # characters) appears in brackets. To continue on with the subcommand, press the GO key (despite the contradictory prompt).

Finally, the prompt

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

appears on your screen. Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

After making your entry, press the GO key to enter the password, the CANCEL key to deny and return to the previous status display, or the FINISH key to exit the MSpooler Status command.

Table 5-5 Enter Password Subcommand Parameter Description

Parameter	Action/Explanation
Password:	Enter the appropriate word or characters which are assigned as the password. The pound character (#) is displayed for each password character you enter. This ensures password security.

Freeing a Printer Channel

The **Free Printer Channel** subcommand allows you to free a printer channel from the control of the spooler. Use this subcommand to change the existing configuration for installation of a new printer, or to release an RS-232-C channel for other use (for example, data communications operation).

This subcommand can be accessed through the Printer Status report.

To activate this subcommand, press the F key. The system displays the following prompt:

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

Press the GO key to execute the subcommand and free the channel, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Halting a Printer

The **Halt Printer** subcommand allows you to stop the printer.

This subcommand can be accessed through the Printer Status report.

To activate this subcommand, press the H key. The system displays the following prompt:

```
(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q=
Exit Program)
```

Press the GO key to execute the subcommand and halt the printer, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

If you press the GO key, a brief delay can occur before the printer stops.

Displaying the Main Status Report

The **Main Status Display** subcommand allows you to redisplay the Main Status report shown in Figure 5-1.

This subcommand can be accessed through either the Queue Status report or the Printer Status report.

To activate this subcommand, press the M key. The system displays the following prompt:

```
(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q=
Exit Program)
```

Press the GO key to return to the Main Status report, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Specifying a New Printer

The **New Printer** subcommand allows you to place a specified printer under the control of the spooler and then redisplay the Main Status report.

Note: The New Printer subcommand requires that the printer be installed on the system before you attempt to use this command (that is, an entry must already exist for this printer in the MSpooler configuration file). Therefore, before using this subcommand you should be familiar with the operation of the XE 500 Queue Manager, Printer Spooler, and their associated files.

This subcommand can be accessed through either the Main Status report or the Printer Status report.

To activate this subcommand, press the N key. The system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial subcommand parameter "Printer channel."

The **New Printer** subcommand has three mandatory and three optional parameters. A complete listing of this subcommand's parameters appears below.

Printer channel [0]

Printer name:

Queue name:

Configuration file name:

Priority [10]

Suppress banner? [NO]

Information on making entries for these parameters can be found in Table 5-6.

After making your entry for the first parameter, "Printer channel," press the RETURN key. Beneath the "Printer channel" parameter, the second parameter, "Printer name," appears. Make your entry and press the RETURN key again. Continue this procedure until all six parameters have an entry (whether it is a default or a specified value).

After the final parameter is completed, press the RETURN key. Now the initial "Printer channel" prompt is displayed again. This time the specified value appears in brackets. Press the RETURN key once more and the value specified for the "Printer name" parameter also appears in brackets. Using the RETURN key, continue to scroll through all six parameters until you reach the final one. To continue with the subcommand, press the GO key (despite the contradictory prompt).

The system then displays the following prompt:

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Table 5-6 New Printer Subcommand Parameter Descriptions

Parameters	Action/Explanation
Printer Channel [0]	Enter a single character code that specifies the printer channel on the CP or TP to which the printer is connected. Use the code list that appears below:
O	parallel printer channel
A	channel 1
B	channel 2
C	channel 3
D	channel 4
E	channel 5
F	channel 6
G	channel 7
H	channel 8
I	channel 9
J	channel 10 (channels 4-10 apply to TP only)
	The default value is O.
Printer name:	Enter the name of the new printer.
Queue name:	Enter the name of the scheduling queue to be served by the new printer.
Configuration file name:	Enter the name of the new printer's configuration file. This file is created through the MCreate Configuration File command and describes the new printer parameters.
Priority [5]	You can set the priority of the Printer Spooler process relative to other BTOS application processes. The priority may be set between 10 and 254, with 10 being the highest. The default priority setting is 5.
Suppress banner? [NO]	The default is no. The printer prints the banner page at the beginning of the file. Enter "Yes" if you do not want the banner page to be printed at the start of each printing task.

Printing a File

The **Print File** subcommand generates a queue entry for printing a specified list of files and adds it to the scheduling queue.

This subcommand can be accessed through either the Queue Status report or the Printer Status report.

To activate the **Print File** subcommand, press the P key. The system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial subcommand parameter "File list."

The **Print File** subcommand has one mandatory and ten optional parameters. A complete listing of this subcommand's parameters appears below.

File list:

Number of copies [1]

Delete after print? [NO]

Form name:

Wheel name:

Printing mode [A]

Align form? [NO]

After date & time:

Security mode? [NO]

Priority [5]

Confirm each? [NO]

Information on making entries for these parameters can be found in Table 5-7.

After making your entry for the first parameter, "File list," press the RETURN key. Beneath the "File list" parameter, the second parameter, "Number of copies," appears. Make your entry and press the RETURN key again. Continue this procedure until all eleven parameters have an entry (whether it is a default or a specified value).

After the final parameter is completed, press the RETURN key. Now the initial "File list" prompt is displayed again. This time the specified value appears in brackets. Press the RETURN key once more and the value specified for the "Number of copies" parameter also appears in brackets. Using the RETURN key, continue to scroll through all eleven parameters until you reach the final one. To continue with the subcommand, press the GO key (despite the contradictory prompt).

The system then displays the following prompt:

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Table 5-7 Print File Subcommand Parameter Descriptions

Parameters	Action/Explanation
File list:	Enter the list of file(s) that you want to print.
Number of copies [1]	The default directs the system to print one copy of the file specified. To print more than one copy, enter the number of copies of each file you want printed.
Delete after print? [NO]	The default is no. If you enter "No" or accept the default (leave the field blank), the system does not delete the file after printing it. Enter "Yes" if you want the file deleted after it is printed.
Form name:	If you accept the default, the printer does not pause before printing to load special paper. Enter the name (up to 12 characters long) of the special paper on which you want the file to be printed. If you do enter a name, the printer pauses before printing the file so that you can load the special paper.
	To restart the printer, use the Restart Printer subcommand.

Table 5-7 Print File Subcommand Parameter Descriptions (Cont.)

Parameters	Action/Explanation
Wheel name:	The default does not specify a particular print wheel. Enter the name (up to 12 characters long) of the print wheel that you want to use to print the file. If you do enter a name, the printer pauses before printing the file so that you can change the print wheel.
Printing mode [A]	To restart the printer, use the Restart Printer subcommand.
Align form? [NO]	The default is A for normal mode. Enter I for image mode, or B for binary mode.
After date/time:	The default is no; the printer does not pause for you to align the form. Enter "Yes" if you want the printer to pause after printing the first page of the file so that you can realign the form. See the Align Form subcommand description.
Security mode? [NO]	The default is to print the file as soon as possible. To specify a time to print the file, enter the date and time after which you want the file to be printed. A sample format is "Wed Apr 17 1985 8:00 pm"
Priority [5]	The default is no. Enter "Yes" if you want the printer to pause for a password before printing the file. See the Enter Password subcommand description.
Confirm each? [NO]	The scheduling queue priorities are 0-9, with 0 being the highest. The default sets the priority at 5. To assign a file a different priority in the scheduling queue, enter the desired priority number.
	The default is no; the system prints the file without prompting you for confirmation. Enter "Yes" if you want to be prompted before printing each file specified in the file list.

Displaying the Queue Status Report

The **Select Queue** subcommand displays the Queue Status report of the specified queue.

For a complete description of the **Select Queue** subcommand, refer to the subsection "Displaying the Queue Status Report."

Restarting a Printer

The **Restart Printer** subcommand restarts the printer after it has paused.

This subcommand can be accessed through the Printer Status report.

To activate this subcommand, press the R key. The system displays the following prompt:

<GO>/<ESC> to escape interaction, <RETURN> to continue

Below this prompt appears the initial subcommand parameter "Restart from page number."

This is the only parameter in the **Restart Printer** subcommand. It requires you to specify the page number on which to restart the printer. For information on completing this parameter, refer to Table 5-8

After specifying the page number, press the RETURN key. The "Restart from page number" prompt is displayed again. This time the specified page number appears in brackets. To continue with the subcommand, press the GO key (despite the contradictory prompt).

The system then displays the following prompt:

(<GO>/<ESC>/Y to Continue, <CANCEL>/N = Deny, <FINISH>/Q= Exit Program)

Press the GO key to execute the subcommand, the CANCEL key to deny and return to the previous status report, or the FINISH key to exit the MSpooler Status utility.

Table 5-8 Restart Printer Subcommand Parameter Description

Field	Action/Explanation
Restart from page number:	If you accept the default, the printer resumes printing where it stopped. To direct the printer to restart printing from another page, enter the specific page number. Enter "0" to restart the printer from the beginning of the page on which the printer paused.

Displaying the Printer Status Report

The **Select Printer** subcommand displays the Printer Status report of the specified printer.

For a description of the **Select Printer** subcommand, refer to the subsection "Displaying the Printer Status Report."

Using XE 500 Tape Drives

This section describes how to use the various XE 500 tape drives, which include half-inch and quarter-inch cartridge (QIC) tapes. Before either type of tape can be used with the XE 500 system, that data must be properly formatted. The formatting procedures relative to each tape drive are presented here. This section also includes information on executing the master commands which are used to perform typical tape drive operations.

Using Half-Inch Tapes

Handling Half-Inch Tapes

Here are some rules to follow when handling half-inch tapes:

- Store half-inch tapes in their approved containers, such as ring seals, canisters or cartridges. They should be kept in a dry area at room temperature.
- Half-inch tapes must be stored in a vertical position. Horizontal storage causes reels to warp and causes tape edge damage.
- Keep half-inch tapes away from magnetic devices, such as CRT screens, printers, or other peripheral equipment.
- Use care when handling a tape reel after you have removed it from its container. Hold the reel by the hub and avoid touching the tape with your hands.
- Avoid unrolling the tape. Never unroll it past the beginning-of-tape (BOT) marker (the silver reflector which is several feet from the tape leader).

Operating the Half-Inch Tape Drive

For instructions on operating the half-inch tape drive, refer to the documentation which accompanied your tape drive.

Using QIC Tapes

Handling QIC Tapes

Here are some rules to follow when handling QIC tapes:

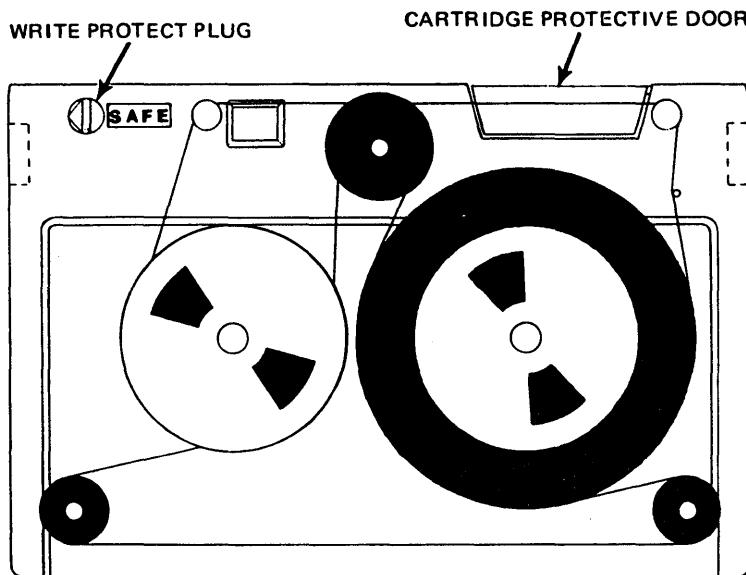
- Use care when handling QIC tapes. Do not touch or manually move the magnetic tape inside the cartridge.
- Store cartridges in their cases, in a dry area at room temperature. Unlike half-inch tapes, it is not necessary to store QIC tapes vertically.
- Keep QIC tapes away from magnetic devices, such as CRT screens.

Under certain conditions, the QIC tape should be *packed* (that is, rewound) to ensure that the tape operates properly during I/O operations. Before using a QIC tape, execute the **MQic Retension** command to rewind the tape if any of the following conditions apply:

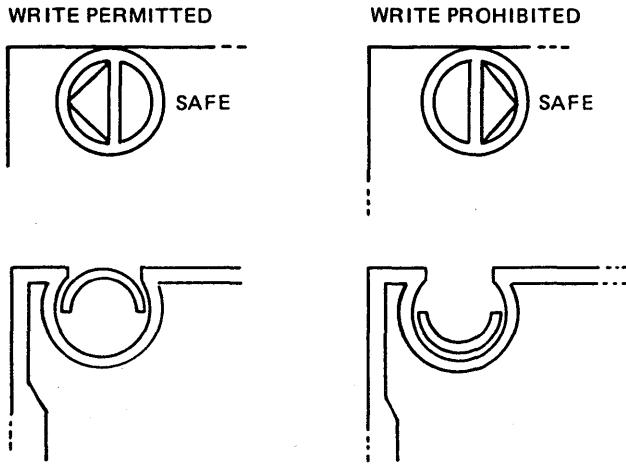
- Occurrence of excessive read/write errors (more than 50 software errors per pass).
- Exposure of the cartridge to temperatures outside the range of 40°F to 110°F (5°C to 44°C).
- Prolonged storage (more than two weeks) of the cartridge.
- Physical shock to the cartridge, such as dropping it or dropping something on it.

For information on executing the **MQic Retension** command, refer to the subsection "Retensioning a QIC Tape."

Figure 6-1 shows the components of a QIC tape. Figure 6-2 shows the positions of the write protect plug for enabling and disabling write operations to the tape.

Figure 6-1 Components of a QIC Tape

E5384

Figure 6-2 QIC Tape Write Protect Plug Positions

E5385

Operating the QIC Tape Drive

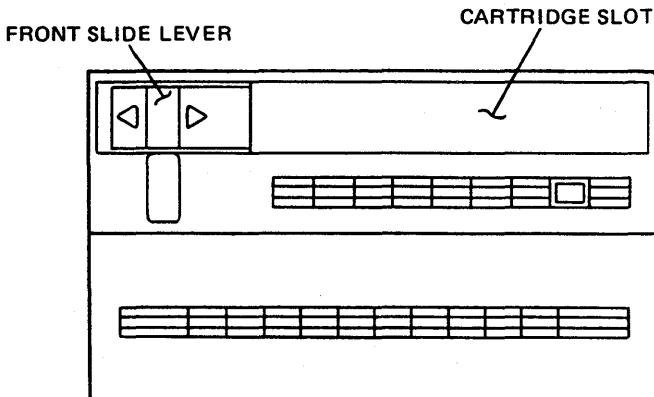
You will need to know how to operate the QIC tape drive when using QIC tapes. There are only two controls for the drive—the front slide lever and the cartridge slot. Referring to Figure 6-3, locate these two parts of the drive.

The front slide lever controls the locking of the QIC tape in the drive.

Notice that there is a red indicator light on the right side of the drive. This light goes on whenever the system is retrieving or storing information on the drive.

Caution: If you push the front slide lever when the indicator light is on, you could interrupt a write operation to the tape.

Figure 6-3 The QIC Tape Drive



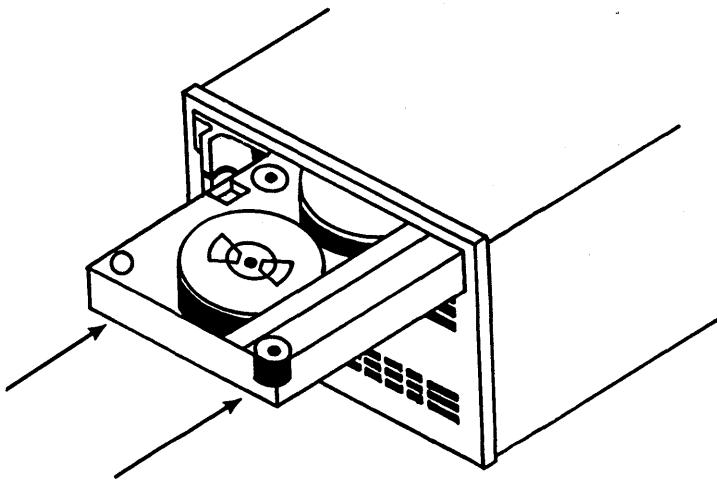
E5386

Inserting a QIC Tape

Use the following procedure to insert a QIC tape.

- 1 Be sure that the XE 500 base enclosure is powered up.
- 2 Remove the QIC tape from its case.
- 3 Insert the QIC tape into the drive with the cartridge protective door facing left and the base plate of the cartridge facing down, as shown in Figure 6-4.
- 4 Push the QIC tape into the drive.
- 5 When the QIC tape is fully inserted, it descends into the tape drive. At this time, the protective door on the cartridge opens.

Figure 6-4 Inserting the QIC Tape



E7517

- 6 Move the front slide lever to the right until it reaches the lever stop. This secures the cartridge and brings the head assembly to its correct operating position.
- 7 The QIC tape is now loaded. Note that the red indicator lights up when the QIC tape drive is being used.

Removing a QIC Tape

Use the following procedure to remove a QIC tape.

- 1 Make sure the drive indicator light is off.
- 2 Move the front slide lever to the left until it reaches the lever stop.
- 3 The head assembly in the drive retracts, and the protective door on the cartridge closes. A cartridge ejector automatically raises the cartridge out of the drive and slowly pushes it forward.
- 4 Grasp and remove the QIC tape, and return it to its case, with the protective door to the inside of the case and the base plate down.

Tape File Formats

Data on half-inch or quarter-inch cartridge (QIC) tapes must be properly formatted to be used with the XE 500. The tape must contain fixed-length tape records, with one file mark at the end of each tape file and two marks at the logical end of each tape.

A record is a specified amount of data. On magnetic tape, each file is made up of a number of these records. To be able to properly read data from or write data to the tape, the XE 500 must know the record length being used. This length is specified in a tape configuration file, which is created by the system administrator.

The file mark is a piece of data on the tape that is used to denote where one tape file ends and another begins. Two file marks together signify the end of the usable portion of a tape.

Half-Inch Tape File Names

Before performing most half-inch tape operations, you must enter an accurate tape file name. The half-inch tape file name identifies

- The SP or DP to which the half-inch tape drive is connected.
- The specific tape drive.
- The tape position at which a read or write operation is to be performed.

Half-inch tape file names have the format

[tape x] y

where

- x is the SP (or DP) to which the half-inch tape drive is connected. To obtain this value, look at the back of the XE 500 and identify the SP (or DP) to which the tape drive is connected. (You should be aware that a DP is made up of an SP and an SC, so all DPs must be included in your count.) Refer to Figure 6-1 for a depiction of how SP and DP boards are numbered.

The value for x is from 0 to 3 (all values are zero-relative).

If a value is not specified, the default is 0 (the first SP or DP board in the system.).

Note: If a value for x is not specified, the default value refers to the first SP (or DP) board on the XE 500, not the SP (or DP) on which the first tape server is running.

- y is the specific half-inch tape drive. Since up to two half-inch tape drives can be daisy-chained together from a single SP (or DP), this value is either 0 or 1.

Refer to Figure 6-2 for a depiction of how the tape drives are numbered. If a value for y is not specified, the default is 0 (the first tape drive).

Note: If only one digit is specified inside the brackets (for example, [tape2]), the system assumes this digit to be the y value. The default value of 0 is then applied for the x value.

m is the number of the file mark on the tape after which the archive file is placed.

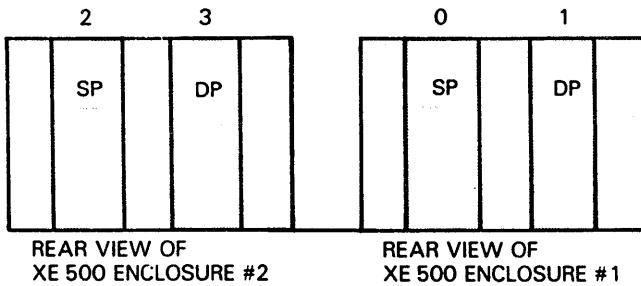
Since magnetic tapes are not directory devices, individual files on a tape cannot be assigned a name like files are on a disk-based volume. Tapes contain markers, called *file marks* or *tape marks*, that mark the separation of adjacent files on the tape. A file on tape is physically a collection of tape blocks which are delimited by tape marks.

There is no mark before the first file. [tapexy]00 is the name for the file at the beginning of the tape, [tapexy]01 for the file after the first file mark, and so on.

Use a plus sign (+) for *m* when you want to go to the end of the last valid tape file and create a new file. This tape format would appear as [tapexy]+.

Use [tapexy] with no suffix (*m*) when you want to write a file at the tape's current position. Tape access is considerably faster than when you use the form [tapexy]*m*, which rewinds the tape to the load point and searches for the specified file mark.

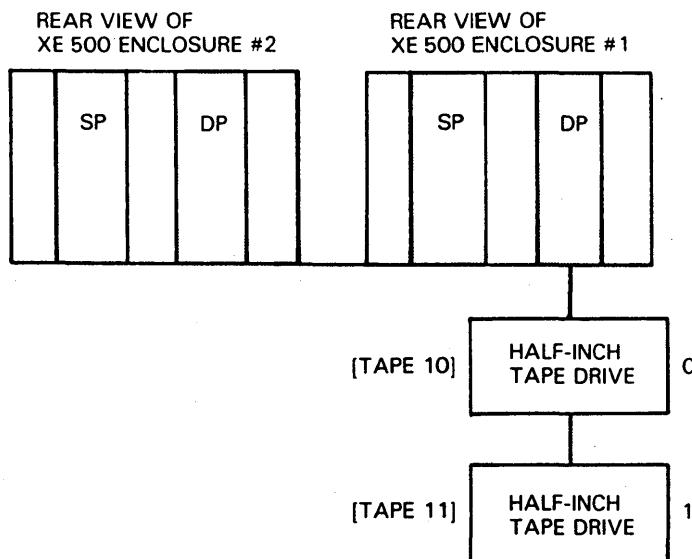
Figure 6-5 Counting the Number of SP and DP Boards When Identifying a Half-Inch Tape Drive



REAR VIEW OF
XE 500 ENCLOSURE #2

REAR VIEW OF
XE 500 ENCLOSURE #1

E7653

Figure 6-6 Identifying Half-Inch Tape Drives

Examples of Half-Inch Tape File Names

The following examples illustrate half-inch tape file names.

- [tape01]4 refers to the fifth file contained on the second half-inch tape drive that is connected to the first SP (or DP).
- [tape10]+ refers to appending a file after the last file on the first half-inch tape drive that is connected to the second SP (or DP).
- [tape]8 refers to the ninth file contained on the first half-inch tape drive that is connected to the first SP (or DP).
- [tape1]7 refers to the eighth file contained on the second half-inch tape drive that is connected to the first SP (or DP).
- [tape] refers to the current position on the first half-inch tape drive that is connected to the first SP (or DP).

Naming a Specific Half-Inch Tape Drive Configuration File

If you want a specific half-inch tape drive configuration file to be used for a half-inch tape operation, follow the half-inch tape file name with an ampersand (&) and the configuration file name.

For example, assume a half-inch tape operation involves the tape file name [tape01]+. The half-inch tape configuration file [sys]<sys>Tape00Config.sys (or, if that file does not exist, the default file [sys]<sys>TapeConfig.sys) is used to define the half-inch tape drive operating parameters. If you wanted to use a different configuration file, for example, [sys]<sys>TapeSpecial.sys, you would use the half-inch tape file name [tape00]+&[sys]<sys>TapeSpecial.sys.

QIC Tape File Names

Since magnetic tapes are not directory devices, individual files on a tape cannot be assigned a name like files are on a disk-based volume. Tapes contain markers, called *file marks* or *tape marks*, that mark the separation of adjacent files on the tape. A file on tape is physically a collection of tape blocks which are delimited by tape marks.

Reading Files from the QIC Tape

When performing operations which read from the QIC tape (for example, when copying files stored on the QIC tape) use the following format for QIC tape file names:

[QIC]*m*

where

- m* is the number of the file mark on the tape after which the archive file is placed. File marks separate adjacent files. There is no mark before the first file. [QIC]00 is the name for the file at the beginning of the tape, [QIC]01 for the file after the first file mark, and so on.

If a value for *m* is not specified, the default is the current tape position.

Writing Files to the QIC Tape

When performing operations which write files to the QIC tape (for example when copying files to the QIC tape), use the format

[QIC]

This format writes a file at the tape's current position.

To create multiple backups on a QIC tape, be sure that the "[Rewind on Close]" parameter in the QIC configuration file is set to "false."

If the "[Rewind on Close]" parameter is set to "true," then all backup or write operations will start at the beginning of the tape.

Naming a Specific QIC Tape Drive Configuration File

If you want a specific QIC tape drive configuration file to be used for a QIC tape operation, follow the QIC tape file name with an ampersand (&) and the configuration file name.

For example, assume a tape operation involves the QIC tape file name [QIC]. The QIC tape configuration file [sys]<sys>QICConfig.sys is used to define the tape drive operating parameters. If you wanted to use a different configuration file (for example, [sys]<sys>QICSpecial.sys), you would use the tape file name [QIC]&[sys]<sys>QICSpecial.sys.

Copying Files Between an XE 500 Directory and Half-Inch or QIC Tape

Use the **MTape Copy** command to copy files between an XE 500 directory and half-inch or QIC tape.

You can also use the **MTape Copy** command for importing data from non-XE 500 systems. To do so, the tape must contain fixed-length tape records, with one file mark at the end of each tape file, and two marks at the logical end of tape.

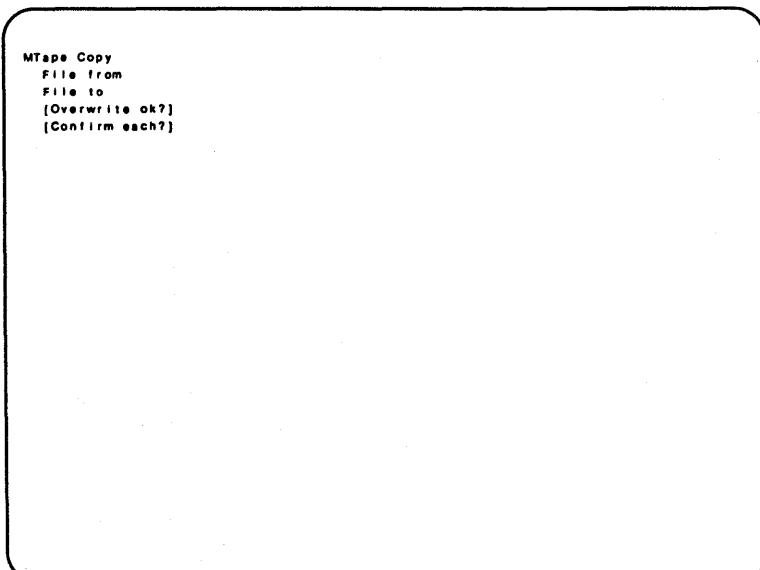
Executing the MTape Copy Command

To execute the **MTape Copy** command, type "MTape Copy" in the Executive command field and press the RETURN key. The system displays the **MTape Copy** command form shown in Figure 6-7.

The **MTape Copy** command form has two mandatory fields and two optional fields (enclosed in square brackets). Refer to Table 6-1 for information about each field.

When you complete the **MTape Copy** command form, press the GO key. The system copies the file(s) as you have specified.

Figure 6-7 MTape Copy Command Form



```
MTape Copy
File from
File to
[Overwrite ok?]
[Confirm each?]
```

Table 6-1 MTape Copy Command Fields

Field	Action/Explanation
File from	Enter the name of the file(s) which you wish to copy. To copy multiple files, enter the file names separated by spaces.
	If you are copying a file from tape to disk, specify the tape file name.
	If you are copying a file from disk to tape, specify the disk file name to copy to tape.
File to	Enter the file name to which you wish to copy the file(s). If the file does not exist, the system creates it.
	If you entered multiple file names in the "File from" field, you must enter the same number of file names in corresponding order in this field. The system copies the first file named in the "File from" field to the first in the "File to" field, the second to the second, and so forth.
[Overwrite ok?]	If you leave this field blank and a file named in the "File to" field already exists, the system prompts you for confirmation before overwriting the file.
	If you specify "No" and MTape Copy finds that a file named in the "File to" field already exists, MTape Copy informs you that it did not copy the file. MTape Copy then moves on to process the next file.
	Enter "Yes" if you wish to overwrite an existing file named in the "File to" field. The system overwrites (destroys) the contents of the existing file and continues the copy operation.
[Confirm each?]	The default is no; you are not prompted to confirm each copy operation. Enter "Yes" to have the system prompt you to confirm each copy operation. When prompted, confirm the copy by pressing the GO key, deny it (and go to the next file) by pressing the CANCEL key, or stop copying files by pressing the FINISH key.

Erasing Data from a QIC Tape

You can permanently erase data from a QIC tape by using the **MQic Erase** command. Once this command has been executed, you cannot recover this data.

To execute the **MQic Erase** command, insert the QIC tape that you want to erase into the QIC tape drive. Then enter "MQic Erase" on the Executive command line and press the GO key. There are no parameter fields for this command.

Retensioning a QIC Tape

Use the **MQic Retension** command to rewind a QIC tape. This "packs" or retensions the tape.

To execute the **MQic Retension** command, insert the QIC tape that you want to retension into the QIC tape drive. Then enter "MQic Retension" on the Executive command line and press the GO key. There are no parameter fields for this command.

Using Disk Cartridges

Disk cartridges provide a portable medium on which to store information. In the XE 500 system, they can provide the source for the initial system software and for future software updates. Disk cartridges can also be used as backup storage devices for important files in the XE 500 system.

Handling Disks

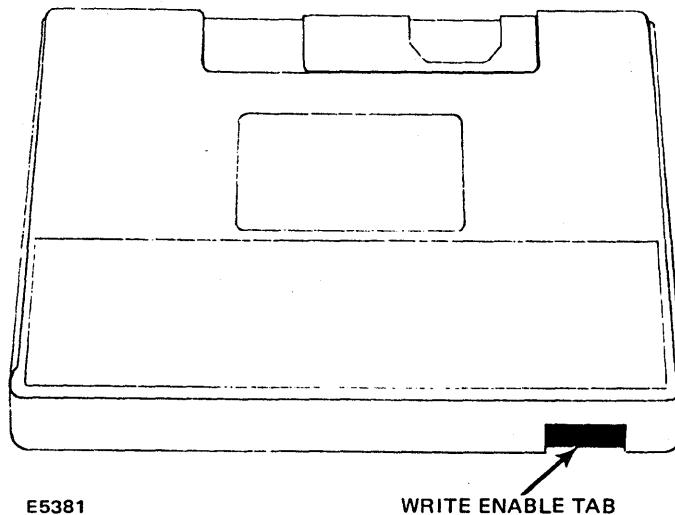
A disk cartridge consists of a rigid disk enclosed within a protective plastic cartridge. The disk is covered with magnetic material on both sides. Every disk cartridge comes with its own case, which serves as a dust jacket.

There are some simple rules to follow when you handle disk cartridges.

- Use care when handling disk cartridges. Sudden shocks can cause internal damage to the cartridge.
- Store disk cartridges upright in their dust jackets. Keep them out of direct sunlight. Store them in a dry area at normal room temperature.
- Store disks away from magnetic or electrical devices.
- Do not use disks that have recently been in an extremely hot or cold environment. Wait for them to adjust to room temperature.

Caution: DO NOT remove the red write enable tab at the side of the disk cartridge. (See Figure 7-1.)

Figure 7-1 A Disk Cartridge



E5381

WRITE ENABLE TAB

Operating the Cartridge Slot

You will need to know how to operate the cartridge slot when using disk cartridges. There are only two controls for the cartridge slot—the release latch and the slot door. Referring to Figure 7-2, locate these two parts of the cartridge slot.

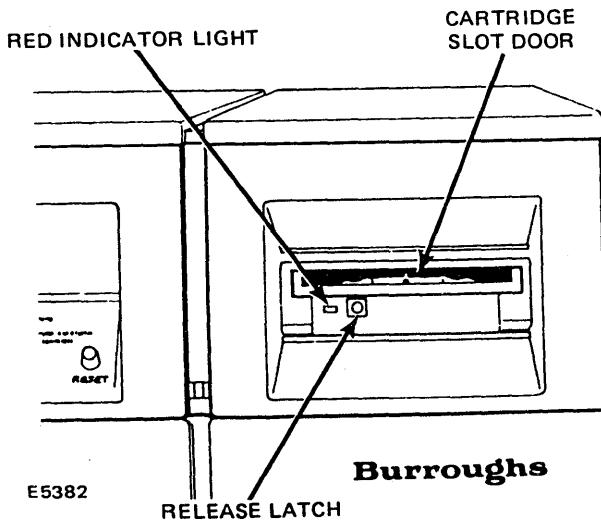
The release latch releases the door from the locked position. The door must be manually opened before you can insert or remove a disk cartridge.

Notice that there is a red indicator light to the left of the release latch. This light goes on whenever the system is retrieving or storing information on the disk cartridge.

While a disk cartridge is inserted, the disk spins at a certain operating speed. The indicator light flashes whenever the disk is being brought down from its operating speed.

Caution: Never push the release latch when the indicator light is on. Also, you should never open the slot door to remove a disk cartridge while the light is flashing. These actions could damage the disk and/or the drive unit.

Figure 7-2 The Disk Cartridge Slot



Inserting a Disk Cartridge

Caution: *The XE 500 base enclosure should always be powered up before a disk cartridge is inserted.*

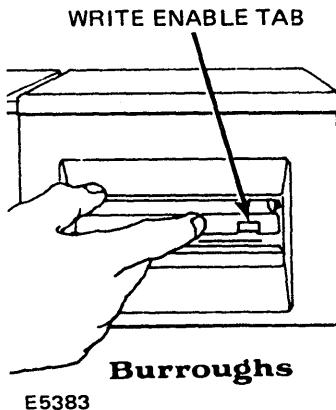
Use the following procedure to insert a disk cartridge.

- 1 Be sure that the XE 500 base enclosure is powered up.
- 2 Press the release latch at the cartridge slot.
- 3 Open the cartridge slot door.

Caution: *To avoid internal damage to the cartridge drive when inserting a disk cartridge, be sure that the cartridge slot door is fully open.*

- 4 Remove the disk cartridge from its dust jacket.
- 5 Insert the disk cartridge as shown in Figure 7-3. The side that has the write enable tab should be facing out, and the write enable tab should be to the right.
- 6 Push the disk cartridge into the drive until you hear a "click."
- 7 Close the door. Note that the red indicator lights up when the disk cartridge drive is being used.

Caution: *Do not turn off power to the XE 500 base enclosure after a disk cartridge has been inserted.*

Figure 7-3 Inserting the Disk Cartridge

Removing a Disk Cartridge

Caution: Attempt to remove a disk cartridge only when the disk drive indicator light is off. Never press the release latch when the light is on or blinking.

Use the following procedure to remove a disk cartridge.

- 1 Make sure the disk drive indicator light is off.
- 2 Press the release latch.

After the cartridge release latch is pressed, the indicator light at the cartridge slot blinks for about 30 seconds (until the disk stops spinning).

Caution: After pressing the release latch, do not open the drive door until the blinking stops.

3 Be sure that the indicator light has stopped blinking.

4 Open the cartridge slot door.

As you fully open the door, the disk automatically ejects from the drive. Hold onto the disk during this process to prevent it from falling.

5 Place the disk cartridge into its dust jacket.

6 Close the cartridge slot door.

Note: Always keep the cartridge slot door closed when not in use.

Establishing Security for XE 500 Files

System security is a series of measures taken by the system administrator to prevent damage to system software and unauthorized access to or alteration of protected data files, while allowing authorized work to be performed.

It is assumed that you may want to establish security procedures for volumes, directories, and files that are local to your workstation. This information is contained in the *BTOS Standard Software Operations Guide*.

Because the XE 500 is probably being shared by a number of users, it is the system administrator's responsibility to set up security measures for XE 500 facilities and file systems.

The system administrator creates a signon file for each user. This signon file determines what user password is required to log on to the system, the commands available to the user, and what application is started up for the user upon logging in.

The system administrator is also responsible for the security of the XE 500 file systems. File system security is established by assigning passwords to XE 500 volumes and directories. Individual files may also be assigned passwords.

This manual assumes that the administrator is responsible for assigning passwords to volumes and directories, and also to some files, but that you may also want to password-protect your own XE 500 files. For this reason, procedures for password-protecting files are referenced in this section. Procedures for password-protecting volumes and directories are explained in the *XE 500 BTOS Administration Guide*.

The procedure necessary to establish security for your XE 500 files requires two steps. First you must set a protection level for your files and then you assign a password.

For example, you can set a file protection level so that users cannot modify your files; however, unless you also assign a password, an unauthorized user can change the file protection level and then access and modify your file.

By using protection levels in conjunction with password protection you provide full security for your files.

Setting File Protection Levels

You can control the type of access that other users have to your files by setting file protection levels. Protection levels determine whether or not a password is required to gain access to a particular file (or volume or directory). Protection levels also allow you to control whether someone can modify your files or can read them only.

When you create a file, it automatically receives the same protection level that was set when the directory in which the file resides was created.

Note: Before you can assign a password to one of your files, passwords must have been previously assigned for both the volume and the directory in which that file resides.

Table 8-1 lists the protection levels, their numbers, and the types of passwords required to read or modify files for each level.

Usually you would use only three of these levels:

- **Unprotected (Protection level 15).** The "Unprotected" protection level allows all users to have unlimited file access and requires no password to read or modify the file.
- **Modify Password (Protection level 7).** The "Modify Password" protection level requires a password to modify the file, but does not require a password to read the file.
- **Access Password (Protection level 3).** The "Access Password" protection level requires a password to modify or read the file.

If you want to change a file's protection level, use the **MSet File Protection** command, which is described in the subsection "Executing the MSet File Protection Command."

The **MSet File Protection** command allows you to set a new protection level for an existing file or list of files. It also allows you to assign a password to the same file.

Table 8-1 BTOS Protection Levels

Protection Level	Decimal Value	Password Required	
		To Read	To Modify
Unprotected	15	None	None
Modify password	7	None	Volume, directory, or file
Access password	3	Volume, directory, or file	Volume, directory, or file
Nondirectory modify password	23	None	Volume or file
Nondirectory access password	19	Volume, directory, or file	Volume or file
Modify protected	5	None	Volume or directory
Access protected	0	Volume or directory	Volume or directory
Read password	1	Volume, directory, or file	Volume or file

Assigning a File Password

A valid password can have a maximum of 12 characters, including alphanumeric characters, periods, and/or hyphens. You should select a password that is easy to remember and unique to the system.

To assign a password to a file, use the **MSet File Protection** command, which is described in the subsection "Executing the MSet File Command."

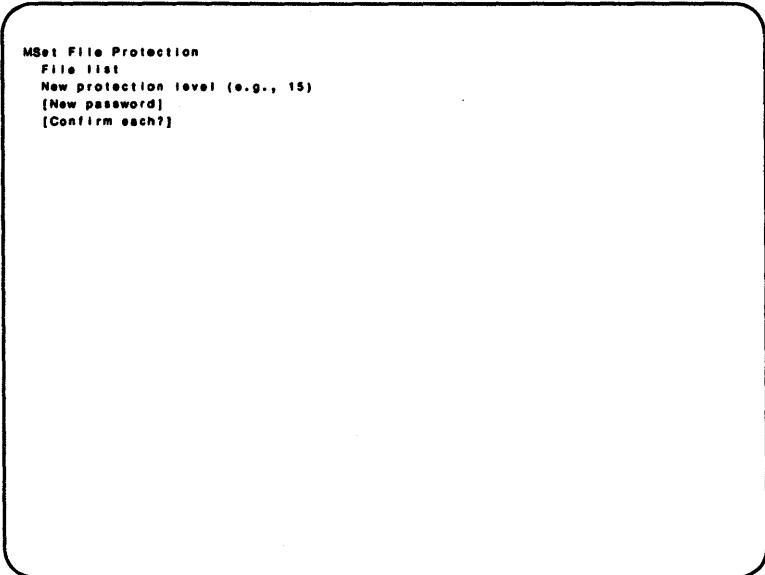
Executing the MSet File Protection Command

To execute the **MSet File Protection** command, type "MSet File Protection" in the Executive command field and press the RETURN key. The system displays the **MSet File Protection** command form shown in Figure 8-1.

The **MSet File Protection** command form has two mandatory fields and two optional fields (enclosed in square brackets). Refer to Table 8-2 for information about each field.

When you complete the **MSet File Protection** command form, press the GO key. The system sets the new file protection level.

Figure 8-1 MSet File Protection Command Form



```
MSet File Protection
File list
New protection level (e.g., 15)
[New password]
[Confirm each?]
```

Table 8-2 MSet File Protection Command Fields

Field	Action/Explanation
File list	Enter the name of the file or list of files. If the file is in a volume or directory other than the current path, you must specify the full file name.
New protection level (e.g., 15)	Enter the value of the desired protection level. Refer to Table 8-1 for information on the available protection levels.
[New password]	The default is no. If you accept the default, the system does not assign a password to the file.
	To assign a new password to the file, enter the password. Each password is permitted a maximum of 12 characters, including alphanumeric characters, periods, and/or hyphens.
	If you entered a protection level that requires a password in the "New protection level" field, you must make an entry in this field.
	To delete an existing password, enter two single quote marks with no space between them ("").
[Confirm each?]	The default is no. If you accept the default, the system does not prompt you for confirmation before setting the protection level.
	Enter "Yes" to receive confirmation prompts before a protection level is set for each file. The system prompts you for confirmation before protecting each file.

Examples of Using the MSet File Protection Command

To protect the file <market>research from either being read or modified by anyone other than yourself, the **MSet File Protection** command form would appear as is shown in Figure 8-2. In this example, an entry in the "New password" field is required. The new password assigned is "EBlair."

Figure 8-2 MSet File Protection Command Form (Sample A)

```
MSet File Protection
File list
New protection level (e.g., 15)      <market>research
New password                         3
[Confirm each?]
EBlair
```

To set a new file protection level and remove the password "EBlair" which was assigned to the file <market>research, the **MSet File Protection** command form would appear as is shown in Figure 8-3.

Figure 8-3 MSet File Protection Command Form (Sample B)

```
MSet File Protection
File list           <market>research
New protection level (e.g., 15)    15
New password
[Confirm each?]
```

Accessing a Password Protected File

To enter a password, first enter the file name that you want to access. Then append a caret sign and the password to the end of that file name. For example, the file name [personnel]<engineering>salaries—ABC includes the password ABC.

When you enter a password, each character of the password appears on the screen as a pound sign (#). This ensures confidentiality. If a user does not supply a required password or enters an incorrect one, the system displays an error message saying that access is denied.

Status Messages and Error Recovery

This section provides an overview of system status messages in the XE 500 BTOS system. It also describes how you can recover from simple operator errors.

This section does not explain how to recover from more serious errors or system failures. Recovery from system failures is described in your *XE 500 BTOS Administration Guide*.

System Status Reporting

Status messages can be displayed in two places:

- The STATUS display at the XE 500 base enclosure front panel is used to report status codes during software installation and boot-up of the XE 500. XE 500 processor and built-in disk failures that occur during normal operation are also reported through the STATUS display.
- The workstation screen is used to report operating system status and error conditions that occur during normal operation.

During normal operation, you should only be concerned with status messages that are sent to your workstation.

Because software installation and the XE 500 boot-up procedure are considered system administrative tasks, STATUS display codes are not discussed here. Refer to your *XE 500 BTOS Administration Guide* and the *BTOS Status Codes Reference Manual*.

The system displays status and error messages below the last executed command on your screen. These messages may reflect an activity being performed (such as "Copying file XXX... to file YYY"), they may indicate an error in filling in a command form, or they may report system errors or failures. System errors or failures are also recorded in a file that can be read using the **MPLog** command (the information in this log is used by your system administrator to diagnose system problems).

Operator mistakes are a common source of error, and you can correct these without assistance. The following subsection discusses the types of errors from which a workstation user should be able to recover.

Interpreting General Status Messages

General error messages not associated with status codes may be displayed by the BTOS Executive. They are usually due to errors in filling out command forms. Examples of these messages follow:

Form is too long. You requested a command whose form does not fit on the video display. Increase the number of screen lines with the **Screen Setup** command.

Invalid command case *n*. *n* is a decimal number. When the command just executed was last registered with the Executive by the **New Command** command, the run file was *In*. The value of *n* given at that time is invalid. Reissue **New Command**.

Invalid or missing parameter *n*. *n* is a decimal number. The command requires you to fill in parameter *n*. Reissue the command.

***p* has an invalid wild card.** *p* is a field in which you have used a wild card character to define a file list. Resolve the wild card discrepancy and reissue the command.

***p* is neither Yes nor No.** *p* is a parameter that should have been typed as Yes or No.

***p* is not numeric.** *p* is a field whose entry must be a decimal number without a decimal point (.). Correct the entry and reissue the command.

Parameter list won't fit in memory. The available memory size cannot accommodate the parameters.

Press NEXT PAGE to continue. Information displayed since the last keystroke was read is about to be scrolled off the video display by a command (for example, Type). Press the NEXT PAGE key to display the next page, or press the CANCEL or FINISH key to skip the rest of the display.

Quotes are unbalanced. You typed a simple parameter that begins with a single quote mark ('), but you did not close the quote. Type a single quote (') to close it.

Too many characters in parameters and description. Issued in response to a **New Command**. Reissue the command using shorter field names.

Recovering from System Errors

When the system reports an error to the Executive, a message in the form

message (Error *n*)

is displayed, where *message* is a short description of the system problem and *n* is the status code corresponding to that problem. For example, if you specify a name for a disk-cartridge volume and the cartridge is not mounted in the cartridge drive, the following message appears:

Subsystem error: Volume not mounted (Error 216)

The *BTOS Status Codes Reference Manual* lists the status codes, a description of the problem to which they refer, and, if applicable, suggestions on how to recover.

If you encounter a problem from which you cannot recover, tell your system administrator.

Glossary

AdminAgent. The system service that manages the execution of the master utilities on XE 500 processors. The AdminAgent can be run in either single mode or multiple mode.

archive. The procedure used to backup system files onto portable media.

archive volume. A portable medium that is used to archive (back up) files.

ASCII (American National Standard Code for Information Interchange). Control and graphic character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange between data communications systems.

background process. Process that, once started up, runs with no interaction with the user through the terminal. Another process is free to use the terminal.

backup. See **archive**.

bad spot. Any part of a hard disk drive that is faulty and cannot record information.

block. On a disk device, a 512-byte subdivision of data on the disk. Also referred to as a *sector*.

bootup. The operation that starts up the system when the keyswitch on the XE 500 base enclosure is turned from STOP to MANUAL, REMOTE, or NORMAL. The bootup operation includes running a series of self-diagnostic tests, loading the master operating system, and reading the set of system files associated with the position to which the keyswitch is turned.

BTOS. Burroughs Workstation Operating System. All XE 500 boards run a version of BTOS.

BTOS Executive. See **Executive**.

BTOS status codes. Numerical codes reported by the system software through the BTOS Executive and other facilities. These codes indicate the status of system operations.

BTOS workstation. A Burroughs model B 21, B 22, B 26, B 27, or B 28 workstation.

built-in disk device. A 37.5-, 71.3, or 72.2 MB, 5 1/4-inch hard disk drive, or a 135-MB SMD disk device, housed in an XE 500 or MD3 enclosure and used for the mass storage of programs and data.

central processing unit (CPU). In a computer, the unit that performs most of the fundamental processing. In the XE 500 system, this term is sometimes used interchangeably with the term *processor*.

Glossary-2

cluster line. The RS-422 cluster communications port connection which allows workstations to communicate with the XE 500.

Cluster Processor (CP). A board in the XE 500 system that runs communications software and supports workstations, a parallel printer, and up to three RS-232-C serial devices.

command. A BTOS command is the command name and command form used with the BTOS Executive. Each command invoked from the Executive causes a corresponding utility to run on a BTOS processor.

command file. A file created by the system administrator which contains a listing of the BTOS commands available to a specific user. The command file allows the system administrator to limit a user's access to selected commands.

command form. The interactive form associated with many BTOS commands in which a user specifies parameters that define how the command is to be executed.

CP. See Cluster Processor.

CPU. See central processing unit.

customized mode. The state of the system when it is booted up using a customized set of system configuration files.

cylinder. A set of tracks on a storage device that can be accessed together as a unit.

DAM. See Direct Access Method.

data volume. A volume that is used for data and program storage.

device. A physical hardware entity, such as a terminal, printer, tape drive, or other input/output unit.

Direct Access Method (DAM). A file access method providing random and non-overlapped input or output of records.

directory. A related group of files on a volume. Directories are the second level of the BTOS three-level hierarchical file system.

disk cartridge. Magnetic disk storage medium utilizing a hard disk enclosed in a portable cartridge. Disk cartridges are used with a disk cartridge drive of an XE 500 base enclosure.

disk device. A hardware component that is used to store data. An XE 500 disk device may be either a disk cartridge, a built-in disk (that is, a 5 1/4-inch hard disk controlled by a File Processor), or a Storage Module Device (SMD) disk.

disk extent. One or more contiguous disk sectors that contain all or part of a file.

disk initialization. See **volume initialization**.

Disk Processor (DP). Processor board in an XE 500 system that is formed by connecting SC to SP. The DP supports I/O to half-inch magnetic tape drives and SMD disks.

DP. See **Disk Processor**.

Executive. An interactive BTOS application program through which the various BTOS utilities can be executed through command forms.

File Processor (FP). Processor board in an XE 500 system that supports I/O operations to disk devices.

FP. See **File Processor**.

file system. A file system is a collection of files that are stored on the same logical disk device. A BTOS file system is made up of a three-level hierarchy that includes a volume, directories, and the files contained within each directory.

hexadecimal values. The notation system of representing numbers in base 16.

home directory. For a user, the directory into which the user is automatically placed when he or she logs onto the system.

ICC. See **Inter-CPU Communication**.

Indexed Sequential Access Method (ISAM). Programming tool that provides sequencing of file records on disk and direct access to those records using an index.

Inter-CPU Communication (ICC). Intercommunications protocol used by XE 500 processors when communicating across the system bus.

I/O. Input/output.

I/O device configuration files. File that define the hardware and software parameters of disk drives, printers, tape drives, and communications devices such as modems and RS-232-C serial terminals.

ISAM. See **Indexed Sequential Access Method**.

ISAM server. The application that manages the execution of ISAM-related operations on a BTOS processor.

kb. See kilobit.

kB. See kilobyte.

Glossary-4

kilobit. 1024 bits.

kilobyte. 1024 bytes.

language development software. The software tools that support BTOS programming languages.

log file. In BTOS, a file which contains a record of operations performed by BTOS processors.

master commands. A set of BTOS commands, executed from the Executive, which invoke the corresponding utilities that run on an XE 500 processor. See **utilities**.

master configuration file. A configuration file used by the master processor (FPOO or DPOO) to determine the processor operating systems to be loaded at boot time.

master processor. The first processor in the XE 500 system. This processor is loaded with the master BTOS operating system when the system is started. The master processor then controls the loading of the other processors with their operating systems. It also manages the system's interface with the base enclosure front panel controls.

MB. See **megabyte**.

MCommands. See **master commands**.

MD3. See **Multidisk 3**.

ME. See **Memory Expansion Board**.

Megabyte. 1,024,000 bytes.

Memory Expansion (ME) Board. Board attached to a processor board to supply additional processor memory capacity.

menu. In BTOS, a terminal screen listing of operations from which a user selects to execute the desired operation.

Multidisk 3 (MD3). A freestanding enclosure supporting up to three 135-MB (formatted) SMD disk drives.

normal mode. An XE 500 operating mode that exists when the keyswitch is turned to NORMAL and the system is booted up using the default set of system files.

null string. A sequence of blank characters that usually does not change the default condition set up in the original BTOS command or submit file.

operating mode. The XE 500's operating mode is determined by any one of four sets of system configuration files and BTOS processor versions used to boot up the XE 500. The particular set of system configuration files used during boot-up time depends on the keyswitch position.

operating system. The part of the system software that supervises the running of individual programs. Its functions include loading programs, allowing concurrent operation of two or more programs, scheduling processes within the system, and providing management of information. The operating system is sometimes referred to as the *system image*.

partition. An assigned area of the XE 500 BTOS processor's memory. A program being run by the processor can be assigned a partition in which to execute. The program restricts its instruction and data to this assigned area of memory. This allows the processor to operate in a multitasking mode, in which several programs are running on the processor at the same time. Each program is actually sharing processing time on the processor. See **primary partition** and **secondary partition**.

password. A string of characters used as part of the BTOS file security system. A password can be assigned to a user, device, volume, directory, or file. Once passwords are assigned (at least a volume and directory password) and a protection level is assigned to a file, a user must enter the correct password to gain access to that file, depending on the protection level.

path name. The full description that identifies a file's position in the file system. It includes a file's volume name, directory name and file name.

port. The part of a processor dedicated to a single data channel for receiving data from, or transmitting data to, one or more external remote devices.

primary partition. An assigned area of an XE 500 processor's memory that is established during system start up. Services that require user interaction and some system services must be run in the primary partition. There is only one primary partition per processor. See **partition**.

printer spooler. A system service that manages the transfer of data from disk files to printers.

printer spooler manager. A system service that manages the transfer of data from disk files to printers.

protection level. A decimal value assigned to a file that determines the type of password, if any, that a user must enter to gain read or write access to that file.

Glossary-6

QIC server. An application that controls the execution of I/O operations to a QIC tape drive.

QIC tape. See **quarter-inch cartridge tape.**

quarter-inch cartridge (QIC) tape. Magnetic tape storage medium that utilizes quarter-inch-wide tape contained in a hard plastic cartridge.

Queue Manager. A BTOS system service that controls the various queues in which related tasks are stored for processing. For example, the Queue Manager controls the queues that are used to handle print requests made through printer spoolers. It can also manage similar queues for data communications processes and user-defined processes.

RAM. See **random-access memory.**

random-access memory (RAM). The onboard processor memory to which and from which data can be written and read nonsequentially.

read-only memory (ROM). The onboard processor memory whose contents can be read but can be written only by special means. The ROM normally contains start-up programs, such as self-diagnostic tests.

register. A temporary memory location for data.

release medium. In BTOS, a disk cartridge, QIC tape, or half-inch tape on which Burroughs release software is stored.

restore. The procedure by which archive files are written from an archive medium to an XE 500 volume.

restricted mode. An XE 500 operating mode that is determined by the keyswitch setting of the XE 500 base enclosure. When set to REMOTE, the system reads the set of system configuration files that contain the identifying character ".r".

ROM. See **read-only memory.**

RS-232-C. A designation that refers to an industry specification developed to standardize the interface between different types of communications equipment.

RS-422. A high-speed communications standard used in an XE 500 system to link cluster workstations.

sector. The smallest addressable portion of a track or band on a hard or floppy disk. (See **block.**)

sign-on file. A required file for each user to be allowed to log into the system. Among other things, this file defines the user's password, the BTOS commands the user can access, the path (volume and directory) a user will be placed after signing on, and the application a user will enter.

SMD. See Storage Module Device.

SP. See Storage Processor.

spooler. See printer spooler.

spooler configuration file. A file containing information that the system uses to coordinate print operations between the spooler and the queue manager.

status codes. See BTOS status codes.

STATUS display. The display on the XE 500 base enclosure's front panel through which the status of software installation, system start-up operations, and error conditions are reported.

Storage Controller (SC). Board used with SP to form DP, which controls SMDs.

Storage Module Device (SMD). 133-byte (formatted) Memorex 166 disk drive.

Storage Processor (SP). Processor board in XE 500 system; controls half-inch magnetic tape.

subcommand. A subcommand appears within the operational procedures of a command and makes available an additional operation.

system bus. Path over which the system processors communicate.

system configuration files. Text files that define the XE 500 BTOS hardware and software configuration.

system disk. In BTOS, the disk on which the XE 500 system software is installed. The system disk is normally either built-in disk d1 (for systems with a master FP) or SMD disk s0 (for systems with a master DP).

system image. The run file for an operating system.

system log. A log, displayable through the MPLog command, that contains a detailed account of system status, errors, and failures.

system volume. A volume from which you can boot the XE 500.

tape server. An application that controls the execution of I/O operations to a half-inch tape drive.

Glossary-8

terminal. A device, usually equipped with a keyboard and a display, which is capable of sending and receiving information over a communication channel.

Terminal Processor (TP). Processor board in XE 500 system that supports a parallel printer and up to ten RS-232-C serial devices.

TP. See Terminal Processor.

user command file. In BTOS, a file that contains all of the BTOS commands to which a user may have access. A command file entry in a user's signon file defines the command file accessible to the user.

utility. A BTOS utility is a program that may be invoked by executing a command from the Executive or by executing a utility's run file through the Command Line Interpreter (CLI) using Job Control Language (JCL).

volume. In BTOS, the complete file system unit of information stored on a formatted disk.

Volume Home Block (VHB). An area on a volume that contains the volume name, the date it was created, the date it was last modified, and the number of free pages and file headers.

wild card character. The BTOS system allows two wild card characters to be used in command form fields: an asterisk (*) and a question mark (?). The asterisk represents any string of characters; the question mark represents any individual character. Some operations allow you to use wild card characters in file specifications. The system then tries to match the portion of the name that appears before or after the wild card character and performs the requested operation for each matched file name.

Index

B

- booting up a workstation from the XE 500, 2-5 to 2-11**
 - with stand-alone BTOS software installed, 2-6
 - with no local stand-alone BTOS software installed, 2-8
 - booting up a B 22 with a local mass storage unit, 2-8
 - handling workstation bootup problems, 2-10

BTOS

- differences between XE 500 BTOS and workstation-only BTOS, 1-2
- error codes
 - obtaining description of, 3-6
- overview of, 1-1
- XE 500 enhancements, 1-1

C

- cluster activity**
 - managing, 3-2
- command form**
 - moving the cursor within, 3-7
- command line interpreter**
 - using, 3-6
- configuration files**
 - creating for XE 500 I/O devices, 3-5
- configuring the system, 3-2**
- conventions, viii**
- CPU performance**
 - determining, 3-6

D

- DAM files, 4-1, 4-20**
- device names, 1-3**
- disk cartridges, 7-1 to 7-6**
 - handling, 7-1
 - inserting, 7-4
 - operating the cartridge slot, 7-2
 - removing, 7-5
- disk drive naming conventions, 1-3**
- distributive processing, 1-2**
- direct printing, 5-2**

E

- error conditions, 3-7**
- error recovery, 9-1 to 9-3**

Index-2

F

files

- archiving, 3-4
 - accessing a password protected file, 8-7
 - assigning a file password, 8-3
 - copying between XE 500 directories, 4-5 to 4-8
 - copying between XE 500 directories and half-inch or QIC tape, 6-11 to 6-13
 - deleting, 4-9 to 4-11
 - displaying file version information, 4-16 to 4-19
 - establishing security for, 8-1
 - listing, 4-1
 - maintaining DAM, RSAM, and ISAM, 4-20 to 4-23
 - managing, 3-4, 4-1 to 4-23
 - moving, 4-15
 - printing, 5-1 to 5-3
 - renaming, 4-11 to 4-15
 - setting file protection levels, 8-2
- file passwords**, 8-3
- file protection levels**, 8-2
- file systems**
- managing, 3-4

H

- half-inch tape**, 6-1, 6-7 to 6-10
- handling half-inch tapes, 6-1
 - operating the half-inch tape drive, 6-1
 - overview of, 1-6

I

- ISAM files**, 4-1

K

- keyswitch**, 2-1
- figure of, 2-2
 - positions defined, 2-3
- local workstation BTOS commands**, 3-1

M

MANUAL keyswitch position, 2-3
main status report, 5-3
 displaying, 5-7 to 5-8
master commands
 description of, 1-4
 functional breakdown of, 3-1 to 3-7
MAdminAgent Status, 3-2
MBackup Volume, 3-4
MBtos Config, 3-2
MChange Volume Name, 3-3
MCdtIO, 3-6
MCli, 3-6
MCopy, 3-4, 4-5 to 4-8
MCreate Configuration File, 3-5
MCreate Directory, 3-3
MCreate Partition, 3-2
MDeinstall Queue Manager, 3-5
MDelete, 3-4, 4-9 to 4-11
MDisable Cluster, 3-2
MDisk Verify, 3-3
MFiles, 3-4, 4-1 to 4-4
MHistogram, 3-6
MInstall Queue Manager, 3-5
MInstall Server, 3-2
MIVolume, 3-3
MMaintain Files, 3-4, 4-20 to 4-23
MMake Translation File, 3-5
MPartition Status, 3-2
MPerc, 3-6
MPLog, 3-7
MPStat, 3-6
MQic Erase, 3-6, 6-14
MQic Retention, 3-6, 6-14
MRemove Directory, 3-5
MRename, 3-4, 4-11 to 4-15
MRestore, 3-4
MResume Cluster, 3-2
MSelective Backup, 3-4
MSet Directory Protection, 3-3
MSet File Protection, 3-4, 8-4 to 8-7

Index-4

master commands (Cont.)

MSpooler Status, 3-5, 5-1, 5-3 to 5-24
entering parameter values for subcommands, 5-4
executing subcommands, 5-11 to 5-24
subcommands, 5-3 to 5-24
align form, 5-3, 5-12
cancel print, 5-3, 5-12
delete print request, 5-3, 5-13
enter password, 5-3, 5-14 to 5-15
free printer channel, 5-3, 5-15
halt printer, 5-3, 5-16
main status display, 5-3, 5-16
new printer, 5-3, 5-17 to 5-19
print file, 5-3, 5-20 to 5-22
select queue, 5-3, 5-23
restart printer, 5-3, 5-23 to 5-24
select printer, 5-3, 5-24

MSysLoad, 3-1

MTape Backup Volume, 3-4

MTape Copy, 3-4, 6-12 to 6-13

MTape Restore, 3-4

MTape Selective Backup, 3-4

MVersion, 3-4, 4-16 to 4-19

MVolume Report, 3-3

MVolume Status, 3-3

restricted access to, 1-5

using a master command, 3-7 to 3-8

when to use, 1-4

N

NORMAL keyswitch position, 2-3

O

operating system number, 2-9
determining, 2-9
table of numbers, 2-10

optional fields
entering values on, 3-7

P

parallel processing, 1-1
passwords
 accessing a password protected file, 8-7
 assigning to a file, 8-3
power indicator, 2-1, 2-3
power switch, 2-4
powering down the XE 500, 2-11
powering up the XE 500, 2-4
printers
 using, 5-1 to 5-24
printer status report, 5-3
 displaying, 5-10 to 5-11
printing files, 5-1 to 5-3
 direct printing, 5-2
 overview of, 1-5
protection levels
 setting for a file, 8-2 to 8-3

Q

Quarter-Inch Cartridge (QIC) Tapes
 erasing all data, 6-14
 handling QIC tapes, 6-2
 inserting a QIC tape, 6-5 to 6-6
 operating a QIC tape drive, 6-4
 packing a QIC tape, 6-14
 removing a QIC tape, 6-6
 using, 3-6
QIC tape file names, 6-10
queue manager, 5-1
queue status report, 5-3
 displaying, 5-8 to 5-9

R

REMOTE keyswitch position, 2-3
reset button, 2-1
RSAM files, 4-1

Index-6

S

secondary partitions
managing, 3-2
security procedures
overview of, 1-6
establishing for files, 8-1
starting up the system, 2-1
status display, 2-1 to 2-3
status messages, 9-1 to 9-3
interpreting, 9-2
STOP keyswitch position, 2-3
system software
installing, 3-1

T

tape drives, 6-1 to 6-14
half-inch tape, 6-1, 6-7 to 6-10
 handling half-inch tapes, 6-1
 operating the half-inch tape drive, 6-1
overview of, 1-6
quarter-inch (QIC) tape, 6-2 to 6-6, 6-10 to 6-11
 handling QIC tapes, 6-2
 operating the QIC tape drive, 6-4
 inserting a QIC tape, 6-5 to 6-6
 removing a QIC tape, 6-6
tape file formats, 6-7 to 6-11
half-inch tape file names, 6-7 to 6-10
examples of, 6-9
naming a specific tape drive configuration file, 6-10
QIC tape file names, 6-10 to 6-11
 reading files from the QIC tape, 6-10
 writing files to the QIC tape, 6-11
naming a specific tape drive configuration file, 6-11

V

volume naming conventions, 1-3
volume structures
managing, 3-3

W

wide display, 4-3

wildcard characters, 3-7

workstation

booting up from the XE 500, 2-5 to 2-11

with stand-alone BTOS software installed, 2-6

with no local stand-alone BTOS software installed, 2-8

booting up a B 22 with a local mass storage unit, 2-8

differences between XE 500 BTOS and workstation-only BTOS, 1-2

handling workstation bootup problems, 2-10

local BTOS commands, 3-1

operating system number, 2-9

determining, 2-9

table of numbers, 2-10

X

XE 500

base enclosure front panel, 2-2

controls, 2-1

disk and volume naming conventions, 1-3

operating mode, 2-2

operations

monitoring, 3-8

overview of, 1-1

performance

monitoring, 3-6

powering up, 2-4

powering down, 2-11

processing environment, 1-1

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