AT&T

305-501
Issue 1

AT&T 3B2/400 Computer
Owner/Operator Manual

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NOTICE

The information in this document is subject to change without notice. AT&T assumes no responsibility for any errors that may appear in this document.

WARNING

This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to other electronic equipment.

Your 3B2 Computer generates radio frequency energy. If your 3B2 Computer is not installed and used according to the manufacturer's instructions in this manual, it can interfere with nearby radio and television reception. The operator must then take whatever steps are necessary to correct the interference.

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CONTENTS

Chapter 1. INTRODUCTION

Chapter 2. SYSTEM FEATURES

Chapter 3. SETTING UP

Chapter 4. GETTING STARTED

Chapter 5. SIMPLE ADMINISTRATION

Chapter 6. CLEARING TROUBLE

Appendix A. CABLES AND CONNECTORS

Appendix B. USING FLOPPY DISKS

Appendix C. USING CARTRIDGE TAPES

Appendix D. MOVING AND PACKING

Appendix E. PINOUTS

Appendix F. SPECIFICATIONS

Appendix G. HARD DISK LOCKING AND UNLOCKING

GLOSSARY

INDEX

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Replace this

page with the

1. Introduction

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Chapter 1

INTRODUCTION

PAGE

MANUAL ORGANIZATION 1-3
IMPORTANT REMINDERS 1-4

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Chapter 1

INTRODUCTION

This manual tells you how to set up and begin operating an AT&T 3B2/400 Computer (Figure 1-1). Use this manual only after you have read your *AT&T 3B2/400 Computer Read Me First.*

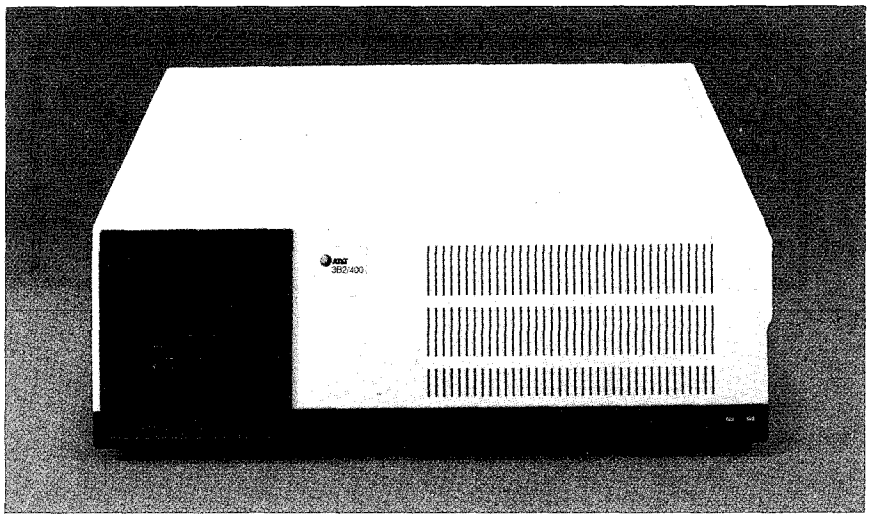


Figure 1-1. AT&T 3B2/400 Computer

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Your 3B2/400 Computer is a multiuser, 32-bit supermicro that uses the WE* 32100 Processor and the UNIX* System V Release 2.0 Operating System. Even if you have limited computer experience, you should find this manual easy to read and follow as you set up and operate your 3B2/400 Computer. You will also find your *AT&T 3B2/400 Computer Owner/Operator Manual* a valuable reference to keep handy.

This manual is one of many documents written for your 3B2/400 Computer system. These documents tell you about your hardware, your software, and their operation. If you know how to use your 3B2 Computer documents, you can easily find an answer to any technical question. Please make it a point to familiarize yourself with your *AT&T 3B2/400 Computer Documentation Guide* as soon as possible.

IMPORTANT

IF PROVIDED, YOU MUST READ YOUR *AT&T 3B2/400 COMPUTER OWNER/OPERATOR MANUAL UPDATE* ALONG WITH THIS MANUAL. THE *UPDATE* CONTAINS NECESSARY CHANGE INFORMATION THAT YOU NEED TO SET UP AND OPERATE YOUR 3B2/400 COMPUTER.

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MANUAL ORGANIZATION

The remainder of this manual is divided into the following chapters:

- Chapter 2, " SYSTEM FEATURES," describes all the parts of a 3B2/400 Computer system.
- Chapter 3, " SETTING UP," gives you the steps to ready your 3B2/400 Computer and console terminal for operation.
- Chapter 4, " GETTING STARTED," tells you how to begin operating your 3B2/400 Computer.
- Chapter 5, " SIMPLE ADMINISTRATION," tells you how to perform administrative tasks such as adding users, doing backups, loading utilities, etc.
- Chapter 6, " CLEARING TROUBLE," tells you how to fix system problems should they occur.

Several special items included at the end of this manual are:

- Appendix A, " CABLES AND CONNECTORS," lists and describes cables and connectors available for your 3B2/400 Computer system.
- Appendix B, " USING FLOPPY DISKS," tells you how to handle and use floppy disks.
- Appendix C, " USING CARTRIDGE TAPES," tells you how to handle and use cartridge tapes.
- Appendix D, " MOVING AND PACKING," shows you how to properly move your 3B2/400 Computer.
- Appendix E, " PINOUTS," gives you specific pinout data for serial ports, cables, and connectors.

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- Appendix F, " SPECIFICATIONS," gives you the major technical specifications for your 3B2/400 Computer.
- Appendix G, " HARD DISK LOCKING AND UNLOCKING," gives you the procedures to lock and unlock hard disks when shipping your computer.
- Glossary — This is a glossary for all 3B2 Computer documents.

IMPORTANT REMINDERS

1. Read your *AT&T 3B2/400 Computer Owner/Operator Manual* and your *AT&T 3B2/400 Computer Owner/Operator Manual Update* (if provided) before using your 3B2/400 Computer.
2. *NEVER* unplug your 3B2/400 Computer or remove power from it until you have properly turned it off. If you lose power for any reason, wait 10 minutes before restarting to prevent file system damage.
3. Always follow prescribed powerdown procedures and unplug your 3B2/400 Computer before removing the cover.
4. *NEVER* depress the RESET switch under any circumstances unless you know its function. You can inadvertently destroy data on hard disk.
5. If your 3B2/400 Computer uses a 30-megabyte hard disk, you must manually unlock it before turning on your computer.
6. Protect your 3B2/400 Computer from:

Sunlight	Chemicals
Heat	Vibration
Cold	Grime

Static Electricity

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7. This document contains sample displays which will help you understand described procedures. The sample displays in this document and the displays on your terminal screen may differ slightly due to improvements in the product after this document was finalized. Therefore, use the displays in this document as samples of the type of data available. However, the data displayed on your terminal screen accurately reflects the software on your computer.

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Chapter 2

SYSTEM FEATURES

PAGE

INTRODUCTION 2-1
HARDWARE 2-2
SOFTWARE 2-4
FIRMWARE 2-5
ADD-ONS 2-6
- Hardware 2-6
- Utilities 2-9
- Programming Languages 2-11
- Workbenches 2-11

PERIPHERAL DEVICES 2-12

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Chapter 2

SYSTEM FEATURES

Your 3B2/400 Computer supports a wide range of configurations and options for any office-like environment. This chapter describes many of the features available for your 3B2/400 Computer system. Some of these descriptions are technical. So, if you are more interested in setting up your 3B2/400 Computer now, skip to Chapter 3. You may read Chapter 2 later at your convenience.

INTRODUCTION

The 3B2/400 Computer is a 3B2 Computer that delivers both performance and flexibility. With a wide range of hardware and software features, this computer provides many configurations and capabilities. And with the availability of many system features discussed in this chapter, the 3B2/400 Computer adapts easily to a variety of applications such as networking, file serving, engineering and scientific research, and office automation.

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HARDWARE

Figure 2-1 highlights your 3B2/400 Computer. Major hardware features are the:

- 32-bit WE 32100 microprocessor
- 10 megahertz clock
- Compact size for desk top or vertical mounting
- Random Access Memory Expansion to 4 megabytes
- Single or dual Winchester hard disks—30 or 72 megabyte
- Two removable media storage devices:

    A. 5.25 inch floppy disk drive

    B. 5.25 inch cartridge tape drive

- Twelve slot backplane to add optional feature cards
- Two standard serial ports (RS-232-C)
- Provisions to add more serial ports
- Provisions to add parallel ports
- Nonvolatile Random Access Memory (RAM) for saving essential information that is normally lost when power is removed. In addition, the nonvolatile RAM saves information that is vital to service personnel in the event of a system failure
- Battery-powered, nonvolatile, time-of-day clock that retains time for a prolonged period when power is removed
- RS-232-C compatibility for a wide variety of terminals.

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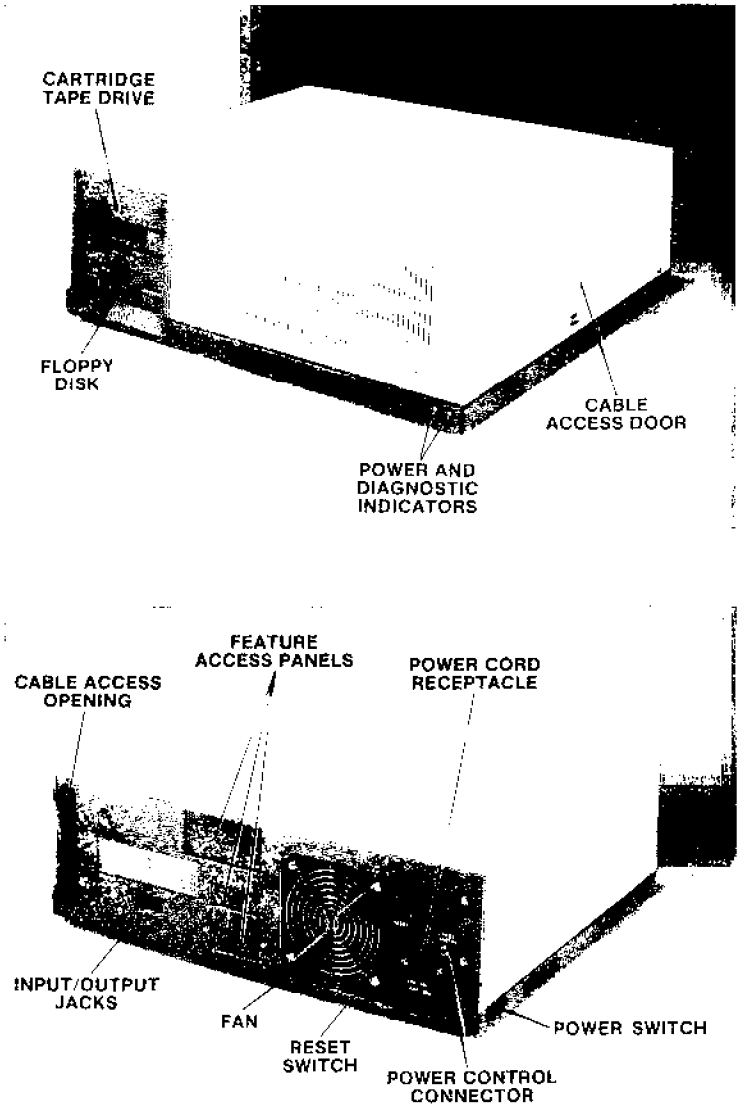


Figure 2-1. 3B2/400 Computer Features

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SOFTWARE

The operating system is a crucial element of any computer. The operating system controls the hardware and keeps track of where information is stored. Your 3B2/400 Computer is controlled by the UNIX Operating System. The UNIX Operating System offers many advanced features that once were found only on large computer systems.

Some of the major software features of your 3B2/400 Computer are:

- A menu-driven Simple Administration to easily administer your computer system
- A variety of software utilities that enhance system capabilities
- An automatic diagnostics and configuration of the operating system whenever the unit is powered up
- The capability to partition hard disks and to dynamically format floppy disks and cartridge tapes
- Job control for efficient processing
- Bad block handling to map around bad areas on integral hard disks
- Advisory file and record locking for file control
- A software-controlled power shutdown that ensures system integrity.
- An automatic power shutdown to protect your 3B2/400 Computer from heat buildup and power fluctuations
- A self-configuring feature that automatically loads drivers during boot. This eliminates the need to recompile the kernel every time drivers change.

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For more information on your UNIX Operating System, see your *UNIX System User Guide* and your *AT&T 3B2 Computer User Reference Manual.*

FIRMWARE

Your 3B2/400 Computer has a set of special software instructions called firmware. Firmware is different from other UNIX System software because it is permanently stored in read-only memory during the manufacturing process. In some instances, such as turning power on or turning power off, firmware instructions are executed automatically. In other instances, such as running diagnostics, your 3B2/400 Computer must be placed in an interactive firmware operating mode. Whether automatic or interactive, firmware gives you additional operating and administrating convenience. Some benefits of firmware are:

- Diagnostics—demand, interactive, and normal diagnostics runs from the firmware mode
- Initialization—checks system sanity during powerup sequence
- Floating boot—allows the system to start from a file other than hard disk.

DEMON (abbreviation for debug monitor) supports debugging software as well as verifying and testing hardware. DEMON is an optional firmware feature that allows developers to look at all central processing unit registers, to insert breakpoints, and to perform virtual-to-physical address translation.

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ADD-ONS

Add-on features offered with your 3B2/400 Computer make it possible to configure your system to satisfy many different applications. Add-on features are broken into four categories: hardware, utilities, programming languages, and workbenches.

Hardware

AT&T/XM

The AT&T/XM is an external storage unit that increases the data storage capability of your 3B2/400 Computer (Figure 2-2). The XM offers you the flexibility to use various combinations of storage devices consisting of cartridge tape drives, floppy disk drives, and hard disk drives (30- or 72-megabyte) for storing and retrieving data. You can purchase the XM with certain selected storage devices already installed, or you can purchase device packages and install them yourself. With this flexibility you can configure your XM to meet your own specific data storage needs.

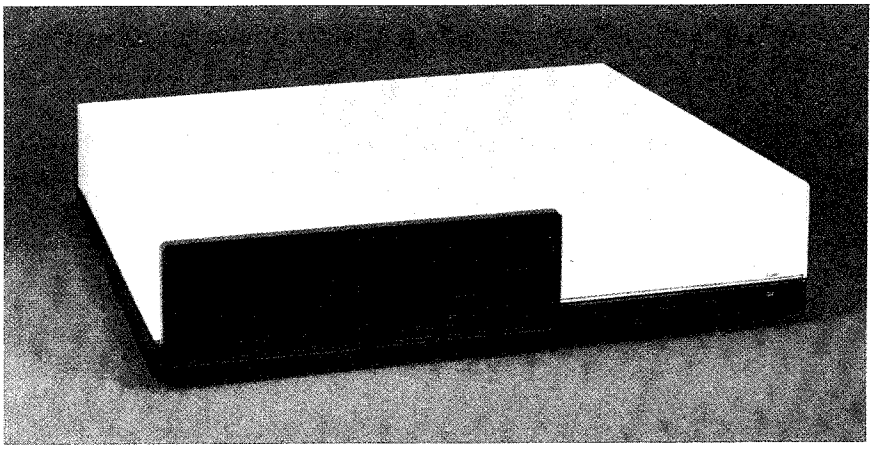


Figure 2-2. AT&T/XM

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AT&T 3BNET

The Local Area Network (3BNET) feature allows you to connect your 3B2/400 Computer to a local computer network to share information and expand the capabilities of your computer. This connection helps you communicate locally without delay. This network can be any combination of computers equipped with ETHERNET*, a standard protocol in the field of networking. 3BNET offers a higher-speed network that is compatible with ETHERNET protocol. 3BNET can be user installed and is particularly useful for fast file transfers between 3B Computers.

Expanded Input/Output Capability

Most 3B2/400 Computers come with two serial ports, the CONSOLE port and the **contty** port, and at least one Expanded Input/Output Capability feature card. The Expanded Input/Output Capability feature adds ports so you can connect more peripheral devices to your 3B2/400 Computer. Each feature card has four RS-232-C serial ports and one parallel port. You can add up to 11 feature cards, giving a total of 46 serial ports and 11 parallel ports. This feature can be user installed.

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Math Accelerator Unit

3B2/400 Computers can use a WE32106 Math Accelerator Unit (MAU). This chip is a coprocessor that improves the speed of floating point calculations. Floating point performance is critical for graphics, CAD/CAM, and engineering/scientific applications.

Each 3B2/400 Computer system board contains a MAU socket. The MAU chip is used with the optional Function Call C Compiler System (FC CCS) or any vendor application developed with the FC CCS. If you add the FC CCS and a MAU chip, you will increase floating point performance fiftyfold. (If you add the FC CCS without adding a MAU chip, you will increase performance tenfold.)

The MAU chip can be installed either by the manufacturer before shipping a 3B2/400 Computer or later by an authorized installer.

RAM Expansion

The Random Access Memory (RAM) Expansion feature provides additional main memory to improve efficiency. When more main memory is available, certain tunable parameters, such as buffers, can be increased. Standard RAM is 1 megabyte. This feature can be user installed and can expand RAM to 2, 3, or 4 megabytes.

30- or 72-Megabyte Hard Disks

There are two sizes of hard disks offered with the 3B2/400 Computer: 30- or 72-megabyte. Users may install or replace hard disks.

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Utilities

Utilities are special software programs that increase the usefulness of your 3B2/400 Computer system for specific applications. Some utilities are " provided " with your 3B2/400 Computer at no additional charge, while other utilities are " optional " and available at additional charge. All utilities come on floppy disks, but only *Essential Utilities* and *Cartridge Tape Utilities* are installed and ready to use when a 3B2/400 Computer is shipped. Shown below are utilities provided with your 3B2/400 Computer.

Basic Networking Utilities is a communication package that allows machines using the UNIX Operating System to communicate with one another either through a direct RS-232-C connection or via modems.

Cartridge Tape Utilities creates backup tapes and loads files from backup tapes.

Directory and File Management Utilities provides commands that reduce directory and file manipulation operations to single-step instead of multiple-step commands.

Editing Utilities consists of several text editors.

Essential Utilities provides basic UNIX System commands that are used in day-to-day processing.

Graphics Utilities contains commands that construct and edit numerical data plots and hierarchical charts.

Help Utilities is an interactive, menu-driven program that helps the user understand the UNIX System.

Inter-Process Communication Utilities determines the status of the message, semaphore, and shared-memory facilities or removes selected facilities. System calls are provided to get, control, and operate on facilities.

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Line Printer Spooling enhances terminal and printer usage.

Performance Measurement allows system support to measure system performance based on process flow through block and character input/output subsystems.

Security Administration Utilities (only available within the United States) adds encryption capability to protect data either stored or transmitted.

Spell Utilities enables a user to check the spelling of words stored in text files.

System Administration Utilities contains commands to administer your 3B2/400 Computer system.

Terminal Filters Utilities reinterprets incoming data for an associated terminal for text formatting and processing.

Terminal Information Utilities contains routines and a data base that allows a user to write screen-oriented programs.

User Environment Utilities contains commands to enhance the user's UNIX System environment interface.

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Programming Languages

The following programming languages can be purchased separately.

1. BASIC
2. C (SGS and FC CCS)
3. FORTRAN 77
4. PASCAL
5. RM/COBOL*

Workbenches

The following workbenches can be purchased separately.

1. DOCUMENTER'S WORKBENCH† program
2. INSTRUCTIONAL WORKBENCH† program
3. WRITER'S WORKBENCH† program

* Trademark of Ryan-McFarland Corporation

† Trademark of AT&T

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PERIPHERAL DEVICES

Terminals

- TELETYPE* Model 5410 Display Terminal
- AT&T-IS DATASPEED* 4410 Display Terminal
- TELETYPE Model 5425 Buffered Display Terminal
- AT&T-IS DATASPEED 4425 Buffered Display Terminal
- TELETYPE Model 5620 Dot-Mapped Display Terminal

Draft Quality Printers

- AT&T Model DQP-10
- AT&T-IS 470
- AT&T-IS 475
- AT&T-IS 5310
- AT&T-IS 5320

Letter Quality Printers

- AT&T Model LQP-40
- AT&T-IS 455

Modems

- AT&T Automatic Dial Modem

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TELETYPE Model 5410/DATASPEED 4410 Terminal

This terminal is an asynchronous, serial, video display terminal. It features a selectable 80- or 132-column screen. The low-profile keyboard has a standard typewriter layout with eight programmable function keys. (Figure 2-3)

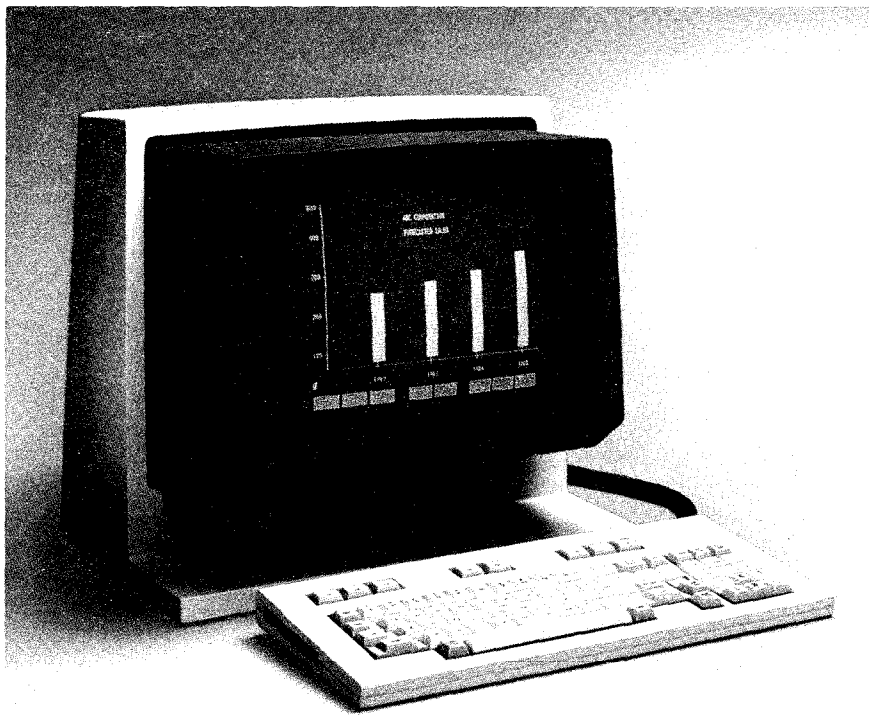


Figure 2-3. 5410/4410 Terminal

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TELETYPE Model 5425/DATASPEED 4425 Terminal

The 5425/4425 terminal has all the features of the 5410/4410 terminal plus features such as full screen windowing, five different character sets, a fully buffered auxiliary printer port, and up to 38 downloadable function keys. An optional feature available with this terminal is an integral 300/1200 baud modem/dialer with five autodial strings. (Figure 2-4)

Note: This terminal replaced the TELETYPE 5420/DATASPEED 4415 buffered terminal.

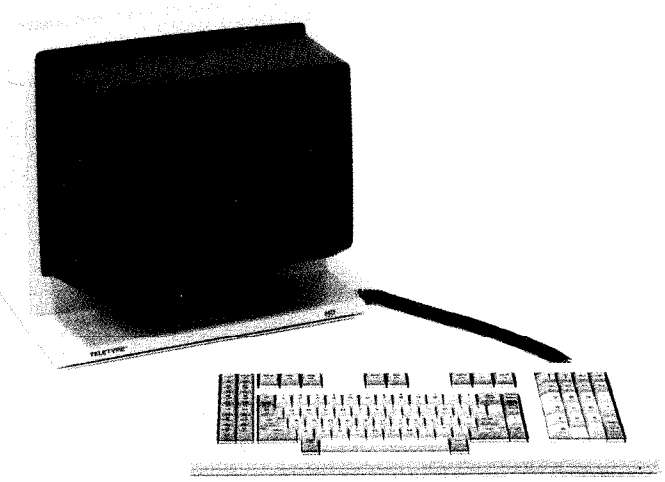


Figure 2-4. 5425/4425 Terminal

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TELETYPE Model 5620 Dot-Mapped Display Terminal

The Model 5620 Terminal is a dot-mapped display terminal featuring the WE 32000 microprocessor system. This model features 256K or 1 megabyte RAM dual-port memory with transparent refresh and 1000 dots-per-square-inch resolution on a 15-inch diagonal nonglare screen. A dot addressable screen gives the user the capability to create full graphics, define character fonts, and construct line drawings. The electronic mouse on this terminal easily creates and controls up to six window displays when used with supporting software needed on a 3B2/400 Computer. Core utilities are included. (Figure 2-5)

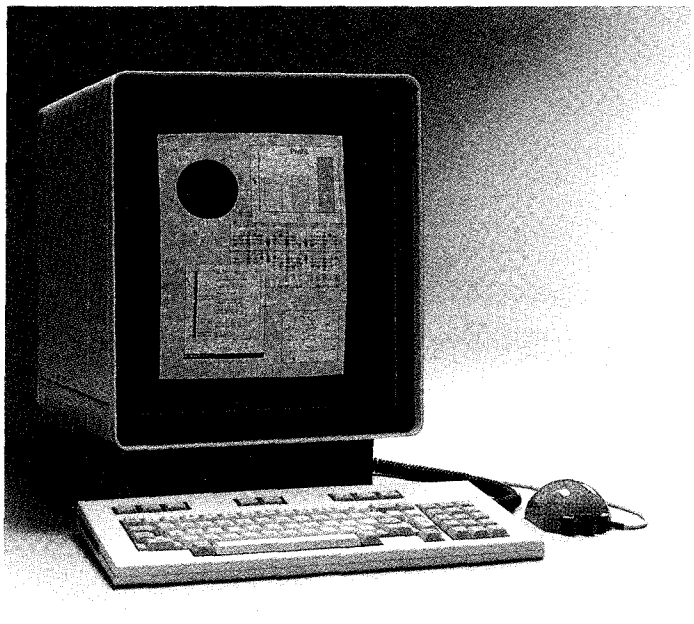


Figure 2-5. Model 5620 Dot-Mapped Display Terminal

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Model DQP-10 Printer

The DQP-10 printer is a dot-matrix serial impact printer capable of bidirectional printing at 120 characters per second. At six or eight vertical lines per inch, the DQP-10 printer will print up to 80 characters per line with 10 characters per inch. Single sheet (8-1/2 x 11 inches) or continuous fanfold paper, up to 10 inches wide, can be used. (Figure 2-6)

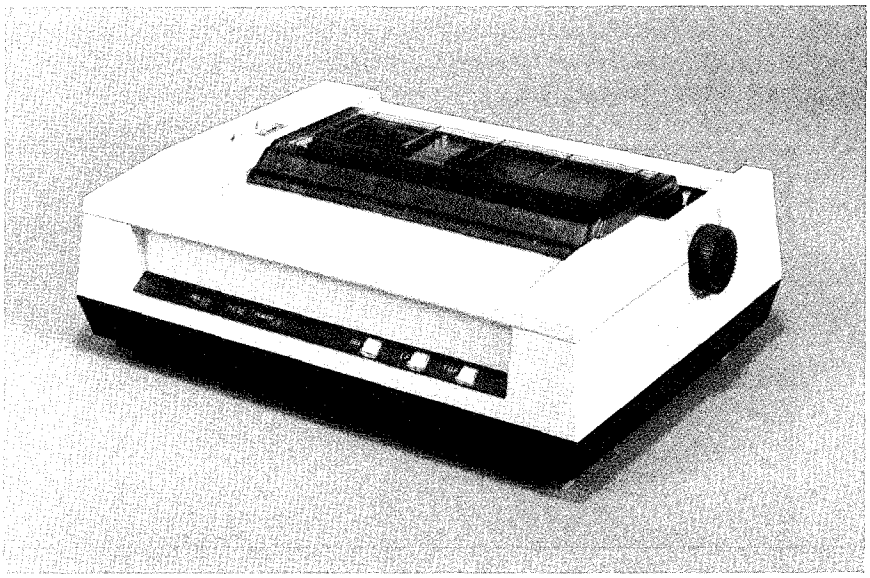


Figure 2-6. DQP-10 Printer

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470 and 475 Printers

The 470 and 475 are compact, desk-top, dot-matrix, serial impact printers capable of bidirectional printing at speeds up to 120 characters per second. They can print up to 132 characters per line, in a compressed font mode, at 16.8 characters per inch. The friction paper feed and integral tractor/pinfeed mechanism can handle paper up to 10 inches wide. The only difference between the two printers is the type of interface. The 470 comes equipped with a 36-pin parallel interface, and the 475 comes with a serial RS-232-C interface. (Figure 2-7)

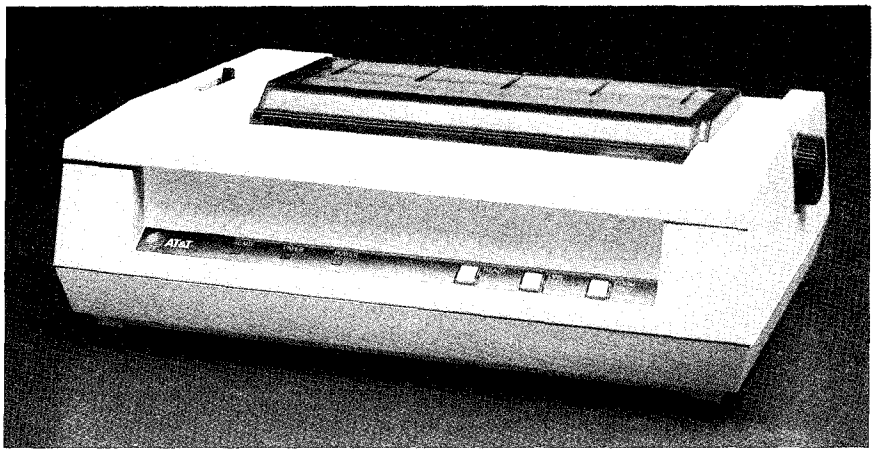


Figure 2-7. 470/475 Printer

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5310 and 5320 Printers

The 5310 and 5320 are dot-matrix, bi-directional, logic-seeking printers that offer sophisticated graphics capabilities. They can print up to 200 characters per second. These printers offer a wide range of form and paper handling options. Carriage size is the only difference between these two printers. The 5310 has a compact 80-column carriage, and the 5320 has a wide 132-column carriage. The 5310 can print up to 132 characters per line, and the 5320 can print up to 220 characters per line. (Figure 2-8)

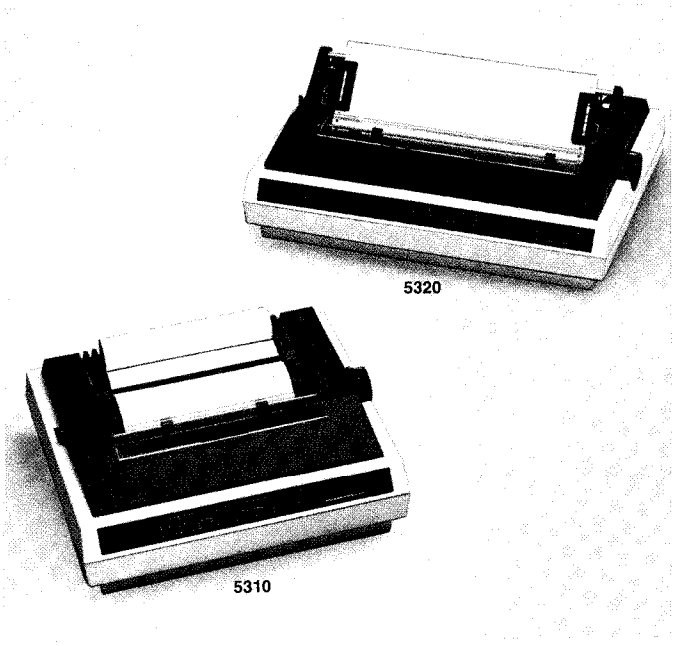


Figure 2-8. 5310 and 5320 Printers

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Model LQP-40 Printer

The LQP-40 Printer is a daisywheel letter-quality serial/parallel printer with a 48,000 byte data buffer. At six or eight vertical lines per inch, the LQP-40 Printer uses proportional fonts with speeds up to 18 characters per second. Single sheet (8-1/2 x 11 inches) or continuous fanfold paper, up to 16-1/2 inches wide, can be used. (Figure 2-9)

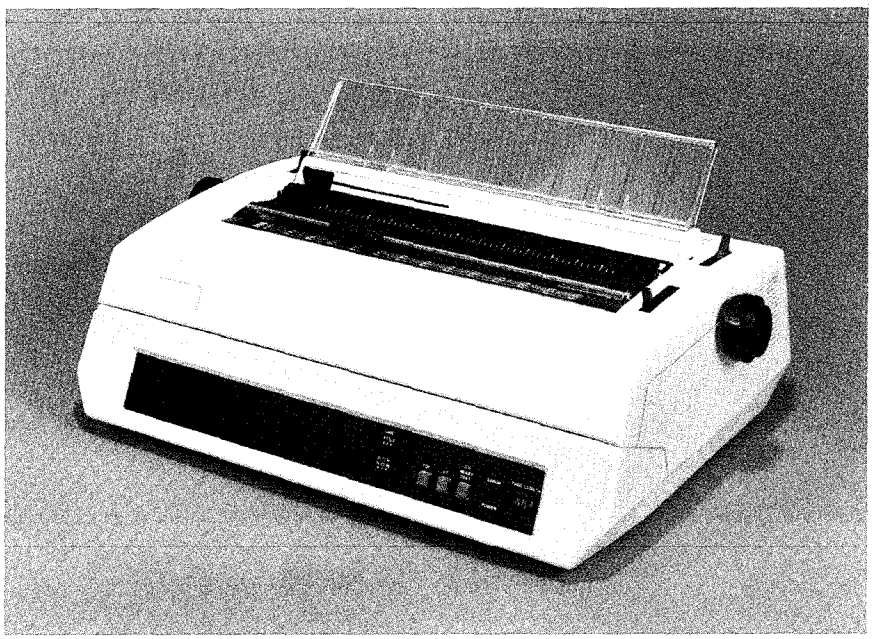


Figure 2-9. LQP-40 Printer

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455 Printer

The 455 printer is a daisywheel letter-quality printer capable of speeds up to 55 characters per second. The printer is compatible with both serial and parallel interfaces. Friction and tractor feeds will handle paper up to 15 inches wide. As many as 197 characters can be printed on a single line, and a variety of font styles can be obtained by changing the daisy wheel. (Figure 2-10)

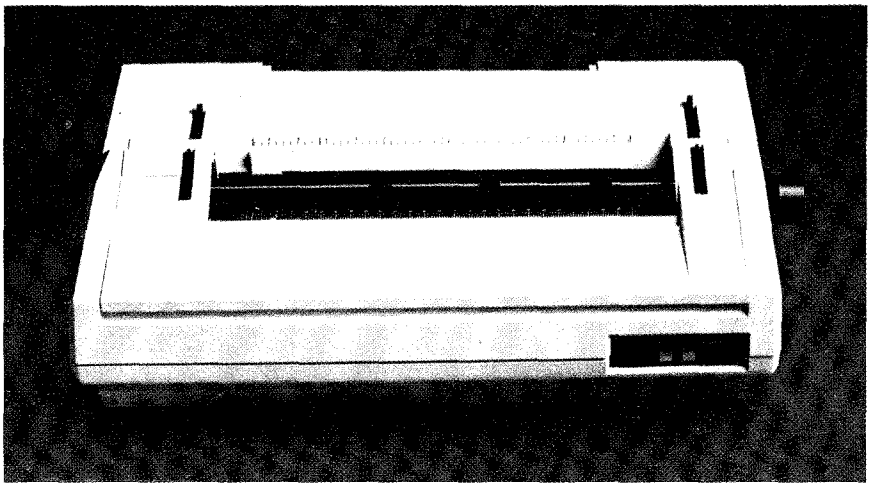


Figure 2-10. 455 Printer

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AT&T Automatic Dial Modem

The AT&T Automatic Dial Modem is an intelligent modem that can be connected to a 3B2 Computer or to a terminal. When connected to a 3B2 Computer, this modem links the 3B2 Computer to other UNIX Systems or terminals over the telephone network. Communications is established by using the *Basic Networking Utilities*. This link allows you to share information and resources between computers. When connected to a terminal, the AT&T Automatic Dial Modem dials any one of ten numbers stored in its memory. (Figure 2-11)

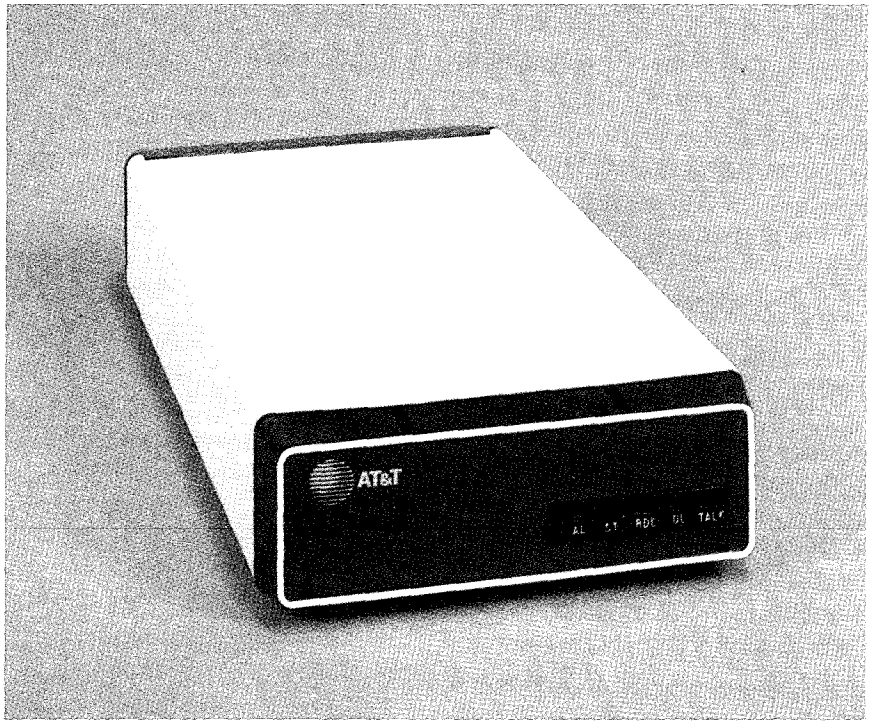


Figure 2-11. AT&T Automatic Dial Modem

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Chapter 3

SETTING UP

PAGE

CONNECTING POWER 3-1

CONNECTING CONSOLE TERMINAL 3-2

SETTING TERMINAL OPTIONS 3-4

DATASPEED and TELETYPE Terminals 3-4

Other Terminal Types 3-9

CONNECTING OTHER PERIPHERAL DEVICES 3-9

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Chapter 3

SETTING UP

CONNECTING POWER

1. Plug the power cord into the power cord receptacle on the back of your 3B2/400 Computer.

2. Plug the other end of the power cord to an AC outlet.

Warning: You need to have access to a 115 v~ or 220-240 v~ 50/60 Hertz outlet. This outlet should not have a switch in the circuit to prevent accidentally removing power to your operating 3B2/400 Computer. A 7-foot power cord with the proper plug comes with your 3B2/400 Computer. Make sure the outlet is properly grounded, and the voltage rating of the outlet matches the voltage rating shown on the back of your 3B2/400 Computer.

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CONNECTING CONSOLE TERMINAL

Always connect your console terminal first. Your console terminal is the terminal you will use to control and administrate your system.

1. If your console terminal is new, unpack, inspect, and assemble your console terminal according to the instructions that came with it.

2. Set your console terminal where you want it.

3. Using one of the shielded cables that came with your computer, connect the end with the ground lead to the CONSOLE jack on the back of your 3B2/400 Computer. Simply align the 8-pin modular connector; push it in until you hear a click. Then connect the ground lead (Figure 3-1).

4. Connect the other end of the shielded cable to a male terminal/printer connector (Figure 3-2).

5. Align and push the terminal/printer connector onto the jack on the back of your console terminal. Be careful not to bend the pins.

6. Using the screws provided, fasten the connector to the terminal.

7. Connect power to the console terminal.

8. Set the terminal options for the console terminal according to the following section.

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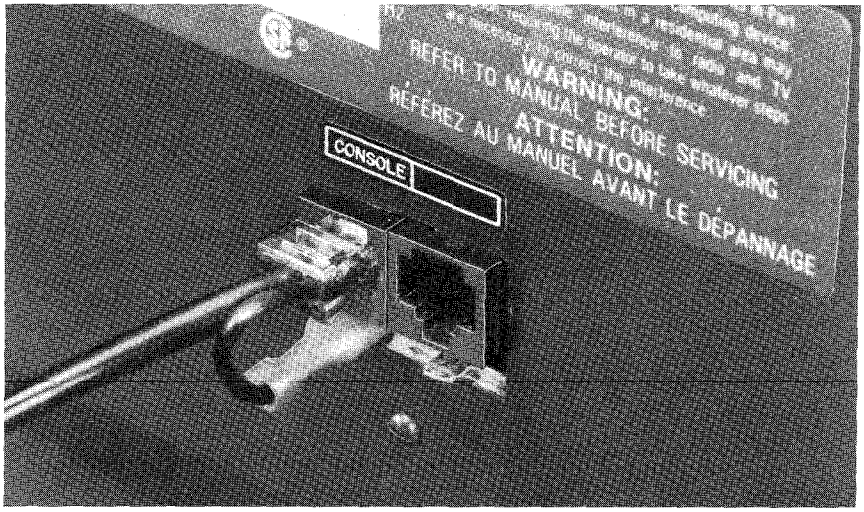


Figure 3-1. Console Port Connection

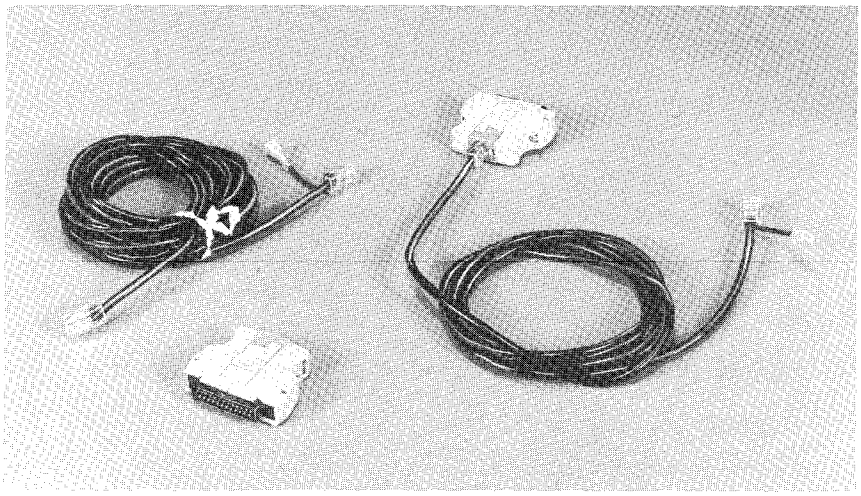


Figure 3-2. RS-232-C Terminal/Printer Connector and Cabling

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SETTING TERMINAL OPTIONS

DATASPEED and TELETYPE Terminals

Although your 3B2/400 Computer can operate with a variety of terminals, it is specifically designed to use AT&T Information Systems (AT&T-IS) DATASPEED terminals and AT&T TELETYPE terminals. The following procedure tells you how to properly set up these terminals.

1. Unpack, inspect, and install the terminal according to the instructions that came with it.

2. Connect power to your terminal and turn it on.

3. Read the section in your terminal user manual on terminal set up procedure.

4. Set terminal options:

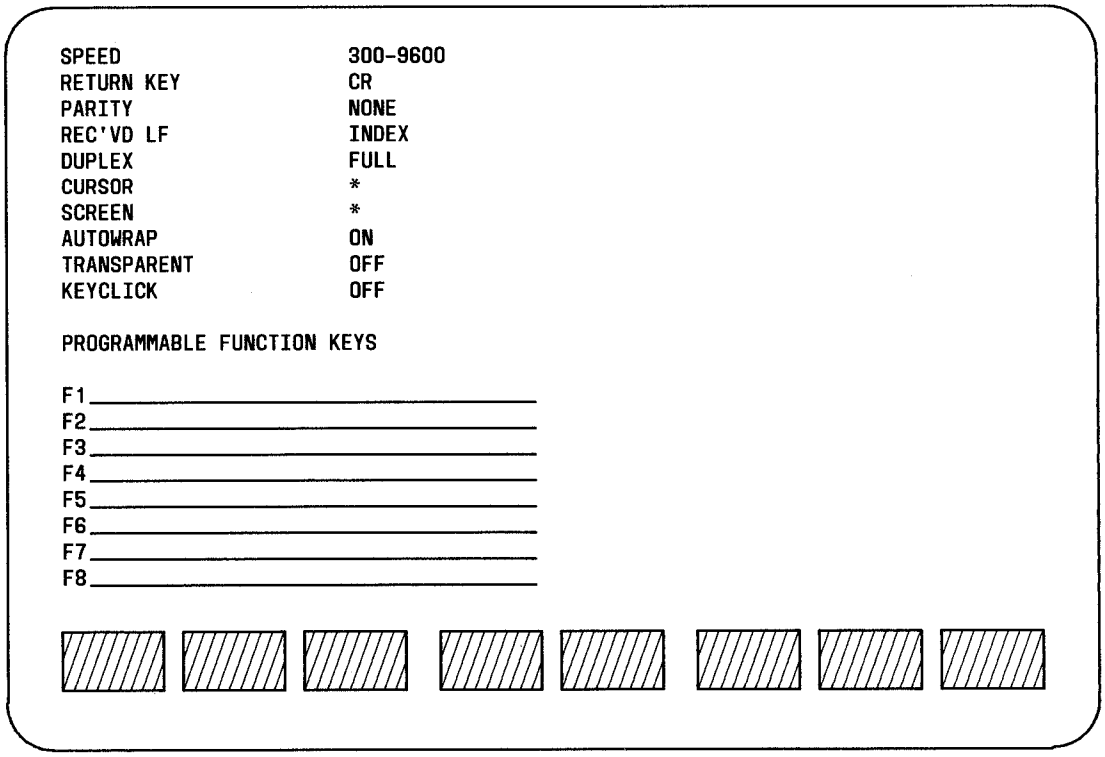
TELETYPE 5410/DATASPEED 4410	Figure 3-3
TELETYPE 5420/DATASPEED 4415	Figure 3-4
TELETYPE 5425/DATASPEED 4425	Figure 3-5
TELETYPE 5620	Figure 3-6.

Note: ALWAYS set your console terminal to 9600 baud.

5. Double check your settings.

6. Your terminal is set. (Before using the terminal, you must connect it to a 3B2/400 Computer port.)

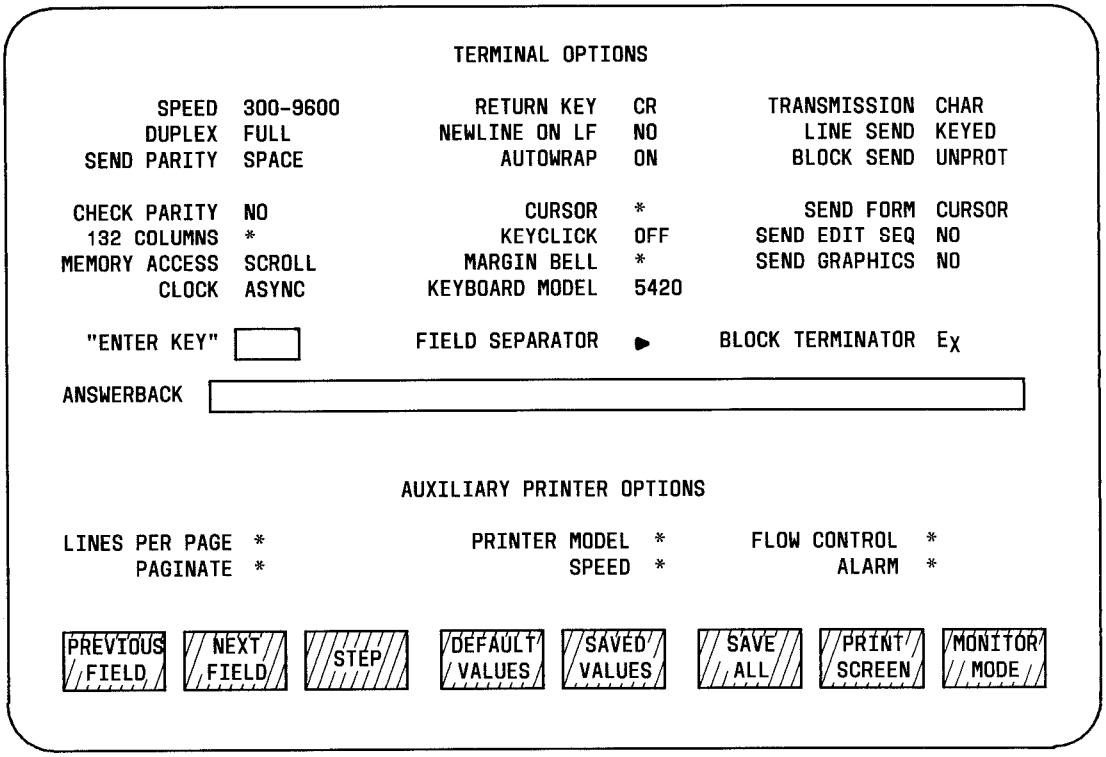
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* USER PREFERENCE

Figure 3-3. 5410/4410 Terminal Setup

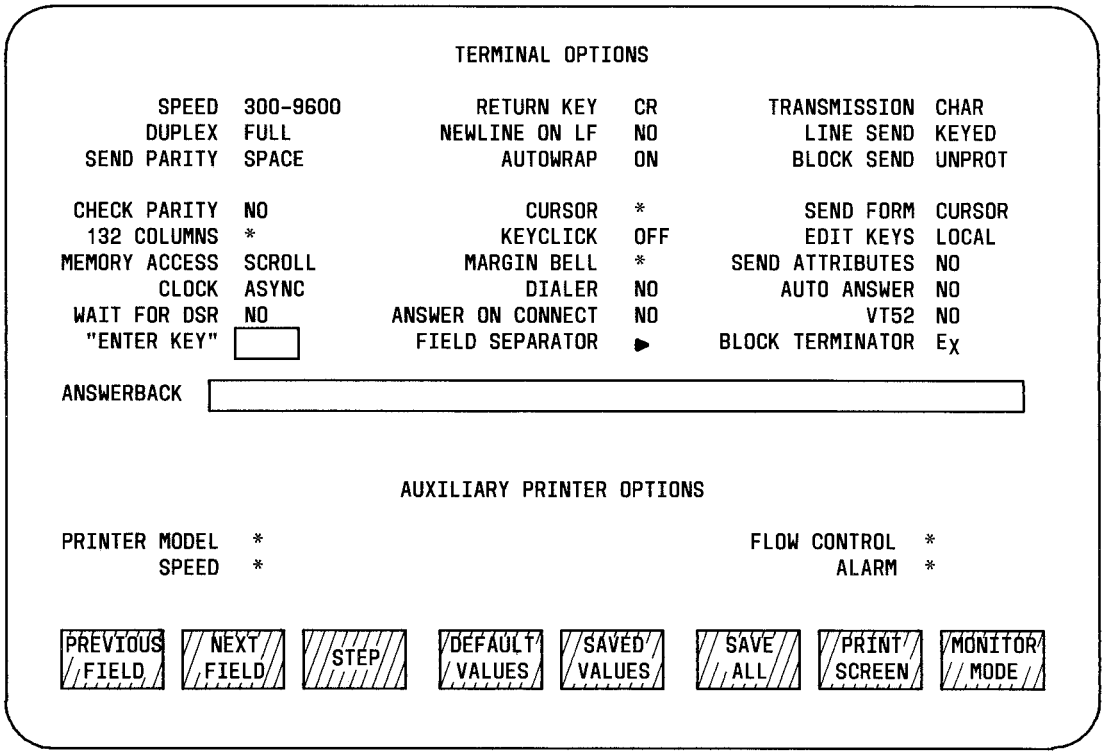
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* USER PREFERENCE

Figure 3-4. 5420/4415 Terminal Setup

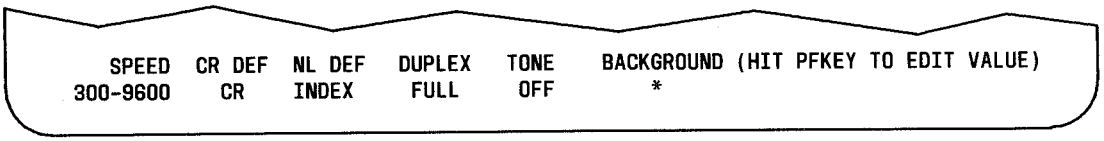
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* USER PREFERENCE

Figure 3-5. 5425/4425 Terminal Setup

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SPEED	CR DEF	NL DEF	DUPLEX	TONE	BACKGROUND (HIT PFKEY TO EDIT VALUE)
300-9600	CR	INDEX	FULL	OFF	*

* USER PREFERENCE.

Figure 3-6. 5620 Terminal Setup

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Other Terminal Types

In addition to these DATASPEED and TELETYPE terminals, any asynchronous terminal supported by the UNIX Operating System can be used with your 3B2/400 Computer. Set the terminal as follows.

- Full duplex
- 8-bit ASCII interface
- Parity of " none " or space, depending on terminal
- If it is a console terminal, speed must be set to 9600 baud. See your *AT&T 3B2 Computer System Administration Utilities Guide* for details.
- If there is a terminal option, set XON/XOFF software handshaking (DC1/DC3).

Three potential problems with other terminal types are wiring connections, signal protocol, and terminal definitions (for screen editors). Appendix E contains pinout information for 3B2 Computer terminal/printer connectors. Your terminal manual should contain pinout information about your terminal. You may have to call for service to rewire or strap leads together to get your terminal to work properly. For more information on terminal definitions, refer to your *3B2 Computer Terminal Information Utilities Guide*.

CONNECTING OTHER PERIPHERAL DEVICES

If you have a peripheral device (input/output device such as a terminal, printer, or modem) to connect to your **contty** port or an expansion port, you must set up both the device and the port to be compatible. Terminal connection and setup are similar to the instructions just given for the console terminal. If you are connecting a printer or a modem, refer to the manual that came with it for instructions.

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You must set the **contty** port or expansion port software. Chapter 5, " SIMPLE ADMINISTRATION," shows you how. Your *AT&T 3B2 Computer Expanded Input/Output Capability Manual* also discusses connecting peripheral devices and setting software for expansion ports.

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Chapter 4

GETTING STARTED

PAGE

USING THE " UNIX " SYSTEM 4-1
TIPS ON ENTERING DATA 4-2
APPLYING POWER—FIRST TIME 4-4
- Initial Powerup 4-4
- Initial Software Setup 4-7
- Logging On and Off 4-13
- Turning Off 4-13
- Logging Off and Turning Off in Single-User Mode 4-15

MORE SOFTWARE SETUP 4-16
- Making a Floppy Key and Changing the Firmware Password 4-16
- Other Tasks 4-19

SECURITY 4-20
- Access Permission 4-20
- Data Encryption 4-21
- Passwords 4-21
- Floppy Key 4-22
- Helpful Hints 4-23

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Chapter 4

GETTING STARTED

USING THE " UNIX " SYSTEM

If you are not familiar with using the UNIX Operating System, see Figure 4-1 for references to documentation that you should already have. This figure covers UNIX System subjects you should know about before you turn on your 3B2/400 Computer for the first time.

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SUBJECT	REFERENCE
UNIX System basics • Prompt signs • Logins • Login passwords • **root** • Shell commands	*UNIX System V User Guide*
Security • Floppy keys • Passwords	See SECURITY section at end of this chapter
Networks • Nodenames Run levels • Modes	*AT&T 3B2 Computer System Administration Utilities Guide*

Figure 4-1. Subjects to Know Before Turning On 3B2/400 Computer

TIPS ON ENTERING DATA

At times, this manual directs you to enter (type in) specific commands. As you enter these, make sure you enter uppercase and lowercase letters exactly as shown in this manual. Most communication with your 3B2/400 Computer is in lowercase letters.

Commands begin after a prompt symbol (usually a $ sign) and end with a carriage return (usually a RETURN key). A carriage return signals the 3B2/400 Computer to start executing the command just entered. On many terminals, the carriage return key is labeled RETURN. Others may

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use ENTER, NEWLINE, etc. Throughout this manual the symbol <CR> means to depress your RETURN key.

$ *command*<CR>

($ prompt sign—UNIX System command—RETURN key)

AT&T 3B2 Computer documents use the following convention to illustrate user inputs and 3B2/400 Computer responses. These conventions are used in text and representations of screen displays.

```
This style of type is used to show system generated
responses displayed on your screen.

This style of bold type is used to show inputs
entered from your keyboard that are displayed on your
screen.

These bracket symbols <> identify inputs from the
keyboard that are not displayed on your screen, such
as <CR> carriage return, <CTRL d> control d,
<ESC g> escape g, passwords, and tabs.

This style of italic type is used for notes that
provide you with additional information.
```

Correct typing errors in one of several ways. Use the BREAK key to start over.

```
$ daet<BREAK>
$ date<CR>
```

If you do not have a BREAK key, you can use the symbol @ instead.

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```
$ daet@
date<CR>
```

To erase specific characters, use the symbol #.

```
$ daet##te<CR>
```

The 3B2/400 Computer sees " date " as intended. (If desired, you can redefine the erase character to the BACK SPACE key later as shown in your *UNIX System V User Guide*.)

And finally, remember that password entries are never shown on your screen as you type them in. Enter them the same as any input and follow them with a carriage return. Usually, the prompt for a password is `Password:`.

APPLYING POWER—FIRST TIME

Before applying power for the first time, read this section at least once. Then, turn on your 3B2/400 Computer and do some necessary set up tasks and practice logging in. Allocate about one hour, without interruptions, for these procedures.

Initial Powerup

1. Turn on the console terminal and wait for the cursor to appear.
2. **Before starting your machine, make sure the latches on the 3B2/400 Computer floppy disk drive and the cartridge tape drive are parallel with their drive slots.**
3. Momentarily depress the 3B2/400 Computer POWER SWITCH to ON position.

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4. Your 3B2/400 Computer begins whirring and displaying terminal messages. Also, the POWER and DIAGNOSTIC indicators flash. After a minute or two, your console terminal should display the information shown in Figure 4-2, and only your POWER indicator should be on.

5. If something appears incorrectly on your screen, call for service immediately.

6. Initial powerup is complete. Prepare to do initial software setup.

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```
SELF-CHECK

DIAGNOSTICS  PASSED

UNIX System V Release 2.0.x 3B2 Version 2
unix
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Time of Day Clock needs Restoring:
Change using "sysadm datetime" utility
The system is coming up.  Please wait.

This machine has not been used as a customer machine yet.  The messages that
follow are from checking the built-in file systems for damage that might have
occurred during shipment.  As long as you do not see either of the messages
                                        BOOT UNIX
or                          FILE SYSTEM WAS MODIFIED
all is well.  If either message does come out, call your service representative.
However, the machine is still usable unless I tell you otherwise.
I will now start checking file systems.

  /dev/dsk/cld0s0
  File System: usr Volume: 2022

  ** Phase 1 - Check Block and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Count
  ** Phase 5 - Check Free List
  xxx files xxxx blocks xxxxx free
The system is coming up.  Please wait.

       Welcome!
This machine has to be set by you.  When you see the "login" message type
                                  setup
followed by the RETURN key.  This will start a procedure that leads you through
those things that should be done the "first time"  the machine is used.

AT&T 3B2 SYSTEM CONFIGURATION:

Memory size: x Megabytes
System Peripherals:

       Device name     Subdevices
       xxx             xxx

The system is ready.

Console Login:
```

Figure 4-2. Initial Terminal Display

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Initial Software Setup

1. Read the welcome message on your terminal.

2. Enter:

setup<CR>

Response: See Figure 4-3.

```
Console Login: setup<CR>
UNIX System V Release 2.0.x 3B2 Version 2
unix
Copyright (c) 1984 AT&T
All Rights Reserved

                              Setup Procedure
Setup establishes this machine as yours and can make sure that no one else
uses it without your permission.  I am assuming that you have read about
"initial setup" in the GETTING STARTED chapter of the Owner/Operator Manual.

        The first step is to set the timezone, date, and time of the system
clock.

Current time and timezone is: hour:minutes timezone
Change the time zone? [y, n, q, ?]
```

Figure 4-3. Initial Response to 'setup' Command

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3. Set time zone, date, and system time by reading questions and entering answers on the console terminal. See the example in Figure 4-4 that resets the machine from 2:30 p.m. (Central Daylight Time) on Friday, June 21, 1985, to 12:27 p.m. Monday, July 1, 1985, in Chicago. And while doing **setup**, remember these commands that apply to any **setup** request.

y<CR> = yes
n<CR> = no
q<CR> = quit (most any time)
?<CR> = help or explain

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```
Current time and timezone is: 14:30 CDT
Change the time zone? [y, n, q, ?] y<CR>

        Available time zones are...
        1.  Greenwich (GMT)
        2.  Atlantic  (AST & ADT)
        3.  Eastern   (EST & EDT)
        4.  Central   (CST & CDT)
        5.  Mountain  (MST & MDT)
        6.  Pacific   (PST & PDT)
        7.  Yukon     (YST & YDT)
        8.  Alaska    (AST & ADT)
        9.  Bering    (BST & BDT)
        10. Hawaii    (HST & HDT)
Enter zone number: 4<CR>

Does your timezone use Daylight Savings Time during the year?  [y, n, q, ?] y<CR>
Time zone now changed.  Next time you turn on the machine
ALL times will be reported in the new time zone.  Most will be right
next time you log in.
Current date and time: Fri. 06/21/85 14:30
Change the date and time? [y, n, q, ?] y<CR>
Month   default 06     (1-12): 7<CR>
Day     default 22     (1-31): 1<CR>
Year    default 85     (70-99): <CR>
Hour    default 14     (0-23): 12<CR>
Minute  default 30     (0-59): 27<CR>
Date and time will be set to:  07/01/85 12:27.  OK? [y, n, q, ?] y<CR>
Mon Jul  1 12:27:01 CDT 1985
The date and time are now changed.
```

Figure 4-4. Setting System Clock—Example

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4. Next, **setup** will ask you to start entering login information beginning with your own. See the example in Figure 4-5 to enter a login for yourself. If you make errors, **setup** will allow you to edit them afterward.

```
        The next step is to set up logins.
The first one you make should be for yourself.


Anytime you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Owner/Operator Manual.

Enter user's full name:  John R. Doe<CR>
Enter user's login ID:   jrd<CR>
Enter user ID number. (If you don't, I'll pick one): <CR>
Enter group ID number or group name.
(If you don't, I'll pick one): <CR>
Enter user's login (home) directory name.
(If you don't I'll use '/usr/jrd'): <CR>

This is the information for the new login:
        User's name:    John R. Doe
        login ID:       jrd
        user ID:        100
        group ID:       1       name
        home directory: /usr/jrd
Do you want to install, edit, or skip this entry [i, e, s, q] i<CR>
Login installed.
Do you want to give the user a password? [y, n] y<CR>
New Password: <password><CR>
Re-enter new password: <password><CR>
Do you want to add another login? [y, n, q] n<CR>

NOTE: Your password is very important.  It is the way that the computer
verifies that someone who attempts to login as you is indeed you.  If you
give it away to someone, they can do anything you can do and the machine does
not know the difference.  Please read the chapter on SECURITY in the
Owner/Operator Manual.
```

Figure 4-5. Assigning Login—Example

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5. The **setup** program now asks you to assign passwords to certain administrative logins and commands. Do not do these at this time unless you are an experienced user. So enter **n**<CR>.

6. The **setup** program then asks you to assign passwords to system logins. If you want to assign the root password for yourself, enter a **y**<CR> for yes, and follow the instructions. See Figure 4-6 for an example.

```
        The next step is to establish passwords for the administrative logins
and commands.

Do you want to give administrative logins passwords? [y, n, q, ?] n<CR>
The following administrative logins still do not have passwords:
     checkfsys      mountfsys      setup          sysadm         umountfsys
     makefsys       powerdown

For more information about passwords and their use,
read the SECURITY chapter of the Owner/Operator Manual.
For more about assigning passwords,
see the chapter on SIMPLIFIED SYSTEM ADMINISTRATION.

        The next step is to establish passwords for the system logins that
do not already have them.  Once set, these passwords can only be changed by
the login or root.

Do you want to give system logins passwords? [y, n, q, ?] y<CR>

Do you want to give the 'root' login a password? [y, n, q, ?] y<CR>
New password: <password><CR>
Re-enter new password: <password><CR>
Do you want to give the 'daemon' login a password? [y, n, q, ?] q<CR>
```

Figure 4-6. Assigning 'root' Password—Example

7. The **setup** program now asks you if you want to change the present name of your machine. All 3B2/400 Computers are named " unix " by the factory.

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- If your computer is not part of a network, type in **n**<CR>. The `Console Login:` prompt will then appear.
- If you will be part of a network, type in **y**<CR> and follow instructions to rename your machine just like Figure 4-7 shows.

```
        The next step is to set the node name of this machine.  This is the
name by which other machines know this one.

This machine is currently called "unix".
Do you want to change it? [y, n, q, ?] y<CR>
What name do you want to give it? [q] wr3b2c<CR>

NOTE: The example node name, wr3b2c, stands for
a 3B2/400 Computer in Winston-Salem, North Carolina, at Reynolda Road
designated as "c."

This completes your initial set up of the machine.
You may now log into your login.


Console Login:
```

Figure 4-7. Renaming a 3B2/400 Computer—Example

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Logging On and Off

Try using your 3B2/400 Computer. After **setup** finishes, the term `Console Login:` appears. This is the normal login prompt on the console port.

Log in as root or the other login you assigned yourself. First, enter your login name followed by a carriage return. After `Password:` appears, enter the associated password followed by a carriage return. Remember, passwords never appear on your screen when typed in. If you log in as root, you get a # prompt; if you log in as a user, you get a $ prompt. Either way, enter these commands one at a time and see the responses you get:

```
date<CR>
echo hello<CR>
who<CR>
pwd<CR>
uname<CR>
sleep 5<CR>
expr 3 + 2<CR>
```

To log off, hold the CONTROL key down while momentarily depressing the d key. (Do not use the SHIFT key to make a capital D.) The `Console Login:` message soon reappears.

Turning Off

There are two ways to turn off your 3B2/400 Computer. You can use the power switch or a software command. Either way, the turn-off procedure is under software control. This manual shows you the most direct way to turn off your computer by using the power switch. The software method that turns your 3B2/400 Computer off uses the **powerdown** and **shutdown** commands. In the next chapter, " SIMPLE ADMINISTRATION " discusses the **powerdown** command. Your *AT&T 3B2 Computer System Administration Utilities Guide* discusses the **shutdown** command.

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When you depress the power switch to STANDBY and release, power is not removed until all the current software processes are completed. Removing power in this manner is referred to as a "soft" powerdown.

> ***Warning:*** *NEVER* ***pull the power plug or externally remove power until the 3B2/400 Computer has completed its power down sequence. Otherwise, file damage can occur.***

Several seconds after you depress the power switch to STANDBY, the POWER indicator starts flashing. It takes 10 to 90 seconds from the time you depress the power switch until power is finally removed. The time taken depends on system activity. In the meantime, a broadcast message similar to the one in Figure 4-8 appears on the console terminal and on any other logged on terminal.

```
Shutdown started.    Mon Jul  2 12:49:31 CDT 1985

Broadcast Message from root (console) Mon Jul 2 12:49:34...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.


INIT: New run level: 0
The system is coming down.  Please wait.
System services are now being stopped.
The system is down.
```

Figure 4-8. Shutdown Broadcast Message—Example

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Logging Off and Turning Off in Single-User Mode

Your 3B2/400 Computer can operate in two operating states for different purposes. The normal operating state is the multi-user mode. This is the mode you are in when you start the machine and the mode you operate in most of the time. The other mode is the single-user mode, and the single user is for the administrator of your 3B2/400 Computer system. Single-user mode is used for performing certain administrative tasks such as installing or removing utilities.

While in the single-user mode, you cannot log off. To log off, first return to the multi-user mode by entering the following command:

```
init 2<CR>
```

If you accidentally attempt to log off in the single-user mode by using CONTROL-d, you will not be able to communicate with the machine. To regain communication, you must change the speed of the terminal to 300 as shown in Chapter 3.

Also, while in the single-user mode, you cannot use the 3B2/400 Computer power switch to turn off the machine. In the single-user mode, remove power by entering the following command:

```
shutdown -i0 -g0 -y<CR>
```


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MORE SOFTWARE SETUP

Making a Floppy Key and Changing the Firmware Password

IMPORTANT

You must now do two very important things. One is to make a floppy key, and the other is to change the firmware password. These take only a few minutes by following the examples in Figure 4-9 and 4-10.

A blank floppy disk labeled " Floppy Key" comes with each 3B2/400 Computer. You use it to create a floppy key for your computer. Your floppy key then has a dual purpose. The first function allows you to reset your nonvolatile Random Access Memory to the default state in case you forget your firmware or **root** password. Without the firmware mode, you cannot run diagnostics, do manual bootups, etc. The second function concerns a garbled nonvolatile Random Access Memory. This situation, caused by a weak battery, prevents you from booting your system from hard disk. By using your floppy key, you can reset your nonvolatile Random Access Memory back to its original state.

All 3B2/400 Computers are shipped with the same firmware password—mcp—which stands for " monitor control program." To prevent unauthorized access into your computer through the firmware mode, you need to change your firmware password as soon as possible.

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```
Console Login: root<CR>
Password: <password><CR>
UNIX System V Release 2.0.x 3B2 Version 2
unix
Copyright (c) 1984 AT&T
All Rights Reserved
# sysadm firmware<CR>

Running subcommand 'firmware' from menu 'machinemgmt',
MACHINE MANAGEMENT

Once started, this procedure CANNOT BE STOPPED.
Do you want to go to firmware "express"? [y, n, q, ?] y<CR>

Shutdown started.    Mon Jul  1 12:49:31 CDT 1985

Broadcast Message from root (console) Mon Jul 1 12:49:34...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.


INIT: New run level: 5
The system is coming down.  Please wait.
System services are now being stopped.

The system is down.

SELF-CHECK

FIRMWARE MODE
<mcp><CR>

If the DEMON feature is installed, this message will appear:

3B2 Monitor/Control Program - erase '^H', kill '@'
Physical Mode
>boot<CR>

Enter name of program to execute [ ]: newkey<CR>

Creating a floppy key to enable clearing of saved NVRAM information

Insert a formatted floppy, then type 'go' (q to quit): go<CR>

NOTE: Use the blank, formatted floppy disk labeled "Floppy Key" that came
with your 3B2/400 Computer.  Make sure it is not write protected.
(Refer to Appendix B for information on using floppy disks if you are not
familiar with using them.)

Creation of floppy key complete

Remove the floppy key and store it in a safe place.  If you ever forget
the firmware password you are about to change,  you can use your
floppy key to enter the firmware mode using the old 'mcp' default password.
Refer to section on SECURITY at the end of this chapter.
```

Figure 4-9. Making a Floppy Key—Example

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```
Enter name of program to execute [ ]: passwd<CR>

enter old password: <old password><CR>
enter new password: <new password><CR>
confirmation: <new password><CR>

Enter name of program to execute [ ]: unix<CR>
        Possible load devices are:

Option Number    Slot     Name
-------------------------------------
       x          x     xxx

Enter Load Device Option Number [1 (HD30)]: 1<CR>

UNIX System V Release 2.0.x 3B2 Version 2
unix
Copyright (c) 1984 AT&T.
All Rights Reserved

NOTE: If you changed the node name of your machine, it
will appear instead of 'unix.'

       fsstat: root file system needs checking
       The root file system (/dev/dsk/c1d0s0) is being checked automatically.

  /dev/dsk/c1d0s0
  File System: root Volume: 2022

  ** Phase 1 - Check Block and Sizes
  ** Phase 2 - Check Pathnames
  ** Phase 3 - Check Connectivity
  ** Phase 4 - Check Reference Count
  ** Phase 5 - Check Free List
  xxx files xxxx blocks xxxxx free

The system is coming up.  Please wait.
AT&T 3B2 SYSTEM CONFIGURATION:

Memory size: x Megabytes
System Peripherals:

        Device Name     Subdevice
        xxx             xxx

The system is ready.

Console Login:
```

Figure 4-10. Changing Firmware Password—Example

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Other Tasks

Earlier, you finished one aspect of system setup using the Simple Administration **setup** program. This program gave you many different instructions to help you enter needed administrative information. You now need to do other important administrative tasks such as install your utilities.

Simple Administration can help you do many other administrative tasks as explained in the next chapter, " SIMPLE ADMINISTRATION." In addition, you may want to refer to your *AT&T 3B2 Computer System Administration Utilities Guide* for more information on necessary administrative tasks.

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SECURITY

The information you store in your 3B2/400 Computer is a valuable resource, and you should be very concerned about protecting it. The UNIX Operating System in the 3B2/400 Computer provides some of the most sophisticated security features available. This section describes these security features and includes additional measures that you can take to safeguard your information.

The security measures you take will depend a lot on how and where you are using the computer.

- Are you using it in a large office environment or a small office?
- How many people have ready access to your system?
- Are you the only user?
- How sensitive or valuable is the information you are storing?
- Are you concerned about someone carrying off your computer?

The way you answer these questions will dictate the measures you want to take to safeguard your data.

Access Permission

One inherent feature of the UNIX Operating System is defining who has permission to access data. If you are sharing your 3B2/400 Computer with other people, you may have information that you want to keep private. On the other hand, you may have general information that you want to share with other people using the computer. The UNIX Operating System allows you to satisfy both of these needs.

For the purpose of defining access permission, the UNIX Operating System recognizes three different users of stored data. These users are: the owner of the data, the group the owner belongs to, and all the other people who are using the system. Whenever you create a file or a

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directory, the system automatically identifies which users will be allowed permission to read the file, write the file, or execute the file. Although the system does this automatically when a file or directory is created, you are the one who originally tells the system what access to allow. As the owner of a file or directory, you can change the access permission after a file or directory is created.

For details of how to set and change access permissions, see your *UNIX System V User Guide*. Remember that you can share information while protecting it from unauthorized tampering or erasure.

Data Encryption

If you have truly sensitive data that requires greater protection than that afforded by access permission, you can encrypt the data. Encrypting scrambles data so that only the person having the " key" can unscramble and read the data. Refer to your *3B2 Computer Security Administration Utilities Guide* for procedures on data encryption.

> ***Note:*** Data encryption is provided through the *Security Administration Utilities* which is available only in U.S. markets.

Passwords

Another technique used to prevent unauthorized access to the system or to certain areas of the system is the use of passwords. In the 3B2/400 Computer, passwords can be assigned to user logins, certain Simple Administration subcommands, and administrative logins. Access to the firmware mode is also protected by a password.

Passwords are stored in the 3B2/400 Computer in an encrypted form. They are reasonably secure if you do not use passwords that are easy to guess. Do not use obvious names or strings of numbers such as your name, your spouse's name, children's names, social security number, license plate number, etc. The more unusual a password is, the more effective it will be. If passwords are written down or shared verbally,

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password security is only as good as the integrity of the written area or person(s) sharing the passwords. Concerning passwords:

- Do not use names of kin, and especially do not add numbers at the beginning or end of them.
- Avoid birthdays, telephone numbers, license numbers, social security numbers, etc., or any groups of characters that can be associated with you.
- Do not use words straight out of a dictionary.
- Keep your password(s) private.
- Do not use the same password(s) over again.
- You can periodically change passwords as a standard practice. Users can be forced to periodically change passwords through password aging. Refer to your *AT&T 3B2 Computer System Administration Utilities Guide* for procedures on password aging. In addition you should probably change passwords whenever users transfer or leave.

A password may consist of any random mixture of numbers, special characters (for example /), or letters (uppercase or lowercase). It may be as short as six characters if you use a mixture of uppercase and lowercase letters, numbers, and special characters. You must use one or more numbers and two or more letters in every password. It is recommended that you use 6 to 8 characters for a password. You may use more than 8 characters, but only the first 8 are recognized by the system.

Floppy Key

It is important for you to keep your floppy key in a safe place. The floppy key is the only conventional means of entering the firmware mode if you forget the firmware password. The intended purpose of the floppy key is to serve as a backup to the firmware password. However, anyone who knows the password or has access to the floppy key can access your

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computer. Since all 3B2/400 Computers are shipped with identical firmware passwords, you must make a floppy key and change your password as soon as possible. The floppy key is made first so that no matter what you change the firmware password to, the key can reset the password to the default setting (mcp). In addition to the procedures given earlier in this chapter, the floppy key can be made using the Simple Administration **floppykey** subcommand.

Helpful Hints

Some additional steps that you can take to ensure the security of your information follow:

1. Make backup copies of your files on floppy disk or cartridge tape on a periodic basis. Store your floppies and tapes in a safe place (off-site location recommended). Then if all of your files are destroyed or stolen, all is not lost.

2. NEVER leave your computer terminal logged on and unattended.

3. Place your computer in an area that can be secured during those times when you are not using it.

4. If you are using your computer in an office environment, restrict the people who have access to the computer itself.

5. If you are transmitting information using United States telephone lines, you can encrypt the data.

6. Do not write your passwords down or store them in files that can be accessed by unauthorized persons.

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Chapter 5

SIMPLE ADMINISTRATION

PAGE

INTRODUCTION 5-1
Administrative Tasks 5-1
How to Use This Chapter 5-3
MENUS 5-4
System Administration Main Menu 5-7
System Diagnostics Menu 5-10
Disk Management Menu 5-11
File Management Menu 5-12
Machine Management Menu 5-13
Package Management Menu 5-14
Software Management Menu 5-15
System Setup Menu 5-16
Tape Management Menu 5-17
TTY Management Menu 5-18
User Management Menu 5-19
MENU SUBCOMMANDS 5-20
System Administration Main Menu 5-20
System Diagnostic Menu Subcommands 5-21
Disk Management Menu Subcommands 5-22
File Management Menu Subcommands 5-25
Machine Management Menu Subcommands 5-27
Package Management Menu Subcommands 5-29
Software Management Menu Subcommands 5-30
System Setup Menu Subcommands 5-31
Tape Management Menu Subcommands 5-32
TTY Management Menu Subcommands 5-34
User Management Menu Subcommands 5-35
EXAMPLE TASK: ADDING A USER 5-37
EXAMPLE TASK: STORING DATA ON FLOPPY DISK 5-41

Downloaded from www.Manualslib.com manuals search engine

BYPASSING MENUS 5-44
Using 'sysadm' Command 5-45
Using Special Subcommands 5-46
INSTALLING AND REMOVING UTILITIES 5-48
Installing Utilities 5-48
Removing Utilities 5-51
Procedure 5-52
REFERENCE CHART 5-56

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Chapter 5

SIMPLE ADMINISTRATION

INTRODUCTION

> **IMPORTANT**
>
> Read and familiarize yourself with this chapter as soon as possible.
> Simple Administration is a software tool.
> To gain all the benefits of this tool,
> you must understand how to use it properly.

Administrative Tasks

There are administrative tasks that you must do on your 3B2/400 Computer UNIX System. A representative sample of these tasks follows, and a comprehensive list appears at the end of this chapter. These administrative tasks are called system administration, and special software of the 3B2/400 Computer helps you do these tasks. Since this software makes system administration simple, it is called Simple Administration.

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Simple Administration uses interactive software programs with menus, subcommands, instructions, questions, and user inputs. As you enter your responses, Simple Administration helps you through a system administration task. When you become familiar with Simple Administration, you can simplify the process even more by using built-in techniques to bypass or pass over Simple Administration menus. This is explained later in this chapter.

Typical Administrative Tasks

A. Assign passwords to administrative logins—special logins that allow you and your appointees to do certain administrative tasks.

B. Assign passwords to system logins—reserved logins for performing certain UNIX System services.

C. Format blank floppies and cartridge tapes—this is necessary before using them.

D. Add other users—this assigns other users their administrative and login data.

E. Install provided utilities by following the instructions in your *Release Notes* document. These are utilities that came with your 3B2/400 Computer at no extra charge.

F. Install optional utilities by following the instructions in your *Release Notes.* These are utilities that you purchased extra.

G. Do system backup—a backup procedure stores a copy of hard disk data on floppy disks or cartridge tapes. Then if data corruption occurs, you can restore your system using the disks or tape.

H. Install optional add-on hardware features by following the instructions in the feature manuals.

I. Create file systems.

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Caution 1: Any person with a login can perform Simple Administration tasks. But the person with a root login must be particularly careful because of their power to inadvertently damage file systems.

Caution 2: When you use Simple Administration, only use Simple Administration commands. Do not use UNIX System shell commands while in Simple Administration.

How to Use This Chapter

Some administrative tasks are simple while others are a little more involved. But Simple Administration helps you do each task step by step. This chapter shows you how to use Simple Administration to do necessary administrative tasks.

Begin by studying the table of contents to get an overview. Then browse through the chapter before reading it to understand the organization of this chapter. Finally, read the chapter, pay special attention to the figures and examples, the tasks of system administration, and the organization of Simple Administration. Thereafter, use one of several indexing methods explained later in this chapter to quickly locate applicable procedures of Simple Administration whenever you need them to do a particular administrative task.

From time to time, you may need to refer to your *AT&T 3B2 Computer System Administration Utilities Guide* and *UNIX System V User Guide* to help you understand some tasks and terms in this chapter.

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MENUS

A Simple Administration menu is a listing of subcommands from which you select a subcommand to perform. Subcommands are important because they help you do administrative tasks. Some menus contain subcommands to go to other menus, called submenus. Simple Administration menus and their subcommands are shown in Figure 5-1.

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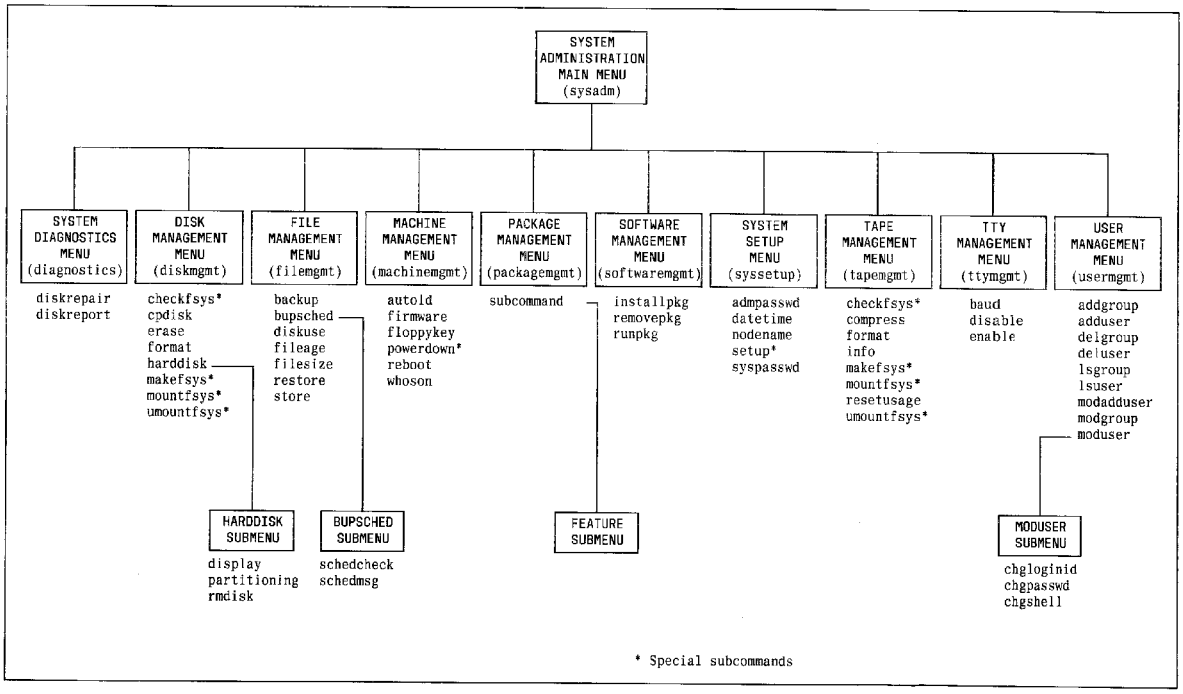


Figure 5-1. Simple Administration Menus and Subcommands

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System Administration Main Menu

The top level or main menu for Simple Administration is called the **System Administration Main Menu**. Log in on the console terminal and enter

sysadm<CR>

to display the main menu.

```
                    SYSTEM ADMINISTRATION

 1 diagnostics       system diagnostics menu
 2 diskmgmt          disk management menu
 3 filemgmt          file management menu
 4 machinemgmt       machine management menu
 5 packagemgmt       package management
 6 softwaremgmt      software management menu
 7 syssetup          system setup menu
 8 tapemgmt          tape management menu
 9 ttymgmt           tty management menu
10 usermgmt          user management menu

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

Notice that the main menu lists the principle Simple Administration menus. The first column shows the menu reference number. The second column is the menu name. The third column is the full name or title of the menu.

The menu you select depends on which subcommand you need to do a particular administrative task. To access a menu from the main menu, enter the number of the menu, the name of the menu, or just the first part of the name, followed by a <CR>.

For example, suppose you need to add a user to your system. Through one of several indexing methods explained later in this chapter, you determine that you need to select the **user management menu** because

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that menu contains the **adduser** subcommand. Therefore, you enter any one of these responses to the **System Administration Main Menu**:

10<CR>

usermgmt<CR>

user<CR>

This will display the **user management menu** containing subcommands, one of which is **adduser**.

```
                    USER MANAGEMENT

1 addgroup        add a group to the system
2 adduser         add a user to the system
3 delgroup        delete a group from the system
4 deluser         delete a user from the system
5 lsgroup         list groups in the system
6 lsuser          list users in the system
7 modadduser      modify defaults used by adduser
8 modgroup        make changes to a group on the system <not available>
9 moduser         menu of commands to modify a user's login

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

You then select the **adduser** subcommand in the same manner by entering the subcommand number, name, or partial name such as

2<CR>

adduser<CR>

addu<CR>

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Once you select the **adduser** subcommand, you enter into an interactive routine that leads you through the steps involved with adding a user to your system.

Notice the message at the bottom of **user management menu**. This notice is standard and appears on all Simple Administration menus. As the rest of the message implies, you can request general or specific help, return to the previous menu, or you can quit Simple Administration altogether. These entries are self-explanatory, and be sure to follow them with <CR>, such as **q**<CR>.

A brief description of each Simple Administration menu follows. Following that, the individual subcommands are described on a menu-by-menu basis.

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System Diagnostics Menu

The **system diagnostics menu** contains subcommands that look for, report on, and tell you how to repair hard disk errors.

```
                    SYSTEM DIAGNOSTICS

1 diskrepair      advice on repair of built-in disk errors
2 diskreport      report on built-in disk errors

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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Disk Management Menu

The **disk management menu** contains subcommands for using hard disks and floppy disks. These subcommands format, copy, and use hard disks and floppy disks as a mountable file system. You can also partition and construct file systems on an additional hard disk in your system. Floppy disks (and cartridge tapes) are often called removable media.

```
                    DISK MANAGEMENT

1 checkfsys      check a removable medium file system for errors
2 cpdisk         make exact copies of a removable medium
3 erase          erase data from removable media
4 format         format new removable diskettes
5 harddisk       hard disk management menu
6 makefsys       create a new file system on a removable medium
7 mountfsys      mount a removable medium file system
8 umountfsys     unmount a removable medium file system

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

Notice the **harddisk** subcommand orders a **hard disk management menu** that contains subcommands to add or remove an add-on hard disk. For simplicity in this chapter, menus that appear within other menus are called submenus (main menu excepted). The **harddisk submenu** looks like this.

```
                HARD DISK MANAGEMENT

1 display          display hard disk partitioning
2 partitioning     partition a hard disk
3 rmdisk           remove a hard disk

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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File Management Menu

The **file management menu** contains subcommands to protect files on the hard disk file system by copying them onto removable media. You then use the media to restore the hard disk file system when needed. Other subcommands help determine which files, based on size and age, to keep on removable media.

```
                        FILE MANAGEMENT

1 backup          backup files from built-in disk to removable media
2 bupsched        backup reminder scheduling menu
3 diskuse         display how much of the hard disk is being used
4 fileage         list files older than a particular date
5 filesize        list the largest files in a particular directory
6 restore         restore files from "backup" & "store" media to
                  built-in disk
7 store           store files and directories of files onto removable
                  media

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

The **bupsched** subcommand calls the **bupsched submenu**. It contains subcommands for scheduling backup reminder checks and messages.

```
1 schedcheck      schedule backup reminder checks
2 schedmsg        schedule backup reminder messages

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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Machine Management Menu

The **machine management menu** contains subcommands to operate the machine such as turn it off, reboot, or go into the firmware mode.

```
                    MACHINE MANAGEMENT

1 autold          auto load parameter setting
2 firmware        stop all running programs then enter firmware mode
3 floppykey       create a "floppy key" removable disk
4 powerdown       stop all running programs then turn off machine
5 reboot          stop all running programs then reboot the machine
6 whoson          print list of users currently logged onto the system

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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Package Management Menu

The **package management menu** contains submenus and subcommands that manage various features that you install on your machine. Additions are made to this menu when a utilities or a hardware option supported by Simple Administration is added to your 3B2/400 Computer, for instance, *Basic Networking Utilities.*

```
                        PACKAGE MANAGEMENT

1 uucpmgmt          basic networking utilities menu

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

The **uucpmgmt submenu** looks like this.

```
                BASIC NETWORKING UTILITIES MANAGEMENT

1 devicemgmt        manage devices (list, add, delete)
2 pollmgmt          manage poll entries (list, add, delete)
3 portmgmt          manage I/O ports (list, modify)
4 systemmgmt        manage remote systems entries (list, add, delete,
                    call)

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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Software Management Menu

The **software management menu** contains subcommands that install software, remove software, and run software directly from a floppy disk without loading it first on hard disk.

```
                    SOFTWARE MANAGEMENT

1 installpkg        install new software package onto built-in disk
2 removepkg         remove previously installed package from built-in
                    disk
3 runpkg            run software package without installing it

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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System Setup Menu

The **system setup menu** contains subcommands that tell the computer what its environment looks like: date, time, time zone, name, passwords, etc. The first-time setup routine is also here. This is the routine you used to get your machine started using the **setup** subcommand.

```
                    SYSTEM SETUP

1 admpasswd       assign or change administrative passwords
2 datetime        set the date, time, time zone and daylight savings
                  time
3 nodename        set the node name of this machine
4 setup           set up your machine the very first time
5 syspasswd       assign system passwords

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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Tape Management Menu

The **tape management menu** contains subcommands for using the cartridge tape drive. The subcommands provide the ability to format, copy, and use tapes as mountable file systems.

```
                    TAPE MANAGEMENT

1 checkfsys       check a removable medium file system for errors
2 compress        compress file system
3 format          format removable cartridge tape
4 info            display tape drive information
5 makefsys        create a new file system on a removable medium
6 mountfsys       mount a removable medium file system
7 resetusage      reset cartridge tape usage count
8 umountfsys      unmount a removable medium file system

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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TTY Management Menu

The **tty management menu** contains subcommands that change the operating characteristics of a port to match the peripheral devices (terminal, printer, or modem) connected to the ports.

```
                TTY MANAGEMENT

1 baud          change the baud rate on a tty line
2 disable       turn off a tty line
3 enable        turn on a tty line

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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User Management Menu

The **user management menu** contains subcommands to help administer the users of your computer. In this menu, you can add, modify, and delete users and user groups.

```
                    USER MANAGEMENT

1 addgroup        add a group to the system
2 adduser         add a user to the system
3 delgroup        delete a group from the system
4 deluser         delete a user from the system
5 lsgroup         list groups in the system
6 lsuser          list users in the system
7 modadduser      modify defaults used by adduser
8 modgroup        make changes to a group on the system <not available>
9 moduser         menu of commands to modify a user's login

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```

The **moduser** subcommand orders a **moduser submenu** that contains subcommands to modify various items of a user login.

```
                    MODIFY USER'S LOGIN

1 chgloginid      change a user's login ID
2 chgpasswd       change a user's password
3 chgshell        change a user's login shell

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP, ^ to GO BACK, q to QUIT:
```


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MENU SUBCOMMANDS

This section describes the subcommands used in Simple Administration. The subcommands are grouped according to the menus on which they are found. The order of the menus follows the order on the **System Administration Main Menu**.

Caution: When using Simple Administration, only use Simple Administration subcommands. Do not use UNIX System shell commands while in Simple Administration.

System Administration Main Menu

The main menu contains subcommands that call up any of the principle menus of Simple Administration.

SUBCOMMAND	MENU TITLE
diagnostics	system diagnostics menu
diskmgmt	disk management menu
filemgmt	file management menu
machinemgmt	machine management menu
packagemgmt	package management
softwaremgmt	software management menu
syssetup	system setup menu
tapemgmt	tape management menu
ttymgmt	tty management menu
usermgmt	user management menu

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System Diagnostic Menu Subcommands

The subcommands that are accessible from the **system diagnostic menu** provide the capability to look for and sometimes repair problems in the computer.

diskrepair	Provides advice on how to attempt repairs on built-in disk errors. The advice includes how to change the system run level, what repair program to use, and how to restore the system.
diskreport	Provides a report on built-in disk errors. You are given the choice of either summary or full reports. The summary report provides enough information to determine if repair should be attempted. The full report provides detailed information for the troubleshooting expert.

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Disk Management Menu Subcommands

These subcommands provide functions for using floppy disks and adding or removing a hard disk. For floppy disks, these functions include the ability to format, copy, and use the disks as mountable file systems.

checkfsys Checks a file system on a floppy disk for errors. If there are errors, **checkfsys** attempts to repair them. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

cpdisk Copies the contents of a floppy disk onto hard disk to allow you to make duplicate floppy disk copies. These copies are identical to the original in every way. This subcommand fails if there is not enough space in the **root** file system to hold the floppy disk data.

erase Erases a floppy disk by overwriting any data with null bytes. **Be careful when you start erasing because the process is not reversible.**

format Prepares (or formats) floppy disks. Before you can write data on a floppy disk, certain things need to be done to a floppy. This preparation process is called formatting, and it takes 3.5 minutes per floppy disk.

harddisk The three subcommands in this submenu provide functions for adding a hard disk. You can display hard disk partitioning, partition a hard disk, and remove a hard disk. A hard disk can be divided into partitions of unequal size, measured in bytes.

display
Displays the hard disk partitioning information. It also shows the hardware location of the selected disk.

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partitioning

Divides a hard disk that you add to the computer into areas or partitions. You can specify the partitions or allow the system to partition the hard disk according to the default partitioning. A disk cannot be partitioned if it contains the **root** or **/usr** file system. You can repartition a hard disk if you do a full restore.

rmdisk

Removes a hard disk from the system configuration so it can be either physically removed or repartitioned. A disk cannot be removed if it contains the **root** or **/usr** file system. This subcommand removes all system references to the hard disk and will undo all the things that partitioning does.

makefsys Creates a new file system on a floppy disk to store data you do not wish to keep on hard disk. When mounted, the file system has all the properties of a file kept on a hard disk, except that it is smaller. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

mountfsys Mounts a file system found on a floppy disk, making it available to the users. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

THE FLOPPY DISK MUST NOT BE REMOVED WHILE THE FILE SYSTEM IS STILL MOUNTED.

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umountfsys Unmounts a file system that is on floppy disk so that you can remove the floppy disk from the floppy drive. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

THE FLOPPY DISK MUST NOT BE REMOVED UNTIL THE FILE SYSTEM IS UNMOUNTED.

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File Management Menu Subcommands

The subcommands in this menu manage the files you have on the computer. This involves copying files from a hard disk to removable media (floppy disks or cartridge tapes) and back again to the hard disk. Copying files to removable media may be done on a scheduled basis to back up important files or it may be done to archive files as needed. Other subcommands determine the size and age of files to help you decide which files to back up and which media to use.

backup

The **backup** subcommand saves copies of files from hard disk file systems on floppy disks or cartridge tape. There are two kinds of backups: COMPLETE (copies all files; useful in case of serious file system damage) and INCREMENTAL (copies files changed since the last backup). The normal usage cycle is to do a complete backup of each file system and then periodically do incremental backups. For example, do a complete backup on Fridays with partial backups on Mondays and Wednesdays. It is recommended that you keep 2 cycles—one complete backup and several incremental backups for each cycle.

bupsched

The **bupsched submenu** contains two subcommands that schedule backup reminder messages and backup reminder checks. Backup reminder messages are sent to the console to remind the administrator to back up particular file systems. This occurs when the machine shuts down or when a reminder check is run. Backup reminder checks specify times for the system to check if any backup reminder messages were scheduled.

schedcheck

Backup reminder checks are done at specific times to check for scheduled backup reminder messages. The user schedules the time of the reminder checks.

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schedmsg
Backup reminder messages are sent to the console terminal if the machine is shut down or a reminder check is scheduled. The user specifies the times for reminder messages and the file systems included in the messages.

diskuse Reports what percentage of the hard disk is currently occupied by files. It outputs a list organized by file system names.

fileage Lists files older than a given date. The fileage subcommand prints the names of all files older than the date you specify. If you do not enter a date, all files older than 90 days are listed. If you do not specify the directory to look in, your login directory will be used.

filesize Prints the names of the largest files in a specific directory. If you do not enter a directory name, your login directory will be used. If you do not specify how many large files to list, 10 files are listed.

restore Copies files that were stored on removable media using either the **backup** or **store** subcommand back to built-in hard disk. Individual files, directories of files, or the entire contents of a disk or tape can be restored. You can restore from both incremental and complete backup media. Restore also lists the names of files stored on the floppy disk or tape.

store Copies files and directories from built-in hard disk to removable media. Typically, these would be files that you want to archive or restrict access. You can store single files or directories of files.

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Machine Management Menu Subcommands

These subcommands operate the 3B2/400 Computer.

autoId Changes the default boot file and boot device. Usually, you boot from the " unix " file resident on hard disk. When this is the case, you enter <CR> in response to `Enter name of program to execute [unix]:` and `Enter load device option number [1 (HD30)]:`. When you want to change the default values from " unix " and " HD30," the machine tells you your options.

firmware This subcommand stops all running programs, closes any open files, writes out information to disk (such as directory information), then enters the firmware mode. In the firmware mode, you can perform machine diagnostics and other special functions not available through standard UNIX System commands.

floppykey Creates a floppy key removable disk. The floppy key removable disk allows you to enter the firmware mode if you have previously changed the firmware password and forget what it is, or if the NVRAM gets garbled. Thus, the floppy key is just that—the key to your system—and should be protected as such.

powerdown This subcommand stops all running programs, closes any open files, writes out information to disk (such as directory information), and then turns the machine power off. If you are in the time period for doing a scheduled backup, a message is printed before the power is removed. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

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reboot This subcommand stops all running programs, closes any open files, writes out information to disk (such as directory information), and then reboots the machine. This can be used to get out of some types of system trouble, such as when a process cannot be killed.

whoson Prints a list of users who are currently logged onto the system. The login ID, terminal device number, and sign-on time of the users are printed.

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Package Management Menu Subcommands

Subcommands in this menu access submenus that administer utilities or hardware options. The **package management menu** will be empty until you install a utilities or hardware option that is supported by Simple Administration. Once you install one, an alphabetical entry will appear in the **package management menu**. For example, the following entry would appear under the **package management menu** when you first install Basic Networking Utilities:

1 uucpmgmt basic networking utilities menu

Not all utilities or options are supported by Simple Administration. The respective utilities guide or manual indicates whether or not the utilities or option is supported. It also describes the corresponding subcommands.

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Software Management Menu Subcommands

These subcommands install utilities, remove utilities, and run utilities directly from the removable media that they are delivered or stored on. The remove and run capabilities are dependent on the utilities being run. See the instructions delivered with each utilities.

installpkg Copies utilities from removable media onto built-in hard disk. If necessary, installpkg performs additional tasks to enable you to run the utilities.

removepkg Removes utilities from built-in hard disk. The removable medium used to install the utilities is needed to remove it.

runpkg Allows you to run utilities from a removable medium without installing it first on built-in hard disk. This subcommand takes a file off the removable medium and executes it. This subcommand is useful if you do not use the utilities often, or if you do not have enough hard disk space to load the utilities.

Note: Not all utilities have the ability to be run this way. See the instructions that come with the utilities to find out if programs can be run directly from the removable medium.

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System Setup Menu Subcommands

System Setup helps you to tell the computer what its environment looks like: date, time, time zone, passwords for administration and system log ins, machine name, etc. The first-time setup sequence is also here.

admpasswd Lets you assign or make changes to passwords for administrative logins: **checkfsys**, **makefsys**, **mountfsys**, **powerdown**, **setup**, and **sysadm**.

datetime Tells the computer the day, date, time, time zone, and whether you observe Daylight Savings Time (DST). A feature of **datetime** is to make automatic time changes for DST. If you observe DST, the computer will automatically start to observe it in the spring and return to Standard Time in the fall. The computer has to be turned off and turned back on again to guarantee that ALL times are being reported correctly.

nodename Changes the node name of your 3B2/400 Computer. The node name is the unique name of your computer used by various communications networks to identify your computer. Refer to the *AT&T 3B2 Computer System Administration Utilities Guide* for further information.

setup Sets up your computer the first time you use it. The **setup** subcommand allows you to define the first login, add other logins, assign passwords to logins, and to set the time for your location. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

syspasswd Allows you to assign passwords to system logins: **adm**, **bin**, **daemon**, **nuucp**, **rje**, **root**, **sys**, **trouble**, and **uucp**. This procedure assigns passwords, but may not change or clear them. Once set, they can only be changed by the specific login or the **root** login.

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Tape Management Menu Subcommands

These subcommands format cartridge tapes, backup file systems on tape, restore data from a backup tape to hard disk, and reorganize a file system for faster access.

checkfsys Checks a file system that has been created on tape. If any errors are found, this procedure attempts to repair them. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

compress Reorganizes a file system (except **root** and **/usr**) in order to improve access efficiency in that file system. The reorganization is accomplished by first copying the file system from built-in hard disk to tape. The hard disk is then restructured and the file system is copied from the tape back onto the hard disk. There are three requirements for **compress** to work:

- The file system to be reorganized must be mounted on a hard disk
- The temporary storage device must be a cartridge tape
- The file system must fit on one blank cartridge tape.

Caution: You must back up the file system you want to compress before starting this procedure.

format Formats a cartridge tape. A cartridge tape must be formatted before you write on it. Each tape takes approximately 20 minutes to format.

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info Displays information about a tape that is mounted in the cartridge tape drive. This information includes the number of bytes and blocks available, the number of allowed passes, the number of passes to date, and the Volume Table of Contents.

makefsys Creates a file system on a cartridge tape allowing you to store and access files on a medium other than a built-in hard disk. When the file system is mounted, it has the same characteristics as a file system on hard disk. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

mountfsys Mounts a file system found on a cartridge tape, thus making it available to users. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

DO NOT REMOVE THE CARTRIDGE TAPE WHILE THE FILE SYSTEM IS STILL MOUNTED.

resetusage Resets the cartridge tape drive counter. Tape management has a counter that keeps track of the time that has elapsed since the tape drive was last cleaned and the time remaining until the next scheduled cleaning. After you clean the tape drive, you must reset this counter.

umountfsys Unmounts a file system that is on cartridge tape so that you can remove the cartridge tape from the cartridge tape drive. This is a special subcommand; see the " BYPASSING MENUS " section in this chapter.

DO NOT REMOVE THE CARTRIDGE TAPE WHILE THE FILE SYSTEM IS STILL MOUNTED.

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TTY Management Menu Subcommands

Note: Before attempting to use the subcommands of **TTY management**, you should be familiar with the **getty** command and the **gettydefs** file. Refer to the *AT&T 3B2 Computer System Administration Utilities Guide* for further information.

These subcommands allow you to change the operating conditions of your ports, called tty lines in this menu. In most cases, you will be making these changes for a terminal. You can change the data transmission speed and the operation state of a tty line.

baud	Changes the transmission rate of tty lines. This subcommand presents a list of changeable tty lines and baud rates. Changing a rate also causes a **getty** to be enabled (respawned) for a tty line.
disable	Disables (turns off) a tty line. In this status, the computer disables **getty** and will not respond with a login prompt. This effectively blocks using a terminal connected to a disabled port. However, a printer can operate on a disabled port.
enable	Enables (respawns) a tty line. When enabled, the **getty** for a tty line is respawned and logins are permitted. A terminal operates on an enabled port but a printer does not.

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User Management Menu Subcommands

The subcommands in this menu help you to add, modify, and delete users that have access to your machine. You can also place them in separate groups so they can share access to files within the group, while protecting themselves from users in other groups.

addgroup	Adds a new group name or ID to the computer. Group names and IDs are used to identify groups of users who desire common access to a set of files and directories.
adduser	Enables you to add other users to your 3B2/400 Computer. Adding a user consists of assigning a login ID, user ID, group ID, login path name, and a password. You can add more than one user at a time. Once this procedure is finished, the new login ID is available.
delgroup	Allows you to remove user groups from the computer. The deleted group is no longer identified by name. However, files may still be identified with the group ID number.
deluser	Allows you to remove users from the computer. All information pertaining to a person is removed. After this subcommand has been executed, the person who was removed will no longer have access to the computer.
lsgroup	Lists all the user groups that have been entered into the computer. This list is updated automatically by **addgroup** and **delgroup**.

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lsuser Lists all the users that have been entered into the computer. This list is updated automatically by **adduser** and **deluser**.

modadduser Allows you to change some of the defaults used when **adduser** created a new login. It is most useful if your system was configured with multiple user file systems. Changing the defaults does not affect any existing logins.

modgroup Allows you to change any information about an existing user group.

moduser Modifies the various aspects of a user's login with a submenu of subcommands.

chgloginid
Changes a user's login ID. You cannot change the login IDs of the administrative and system logins.

chgpasswd
Removes or changes a user's login password. You cannot change the passwords of the administrative and system logins. To do that, see the **system setup menu**.

chgshell
Changes the login shell of a user. You cannot change the login shell of the administrative and system logins.

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EXAMPLE TASK: ADDING A USER

The following example shows how you use Simple Administration to add a user to your computer.

Suppose that you want to allow Sam O. Smith to have access to your 3B2/400 Computer. Assuming you are already logged in, the first thing you would do is access the Simple Administration main menu.

```
$sysadm<CR>
Password:<password><CR>     Note: sysadm command may not have a password.

                SYSTEM ADMINISTRATION

     1 diagnostics          system diagnostics menu
     2 diskmgmt             disk management menu
     3 filemgmt             file management menu
     4 machinemgmt          machine management menu
     5 packagemgmt          package management
     6 softwaremgmt         software management menu
     7 syssetup             system setup menu
     8 tapemgmt             tape management menu
     9 ttymgmt              tty management menu
    10 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT:
```

If you already know that the routine for adding a user is part of **user management** or can determine this by using the " REFERENCE CHART " section at the end of this chapter, enter **10**<CR>. Then skip to the **user management menu** shown below. However, if you are not sure which menu you need to select to add a user, you ask Simple Administration for help by typing in a **1?**<CR>, **2?**<CR>, or **3?**<CR> ... whenever the main menu appears.

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```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

This message is the prompt that you get following each menu. You always have the option to ask for help (**?**<CR> or <**number**>**?**<CR>), to go back to the previous menu (^<CR>), or quit Simple Administration and exit to shell (**q**<CR>). A <CR> by itself will display the current menu again. The following example shows what happens when you ask for help when in the **System Administration Main Menu**.

```
            SYSTEM ADMINISTRATION

 1 diagnostics          system diagnostics menu
 2 diskmgmt             disk management menu
     .
     .
     .
10 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 10?<CR>

       These subcommands allow you to add, modify and delete the list of users
       that have access to your machine.  You can also place them in separate
       groups so they can share access to files within the group but protect
       themselves from other groups.

Press the RETURN key to see the sysadm menu [?, q]:
```

You then need to enter <CR> to return to the **System Administration Main Menu** so you can enter 10<CR> to call up the **user management menu**.

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```
            SYSTEM ADMINISTRATION

 1 diagnostics          system diagnostics menu
 2 diskmgmt             disk management menu
      .
      .
      .
10 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 10<CR>

                          USER MANAGEMENT

     1 addgroup         add a group to the system
     2 adduser          add a user to the system
     3 delgroup         delete a group from the system
     4 deluser          delete a user from the system
     5 lsgroup          list groups in the system
     6 lsuser           list users in the system
     7 modadduser       modify defaults used by adduser
     8 modgroup         make changes to a group on the system
     9 moduser          menu of commands to modify a user's login

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT:
```

The information you would then enter to add a user is shown next.

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```
                        USER MANAGEMENT

     1 addgrp       add a group to the system
     2 adduser      add a user to the system
          .                  .
          .                  .
          .                  .
     9 moduser      menu of commands to modify a user's login

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT: 2<CR>

Any time you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Owner/Operator Manual.

Enter user's full name:Sam O. Smith<CR>
Enter user's login ID:sos<CR>
Enter user ID number. (If you don't, I'll pick one):200<CR>
Enter group ID number or group name.
(If you don't, I'll pick one):300<CR>
Enter user's login (home) directory name.
(If you don't I'll use '/usr/sos'):<CR>

This is the information for the new login:
     User's name:      Sam O. Smith
     login ID:         sos
     user ID:          200
     group ID:         300
     home directory:   /usr/sos
Do you want to install, edit, or skip this entry? [i, e, s, q]? i<CR>
Login installed.
Do you want to give the user a password? [y, n]y<CR>
New password: <password><CR>
Re-enter new password: <password><CR>
Do you want to add another login? [y, n, q]n<CR>

Press the RETURN key to see the user management menu: <CR>

                        USER MANAGEMENT

     1 addgrp       add a group to the system
     2 adduser      add a user to the system
          .                  .
          .                  .
          .                  .
     9 moduser      menu of commands to modify a user's login

Enter a number, a name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT: q<CR>
$
```


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EXAMPLE TASK: STORING DATA ON FLOPPY DISK

This next example shows how to use Simple Administration to store a directory and all the files in that directory on a floppy disk. The directory to be stored is named 305-501, and it contains 6 files.

The first step is to access the main menu for Simple Administration.

```
$sysadm<CR>
Password:<password><CR>     Note: sysadm command may not have
                                  password protection.

                          SYSTEM ADMINISTRATION

     1 diagnostics        system diagnostics menu
     2 diskmgmt           disk management menu
     3 filemgmt           file management menu
     4 machinemgmt        machine management menu
     5 packagemgmt        package management
     6 softwaremgmt       software management menu
     7 syssetup           system setup menu
     8 tapemgmt           tape management menu
     9 ttymgmt            tty management menu
    10 usermgmt           user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT:
```

If you already know that the routine for storing data on floppy disks is part of **file management** or can determine this by using the " REFERENCE CHART " section at the end of this chapter, enter **3**<CR>. Then skip to the **file management menu** shown below. However, if you are not sure which menu you need to select to store data on floppy disks, you ask Simple Administration for help by typing in a **1?**<CR>, **2?**<CR>, or **3?**<CR> ... whenever the main menu appears.

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```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP, q to QUIT:
```

This message is the prompt that you get following each menu. You always have the option to ask for help (**?**<CR> or <number>**?**<CR>), to go back to the previous menu (^<CR>), or quit Simple Administration and exit to shell (**q**<CR>). A <CR> by itself will display the current menu again. The following example shows what happens when you ask for help when in the **System Administration Main Menu**.

```
            SYSTEM ADMINISTRATION

 1 diagnostics          system diagnostics menu
 2 diskmgmt             disk management menu
 3 filemgmt             file management menu
     .
     .
10 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 3?<CR>

        The subcommands in this menu allow you to protect files on the
        hard disk file systems by copying them onto removable media and
        later restoring them to the hard disk by copying them back.
        Subcommands are also provided to determine which files might
        best be kept on removable media based on age or size.

Press the RETURN key to see the sysadm menu [?, q]:
```

You then need to enter <CR> to return to the **System Administration Main Menu** so you can enter 3<CR> to call up the **user management menu**.

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```
            SYSTEM ADMINISTRATION

 1 diagnostics          system diagnostics menu
 2 diskmgmt             disk management menu
 3 filemgmt             file management menu
     .
     .
10 usermgmt             user management menu

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  q to QUIT: 3<CR>

                         FILE MANAGEMENT

    1 backup        backup files from built-in disk to removable media
    2 bupsched      backup reminder scheduling menu
    3 diskuse       display how much of the hard disk is being used
    4 fileage       list files older than a particular date
    5 filesize      list the largest files in a particular directory
    6 restore       restore files from "backup" & "store" media to
                        built-in disk
    7 store         store files and directories of files onto removable media

Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT:
```

The subcommand for storing files and directories on a removable medium is **store**. Notice the response to entering a **7**<CR>.

```
Enter a number, name, the initial part of a name, or
? or <number>? for HELP,  ^ to GO BACK,  q to QUIT: 7<CR>

Select which device to use:

    1        ctape1
    2        diskette1
```

Since the files are going to be stored on a floppy disk, select diskette1. The information that you then enter and the system responses that you receive to store the six files in directory 305-501 are shown in the following screen.

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```
Enter a number, name, the initial part of a name, or
? for HELP, q to QUIT:2<CR>

             1. Select a single file for storing.
             2. Select all files under a directory for storing.
Enter a number [q, ?]: 2<CR>
Enter full path name of directory to be stored [q]:
               /usr2/seb/305-501

             1. Select a single file for storing.
             2. Select all files under a directory for storing.
             3. List files selected so far.
             4. Store selected files.
Enter a number [q, ?]:2<CR>

6 files selected.

Print each file name as it is being stored? [y,n,q,?]y<CR>

Before inserting the first part into the diskettel drive, mark it:

             Files stored on:
             Wed. 02/23/85, 08:50:09 AM
                          part 1

Insert the medium in the diskettel drive. Press <RETURN> when ready. [q]<CR>
/usr2/seb/305-501/chapter1
/usr2/seb/305-501/chapter2
     .          .
     .          .
/usr2/seb/305-501/chapter6
208 blocks
Store complete.
Do you want to verify that your file(s) were stored properly? [y,n,,?]y<CR>
PLEASE NOTE:
To verify that the store worked properly, you must re-insert
all parts that were just written to, starting with "part 1".

Insert the medium in the diskette drive.  Press <RETURN> when ready.[q]<CR>
208 blocks
Verification complete.  You may remove the medium.
Should the stored files be removed from the built-in disk?[y,n,q,?]n<CR>
Removal complete.

Press the RETURN key to see the filemgmt menu[,^,q]:q<CR>
$
```

BYPASSING MENUS

After you become experienced with the Simple Administration subcommands, you may find the use of menus to be a little tedious. There are ways to use subcommands directly without going through the complete menu structure. But when you directly access Simple Administration subcommands, you only perform the task you requested,

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then Simple Administration automatically returns you back to the shell. Some tasks allow you to remain in that menu while others do not. So if you plan to do more than one task, consider entering Simple Administration via menus.

Using 'sysadm' Command

One way to bypass menus is to use the subcommand as an argument to the **sysadm** command. If you know the name of the subcommand you want to use, enter the following command line:

sysadm <subcommand><CR>

The following screen display illustrates how to access **adduser** without going through the menu structure.

```
$ sysadm adduser<CR>
Password:<password><CR>  Note: sysadm may not have password protection yet.

Running command 'adduser' in menu 'usermgmt',

Any time you want to quit, type "q".
If you are not sure how to answer any prompt, type "?" for help,
or see the Owner/Operator Manual.

Enter user's full name:

From this point on, the procedure is the same
as if you had entered it by way of the menus.
```

Several identical subcommands appear in both the **disk management menu** and the **tape management menu** (Figure 5-1). Although identical, the functions they perform are not. **Disk management** subcommands apply to floppy disks and **tape management** subcommands apply to cartridge tapes. If you call one of these subcommands using **sysadm**, you are asked to select which application of the subcommand you want to execute. For example, the following message is displayed in response to

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the command line **sysadm format**<CR>:

```
$ sysadm format<CR>
Password:<password><CR>  Note: sysadm may not have password protection yet.
More than one subcommand or submenu name matches 'format'.
     1    diskmgmt/format
     2    tapemgmt/format
Select one: [?, q]
```

Using Special Subcommands

Menus can also be bypassed if you want to use one of the " special subcommands." The purpose of special subcommands is to allow some users to perform certain administrative tasks without permitting them to access the entire Simple Administration structure. A good example would be if you want to allow several users to be able to turn off the computer, but you do not want them to be able to do any other system administration. You may assign a password to the **powerdown** subcommand and give the password to only those users you want to allow to turn off the computer.

Within Simple Administration, there are special subcommands that can be executed like an ordinary UNIX System shell command. In addition to being executed as a UNIX System shell command, these special subcommands are also administrative logins and can be used to log on the console terminal directly from the system prompt `Console Login:`.

One of the special subcommands which you are already familiar with is **setup**. During the initial setup of the 3B2/400 Computer, you used the **setup** subcommand to log in to the computer on the console terminal to directly access the **setup** routine. You can also access **setup** via the **system setup menu**, or you can access **setup** as an ordinary UNIX System shell command. Remember, you can assign passwords to the special subcommands to restrict access to them.

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Other special Simple Administration subcommands (and the menus in which they appear) are:

SUBCOMMAND	MENU
checkfsys	**diskmgmt** and **tapemgmt**
makefsys	**diskmgmt** and **tapemgmt**
mountfsys	**diskmgmt** and **tapemgmt**
umountfsys	**diskmgmt** and **tapemgmt**
powerdown	**machinemgmt**

The **checkfsys**, **makefsys**, **mountfsys**, and **umountfsys** subcommands apply to both **tape management** and **floppy disk management**. When you use one of these subcommands as a UNIX System shell command, you are asked to select the device you want to use as this example shows.

```
$ makefsys<CR>
Password:<password><CR>   Note: makefsys may not have password protection yet.

Select which device to use:

     1  ctapel
     2  diskettel

Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```


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INSTALLING AND REMOVING UTILITIES

Installing Utilities

Installation of software for any of the utilities is easy using Simple Administration. Instructions and error messages are displayed to guide you through the process. Before starting though, review your *Release Notes* concerning the particular utilities that you intend to install. It contains installation information that is peculiar to that utilities, such as dependencies and order of installation.

Part of the installation process verifies that the required free disk space is available in the **root** and **/usr** file systems. The computer first checks to make sure sufficient free space is available on the hard disk to install the utilities. If not enough free space is available, a message is displayed telling you how many blocks are needed. To create free disk space, you may remove other utilities, directories, or files that you created. To ensure that adequate free space is available, remove at least 100 blocks more than the amount indicated in the message.

Before you install a utilities, you should be logged in as **root** on the console terminal.

Procedure

> ***Caution: Entering the 'shutdown' command changes the run state to single user. In the single-user mode, only the console terminal is functional, and all other users are requested to log off before their processes are killed and the users are dropped. Operation in single-user mode for installing or removing utilities is recommended, but not required, to prevent interference with other users who are logged on.***

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1. Log in as **root** on the console terminal.

2. Enter:

```
# shutdown -y<CR>
```

   Response:

```
Shutdown started.      day date time zone year 1985

Broadcast Message from root (console) day date time...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

The system is coming down.  Please wait.
System services are now being stopped.
The system is down.
INIT: New run level: S

INIT: SINGLE USER MODE
#
```

3. Enter:

```
# mount /dev/dsk/c1d0s2 /usr<CR>
# sysadm installpkg<CR>
```

   Response:

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```
Running  subcommand 'installpkg' from menu 'softwaremgmt',
SOFTWARE MANAGEMENT

Select which device to use:

    1   ctape1
    2   diskette1

Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```

4. Make your selection.

5. Insert the removable medium (floppy disk or cartridge tape) and depress <CR> as instructed. If the utilities has more than one floppy, insert the first floppy of the set. (See Appendix B for using floppy disks and Appendix C for using cartridge tapes.)

6. The system responds with messages identifying the files that are being copied from the removable medium to the hard disk. A completion message will be displayed when the utilities is installed. If a problem is encountered, the system will respond with messages indicating the source of the problem and the action to be taken.

7. Remove and store the removable medium.

8. If you have more than one floppy disk, repeat Steps 5 through 7.

9. The system then gives you the option to install another utilities.

IF	THEN
Yes	Repeat Steps 4 thru 8
No	Enter **q**<CR>

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10. Enter:

```
# umount /dev/dsk/c1d0s2<CR>
# init 2<CR>
```

Response:

```
INIT: new run level: 2
The system is coming up.  Please wait.
AT&T 3B2 SYSTEM CONFIGURATION
   .
   .
   .
The system is ready.
Console Login:
```

11. You may want to notify other users that the commands associated with the installed utilities are available. Refer to the *AT&T 3B2 Computer System Administration Utilities Guide* for information on modifying the " message-of-the-day " or sending news.

Removing Utilities

Removing a utilities creates free space on the hard disk and frees up the number of disk blocks that were used at the time a utilities was installed. You may not recover all the disk space you had before a utilities was installed.

An alternative to the removal of a utilities is the removal of directories and files that you have created. Data that you want to keep can be copied to removable media before removing the data from hard disk using the **store** subcommand.

Review your *Release Notes* concerning the particular utilities you intend to remove. It may contain removal information that is peculiar to that

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utilities. The removal of utilities software is very simple. Instructions and error messages similar to those found in the installation procedure are displayed to guide you through the process.

Procedure

Caution: Entering the 'shutdown' command changes the run state to single user. In the single-user mode, only the console terminal is functional. All other users are requested to log off before their processes are killed and the users are dropped. Operation in single-user mode for installing or removing utilities is recommended, but not required, to prevent interference with other users.

1. Log in as **root** on the console terminal.

2. Enter:

```
# shutdown -y<CR>
```


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Response:

```
Shutdown started.      day date time zone year 1985

Broadcast Message from root (console) day date time...
THE SYSTEM IS BEING SHUT DOWN NOW ! ! !
Log off now or risk your files being damaged.

The system is coming down.  Please wait.
System services are now being stopped.
The system is down.
INIT: New run level: S

INIT: SINGLE USER MODE
#
```

3. Enter:

```
# mount /dev/dsk/c1d0s2 /usr<CR>
# sysadm removepkg<CR>
```

Response:

```
Running  subcommand 'removepkg' from menu 'softwaremgmt',
SOFTWARE MANAGEMENT

List of installed utilities
                .
                .
                .
                .

Select which device to use:

    1   ctape1
    2   diskette1

Enter a number, a name, the initial part of a name, or
? for HELP, q to QUIT:
```


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4. Make your selection.

5. Insert the removable medium (floppy disk or cartridge tape) and depress <CR> as instructed. If the utilities has more than one floppy, insert the first floppy of the set. (See Appendix B for using floppy disks and Appendix C for using cartridge tapes.)

6. The system responds with messages identifying the files being removed from the hard disk and puts the files on a removable medium. A completion message will be displayed when the utilities is removed. If a problem is encountered, the system responds with messages indicating the source of the problem and the action to be taken.

7. Remove and store the removable medium.

8. If you have more than one floppy disk, repeat Steps 4 through 7.

9. The system then gives you the option to remove another utilities.

IF	THEN
Yes	Repeat Steps 4 thru 8
No	Enter **q**<CR>

10. Enter:

```
# umount /dev/dsk/c1d0s2<CR>
# init 2<CR>
```


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Response:

```
INIT: new run level: 2
The system is coming up.  Please wait.
AT&T 3B2 SYSTEM CONFIGURATION
   .
   .
   .
The system is ready.
Console Login:
```

11. You may want to notify other users that the commands associated with the removed utilities are no longer available. Refer to the *AT&T 3B2 Computer System Administration Utilities Guide* for information on modifying the " message-of-the-day " or sending news.

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REFERENCE CHART

The reference chart in Figure 5-2 matches administrative tasks, subcommands, and menus of Simple Administration. This chart will help you in the following ways.

1. Identifies administrative tasks done with Simple Administration.
2. Associates subcommands with these tasks.
3. Associates menus with the subcommands.

Once you know the subcommand you need, you can access the subcommand routine directly or indirectly as explained earlier. If you want more information about the subcommand first, use the index at the back of this manual to quickly locate the information in this chapter. (Or you can use the table of contents at the beginning of this chapter to locate subcommand descriptions.) The index also includes task and menu entries for your referencing convenience.

The subcommands used in the **package management menu** for added features are not included here. Refer to the documentation that came with those features.

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TASK	SUBCOMMAND	MENU
Add hard disk	harddisk	diskmgmt
Add user	adduser	usermgmt
Add user group	addgroup	usermgmt
Assign adm login password	admpasswd	syssetup
Assign sys login password	syspasswd	syssetup
Backup hard disk files	backup	filemgmt
Backup reminder checks	schedcheck	bupsched
Backup reminder messages	schedmsg	bupsched
Backup restoral	restore	filemgmt
Change adm login password	admpasswd	syssetup
Change boot file/device	autold	machinemgmt
Change nodename	nodename	syssetup
Change port speed	baud	ttymgmt

Figure 5-2. Simple Administration Reference Chart (Sheet 1 of 6)

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TASK	SUBCOMMAND	MENU
Change user data	moduser	usermgmt
Change user default data	modadduser	usermgmt
Change user group data	modgroup	usermgmt
Change user login ID	chgloginid	moduser
Change user login routine	chgshell	moduser
Change user password	chgpasswd	moduser
Check file system (floppy)	checkfsys	diskmgmt
Check file system (tape)	checkfsys	tapemgmt
Compress file system (disk)	compress	tapemgmt
Configure new hard disk	partitioning	harddisk
Copy file system from disk	backup	filemgmt
Copy floppy disk	cpdisk	diskmgmt
Copy file (floppy or tape)	store	filemgmt

Figure 5-2. Simple Administration Reference Chart (Sheet 2 of 6)

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TASK	SUBCOMMAND	MENU
Delete user	deluser	usermgmt
Delete user group	delgroup	usermgmt
Display data about tape	info	tapemgmt
Display hard disk partition	display	harddisk
Duplicate floppy disk	cpdisk	diskmgmt
Enter firmware mode	firmware	machinemgmt
Erase floppy disk	erase	diskmgmt
Error report on hard disk	diskreport	diagnostics
Format cartridge tape	format	tapemgmt
Format floppy disk	format	diskmgmt
Hard disk error report	diskreport	diagnostics
Hard disk use	diskuse	filemgmt
Initialize 3B2/400 Computer	reboot	machinemgmt

Figure 5-2. Simple Administration Reference Chart (Sheet 3 of 6)

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TASK	SUBCOMMAND	MENU
Install utilities	installpkg	softwaremgmt
List larger files	filesize	filemgmt
List older files by date	fileage	filemgmt
List user groups	lsgroup	usermgmt
List users	lsuser	usermgmt
List users logged on	whoson	machinemgmt
Make file system (floppy)	makefsys	diskmgmt
Make file system (tape)	makefsys	tapemgmt
Make floppy key	floppykey	machinemgmt
Modify user data	moduser	usermgmt
Modify user default data	modadduser	usermgmt
Modify user group data	modgroup	usermgmt
Mount file system (floppy)	mountfsys	diskmgmt

Figure 5-2. Simple Administration Reference Chart (Sheet 4 of 6)

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TASK	SUBCOMMAND	MENU
Mount file system (tape)	mountfsys	tapemgmt
Percentage use of hard disk	diskuse	filemgmt
Reboot 3B2/400 Computer	reboot	machinemgmt
Remove hard disk	rmdisk	diskmgmt
Remove utilities	removepkg	softwaremgmt
Reorganize file system	compress	tapemgmt
Repair hard disk	diskrepair	diagnostics
Reset tape drive counter	resetusage	tapemgmt
Restart 3B2/400 Computer	reboot	machinemgmt
Restore hard disk files	restore	filemgmt
Run uninstalled utilities	runpkg	softwaremgmt
Schedule backup checks	schedcheck	bupsched
Schedule backup messages	schedmsg	bupsched

Figure 5-2. Simple Administration Reference Chart (Sheet 5 of 6)

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TASK	SUBCOMMAND	MENU
Set baud rate of port	baud	ttymgmt
Set date and time	datetime	syssetup
Set up computer first time	setup	syssetup
Store files on floppy/tape	store	filemgmt
Turn off 3B2/400 Computer	powerdown	machinemgmt
Turn off login getty on port	disable	ttymgmt
Turn on login getty on port	enable	ttymgmt
Unmount file system (floppy)	umountfsys	diskmgmt
Unmount file system (tape)	umountfsys	tapemgmt

Figure 5-2. Simple Administration Reference Chart (Sheet 6 of 6)

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Chapter 6

CLEARING TROUBLE

PAGE

TROUBLESHOOTING 6-1
INTERFERENCE 6-3

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Chapter 6

CLEARING TROUBLE

TROUBLESHOOTING

In the event of trouble with your 3B2/400 Computer, refer to the Troubleshooting Chart in Figure 6-1 before calling for service.

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PROBLEM	CAUSE	REMEDY
No power	1. No power from outlet. 2. Fuse blown in 3B2 Computer.	1. Check outlet and connections. 2. Call for service.
Powerup sequence not completed	Latches on drives	Put both latches parallel to slots.
Interference with other electronic equipment	Placement or cabling of 3B2 Computer	See "INTERFERENCE," this chapter.
Cannot log in	Permission mode in home directory	**root** must change.
Forgot password	—	Refer to *AT&T 3B2 Computer System Administration Utilities Guide.*
Problems keeping date or time	Battery	Call service for replacement.
Error message	System problem	Refer to *AT&T 3B2 Computer System Administration Utilities Guide.*
Loss of power	Accidental disconnect or power failure.	Wait 10 minutes before restarting.
Cartridge tape or floppy disk drive problem	Equipment	Refer to *AT&T 3B2 Computer Cartridge Tape Utilities Guide.*
Cannot log off	In single-user mode	1. Enter init 2<CR> 2. Enter control-d
Cannot turn off computer	1. Console terminal disconnect. 2. In single-user mode.	1. Reconnect console terminal. 2. See Chapter 4.

Figure 6-1. Troubleshooting Chart

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INTERFERENCE

If your 3B2/400 Computer causes interference in nearby electronic equipment, try the following remedies:

- Relocate cables and/or antennas.
- Relocate your 3B2/400 Computer with respect to the equipment.
- Make sure your 3B2/400 Computer and the equipment interfered with are not plugged into the same outlet.

If these measures do not eliminate the interference, call for service.

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APPENDICES

Appendix A. CABLES AND CONNECTORS
Appendix B. USING FLOPPY DISKS
Appendix C. USING CARTRIDGE TAPES
Appendix D. MOVING AND PACKING
Appendix E. PINOUTS
Appendix F. SPECIFICATIONS
Appendix G. HARD DISK LOCKING AND UNLOCKING

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Appendix A

CABLES AND CONNECTORS

ITEM	COMCODE	
	UNITED STATES	INTERNATIONAL
7′ Shielded cable assembly	403600968	104219423
14′ Shielded cable assembly	403600976	104219639
25′ Shielded cable assembly	403600984	104219431
50′ Shielded cable assembly	403600992	104219449
10m Drop cable 3BNET	845186766	845186766
30m Drop cable 3BNET	845186774	845186774
50m Drop cable 3BNET	845186782	845186782
3′ Parallel interface cable	403752272	403752272
7′ Serial printer cable	403682701	403682701
14′ Serial printer cable	403682719	403682719
25′ Serial printer cable	403682727	403682727
50′ Serial printer cable	403682735	403682735
9′ Parallel printer cable	403682693	403682693
Male terminal/printer connector (RS-232-C)	403602717	104219555
Female terminal/printer connector (RS-232-C)	403417512	104219563
Male ACU modem connector	403417538	104219373
Male dumb modem connector	403434020	403434020
Male coaxial connector	402333165	402333165
Female coaxial connector	403330533	403330533
Barrel coaxial connector	900649658	104219381
Coaxial cable terminator	403247703	104219571

Note: Serial and parallel printer cables for AT&T products only.

Figure A-1. Cables and Connectors for 3B2/400 Computer Options

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Appendix B

USING FLOPPY DISKS

PAGE

DESCRIPTION OF A FLOPPY DISK B-1

PRECAUTIONS B-2

INSERTING FLOPPIES B-4

REMOVING FLOPPIES B-5

TYPE OF FLOPPY DISKS TO USE B-6

READING AND WRITING B-6

MAINTENANCE B-6

- Cleaning Your Floppy Drive B-6
- Floppy Disk Replacement B-7

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Appendix B

USING FLOPPY DISKS

DESCRIPTION OF A FLOPPY DISK

You should have received several floppy disks (Figure B-1) with your 3B2/400 Computer. These are 5.25-inch diameter Mylar disks coated with magnetic material that store up to 728,064 bytes (1,422 512-byte blocks) of data each. Some of your floppies contain the UNIX System core utilities, and others contain software utilities stored on them.

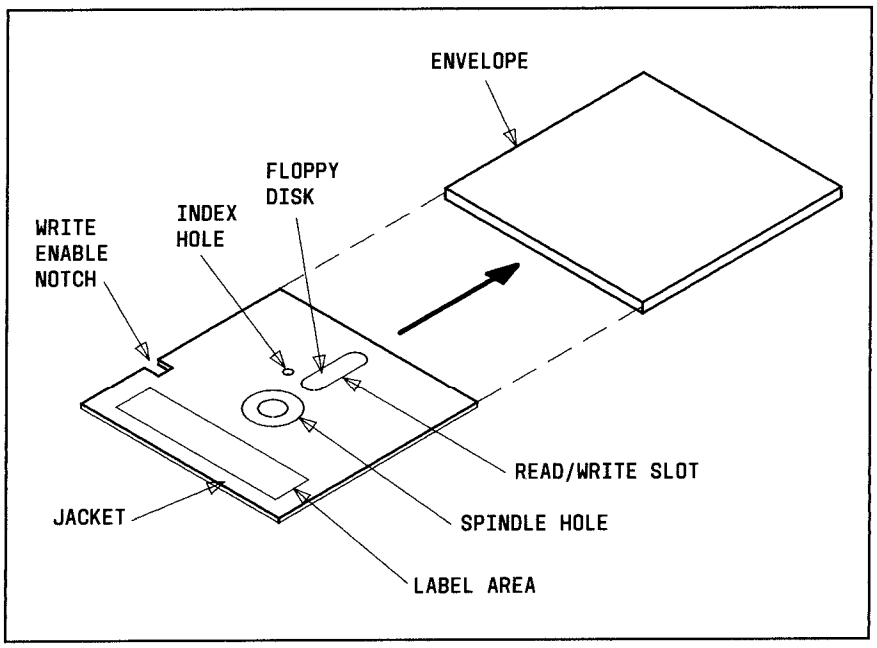


Figure B-1. Floppy Disk

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Each floppy disk is permanently enclosed in a jacket. Your 3B2/400 Computer can either write information onto or read information from a floppy disk. The ability to write on a disk is controlled by the write-enable notch (Figure B-1). If this notch is uncovered, the floppy disk drive CAN write information on the disk. If the notch is covered, the floppy disk drive CANNOT write on the disk. A covered notch is referred to as being "write protected."

Write protection is important to know because you will probably have certain disks that contain programs or information that you do not want destroyed or altered. To protect these disks from being accidentally erased or written over, always keep the write enable notch covered. Cover the notch with an opaque self-adhesive tab. These tabs are normally supplied with the floppy disks. If at some later date you want to write on the disk again, you can remove the tab.

PRECAUTIONS

When handling floppy disks:

1. *NEVER* touch the recording surface through the read/write slot or the index hole.

2. Do not write on the floppy disk jacket. Write on a label before affixing it to the label area on the jacket. If you write on an affixed label later, use a felt tip pen only. *NEVER* use a ball point pen.

3. Do not bend the floppy disk.

4. Keep floppy disks away from strong magnetic fields (for example, airport x-ray machines, electric motors, and transformers), direct sunlight, excessive moisture, dust, or extremes in temperature.

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5. Keep floppy disks in their protective envelopes when you are not using them.

6. Store floppy disks in an upright position.

7. Do not leave a floppy disk in the floppy disk drive.

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INSERTING FLOPPIES

Figure B-2 shows you how to insert a floppy disk into a floppy drive.

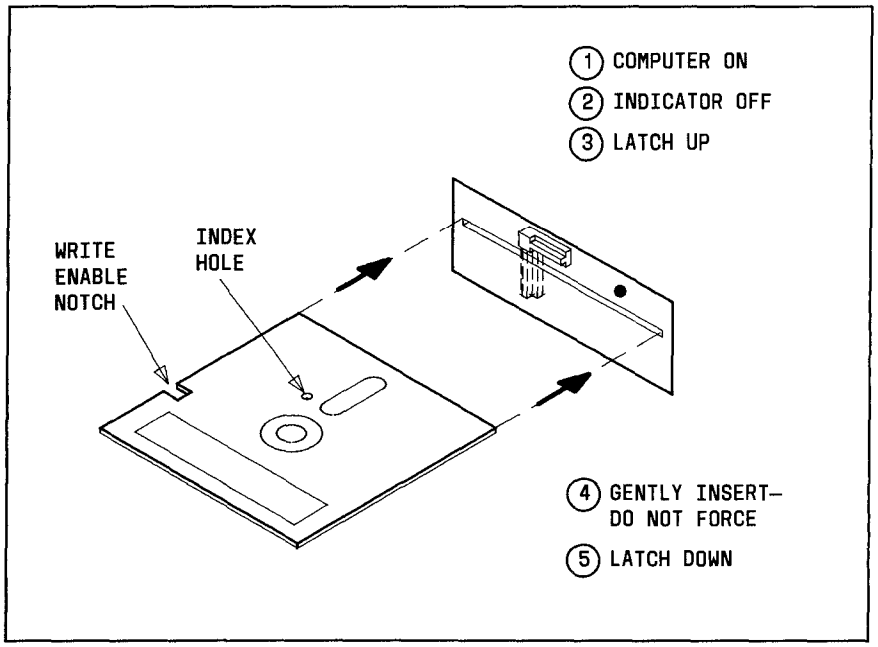


Figure B-2. Insert Floppy Disk

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REMOVING FLOPPIES

Figure B-3 shows you how to remove a floppy disk from a floppy drive.

Caution: Never remove a floppy disk while the floppy disk drive indicator is on. You can damage the disk or destroy the information stored on it.

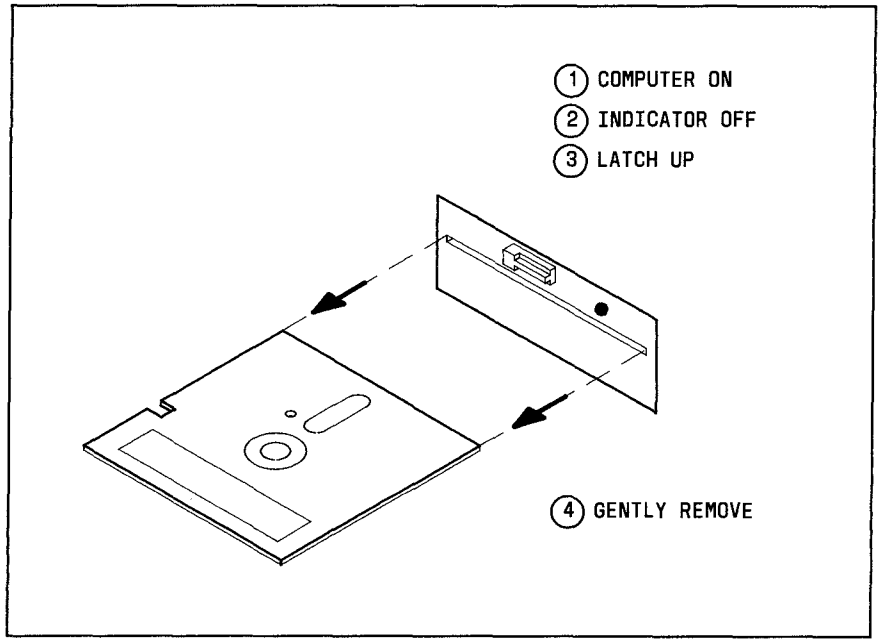


Figure B-3. Remove Floppy Disk

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TYPE OF FLOPPY DISKS TO USE

The floppy disks that you use in your 3B2/400 Computer should be:

- Double-density
- Double-sided
- 96 tracks per inch
- Soft sectored
- Free of defects.

READING AND WRITING

See Chapter 5 or your *AT&T 3B2 Computer System Administration Utilities Guide* for the different uses and procedures to read or write on floppy disks. Before new floppy disks can be written on, they must be formatted. Use the **format** subcommand under the Simple Administration **disk management menu**, or use the **fmtflop** command.

MAINTENANCE

Cleaning Your Floppy Drive

It is recommended you clean your floppy drive every 100 hours of use with the indicator light on, or whenever you remove a floppy disk that has magnetic oxide residue. A special floppy disk that cleans floppy drives is available wherever computer supplies are sold.

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Floppy Disk Replacement

Floppy disks become worn after extended periods of use which may cause data stored on the disk to be lost. Copy and replace important disks after extended use. As a general rule, replace floppy disks supplied by AT&T after 170 hours of use. If you use floppy disks supplied by other sources, follow the recommendation of the manufacturer.

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Appendix C

USING CARTRIDGE TAPES

PAGE

DESCRIPTION OF A CARTRIDGE TAPE C-1
PRECAUTIONS C-2
INSERTING CARTRIDGE TAPES C-3
REMOVING CARTRIDGE TAPES C-5
TYPE OF CARTRIDGE TAPES TO USE C-6
READING AND WRITING C-6
MAINTENANCE C-6
Cleaning Your Tape Drive C-6
Cartridge Tape Replacement C-9

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Appendix C

USING CARTRIDGE TAPES

DESCRIPTION OF A CARTRIDGE TAPE

The 3B2/400 Computer Cartridge Tape Drive is a storage device that stores data on and retrieves data from cartridge tapes (Figure C-1). A single cartridge tape stores up to 23 megabytes of data (45,541 512-byte blocks).

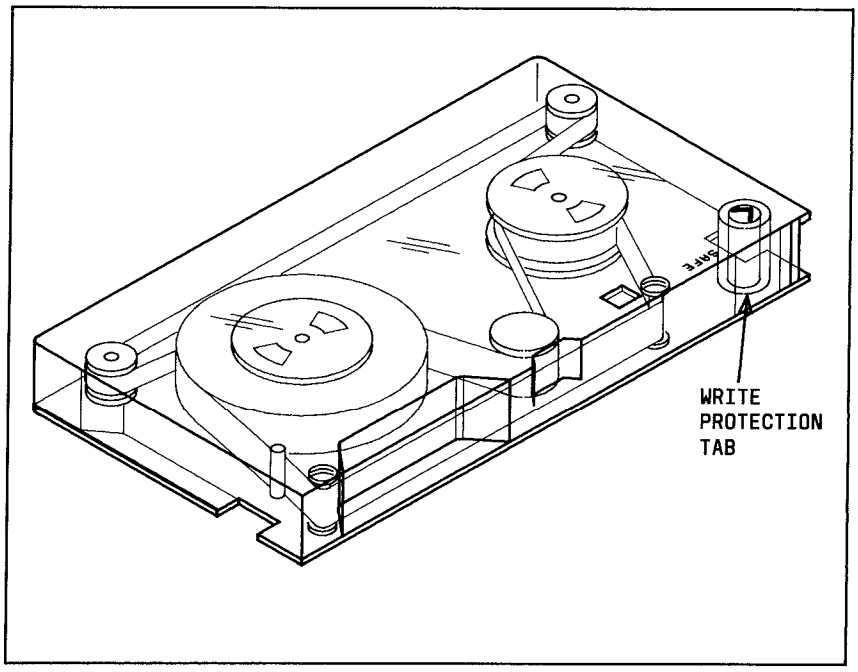


Figure C-1. Cartridge Tape

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You can either write onto or read information from a cartridge tape. Cartridge tapes have a feature that prevents anyone from accidentally writing onto a tape. The ability to write on a cartridge tape is controlled by a write-protection tab. To protect writing, use a nonmagnetic, flathead screwdriver to turn the write-protection tab until the tab arrow points to the SAFE position (Figure C-1). To permit writing, turn the write-protection tab until the tab arrow points away from the SAFE position.

You should be familiar with write-protection because you will probably have certain tapes that contain programs or information that you do not want destroyed or altered. To protect these tapes from being accidentally erased or written over, always keep the write-protection tab in the SAFE position. If at some later date you want to write on the tape again, you may turn the tab to the write position.

A cartridge tape that is write protected cannot have its cartridge tape pass count updated. See " Cartridge Tape Replacement " at the end of this appendix.

PRECAUTIONS

When handling cartridge tapes:

1. *NEVER* touch the tape surface or drive rollers.

2. Keep cartridge tapes away from X rays, magnetic fields, direct sunlight, excessive moisture, or temperature changes.

3. *ALWAYS* acclimate a cartridge tape to the operating environment before use. Allow one hour acclimation for each hour outside the operating environment, up to a maximum of 8 hours.

4. Store cartridge tapes in their protective cases in the operating environment when you are not using them.

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INSERTING CARTRIDGE TAPES

1. Turn the latch to the open position (parallel with drive slot). See Figure C-2.

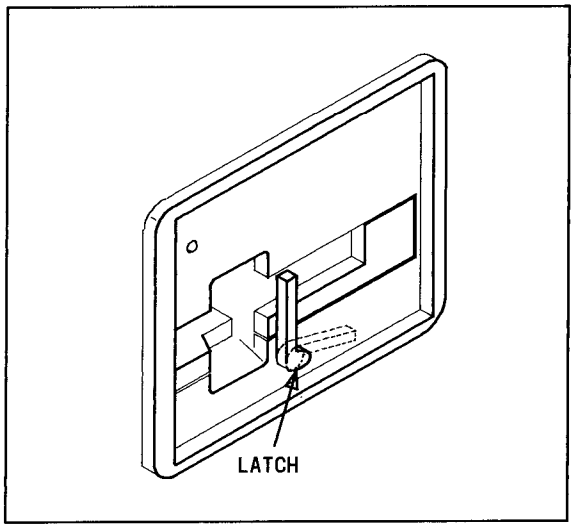


Figure C-2. Cartridge Tape Drive Latch

2. Carefully pull out the drawer until it stops.

3. Put a cartridge tape in the drawer as shown in Figure C-3.

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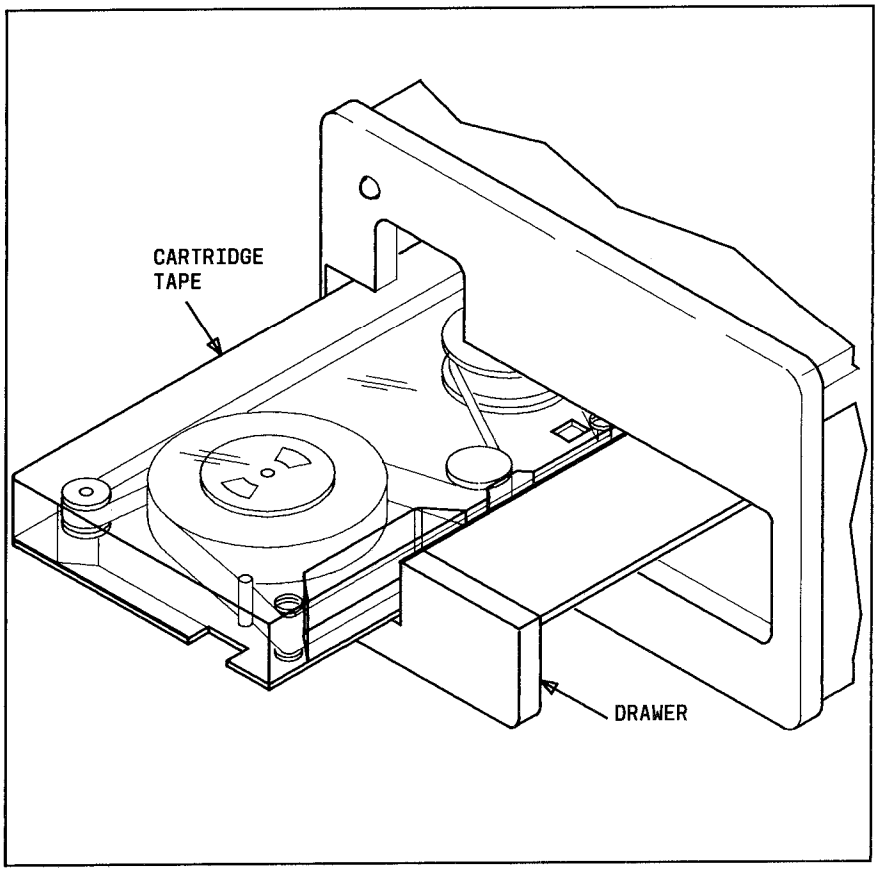


Figure C-3. Insert Cartridge Tape

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4. Gently push the drawer into the cartridge tape drive until it stops.

5. Turn the latch to the lock position (perpendicular to slot).

6. Wait. The cartridge tape drive automatically starts a re-tension pass that lasts about 3 minutes.

7. Your cartridge tape is loaded and ready to use.

REMOVING CARTRIDGE TAPES

1. Make sure the indicator on the cartridge tape drive is not on. If the indicator is on, wait until all processes have stopped and the indicator is off.

   Caution: The cartridge tape drive has a lock feature that prevents removing a cartridge tape while the indicator is on. If you try to remove a cartridge tape while the indicator is on, you may damage your cartridge tape drive.

2. Turn the drive latch to the open position (parallel with the slot) as shown in Figure C-2.

3. Carefully pull out the drawer containing the cartridge tape until it stops.

4. Remove the cartridge tape and return it to its plastic case.

5. Gently push the drawer back into the cartridge tape drive until it stops.

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TYPE OF CARTRIDGE TAPES TO USE

SCOTCH* DC600A data cartridge or equivalent is recommended.

READING AND WRITING

See Chapter 5 or your *AT&T 3B2 Computer System Administration Utilities Guide* for the different uses and procedures to read or write on cartridge tapes. Before new cartridge tapes can be written on, they must be formatted. Use the **format** subcommand under the Simple Administration **tape management menu**, or use the **ctcfmt** command.

MAINTENANCE

Cleaning Your Tape Drive

Your tape drive requires occasional cleaning and tape replacement as explained below.

Your tape drive keeps track of how many 25-millisecond intervals the tape was in motion. This is referred to as the drive usage count. The drive usage count is used to determine when your tape drive needs maintenance. When the drive usage count reaches a certain limit, your system will give you the following message.

```
Scheduled preventive maintenance ----
CLEAN TAPE DRIVE. Failure to clean the
tape drive will lead to data loss.
```

* Registered trademark of 3M

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You need to clean the tape path, capstan roller, and head assembly. Required tools include:

- Cleaning swabs that will not scratch or leave a residue
- Type TF degreaser.

Clean as follows.

1. Turn off the 3B2/400 Computer.
2. Locate the parts that need cleaning (Figure C-4).

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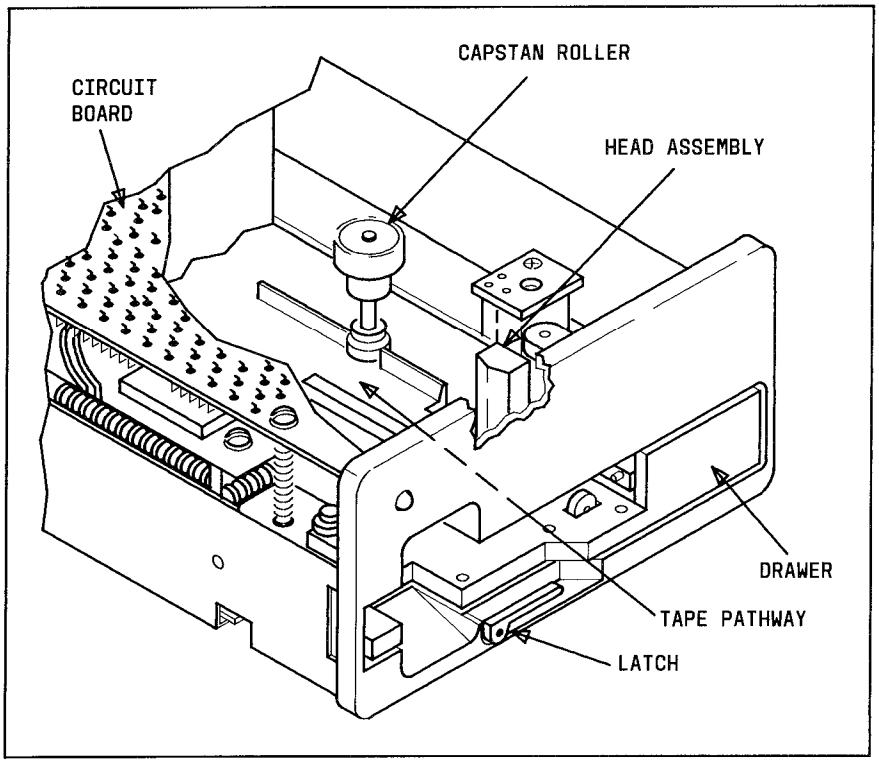


Figure C-4. Cleaning Cartridge Tape Drive

3. Slightly moisten a swab with the degreaser. (Replace the swab whenever it gets too dirty.)

4. Carefully clean the head assembly with the swab.

5. Use the swab to rotate and clean the capstan roller.

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6. Clean any tape residue and other debris in the tape pathway.

7. Turn the 3B2/400 Computer back on.

8. Reset the tape drive usage count. Use the **resetusage** subcommand described in Chapter 5.

Cartridge Tape Replacement

Cartridge tapes may be used a limited number of times before they become unreliable. Your tape drive keeps track of how many passes a tape makes through the drive by putting pass count information onto the tape. The maximum cartridge tape pass count is 4000 passes. When a cartridge tape needs replacing, you will receive the following message.

```
The cartridge in CTC drive X is wearing out. Please
replace it as soon as possible. It has an estimated
life of B more backups. Failure to replace the
cartridge will lead to data loss.
```

The **ctcinfo** command is used to determine the cartridge tape pass count for a particular tape. This command is described in your *3B2 Computer Cartridge Tape Utilities Guide.*

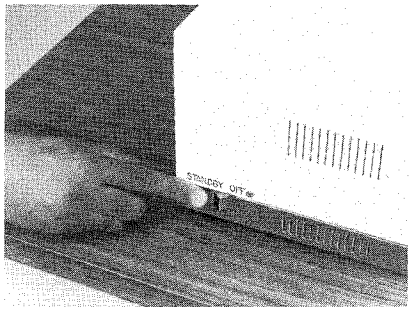
Caution: A write-protected cartridge tape cannot be written on or have its cartridge tape pass count updated. Therefore, it will seem ageless to your system.

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Appendix D

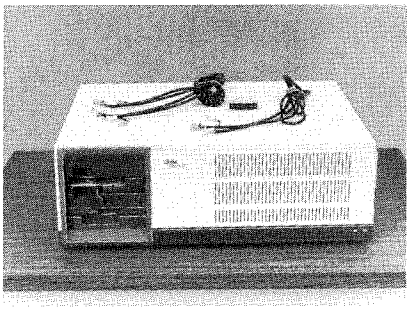
MOVING AND PACKING



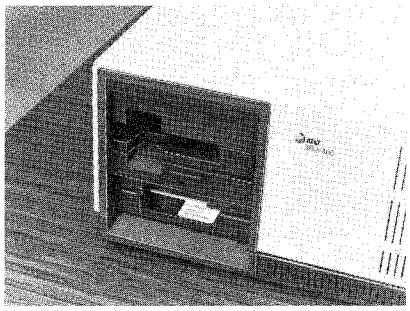
(a) Turn Off

If shipping computer, see Appendix G, "Hard Disk Locking and Unlocking".

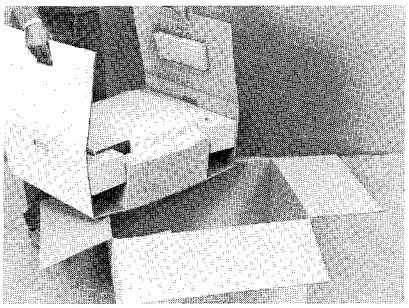
(b) Lock Hard Disks



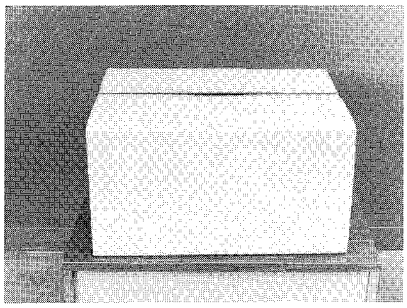
(c) Remove Connections



(d) Insert Floppy Cardboard



(e) Pack



(f))Prepare for Shipping

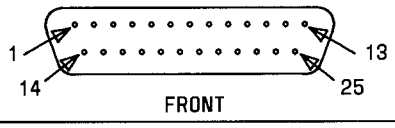
Figure D-1. Moving and Packing

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Appendix E:

PINOUTS

8-PIN MODULAR JACK	25-PIN RS-232-C JACK OR PLUG FOR PRINTER OR TERMINAL	25-PIN RS-232-C PLUG FOR AUTOMATIC DIAL MODEM
1 PROT GRD	1 FRAME GROUND	1 FRAME GROUND
2 RESERVED	4 RESERVED	5 RESERVED
3 TXDO	3 TRANSMIT DATA	2 TRANSMIT DATA
4 DTRO	8 DATA TERMINAL READY	20 DATA TERMINAL READY
5 RXDO	2 RECEIVE DATA	3 RECEIVE DATA
6 DCDO	20 DATA CARRIER DETECT	8 DATA CARRIER DETECT
7 SIG GRD	7 SIGNAL GROUND	7 SIGNAL GROUND
8 RESERVED	5 RESERVED	4 RESERVED
SEE PIN DIAGRAMS BELOW	RS-232-C CONNECTOR 	

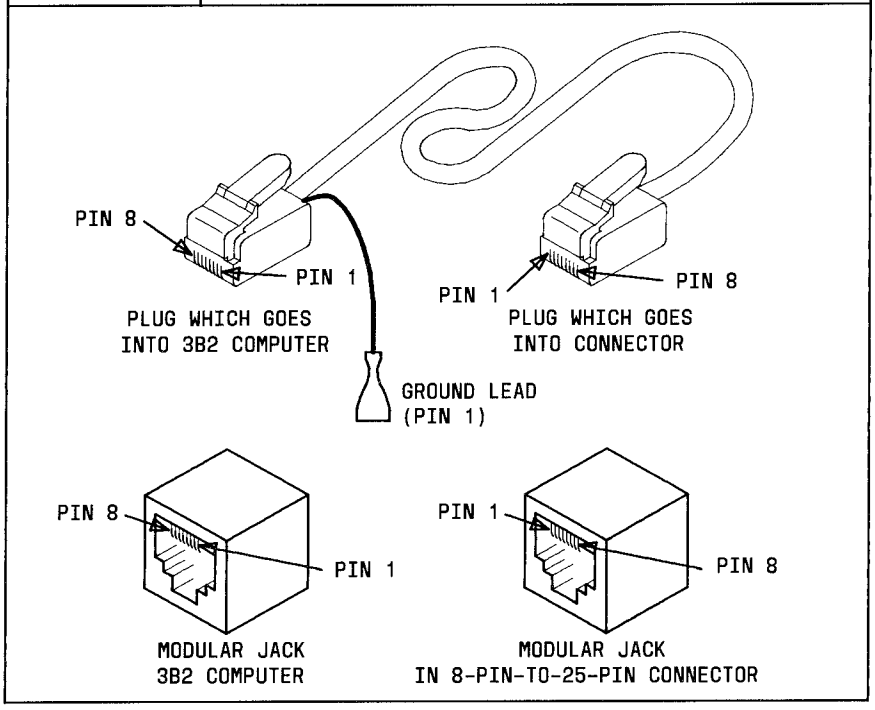


Figure E-1. Pinouts for Serial Ports and RS-232-C Connectors

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8-PIN MODULAR JACK DEFINITION			
Pin	**Lead**	**Direction**	**Explanation**
1	PROT GRD		Ground
2	Reserved		Not connected
3	TXD0	Out	Transmit Data
4	DTR0	Out	Data Terminal Ready—This signal, when active, connects the modem to the telephone line or denotes to a terminal or printer that the expansion port is ready to begin sending/receiving data.
5	RXD0	In	Receive Data
6	DCD0	In	Data Carrier Detect—This signal is active when the modem detects a signal capable of being demodulated, or the terminal/printer is ready to accept/transmit data.
7	SIG GRD		Ground
8	Reserved		Not connected

Note 1: These signals are RS-232-C compatible operating at 12 volts positive or negative.

Note 2: PROT GRD and SIG GRD are physically the same.

Refer to your *AT&T 3B2 Computer Expanded Input/Output Capability Manual* for pinout information about parallel ports.

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Appendix F

SPECIFICATIONS

FEATURES

- WE 32100 MICROPROCESSOR PROVIDES 8-, 16-, OR 32-BIT OPERATIONS AND MEMORY MANAGEMENT (RELOCATION AND PROTECTION CAPABILITIES)
- 10-MEGAHERTZ CLOCK
- UP TO 46 RS-232-C INPUT/OUTPUT (I/O) PORTS (TWO PORTS ARE STANDARD; UP TO ELEVEN I/O EXPANSION PORTS CARDS CAN BE ADDED, EACH PROVIDES FOUR ADDITIONAL SERIAL, ASYNCHRONOUS PORTS.)
- UP TO ELEVEN PARALLEL PRINTER PORTS (ONE ON EACH I/O EXPANSION PORTS CARD)
- UP TO 4 MEGABYTES (MB) OF MAIN MEMORY
- 5.25-INCH FLOPPY DISK DRIVE HOUSED INTERNALLY (720 KBs)
- 5.25-INCH CARTRIDGE TAPE DRIVE HOUSED INTERNALLY (23 MBs)
- 30- OR 72-MB FIXED-MEDIA HARD DISKS HOUSED INTERNALLY
- 12-SLOT EXPANSION BACKPLANE
- FIRMWARE WHICH PROVIDES AUTOMATIC BOOTING, SANITY TESTS, AND DIAGNOSTICS AT POWER-UP

MEETS UL 478, CSA 22.2, AND VDE 0806 SAFETY

PHYSICAL SPECIFICATIONS

TEMPERATURE	40° THROUGH 100°F @ SEA LEVEL (5°C THROUGH 38°C)
HUMIDITY	20 THROUGH 80% NONCONDENSING
ALTITUDE	250′ BSL THROUGH 10000′ ASL 74M BSL THROUGH 2950M ASL
NOISE	LESS THAN 50 dB(A)

POWER REQUIREMENTS

AC VOLTAGE	115 OR 220-240 V~
FREQUENCY	50/60 HERTZ
POWER CONSUMPTION	400 WATTS

PHYSICAL SIZE

DIMENSIONS	22″W BY 18″D BY 7.6″H (56 CM W BY 46 CM D BY 19 CM H)
WEIGHT	60-70 LBS. (27-32KG)
CABINET LOAD	SUPPORT EXTERNAL LOADS TO 60 LBS. (27 KG)

Figure F-1. 3B2/400 Computer Specifications

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Appendix G

HARD DISK LOCKING AND UNLOCKING

The following procedures apply only to 30-megabyte hard disks shipped from the United States to other countries or subsequent reshipments abroad by a customer. If your computer has 30-megabyte hard disks but was shipped inside the United States, it was shipped unlocked. If your computer has 72-megabyte hard disks, no manual locking or unlocking is needed. These disks have automatic software locking and unlocking.

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1. If you are locking your disks, turn off your computer and unplug it.
2. Remove the Cable Access Door using Figure G-1.

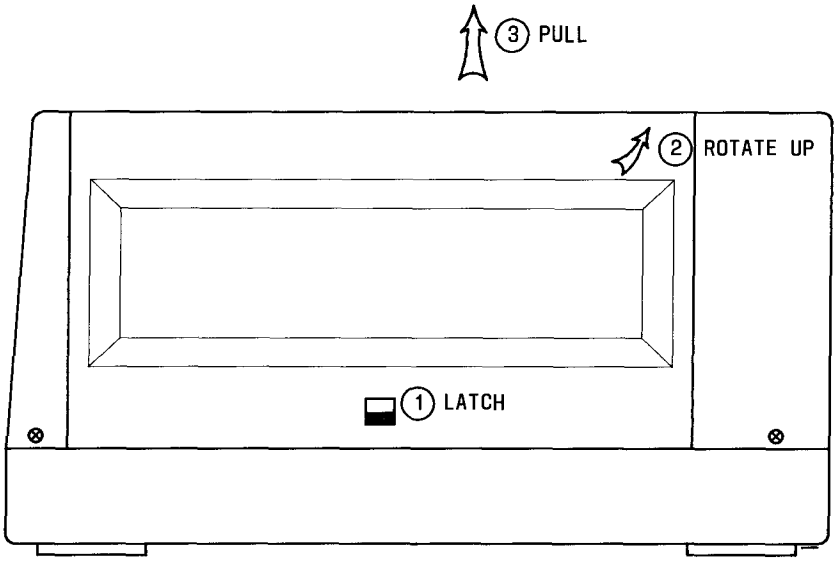


Figure G-1. Removing Cable Access Door

3. Use a small screwdriver to remove the four screws holding the cover.
4. Carefully lift off the cover.
5. Locate the hard disks using Figure G-2.

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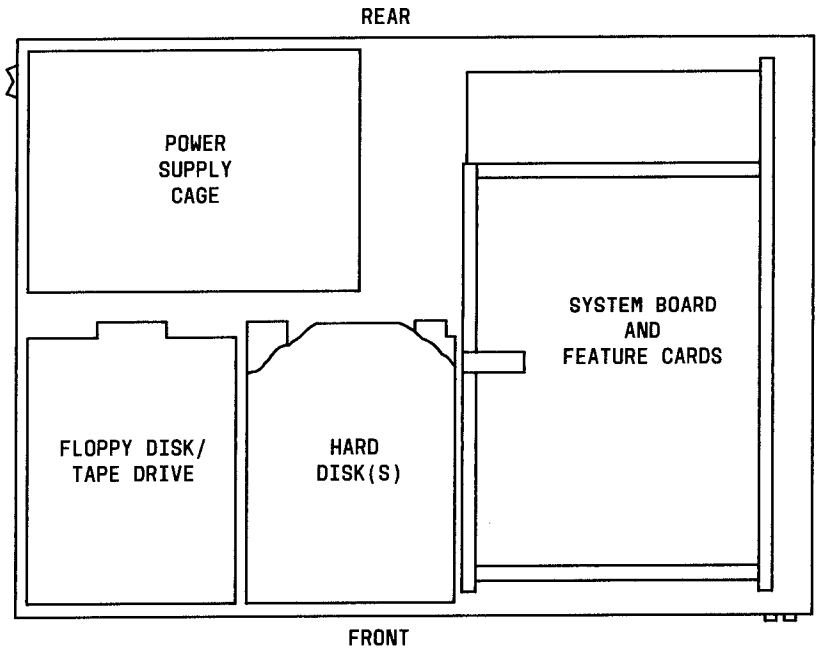


Figure G-2. Inside View of the 3B2/400 Computer

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6. Using Figure G-3:

   A. **To UNLOCK disks** for use, use long nose-pliers to pull out the locking arms.

   B. **To LOCK disks** for shipment, use the eraser end of a pencil to push in the locking arms.

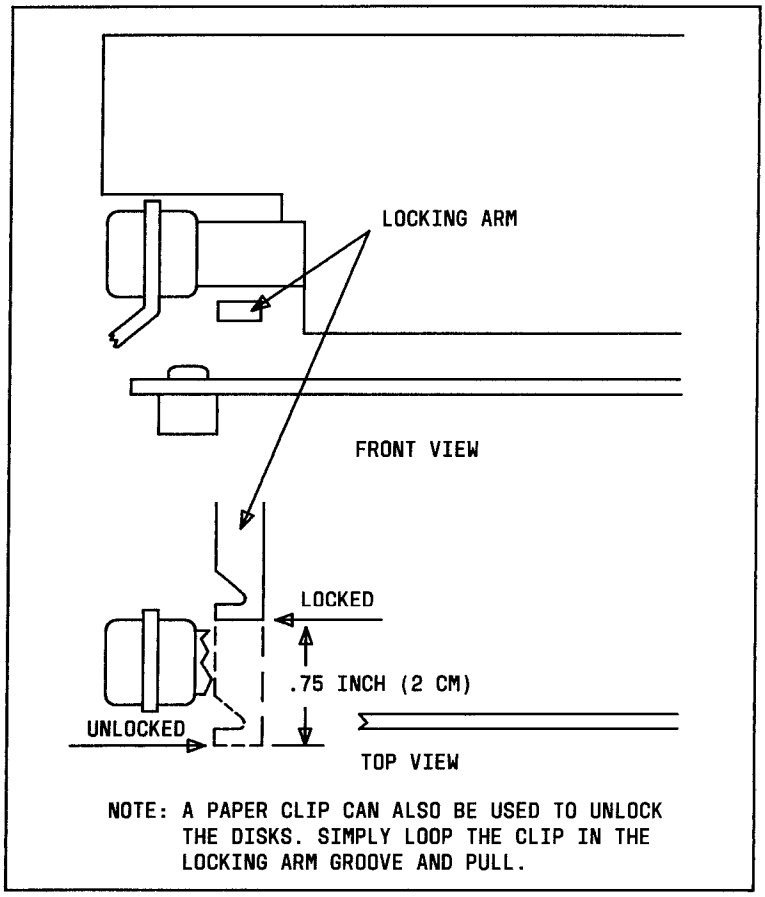


Figure G-3. Locking Mechanism for 30-Megabyte Hard Disk

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7. Replace cover and screws.
8. Replace the Cable Access Door.

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GLOSSARY

The following is a universal glossary for all 3B2 Computer documents For your convenience, terms are located here in one document. Your *Help Utilities* also contains a glossary of UNIX System terms and symbols.

8-bit ASCII interface
An interface standard that allows 8-bit coded data to be transmitted between computers or between a computer and a terminal.

ASCII Code American Standard Code for Information Interchange —An 8-bit code that is used when transmitting data between computers or between a computer and a terminal.

asynchronous terminal
A terminal that transmits and receives characters at irregular intervals.

baud A unit of data transmission measurement such as bits per second.

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bits per second
Data transmission speed.

bit One binary digit (0 or 1).

block One or more bytes treated as a unit for reading and writing data, usually 512 or 1024 bytes.

boot or bootstrap
To perform steps of a routine that reloads main memory to initialize the operating system.

byte 8 bits—the equivalent of one character of text. See " Kbyte" and " Mbyte."

cartridge tape
A cartridge containing magnetic tape used for storing information.

cartridge tape drive
A mass storage device that uses removable cartridge tapes.

command A word or string of letters and/or special characters that tells the computer what to do.

command line A set of commands and arguments to perform one or more processing tasks. Commands always begin immediately after the shell prompt and are separated with semicolons. They can continue for several (terminal) lines, up to 256 characters.

console The main terminal from which your 3B2/400 Computer is controlled. The console terminal connects to the CONSOLE port.

default An assigned value in the absence of a specified one.

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diagnostics A series of tests your 3B2/400 Computer performs to check its operation.

contty Name of the unlabeled serial port (located next to the CONSOLE port) located on the rear of a 3B2/400 Computer.

directory A special type of file containing the names of other files (including directories) and a pointer to a control block used to access these files.

diskette Another name for floppy disk.

DUART Dual Universal Asynchronous Receiver Transmitter. Two integrated circuits that each perform serial-to-parallel and parallel-to-serial conversion of digital data.

Electronic Industries Association
An organization that maintains standards for the electronic industry.

encrypt data
To scramble data so that it cannot be read without a password.

feature card
Any add-on circuit board inside a 3B2/400 Computer that expands the capabilities of it.

file A collection of data that has a name.

file system A file arrangement on a segment of hard disk.

firmware Microprograms, usually on read-only memories.

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firmware mode
A run level of the 3B2/400 Computer which allows you to run diagnostics, make a floppy key, change the firmware password, dump the system image to floppy disk, test hardware and firmware, and display the system generic version.

floppy disk A flat, flexible disk used as a removable storage media for saving or retrieving programs and data.

floppy disk drive
A device that allows your 3B2/400 Computer to read and write information to and from floppy disks.

floppy key A floppy disk used to reset NVRAM to a default state.

formatted floppy or tape
Storage media that has been subdivided by a computer program so that data can be read from and written to those media.

full duplex terminal
A terminal that can send and receive data independently and simultaneously.

hard disk drive
A disk storage device used to store large amounts of data in a short amount of time.

hardware The physical components of your 3B2/400 Computer.

inode An information node is a file control block that contains file information such as the number of directory entries linked to the inode, list of data blocks, size, etc. NINODE tunable parameters specify how many inode table entries to allocate.

initialize See " boot."

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Kbyte or **Kilobyte**
K is an abbreviation for the number 1024. The " K" comes from kilo, meaning one thousand. Therefore, one Kbyte or kilobyte equals 1024 bytes. A full 8 1/2 x 11-inch page contains about 2000 characters or 2 Kbytes of data.

login A string of letters and/or numbers that lets the 3B2/400 Computer know with whom it is communicating.

Mbyte or **Megabyte**
M is an abbreviation for the number 1,048,576. The " M" comes from the prefix mega, meaning one million. Therefore, one Mbyte or megabyte equals 1,048,576 bytes. A full 8 1/2 x 11-inch page contains about 2000 characters or 2 Kbytes of data. It would take about 500 pages to make 1 Mbyte of data.

modem A device used to transmit digital data over voice telephone lines. Modem derives from MODulate and DEModulate.

modular connector
Refers to modular telephone jacks or plugs. 4-pin modular connectors are used for telephone connections, and 8-pin modular connectors are used for data connections.

mouse A special terminal device that moves a cursor or enters commands.

NVRAM Nonvolatile RAM—Used to save essential information that would otherwise be lost when power is removed.

parallel More than one bit at a time.

parity A method of detecting certain data transmission errors.

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partitioning A way of dividing a large memory range into more manageable pieces to facilitate structuring of a device. Device partitions are applicable to floppy disks, cartridge tapes, and hard disks (NOT main memory).

password Passwords are encrypted and used as an extra means of security. Passwords can be any mixture of numbers, special characters, or alpha characters (uppercase or lowercase).

peripheral devices External devices such as terminals, printers, or modems, that can be connected to your 3B2/400 Computer.

port A connection between a computer and an input/output device through which data is transferred.

PROM A type of ROM that can be programmed.

prompt A symbol or a string of letters and/or numbers that will let you know when you can enter a command. **$** is the UNIX System shell default prompt.

queue A list of processes put in sequential order awaiting execution.

RAM Random Access Memory—A type of memory in which you can directly access any location in memory.

removable media Floppy disks or cartridge tapes.

ROM Read Only Memory—A type of memory chip that can be read but cannot be written. It is used in microcomputers that always execute the same program.

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root directory
The highest ranked directory in a UNIX System file system. Root is the directory from which any file system is built, and it is represented by the symbol /.

root login The login ID that is used when you want to do administration work or work that requires you to shut down the machine. Sometimes called super-user.

RS-232-C The standard serial interface adopted by the Electronics Industry Association.

serial One bit at a time.

shell A UNIX System program that processes communication between a user and a 3B2/400 Computer. Shell is also known as a command language interpreter because it translates user commands into a language understandable by the computer.

Simple Administration
A special set of interactive commands to help perform system administration tasks on a 3B2/400 Computer.

Simple Administration menu
A listing of simplified system administration options or routines from which you make a selection.

software The programs that are available to your 3B2/400 Computer to make it perform its functions.

spool A process that generally queues, controls, and schedules jobs in the 3B2/400 Computer.

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spool directory
A directory containing files to be printed or transmitted over the Basic Network.

super-user See " root login" above.

system board
The circuit card that contains the main logic circuits comprising the processing center of a 3B2/400 Computer.

terminal A device with input/output capability similar to a typewriter that allows you to communicate with your 3B2/400 Computer.

UNIX System A multiuser, multitasking operating system developed by AT&T Bell Laboratories.

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Index

3BNET 2-7
4410 Terminal 2-13
4425 Terminal 2-14
470 Printer 2-17
475 Printer 2-17
5410 Terminal 2-13
5425 Terminal 2-14
5620 Terminal 2-15
8-pin pinouts E-1

A

access permission 4-20
add hard disk 5-22
add user 5-35
add user group 5-35
addgroup subcommand 5-35
adduser subcommand 5-35
administrative logins 5-46
administrative tasks 5-1
admpasswd subcommand 5-31
assign password to administrative login 5-31
assign system login password 5-31
AT&T/XM 2-6
autold subcommand 5-27
automatic dial modem 2-21
automatic dial modem pinouts E-1
automatic power shut down 2-4

Downloaded from www.Manualslib.com manuals search engine

B

backup hard disk files 5-25
backup reminder checks 5-25
backup reminder messages 5-25
backup reminder scheduling submenu 5-12
backup restoral 5-26
backup scheduling 5-25
backup subcommand 5-25
baud subcommand 5-34
bupsched subcommands 5-25
bupsched submenu 5-25
bypassing menus 5-44

C

cables and connectors A-1
cannot log off 6-1
cannot turn off computer 6-1
cartridge tape drive C-1
cartridge tape drive problem 6-1
cartridge tape pass count C-9
cartridge tape, description C-1
cartridge tape, format C-6
cartridge tape, insert C-3
cartridge tape, read C-6
cartridge tape, remove C-5
cartridge tape, types C-6
cartridge tape, write C-6
cartridge tapes C-1
cartridge tapes, care of C-2
change default boot device 5-27
change default boot value 5-27
change nodename 5-31
change password of administrative login 5-31
change port speed 5-34
change system login password 5-31
change user data 5-36

Downloaded from www.Manualslib.com manuals search engine

change user default data 5-36
change user group data 5-36
change user login ID 5-36
change user login routine 5-36
change user password 5-36
check file system (floppy) 5-22
check file system (tape) 5-32
checkfsys subcommand (floppy) 5-22
checkfsys subcommand (tape) 5-32
chgloginid subcommand 5-36
chgpasswd subcommand 5-36
chgshell subcommand 5-36
clean floppy disk drive B-6
compress file system 5-32
compress subcommand 5-32
configure new hard disk 5-23
configuring terminal 3-4
connector pinouts E-1
connectors and cables A-1
copy file (floppy or tape) 5-26
copy floppy disk 5-22
copy hard disk file system to removable media 5-25
cpdisk subcommand 5-22

D

data encryption 4-21
datetime subcommand 5-31
debug monitor 2-5
delete user 5-35
delete user group 5-35
delgroup subcommand 5-35
deluser subcommand 5-35
DEMON 2-5
devices 2-12
diagnostic message 6-1
dimensions F-3
direct access to subcommands 5-44

Downloaded from www.Manualslib.com manuals search engine

disable subcommand 5-34
disk 2-8
disk management menu 5-11
5-22
diskrepair subcommand 5-21
diskreport subcommand 5-21
diskuse subcommand 5-26
display data about tape 5-33
display hard disk partition 5-22
display subcommand 5-22
DMD Terminal 2-15
duplicate floppy disks 5-22

E

enable subcommand 5-34
enter firmware mode 5-27
erase floppy disk 5-22
erase subcommand 5-22
error message 6-1
Expanded Input/Output Capability 2-7
expansion serial ports 2-7

F

features 2-1
F-3
Figure 1-1
AT&T 3B2 Computer 1-1
Figure 2-1
3B2 Computer Features 2-3
Figure 2-2
AT&T/XM 2-6
Figure 2-3
5410/4410 Terminal 2-13

Downloaded from www.Manualslib.com manuals search engine

Figure 2-4
5425/4425 Terminal 2-14
Figure 2-5
Model 5620 Dot-Mapped Display Terminal 2-15
Figure 2-6
DQP-Printer 2-16
Figure 2-7
470/475 Printer 2-17
Figure 2-8
5310 and 5320 Printers 2-18
Figure 2-9
LQP-40 Printer 2-19
Figure 2-10
455 Printer 2-20
Figure 2-11
AT&T Automatic Dial Modem 2-21
Figure 3-1
Console Port Connection 3-3
Figure 3-2
RS-232-C Terminal/Printer Connector and Cabling 3-3
Figure 3-3
5410/4410 Terminal Setup 3-5
Figure 3-4
5420/4415 Terminal Setup 3-6
Figure 3-5
5425/4425 Terminal Setup 3-7
Figure 3-6
5620 Teminal Setup 3-8
Figure 4-1
Subjects to Know Before Turning On 3B2/400 Computer 4-2
Figure 4-2
Initial Terminal Display 4-6
Figure 4-3
Initial Response to 'setup' Command 4-7
Figure 4-4
Setting System Clock—Example 4-9
Figure 4-5
Assigning Login—Example 4-10

Downloaded from www.Manualslib.com manuals search engine

Figure 4-6
Assigning 'root' Password—Example 4-11
Figure 4-7
Renaming a 3B2/400 Computer—Example 4-12
Figure 4-8
Shutdown Broadcast Message—Example 4-14
Figure 4-9
Making a Floppy Key—Example 4-17
Figure 4-10
Changing Firmware Password—Example 4-18
Figure 5-1
Simple Administration Menus and Subcommands 5-5
Figure 5-2
Simple Administration Reference Chart 5-57
Figure 6-1
Troubleshooting Chart 6-2
Figure A-1
Cables and Connectors for 3B2/400 Computer Options A-1
Figure B-1
Floppy Disk B-1
Figure B-2
Insert Floppy Disk B-4
Figure B-3
Remove Floppy Disk B-5
Figure C-1
Cartridge Tape C-1
Figure C-2
Cartridge Tape Drive Latch C-3
Figure C-3
Insert Cartridge Tape C-4
Figure C-4
Cleaning Cartridge Tape Drive C-8
Figure D-1
Moving and Packing D-1
Figure E-1
Pinouts for Serial Ports and RS-232-C Connectors E-1
Figure F-1
3B2/400 Computer Specifications F-1

Downloaded from www.Manualslib.com manuals search engine

Figure G-1
Removing Cable Access Door G-2
Figure G-2
Inside View of the 3B2/400 Computer G-3
Figure G-3
Locking Mechanism for 30-Megabyte Hard Disk G-4
file management menu 5-12
5-25
fileage subcommand 5-26
filesize subcommand 5-26
firmware 2-5
firmware password 4-16
firmware subcommand 5-27
floating point assist 2-8
floppy disk drive maintenance B-6
floppy disk drive problem 6-1
floppy disk replacement B-7
floppy disk, format B-6
floppy disk, insert B-4
floppy disk, read B-6
floppy disk, remove B-5
floppy disk, write B-6
floppy disks B-1
floppy disks, care of B-2
floppy disks, types B-6
floppy key 4-16
floppy key, security 4-22
floppykey subcommand 5-27
forgot password 6-1
format cartridge tape 5-32
format floppy disk 5-22
format subcommand (floppy) 5-22
format subcommand (tape) 5-32

H

hard disk 2-8
hard disk error report 5-21

Downloaded from www.Manualslib.com manuals search engine

hard disk management submenu 5-11
hard disk replacement 2-8
hard disk use 5-26
harddisk subcommand 5-22
harddisk submenu 5-22
hardware features 2-2

I

incomplete powerup sequence 6-1
info subcommand 5-33
initialize 3B2/400 Computer 5-28
install utilities 5-30
installpkg subcommand 5-30
interference 6-1

L

list larger files 5-26
list older files by date 5-26
list user groups 5-35
list users 5-36
list users logged on 5-28
locking a 30-megabyte hard disk G-1
log off 4-13
loss of power 6-1
lost password 6-1
lsgroup subcommand 5-35
lsuser subcommand 5-36

M

machine management menu 5-13
5-27
main menu subcommands 5-20

Downloaded from www.Manualslib.com manuals search engine

maintenance 6-1
make file system (floppy) 5-23
make file system (tape) 5-33
make floppy key 5-27
makefsys subcommand (floppy) 5-23
makefsys subcommand (tape) 5-33
Math Accelerator Unit 2-8
MAU 2-8
menus, Simple Administration 5-4
modadduser subcommand 5-36
Model DQP-10 printer 2-16
Model LQP-40 Printer 2-19
modem 2-21
modem pinouts E-1
modgroup subcommand 5-36
modify user data 5-36
modify user default data 5-36
modify user group data 5-36
modify user's login submenu 5-19
moduser subcommands 5-36
moduser submenu 5-36
mount file system (tape) 5-33
mountfsys subcommand (floppy) 5-23
mountfsys subcommand (tape) 5-33
moving D-1
multi-user mode 4-15

N

nodename subcommand 5-31
nonvolatile RAM 2-2

O

operating specifications F-1
operating system 2-4

Downloaded from www.Manualslib.com manuals search engine

P

package management menu 5-14
5-29
package management submenu 5-29
packing D-1
partitioning subcommand 5-23
passwords, security 4-21
passwords, selecting 4-21
percentage use of hard disk 5-26
peripheral devices 2-12
pinouts E-1
pins for RS-232-C E-1
power requirements 3-1
F-1
power shutdown 2-4
powerdown 4-13
powerdown subcommand 5-27
printers 2-16
programming languages 2-11

R

Random Access Memory Expansion 2-8
reboot 3B2/400 Computer 5-28
reboot subcommand 5-28
reminders 1-4
remove hard disk 5-23
remove utilities 5-30
removepkg subcommand 5-30
reorganize file system (tape) 5-32
repair hard disk 5-21
reset tape drive counter 5-33
resetusage subcommand 5-33
restart 3B2/400 Computer 5-28
restore hard disk file system 5-26
restore subcommand 5-26
rmdisk subcommand 5-23

Downloaded from www.Manualslib.com manuals search engine

RS-232-C ports 2-2
RS-232-C pinouts E-1
run uninstalled utilities 5-30
runpkg subcommand 5-30

S

safety F-1
schedcheck 5-25
security 4-20
security, helpful hints 4-23
serial ports 2-2
service 6-1
set baud rate of port 5-34
set date and time 5-31
set up computer first time 5-31
setup subcommand 5-31
setup, software 4-7
4-16
setup, terminal 3-4
shutdown 4-13
single-user mode 4-15
soft powerdown 4-13
software features 2-4
software management menu 5-15
5-30
special subcommands 5-46
specifications F-1
standard parallel printer port 2-7
store hard disk files on removable media 5-26
store subcommand 5-26
subcommands, Simple Administration 5-20
sysadm command 5-7
syspasswd subcommand 5-31
System Administration Main Menu 5-7
system administration main menu subcommands 5-20
system diagnostics menu 5-10
5-21

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system setup menu 5-16
5-31

T

tape drive cleaning C-6
tape drive usage count C-6
tape management menu 5-17
5-32
terminal setup 3-4
terminal, connect to 3B2/400 Computer 3-2
3-9
terminal/printer connector pinouts E-1
terminals 2-13
time-of-day clock 2-2
transmission rate of port 5-34
trouble 6-1
tty management menu 5-18
5-34
turn off 3B2/400 Computer 4-13
5-27
turn off getty on port 5-34
turn on getty on port 5-34

U

umountfsys subcommand (tape) 5-33
unlocking a 30-megabyte hard disk G-1
unmount file system (floppy) 5-24
unmount file system (tape) 5-33
user management menu 5-19
5-35

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W

weight F-1
whoson subcommand 5-28
workbenches 2-11
write protection, cartridge tape C-2
write protection, floppy disk B-2

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