

# Hard Disk System

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## User's Guide

**digital**™

Third Edition

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# Preface

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## **BEFORE YOU START**

This manual instructs you in using the Professional Operating System, *P/OS*, on the Professional computer with a hard *disk*. The book is designed to serve two main purposes: (1) a complete teaching guide, providing step-by-step instructions for each aspect of the operating system, and (2) a reference manual, providing information on selected topics.

## **INTENDED AUDIENCE**

The intended audience for this manual is the Professional *stand-alone system* user and system manager. If your Professional is connected to a larger environment, (P/OS Server or PRO/DECnet), most of this manual also applies. If your Professional is connected to a P/OS Server, read the *P/OS Server User's Guide* (Order No. AA-DK96A-TH) first. You will be directed to this manual as necessary. If your Professional is connected to a network such as PRO/DECnet, first read this manual and then the *PRO/DECnet User's Guide* (Order No. AA-EG83A-TH).

## **INFORMATION IN THIS MANUAL**

The following are chapter summaries for this manual.

Chapter 1, System Overview, provides a general discussion of P/OS *hardware* and *software*. P/OS operation, services and *menu* organization are described, along with a brief description of *applications* included with the system.

Chapter 2, Installing P/OS, provides detailed instructions for *installing* the P/OS operating system, using the P/OS *diskettes*. The process takes you through initialization of the hard disk, setting the system's clock, selecting a keyboard and installing the various P/OS services.

Chapter 3, Logging into the Professional, gives you step-by-step instruction in logging in so you can begin using your Professional. Instruction is provided in using the *default* system accounts, changing your *password* and logging out.

Chapter 4, More Menus, Forms and Functions, provides a closer overview of the system after you have installed it and logged in. It describes the P/OS Main Menu, *Message/Status* display and the *function keys*.

Chapter 5, Setting Up Your Professional, instructs you in using the Terminal Setup Menu and User Environment Services Menu to tailor your terminal's characteristics and your account's features to your individual preference.

Chapter 6, The System Environment Services Menu, describes the P/OS functions used by the *system manager* to set up multiple accounts, and setting the computer's internal clock. Topics covered are the Account Manager *program*, and installing/removing applications to/from the application library.

Chapter 7, Introduction to the P/OS File System, is intended for users who are unfamiliar with DIGITAL's file systems (new user's should also see *Hard Disk System for Beginners*). This chapter defines *files*, *volumes*, and *directories*, explains file size and prepares you for using File Services.

Chapter 8, File Services, instructs you in how to create, manage and print information stored on your Professional. It provides detailed instructions for using the File Services Main Menu and submenus, including all operations on files, directories and volumes. Instructions for using File Services across PRO/DECnet are also provided.

Chapter 9, Printing Services, describes everything you need to know about using a printer with your Professional. Topics covered are setting up and managing print queues, manipulating your printer's characteristics and printing out files, directories, and volumes.

Chapter 10, Backing Up and Restoring Files, describes the Backup/Restore utility, supplied with P/OS on a separate diskette. You are instructed in how to *back up* files from your hard disk to diskette, and how to *restore* them back to the hard disk when needed. Services provided include backing up and restoring the entire disk, entire directories, and single files from a specified date and time.

Appendix A, Keyboards, illustrates the keys on each of the 15 Professional's international keyboards.

Appendix B, Compose Sequences, lists the characters that can be created with the COMPOSE key and the sequences for doing so.

Appendix C, DIGITAL Printers and Your Professional describes specific characteristics of DIGITAL printers that you need to know in order to use them with your Professional.

A Glossary provides a definition of terms that may be unfamiliar to you. Glossary terms are italicized in text.

An Index is provided to assist you in finding information on selected topics.

### CONVENTIONS USED IN THIS BOOK

This book uses certain conventions to represent the way an action should be performed or the way a command should be entered from the keyboard. The following is an explanation of these conventions:

**KEY** Words set in this typeface indicate a key on your LK201 keyboard. For example, RETURN, K, and 5 are keys.

**CTRL/** Indicates that you hold down the CTRL key while you press a second key. For example, CTRL/Z means hold down the CTRL key while pressing the Z key.

**< >** Angle brackets are used in examples to indicate a single keystroke. For example, <EXIT> tells you to press the EXIT key.

**[ ]** Square brackets are used as part of a file specification, on File Services Menus. The brackets must be included as part of the specification.

Press	Tells you to make one keystroke with the indicated key.
Type	Tells you to enter characters from the keyboard. For example, if you are asked to type RETURN, you make six keystrokes: one for each letter.
Select	Indicates that you place the pointer or cursor on an item in a list of menu options, and then press the SELECT key.
Choose	Indicates that you place the pointer or cursor on an item in a list of options, and then press the DO key.
<i>Italics</i>	Words defined in the glossary appear in italics the first time they are used in the book.
dot-matrix	Indicates text that is displayed on the computer screen. ("Dot-matrix" also denotes a certain type of system printer.)
Red ink	Indicates user input in examples.

## **OTHER PROFESSIONAL BOOKS**

Two binders, containing documentation and software, are included with your Professional. As you use this book, these documents and software (and others) are referenced. You should look through all documentation to familiarize yourself with the services and features available on your Professional.

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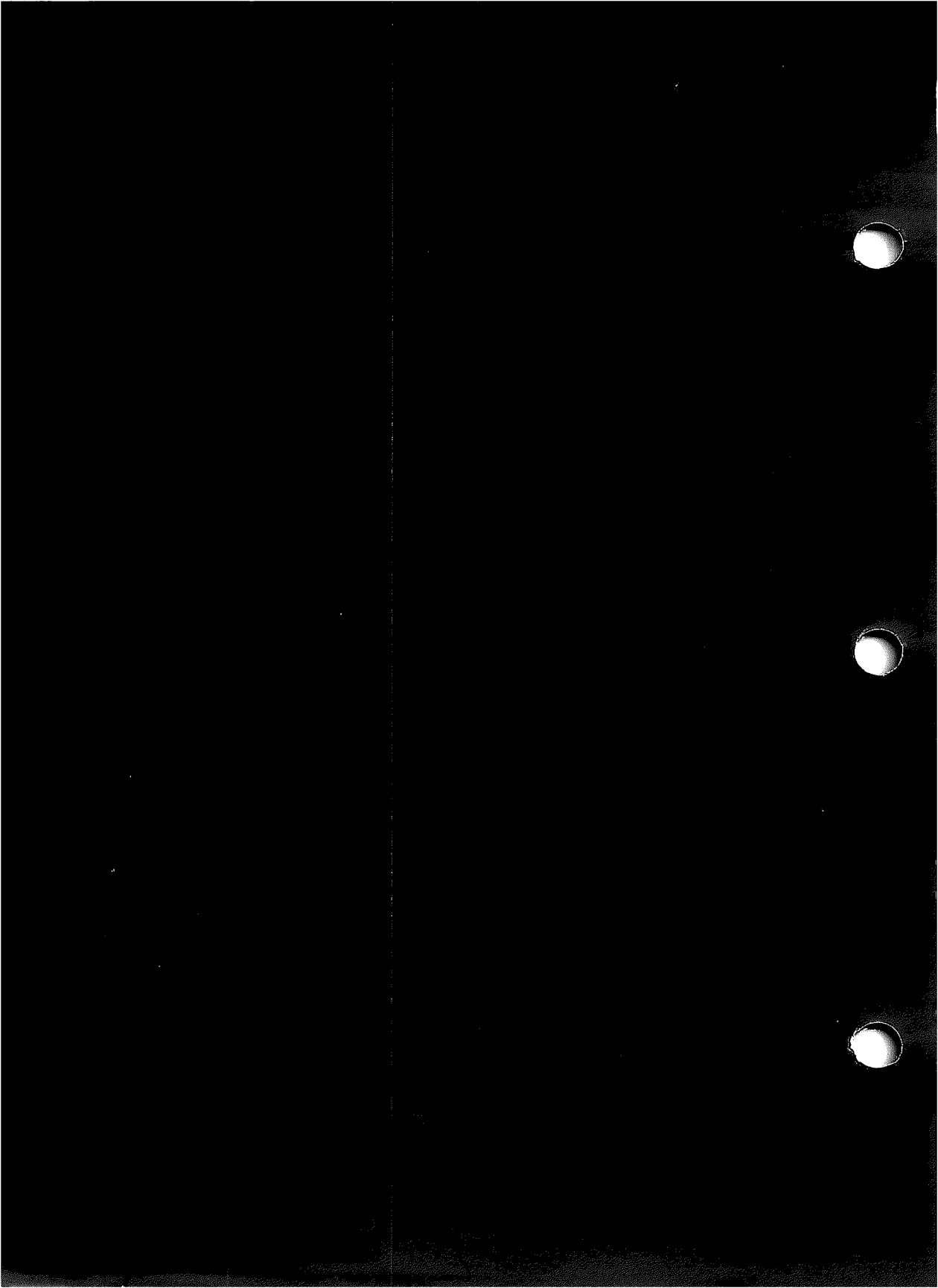
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System Overview



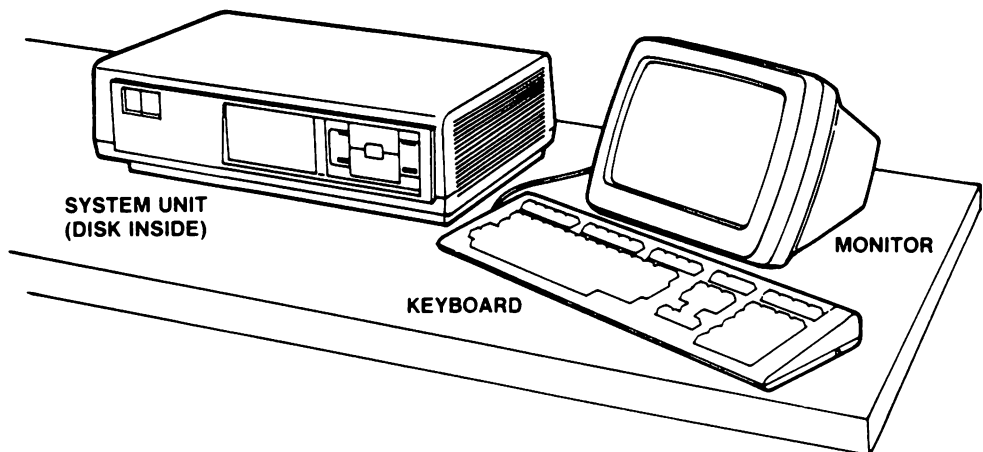
# Chapter 1

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## System Overview

### PROFESSIONAL HARDWARE

Your Professional system consists of hardware on which the software operates. Figure 1-1 shows the basic Professional hardware, consisting of the *system unit*, a video *monitor*, and a *keyboard*:



**Figure 1-1**  
**Basic Professional Hardware**

### **Equipment Options**

A very basic option to consider is a printer. DIGITAL printers that work with the Professional are the LQP02, LQP03, LA50, LA100, LA210 and LN03. The LQP02 and LQP03 are letter quality printers with various typewriter-quality fonts, some with proportional spacing. The LA50, LA100 and LA210 are fast, economical dot-matrix printers with a draft quality and near-letter quality output. The LN03 is a laser printer that produces letter-quality output with more flexibility and speed.

A color video monitor, such as DIGITAL's VR241, is another hardware option to consider. While it may not be necessary for your application, color capability can sometimes enhance the effectiveness of your system, especially where graphics software packages are used.

Ask your DIGITAL sales representative about these and other options.

If your Professional hardware has not been installed, you must install it before proceeding further in this book. See the installation documentation.

### **PROFESSIONAL SOFTWARE**

Word processing, accounting, scheduling, graphics, equipment monitoring, and programming languages are a few examples of applications you can use on your Professional. You use the Professional Operating System (P/OS), to manage these applications.

#### **P/OS Features**

The main services offered by P/OS are:

- *Setup*—The Terminal Setup Menu enables you to tailor the features of your terminal. You can specify such options as how your terminal scrolls, how the bell works, screen resolution, tab settings, and much more.

- *Environment Services*—Environment Services provides two menus: The User Environment Services Menu and System Environment Services Menu. The User Environment Services Menu enables you to tailor the environment of your individual account, including installing/removing applications, setting file protection, and specifying a default login account and directory. The System Environment Services Menu provides services that enable you to tailor system-wide functions that affect all user accounts (on single-account and multiple-account systems). These services include setting up/maintaining user accounts, creating an application library for all users, and specifying a default login account.
- *File Services*—File Services allows you to look at, print, control, protect, and organize the information you keep on your Professional. The File Services Menu enables you to organize your files, to create and organize directories, and to organize/maintain your volumes.
- *Print Control Services*—Print Control Services provides you with the tools necessary for setting up and managing your *print queues* and print requests, and specifying the characteristics of your printer.
- *Additional Applications*—If you display the P/OS Main Menu and press the ADDTNL OPTIONS key, the Additional Applications Menu allows you to access any groups of additional applications you have installed in your account. Installing/removing applications is performed with Environment Services.

### **P/OS Menu Organization**

P/OS services are made available to you through *menus* and *forms*. Menus offer options from which you can choose the services you want, eliminating the need to learn software commands and instructions. Forms and *prompts* are used to request more information from you. When a form appears on the screen, you need to type in the required information so P/OS can perform the activity you wish. A prompt is a one-line request for more information, sometimes in the form of a question. P/OS uses forms and/or prompts when more information is needed. The P/OS menu organization is illustrated in Figure 1-2.

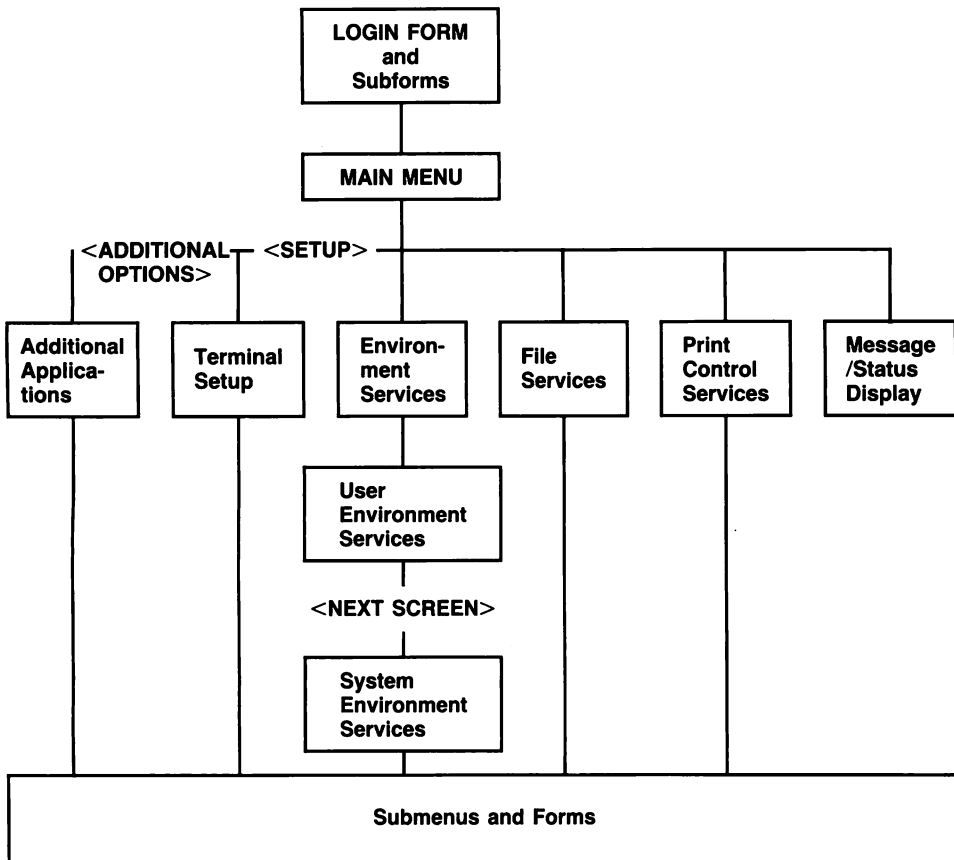


Figure 1-2  
P/OS Menu Organization

### P/OS Function Keys

You operate P/OS menus and forms with *function keys*. These keys are labeled on your keyboard according to their function. The function keys you will need in order to install P/OS and log into your account are described in the *Hard Disk System for Beginners*. All other keys are described in Chapter 4 of this book. You will learn to use these keys as you read this guide.

## P/OS Accounts

P/OS provides functionality that enables your Professional to operate as a single-account system, or can be set up with multiple accounts to support several users. If multiple accounts are to be used, one user should be designated as the system manager. This person is responsible for a variety of system management functions, which are described in Chapter 6.

## Getting HELP

If you are ever unsure about how to use P/OS, what a menu or menu item means, or how to operate your Professional, P/OS supplies you with an online assistance—HELP. To use HELP, select the menu or menu item in question and press the HELP key on the top row of your keyboard. Information about the menu or item will appear on your screen. You can see other information about your Professional on a Message/Status display. For example, the Message/Status display shows what diskettes you are currently using. In addition, the Professional frequently displays information about your current work on a message line at the bottom of your screen. For example, if you make a mistake, a message may appear telling you what to do. The Message/Status display is described in Chapter 4.

## P/OS Applications

Application programs you can use with the Professional are available on diskettes from DIGITAL and other companies. P/OS enables you to install and remove applications on your hard disk. Brief descriptions of the applications included with your Professional follow.

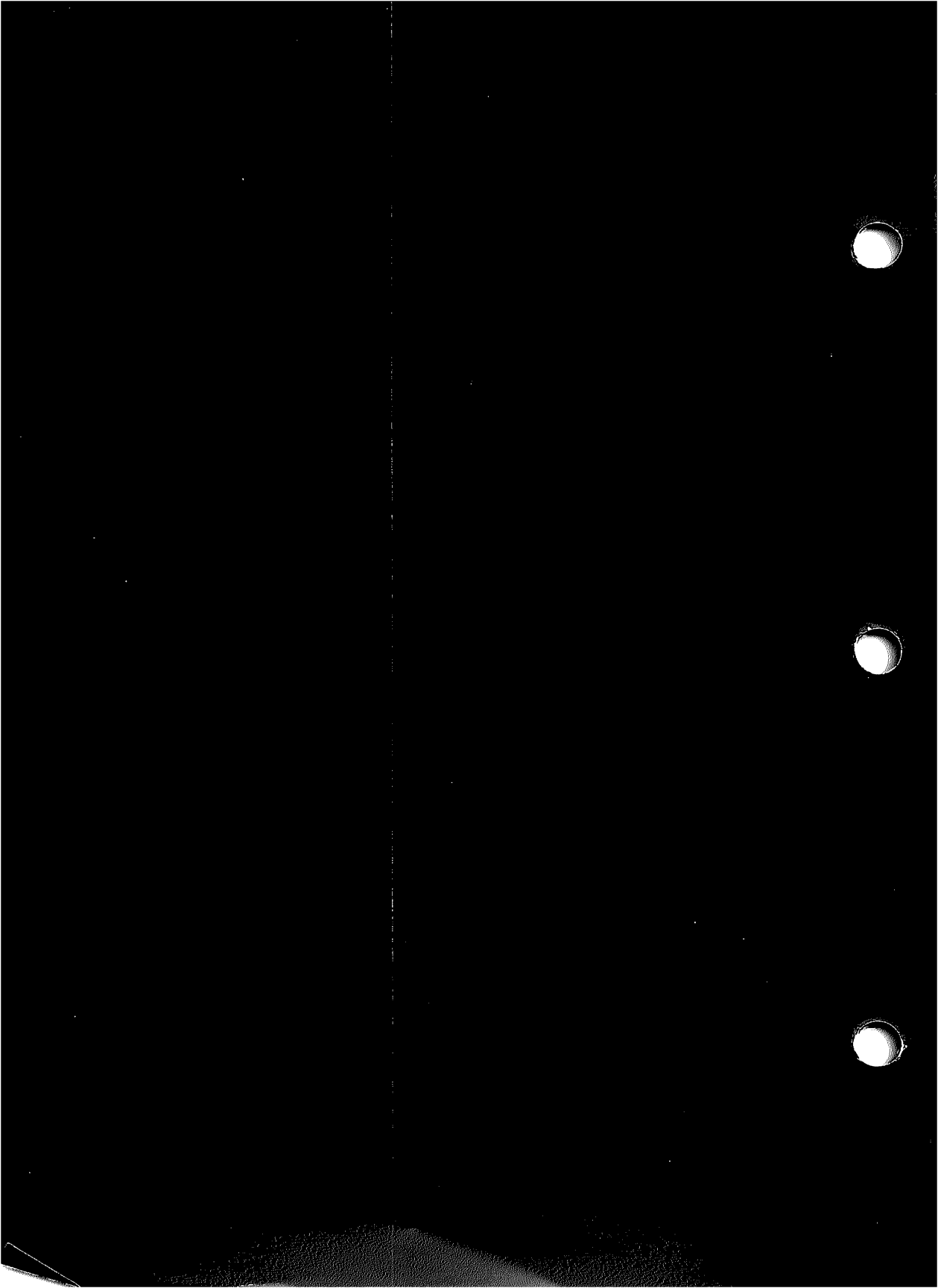
- *PRO/EDT*—is a DIGITAL text *editor* that enables you to create, manipulate, and store text on your Professional, using one- and two-stroke keypad editing commands that are powerful and easy to use. Instructions for Professional EDT are provided in the *PRO/EDT User's Guide* (Order No. AA-DY40A-TH), included with your P/OS documentation.
- *PROSE*—is a “word-processor” type editor that enables you to create, manipulate and store text on your Professional. Using PROSE, you can create memos, reports, lists of data, write programs, and print out files on your printer. Instructions for PROSE are provided in the *PROSE User's Guide* (Order No. AA-DY40A-TH), included with your P/OS documentation.

- *Digital Command Language (DCL)*—allows you to accomplish tasks using DIGITAL's standard command language. It is provided for users with previous DIGITAL computer experience, and can be used instead of the P/OS menus. Instructions for using this language are in the *Command Language User's Guide* (Order No. AA-DY40A-TH), included with your P/OS documentation.

A great number of other applications have been developed for the Professional and are available through DIGITAL sales offices.

2

Installing P/OS



## Chapter 2

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### Installing P/OS

In order to use P/OS, you must first install it on the computer, which means copying it from the P/OS diskettes you received with the system onto your Professional's hard disk. This chapter describes the step-by-step P/OS installation procedure. If you are unfamiliar with handling diskettes and/or with the Professional, you should read *Hard Disk System for Beginners*.

While copying over P/OS from the diskettes onto your Professional's disk, you will be needed from time to time (but not continuously). The installation procedure takes from 30 minutes to an hour, but a good deal of this time you will be free to read ahead in this guide, if you wish. Should any problems occur during the installation, the screen may prompt you to write down some information.

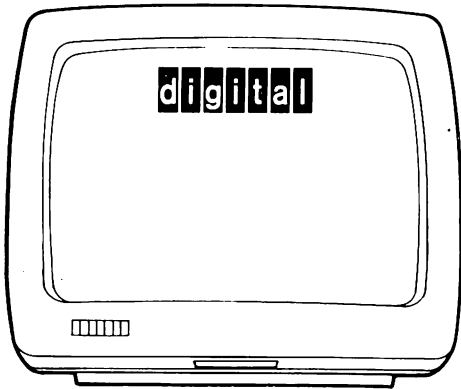
#### **STARTING THE PROCEDURE**

To start the P/OS installation procedure, follow these steps.

1. Press the power switch on the system unit to "0" (off).
2. Insert the diskette labeled SYSTEM (volume label PROSYSTEMV3), into *diskette drive* slot 1 (the top slot). Press the diskette drive door closed. (See "Handling Diskettes" in *Hard Disk System for Beginners*.) Leave this diskette in the drive until the entire installation procedure is completed.

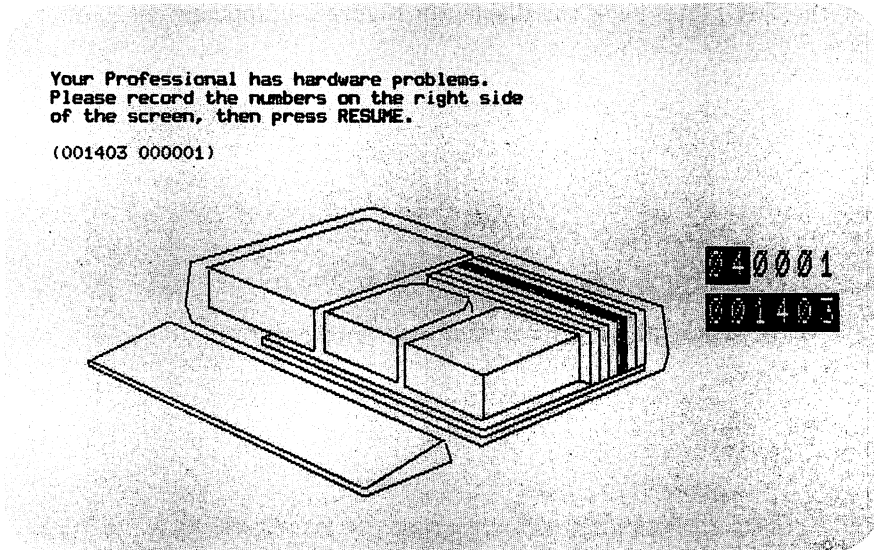
**WARNING:** Do not operate your Professional with the system unit cover removed.

3. Insert the diskette labeled SETUP (volume label PROSETUPV3), into diskette drive slot 2 (bottom slot). This diskette contains information about the keyboard and the monitor.
4. Press the power switch to "1" (on). The system unit runs a self-test that takes about 30 seconds. (This happens each time you turn on the system unit.) Depending on how fast the picture tube in your monitor warms up, you may see a test pattern briefly on the screen. Then the DIGITAL logo appears as in Figure 2-1.



**Figure 2-1**  
**Professional Screen Before Installing P/OS**

If the self-test detects hardware problems, a diagram of the Professional components appears, as in Figure 2-2.



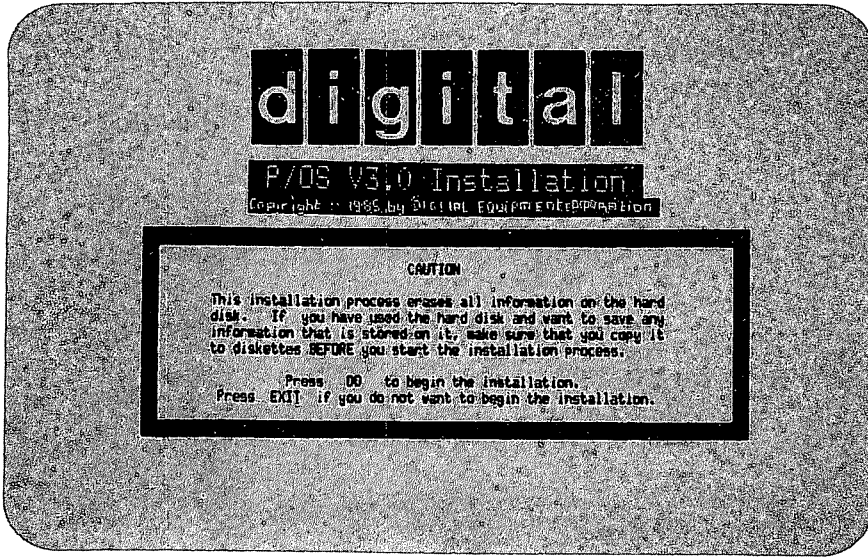
**Figure 2-2**  
Professional Screen Showing Hardware Problem

The part of your Professional with the problem will be highlighted in the picture. Write down the numbers you see on the screen and refer to your *Owner's Manual* for help. If you see a message saying that a problem has occurred that will prevent P/OS installation, remove the diskettes and retry from Step 1 above. If the same problem occurs, contact your DIGITAL service representative. If you see a message saying that an error has occurred that may interfere with the operation of P/OS after installation, you can either press the DO key at the top of the keyboard and continue installing P/OS (and fix the problem later), or remove your diskettes and contact your DIGITAL service representative.

If this display should appear at any time after you have installed your P/OS software, write down the numbers that appear on your screen. These numbers will help your DIGITAL service representative to determine the source of your problem.

If nothing happens when you turn the power on, refer to the *Owner's Manual* for help.

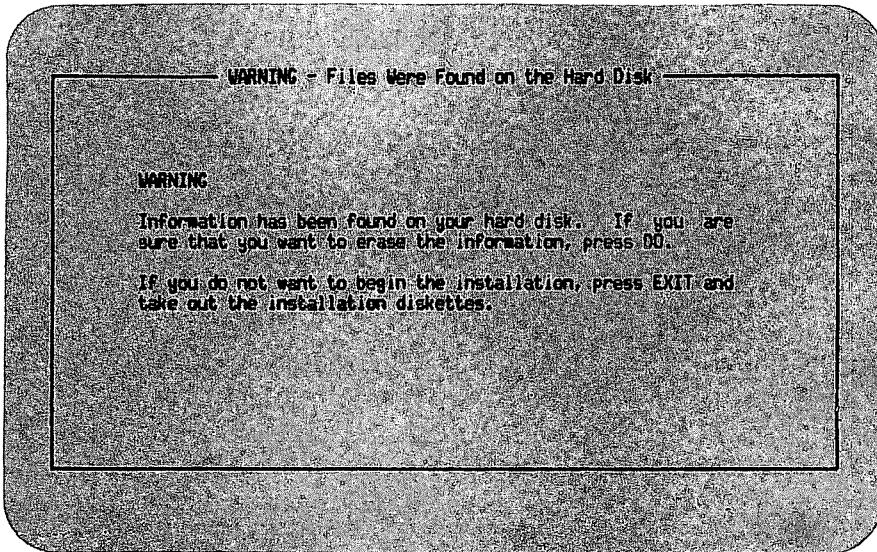
5. After the DIGITAL logo, the display in Figure 2-3 appears on your screen.



**Figure 2-3**  
**Installation Display**

6. Press the DO key at the top of the keyboard to continue the installation procedure. (Press the EXIT key instead of DO to prevent the installation.)

If your disk has been previously used (or information may be on the disk from factory testing), a warning message (Figure 2-4) appears.



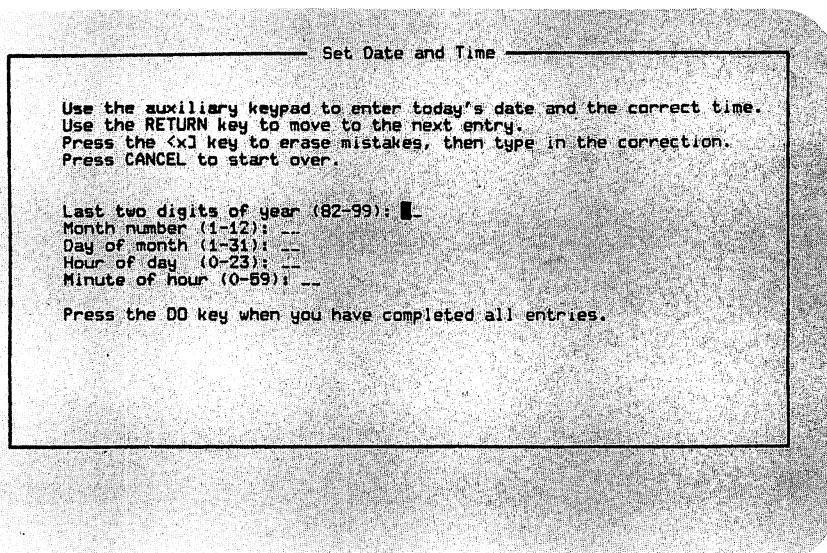
**Figure 2-4**  
**Warning Message**

If you are reinstalling P/OS, you will have to also reinstall your applications and any personal files you had on the disk by using your backup diskettes, because the installation procedure erases all information on the disk.

At this point, press **DO** to proceed with the installation (or **EXIT** to prevent it).

### **Setting Date/Time and Initializing Disk**

The Verify Date and Time message will then appear, with the current date and time (24-hour clock) in the upper right corner. If the date and time are correct, press **RESUME**. If they are not and you want to correct them, press **DO**. If you press **DO**, the Set Date and Time Form will appear, as in Figure 2-5.




**Figure 2-5**  
**Date and Time Form**

The blinking rectangle on the screen is the *cursor*, indicating the “active position” on the screen. When applicable, the cursor marks the spot where the next character you type will appear. To fill in the Date and Time Form, follow these steps.

1. Fill in the Date and Time Form as instructed by typing in the appropriate numbers. You must fill in each line before you can move to the next one. After filling in a field, press RETURN to move to the next entry. Be sure to enter 24-hour time with 00:00 as midnight. For example, if the time is 3:30 p.m., enter 15:30.


If you make a mistake, you can use the arrow keys and/or Delete key to move the cursor to the mistake and correct it. If you type an impossible number (such as 13 for the month), the keyboard will beep.

2. When you have entered the date and time, press DO to continue (or EXIT to stop without installing P/OS).


- 
3. The screen will tell you that the disk is being prepared. Actually, it is being *initialized*. This procedure takes a little time (10 to 40 minutes, depending upon the size of the disk). Initializing the disk formats it so it becomes usable by P/OS. Throughout the rest of the installation procedure, messages on your screen let you know what is going on and what to do next.

### If Installation Problems Arise

If P/OS has a problem at any time during the rest of the installation procedure, a series of numbers appears on the screen. **Write these numbers down.** These numbers are an error message, and indicate that there is a problem, which may or may not be serious. Sometimes an installation fails due to a minor defect in one of the diskettes, which may be overcome by retrying the installation. After you write the numbers down:

- 
1. Remove all diskettes from the drives and repeat the entire installation procedure, beginning at Step 1.
  2. If you still get an error message, consult your Professional dealer or service representative.

### Continuing the Installation

- 
1. After the disk preparation is complete, the screen will indicate that the software installation has begun (from the PROSETUPV3 diskette). This will take 5 to 10 minutes.
  2. When the software from the PROSETUPV3 diskette has been copied, a message tells you to remove the diskette from slot 2, and which P/OS diskette to insert next. (Make sure you leave the PROSYSTEMV3 diskette in slot 1 the entire time.) When you have inserted the new diskette, close the diskette slot door and press **RESUME** to continue.

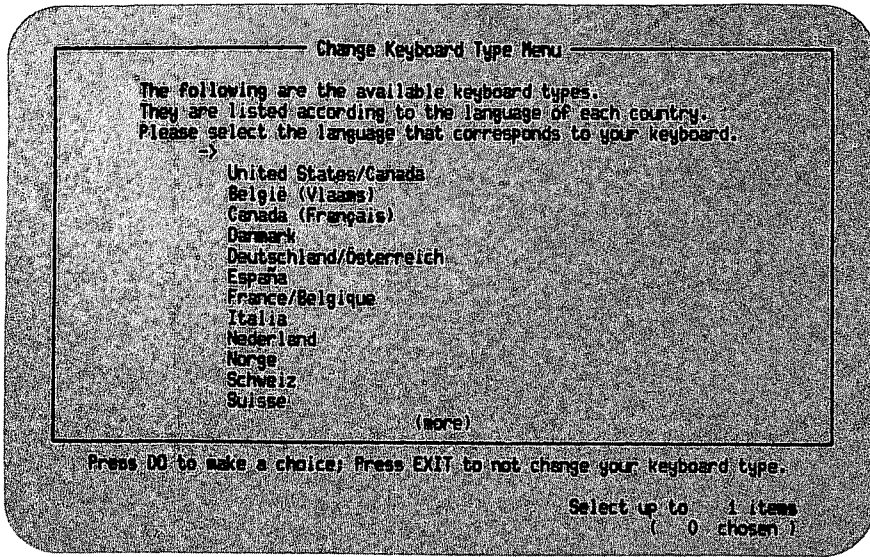
If you do not insert the diskette correctly, the message telling you which diskette to insert reappears, and you can try again.

3. Wait about 5 to 10 minutes while P/OS copies the information from this P/OS diskette to the disk.
4. When the diskette is copied, a message tells you to remove that diskette and insert the next diskette. When you have inserted the next diskette, press **RESUME**.

5. Continue copying P/OS diskettes until a message tells you the installation is complete.

### Changing Keyboard Setting

When all the diskettes have been copied, a message appears, informing you of your current keyboard setting (United States/Canada). If this is the correct keyboard setting, press **RESUME**. If it is not the correct setting, press **DO** to change it. The menu in Figure 2-6 will appear, listing the 15 keyboards available.



**Figure 2-6**  
**Change Keyboard Type Menu**

These keyboards are illustrated in Appendix A. The order of the list depends on the country in which you purchased your P/OS. The names of the keyboards are listed in the language of each country.

Use the arrow keys to place the pointer at your keyboard. If your keyboard name does not appear, press **NEXT SCREEN**. When the arrow points to the keyboard name you want, press **DO**.

**Congratulations! You have successfully installed P/OS!**

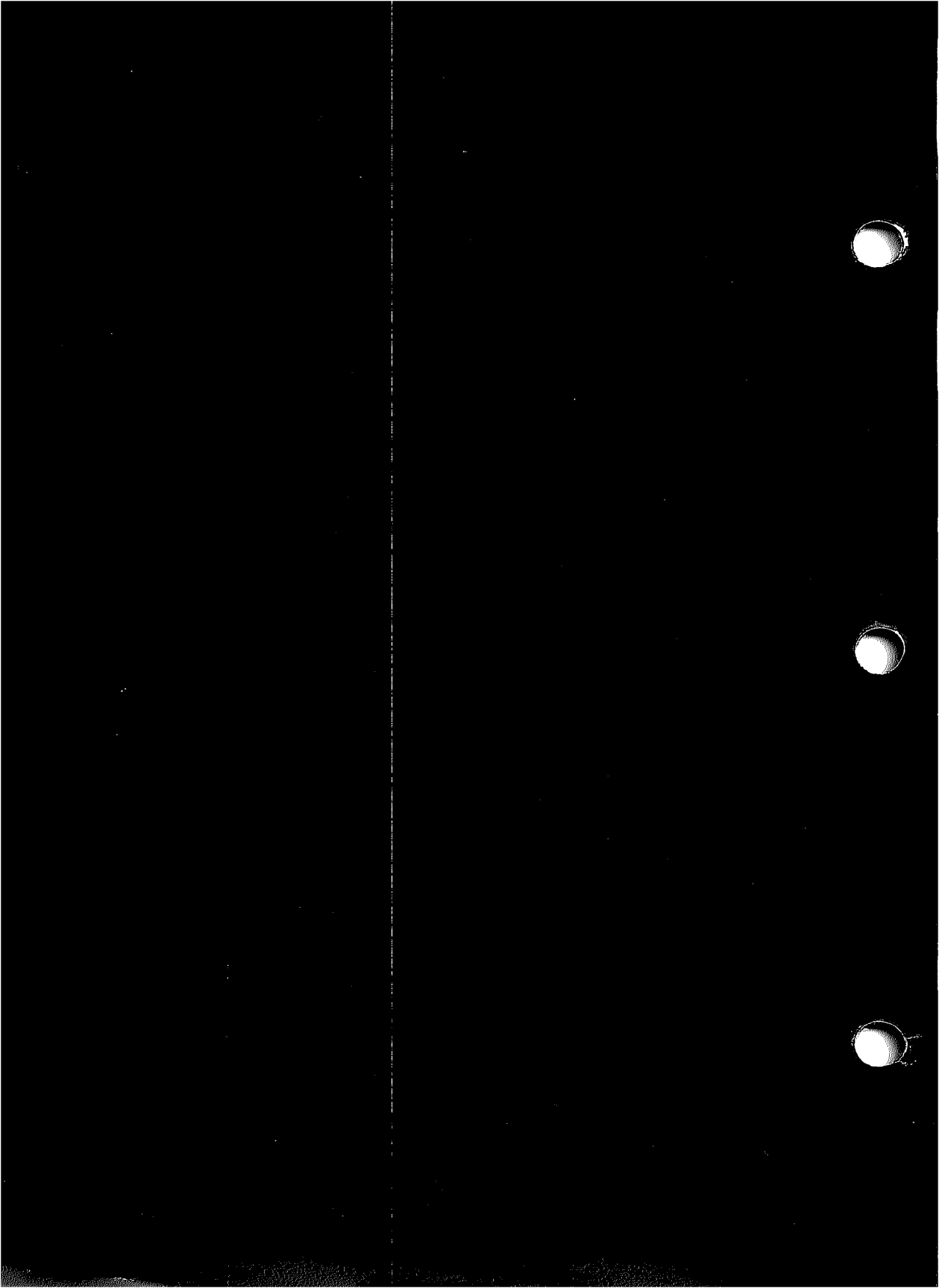
**Finishing Up**

1. Remove and store the P/OS diskettes. These are your backup diskettes. If anything should happen to P/OS on the disk, you will need to use these diskettes again.
2. Turn the power switch off and then back on. The Professional runs the self-test. Then the Login Message will appear, as described in the next chapter.

# 3

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Logging into the  
Professional



## Chapter 3

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### Logging into the Professional

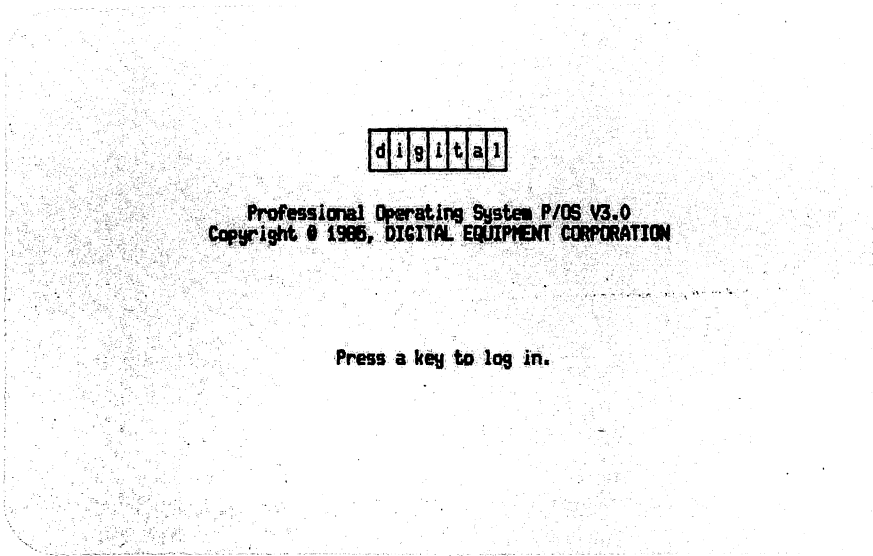
In order to use your P/OS on your Professional, you must *log in* to an account, using a *username* and *password*. The Professional login procedures assist you in protecting your personal files by restricting access to your Professional and to your account.

**NOTE:** You will see later in this manual that P/OS allows you to set up your system to bypass these login procedures (in order to automate them). You should be aware that doing so lowers the protections provided by those procedures.

Protection for your files is also provided by the file protection mechanisms. For more information, see Setting Default File Protection in Chapter 5.

#### **LOGGING IN**

When you start up your Professional, the DIGITAL logo appears, followed by the Login Message in Figure 3-1.



**Figure 3-1**  
**Login Message**

Press a key on the keyboard (for now, do not use DO) and the Login Form will appear as in Figure 3-2.

If the following message also appears on the Login Message:

Or, press DO to log into the default account.

it means your Professional has a default login account defined. See Default System Accounts in this chapter.

Login Form

Use the RETURN key to move between fields.  
Enter the username and password and press DO.

You are logging into the Professional PRO

Username:

Password:

Additional options available

Complete the form and press DO.

**Figure 3-2**  
**Login Form**

**NOTE:** If your account cannot be accessed by the Login program, an error message will appear on your screen. If your system has multiple accounts, see the system manager. Should this happen on a single account system, you will need to use the backup copy of the accounts file. For more information, see Account Management in Chapter 6.

If your account has already been set up by the system manager, you need to find out your account name and password before logging in. If no account has been set up for you (you are the system's first user), you will use SYSTEM as your username and SYSTEM as your password to log in. The first time you do this, a special (one-time) Change Password form will automatically appear. Before you can proceed, the password of the SYSTEM account must be changed. This requirement protects the privileged SYSTEM account against unauthorized access by another user. To change the SYSTEM account password, enter the new password, enter it again at "Verification," and press DO.

**CAUTION:** Write down the SYSTEM account's new password. It can be very inconvenient to forget the new password for the SYSTEM account. If this happens (and you do not have another privileged account that you do know the password for), you will have to reinstall P/OS.

Do not reveal your password to other users. If this happens, change it using the procedures described in this chapter.

After entering your name and password, press DO. If the P/OS Main Menu appears (Figure 3-3), proceed with the instructions in this chapter. If another login form appears (Server Login Form), see Logging into a P/OS Server in this chapter.

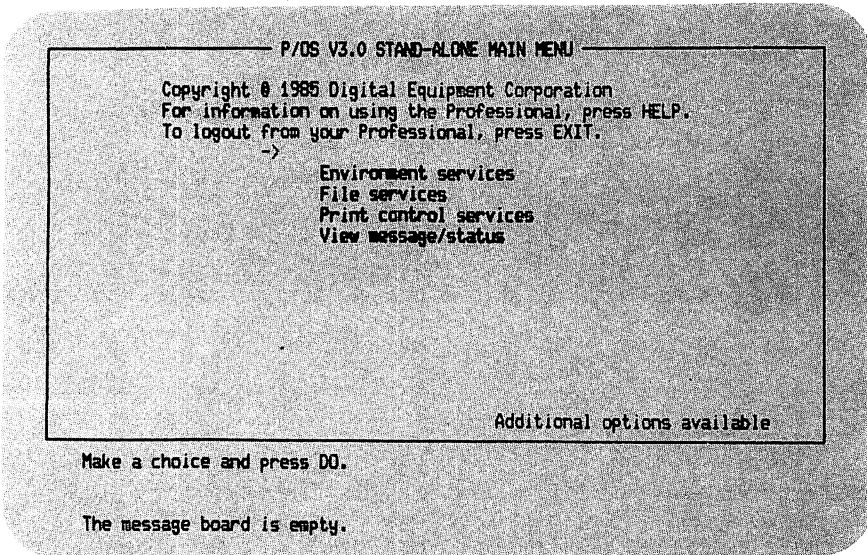
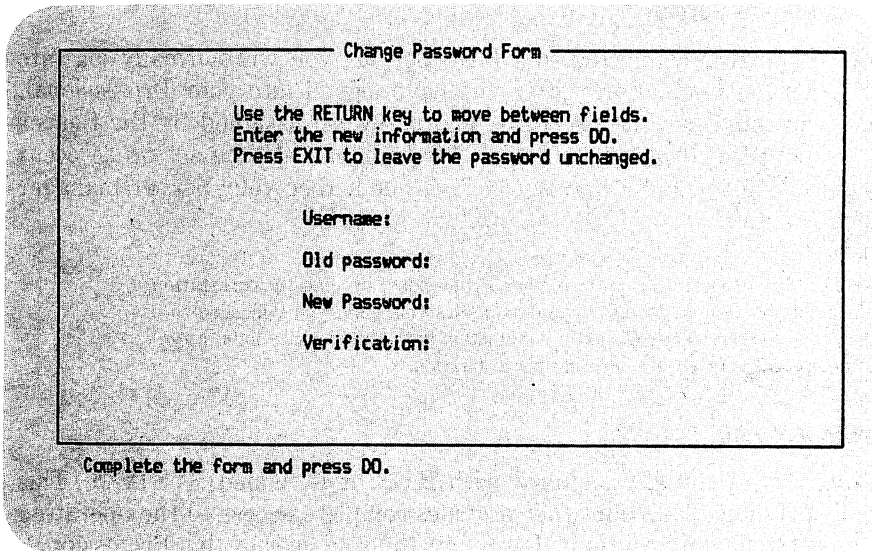


Figure 3-3  
P/OS Main Menu

### Changing Your Password

You can change the password to your account at any time. As you have already seen, you must change it the first time you use the SYSTEM account. If your Professional has multiple accounts, your password was initially created by the system manager with the Account Management program, as described in Chapter 6. To change your password, you must log out, which will display the Login Message. Press a key to display the Login Form, and then press ADDTNL OPTIONS. The Change Password Form (Figure 3-4) will appear.



**Change Password Form**

Use the RETURN key to move between fields.  
Enter the new information and press DO.  
Press EXIT to leave the password unchanged.

Username:  
Old password:  
New Password:  
Verification:

Complete the form and press DO.

**Figure 3-4**  
**Change Password Form**

Enter your account name, the old password, and the new password (a maximum of 6 letters and numbers). Enter the new password again at Verification Password and press DO. If you enter an incorrect old password or invalid new password, a message will inform you. After the password has been accepted, the Change Password Form reappears. Press EXIT to return to the Login Form. Since the new password takes effect immediately, use it to log in.

### **Default System Accounts**

If (before you logged in), the following line appeared on the Login Message:

Or, Press DO to log into the default account.

it means that your Professional has been set up to automatically log into a specified account. (See Setting a Default Login Account in Chapter 6 of this book and/or your system manager for more information.) If you press DO, and the P/OS Main Menu appears, you can go to Figure 3-3 and proceed with the instructions in this chapter. If you press DO and another login form appears (Server Login Form), it means your Professional is connected to a Server and you should read the following section on logging into a P/OS Server.

### Logging into a P/OS Server

If your Professional is connected to a P/OS Server, you will normally log into it using the Server Login Form after you have logged into your Professional. To do this, you must use the username and password assigned by the Server manager (as with the Professional login, this login can also be set up to occur automatically). See the *P/OS Server User's Guide* and/or your Server manager for more information.

**NOTE:** If you log into a Server, your Professional becomes a workstation. Since this book is written for stand-alone systems only, you will need to use the *P/OS Server User's Guide* in conjunction with this book to have a complete description of operating a workstation.

### The SYSTEM Account

One user account is initially supplied with P/OS; it is named SYSTEM. This account is a "privileged" account that provides complete access to the operating system (see the following caution). If you are the sole user of this Professional, you need to use this account initially to set up the system. After the system has been set up, it is a good idea to create a nonprivileged account for yourself for working in your personal files. See Account Management in Chapter 6 for more information.

If this Professional is to have multiple accounts, the system manager should use the SYSTEM account for system setup/maintenance purposes. Other user accounts should be nonprivileged. For more information on the system manager's functions, see Chapter 6.

**CAUTION:** The SYSTEM account privileges allow full access to all P/OS files, including the base system file. Altering or deleting files in P/OS system directories could irreparably damage or destroy the operating system. Digital Equipment Corporation assumes no responsibility for supporting P/OS operating systems that have been so altered. For more information on P/OS system files, see Chapter 7 of this book and *Hard Disk System for Beginners*.

The SYSTEM account privileges also allow complete access to the accounts file, which contains all user account records. Altering or deleting records in the account file can erase user accounts or render them inoperable. The accounts file should be altered by only the system manager after reading the section on Account Management in Chapter 6.

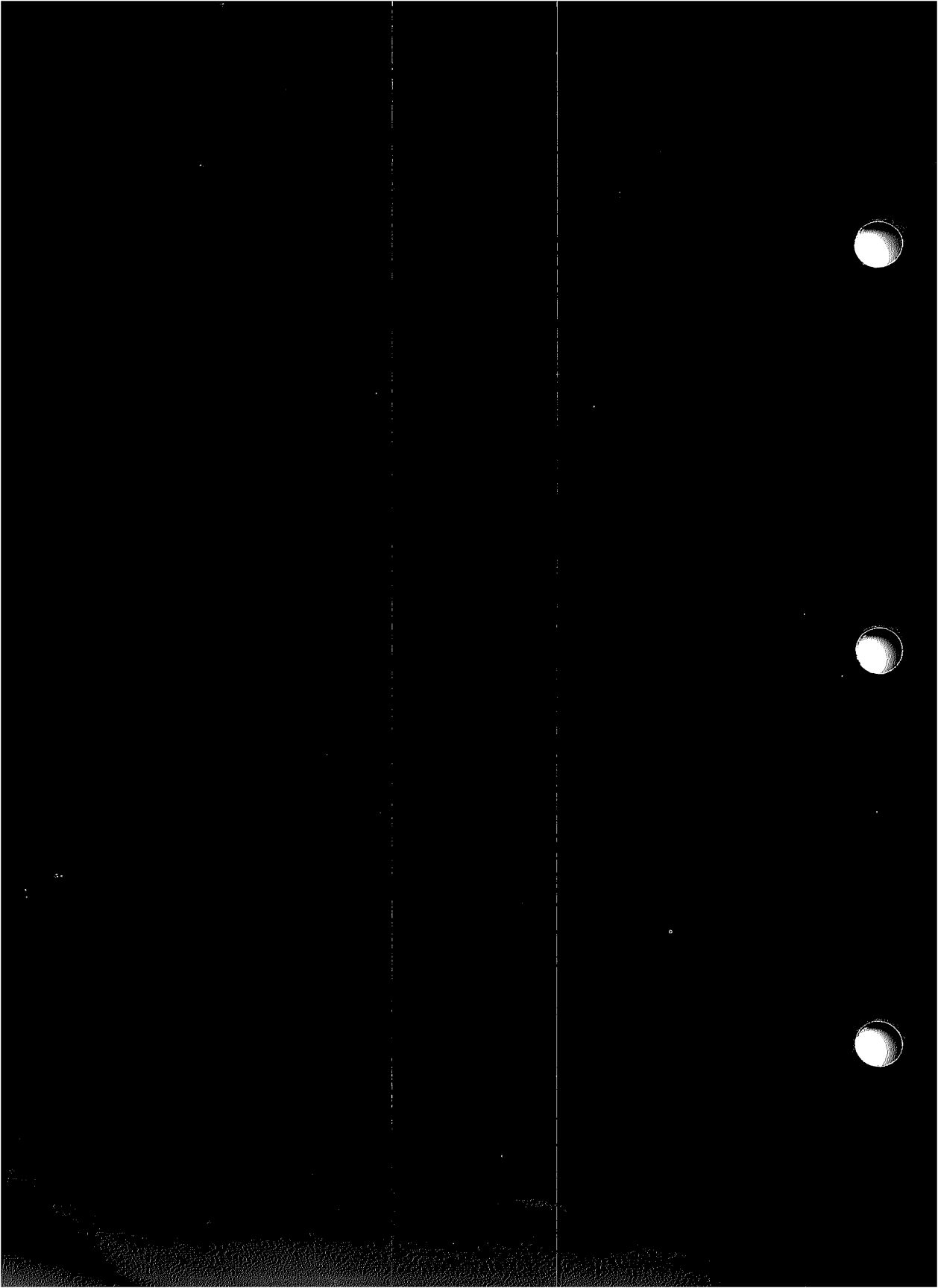
## LOGGING OUT OF THE ACCOUNT

To log out of your account, display the P/OS Main Menu and press the **EXIT** key. A message will inform you to press **DO** if you want to log out. (Press any other key if you do not want to log out.) The Login Message (or Login Form) should appear. If neither appears, it means a default login account has been defined for your Professional. See the section on Defining a Default Login Account in Chapter 6.

# 4

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## More Menus, Forms, and Function Keys



## Chapter 4

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### More Menus, Forms, and Function Keys

Now that you have learned how to install P/OS and log in, it is a good idea to familiarize yourself with more of the system's fundamentals, before beginning to use P/OS services. This chapter describes:

- The Main Menu
- The Message/Status display
- A description of the Professional's function keys

#### **THE MAIN MENU**

The Main Menu lists the primary P/OS services, and can also list some applications. P/OS services such as file services or print control services, are groups of related functions. Most of the submenus beneath these options provide specific functions such as for modifying a file or selecting a print queue. Figure 4-1 is an example of a Main Menu with some applications installed (Synergy Window Manager and Command Language). Chapter 5 explains how to install applications.

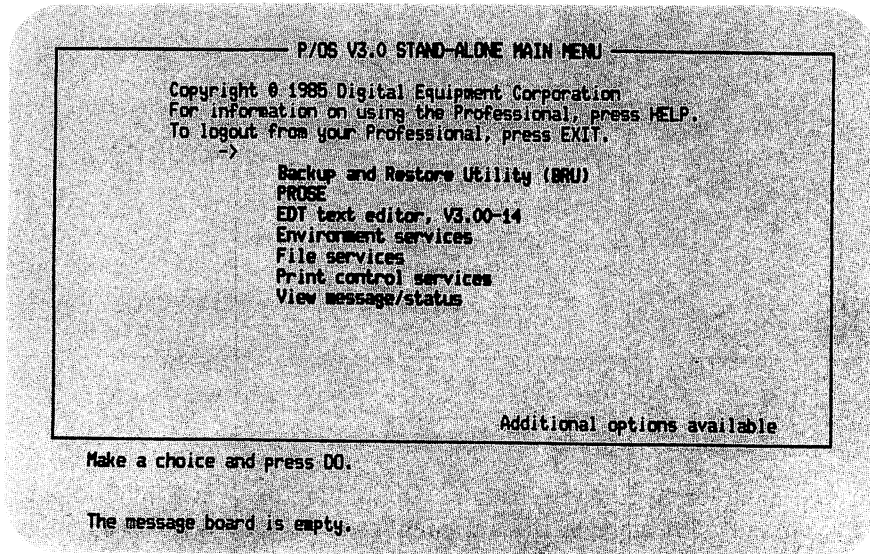


Figure 4-1  
Example of Main Menu with Some Applications

### MESSAGE/STATUS DISPLAY

You can see the Message/Status display by choosing “View message/status” from the Main Menu. A sample display is shown in Figure 4-2.

STATUS		15-AUG-85 11:57:46	
Current directory is USERFILES on volume BICVOLUME.			
Volume	Device	Free	Used
PRO**PROVOLUME		382	9345
-----			
USER MESSAGES			

There are no more messages. Press F12 for System messages.  
To return to the Main Menu, press EXIT.

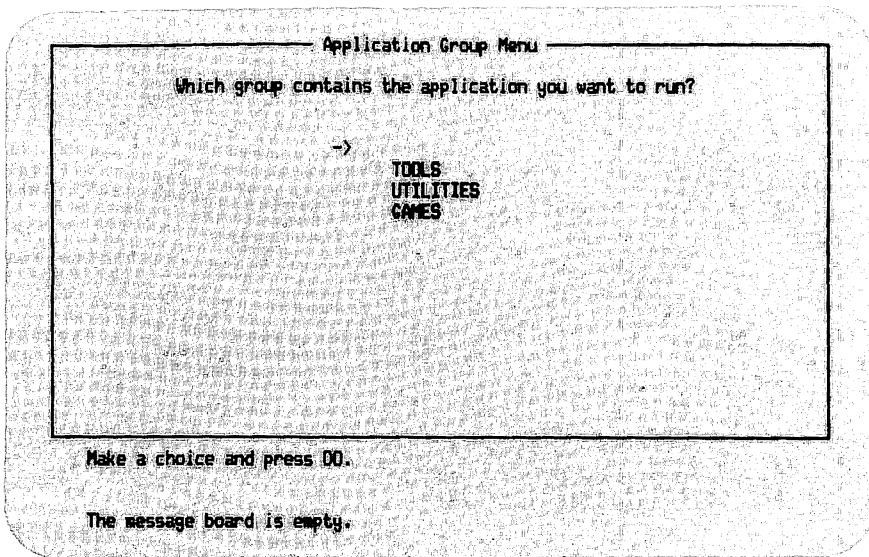
**Figure 4-2**  
**Sample Message/Status Display**

The top part of the display gives status information, such as the current time and date, the names of your currently inserted diskettes, and the amount of free space on your disk(s) and currently inserted diskettes. This information can be important.

The bottom part of the display shows one-line messages sent by a P/OS service or an application. If there are more messages than will fit in one display, press **NEXT SCREEN** to see more of them. Pressing **NEXT SCREEN** also erases any currently displayed messages. If many messages have accumulated, and you do not want to read them, you can erase them all by pressing **F17**. Press **EXIT** to return to the Main Menu. Press **F12** to read system messages.

### **Additional Applications**

Note the “Additional Options” message in the lower right corner of the menu. This message indicates that further options are available by pressing the **ADDTNL OPTIONS** key, which will produce a list of applications groups. The additional applications are displayed as the sample menu in Figure 4-3.



**Figure 4-3**  
**Application Group Menu**

This menu lists the groups of applications that are installed on your Professional. To use an application, choose its group. The list of applications in the group will then be displayed, from which you can choose the one you want to run. Chapter 5 explains how to install applications.

## FUNCTION KEYS

You control your Professional by using function keys and by choosing functions and services from menus and forms. If you are familiar with the Professional you already know how to use several of the function keys. They are the gray keys across the top of your keyboard and in a pad to the right of center. Many of them are described in *Hard Disk System for Beginners*. The following is a brief description of all the function keys used by P/OS. Note that applications may interpret these keys differently. Also, some function keys (such as INSERT HERE, REMOVE and FIND) are used only by applications such as PROSE. Refer to application documentation for information on keys not listed here.

**Key****Function**

Moves the cursor up the screen.



Moves the cursor down the screen.



Moves the cursor to the right.



Moves the cursor to the left.

DELETE (<X>)

Deletes the character to the left of the cursor and moves the cursor one space to the left.

ADDTNL OPTIONS

Displays a menu of additional options which can be used in conjunction with other options on the menu. Additional options are indicated by “Additional options available” in the lower right corner on the menu. The additional options available from the P/OS Main Menu are your groups of additional applications. If you want to use an additional option, press the ADDTNL OPTIONS key before doing anything else on the menu or form. Note that this will erase any other work you may have done on the menu.

When you press the ADDTNL OPTIONS key, a submenu appears. You can use these submenus the same as other menus. Press EXIT instead of DO if you want to return to the previous menu without making a choice.

Pressing the ADDTNL OPTIONS key has different results in different situations. Refer to the application documentation for details.

CANCEL

On menus and forms, voids a selection and erases anything you have just typed. In File Services, if no items have been selected, CANCEL selects all of them.

COMPOSE  
CHARACTER

By using the COMPOSE key combined with certain other keys, you can create special characters that are not on your keyboard. This is useful if you are working in an international situation. For example, you can type a letter in French on a Professional with a U.S./Canada keyboard, even though some of the French characters are not on the U.S./Canada keys.

To “compose” a character, press **COMPOSE**. Then type the two characters that together form the character you want. The cursor will not move after you type the first of the two characters. For example, to compose an acute é:

1. Press **COMPOSE**.
2. Type the letter e
3. Type an apostrophe ('). Your screen displays é.

If you make a mistake using the **COMPOSE** key, the keyboard beeps (provided the keyboard bell is set to ON). In that case, start again. If you press **COMPOSE** accidentally, press **⌘**, and continue what you were doing.

Appendix B lists the compose sequences you can use and describes the possible errors in detail and how to recover from them.

You can print the composed characters using “Print” in File Services. See Chapter 9 for instructions.

While composing a character, the Compose light at the top of the keyboard is on. Some keyboards also allow you to compose certain characters without first pressing the **COMPOSE** key. These two-stroke compose sequences are discussed in Appendix B. (The U.S./Canada keyboard has no two-stroke compose sequences.)

Another alternative for typing documents in languages other than the one for your keyboard is to use the Setup Change keyboard function. This function causes P/OS to work as if your keyboard were that of the language you want. It is best in this case to purchase a different keyboard for each language you want and to plug each one in when you need it. However, you can look at the diagram of a keyboard while typing and, with practice, produce the same effect.

DO

Chooses a menu item, and/or indicates that you are ready for P/OS to take action on a choice you have made.

 EXIT

Works in two different ways: (1) cancels all changes to the current menu and exits to the previous menu and (2) accepts all changes to the current menu and exits to the previous (higher level) menu.

## HELP

Displays useful information related to the current activity.

## HOLD SCREEN

The HOLD SCREEN key freezes a screen display so you can read it. Press it again to release the hold. When HOLD SCREEN is in effect, its indicator light (top of the keyboard) stays on.

HOLD SCREEN used with the CTRL key works as follows:

- If the screen is not already held, it holds it and blanks the screen.
- If the screen is already held, it blanks the screen.

 INTERRUPT

Press INTERRUPT and then DO to immediately abort any operation being performed on the computer. If you type a key other than DO, the interrupt does not occur, and you can continue your activity. For some applications, INTERRUPT DO has no effect.

When using “Display file” in File Services, press INTERRUPT and DO to stop the file display. Press CANCEL instead of DO if you change your mind.

**CAUTION:** Pressing INTERRUPT DO in an application erases any work stored in memory, exits any current application, and may leave some files in an improper state. Use the EXIT key instead of INTERRUPT DO to exit applications whenever possible.

 LOCK

After pressing LOCK, pressing a key labeled with a single letter will generate an uppercase character. When the LOCK key is in effect, the keyboard Lock light is on.

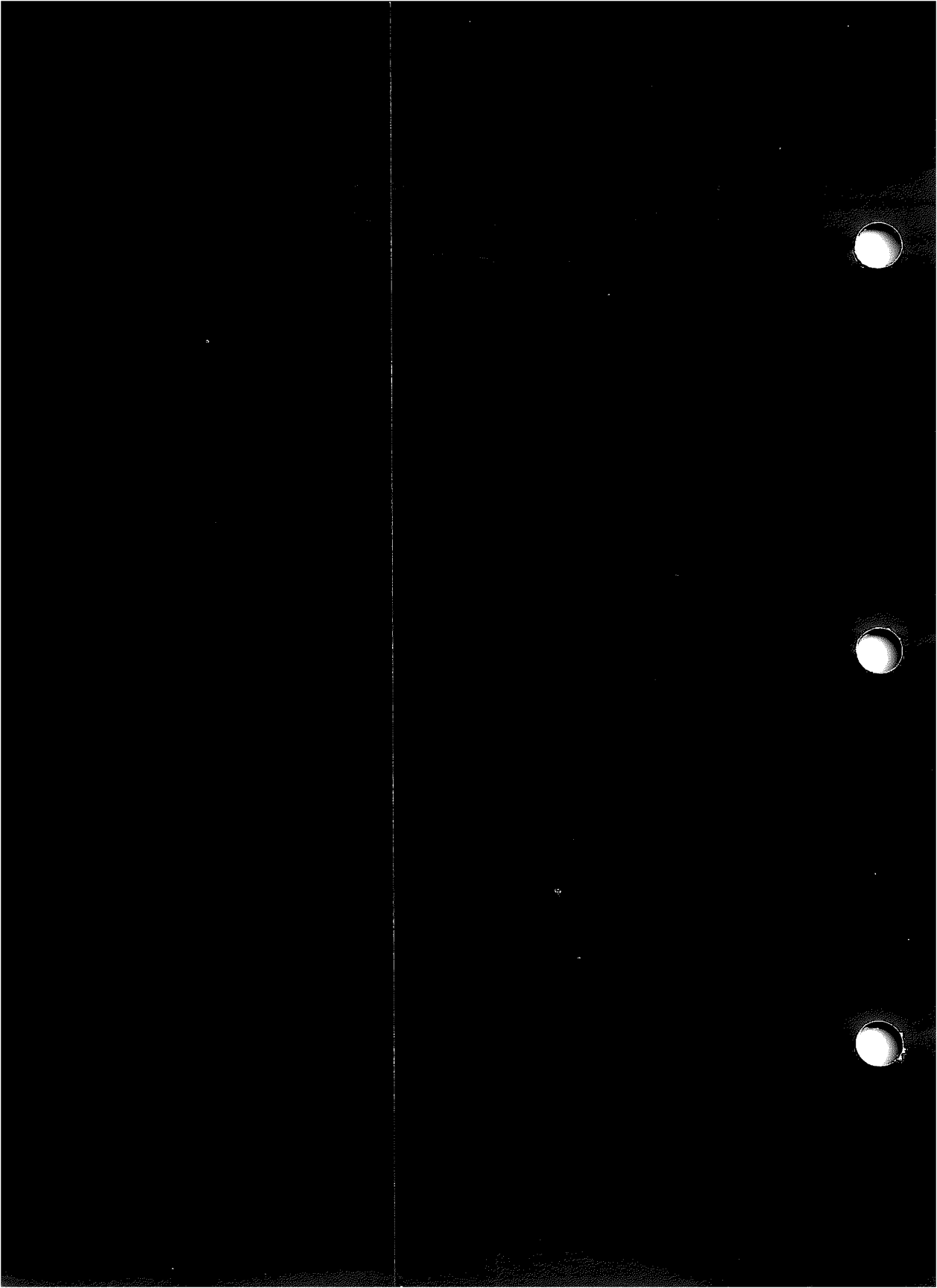
If caps-lock has been set, pressing any key with more than one character on it generates the “lower” character on the key. If shift-lock has been set, pressing a key with more than one character on it generates the “upper” character on the key. Press LOCK again to

	undo the caps-lock; <b>SHIFT</b> to undo the shift-lock. Caps-lock and shift-lock are set with the <b>SET-UP</b> key.
<b>MAIN SCREEN</b>	If pressed when a P/OS menu is displayed, displays the Main Menu.
<b>NEXT SCREEN</b>	Displays the next screen of a text file, message/status display, multi-screen menu, or directory. Displays the System Environment Services Menu from the User Environment Services Menu.
<b>PREV SCREEN</b>	Displays the previous screen of a multi-screen menu, multi-screen listing, or directory. Displays the User Environment Services Menu from the System Environment Services Menu.
<b>PRINT SCREEN</b>	Prints out a copy of your screen display. You must have a dot-matrix printer (LA50, LA100, LA210) connected to your Professional to use it. See Chapter 9 for additional details about using this key.
<b>RESUME</b>	Continues a previous activity after using <b>HELP</b> .
<b>RETURN</b>	If pressed while a multiple-entry form is displayed, moves the cursor to the next entry. On non-English-language keyboards, this key is labeled with a bending arrow.
<b>SELECT</b>	Indicates on setup menus and multiple-choice menus that one of a series of items has been selected.
<b>SET-UP</b>	While the Main Menu is displayed, allows you to set and modify P/OS default terminal characteristics. Terminal Setup procedures are described in Chapter 5.  Pressing <b>SET-UP</b> followed by <b>RESUME</b> will unlock a locked keyboard. If nothing happens when you type on the keyboard, check to see if the Wait light at the top of the keyboard is on (red). If the Wait light stays on for more than fifteen seconds or so, you may be able to unlock the keyboard by pressing the <b>SET-UP</b> key once. Some applications intentionally lock the keyboard for brief periods, and you need to wait. Pressing <b>SET-UP</b> while an application is in progress may also affect the application.
<b>TAB</b>	Moves the cursor to the next defined tab stop. Setting tab stops is described in Chapter 5.

5

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Setting Up Your  
Professional



## Chapter 5

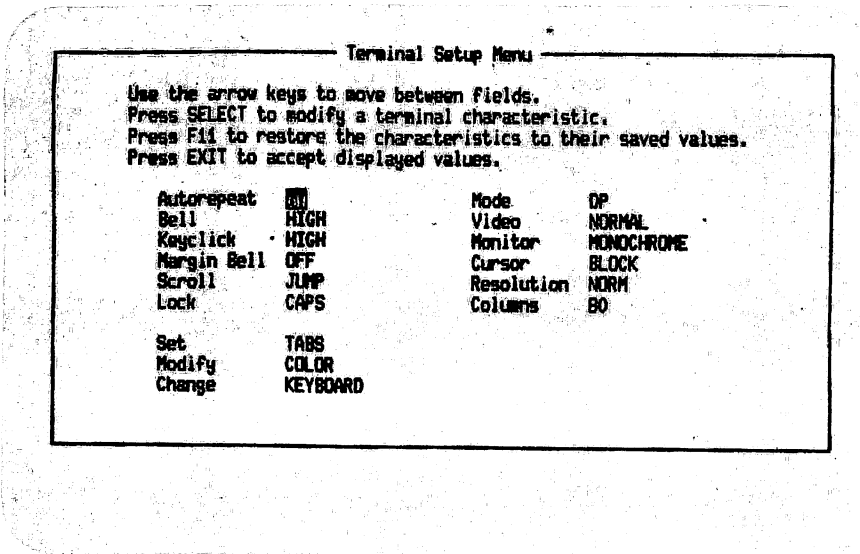
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### Setting Up Your Professional

P/OS provides a number of features that allow you to tailor your user account to your individual needs and preference. The two menus you use to do this are the Terminal Setup Menu and the User Environment Services Menu. The remaining Environment Services menu (System Environment Services Menu) is described in Chapter 6. It is used mainly by the system manager on systems with multiple accounts.

#### **SETTING UP YOUR TERMINAL**

The Terminal Setup Menu enables you to tailor your terminal to your individual needs and preference. From the Main Menu, you access the Terminal Setup Menu by pressing the SET-UP key. Figure 5-1 shows an example of this menu with its initial default settings (those in effect when you first turn the power on after installing P/OS). Those settings remain set until you change them.



**Figure 5-1**  
Terminal Setup Menu

To select from the Terminal Setup Menu, use the **ARROW** keys to move the cursor. Press **SELECT** when the cursor is at an item you want to select. In some cases, there are just two choices, such as **ON/OFF**; in others there are more choices, such as **HIGH/MED/LOW/OFF**. If you make some changes on the menu and decide you want to cancel all of them, press **CANCEL**.

When you are finished with your changes to the menu, press **EXIT**. A prompt will appear, instructing you to press **DO** to save the changes as permanent values, or **EXIT** again to save the changes temporarily (until you log out).

While you are in the Terminal Setup Menu, you can press **MAIN SCREEN** to return to the Main Menu. This cancels whatever changes you have made on the menu.

Terminal Setup changes take effect when you exit the Terminal Setup Menu except for **Change Keyboard**, which takes effect immediately.

Some applications may override or temporarily not use certain defaults that you set with the Terminal Setup Menu. For example, the **PROSE** application always

uses an 80 column width regardless of the settings you make here. When you exit PROSE, however, these settings are in effect again.

Descriptions of the Terminal Setup functions follow.

### **Autorepeat**

(ON, OFF)

When autorepeat is ON, characters automatically repeat when you hold down the key. This applies to all character keys, arrow keys, and numeric keys on the keyboard. For example, holding down the underscore ( \_ ) causes a repeated underscore, such as “ \_ \_ \_ \_ \_ .” Autorepeat also applies to the function keys (except for HOLD SCREEN, PRINT SCREEN, BREAK, SET-UP and F5).

When autorepeat is OFF, characters print just once each time you press the key.

### **Bell**

(HIGH, MEDIUM, LOW, OFF)

In your keyboard is a bell that makes a sound—like a beep—if, for example, you type something erroneous. It is generally useful to keep the bell to one of the ON settings (HIGH/MED/LOW), since some errors are signaled by a beep only (no message appears).

### **Keyclick**

(HIGH, MEDIUM, LOW, OFF)

Keyclick enables you to set your keyboard keys to click when you press them. You can set the click to any level of loudness you prefer, or turn it off.

### **Margin Bell**

(ON, OFF)

The initial setting of the margin bell is OFF. If you change it to ON, the keyboard bell beeps when the cursor moves within eight characters of the screen display's right edge.

**Scroll**

(JUMP, SMOOTH)

*Scrolling* is the upward or downward movement of lines on the screen to make room for new lines at the bottom or top of the screen. The initial setting is JUMP.

In the JUMP setting, new lines appear on the screen rapidly. Although lines appear more quickly this way, it may take longer to focus your eyes on the words you are looking for. With SMOOTH-scroll, new lines appear on the screen one after the other, and can be easier to read. Make your own choice.

The scroll function applies only to the scrolling of the entire screen display. Applications that scroll only a part of the screen may override this setting.

**Lock**

(CAPS, SHIFT)

The LOCK key on the keyboard works as a shift-lock and caps-lock. The initial default is caps-lock.

With caps-lock, if you press the LOCK key:

- The Lock light at the top of the keyboard goes on. (The LOCK key itself does not stay down.)
- The keyboard generates an uppercase alphabetic character whenever you press a key with a single letter on it. For example, pressing the B key displays a capital B rather than a lowercase b.
- The keyboard generates the lower character on keys with more than one character on the key legend. For example, pressing 

{
]


 displays [. To display {, press SHIFT and 

{
[

.
- To go back to using lowercase, press LOCK. The Lock light will go off. You can still enter uppercase characters by using the SHIFT key.

With shift-lock, if you press the LOCK key:

- The Lock light at the top of the keyboard goes on. (The LOCK key itself does not stay down.)

- Whenever you type a key, the keyboard generates either an uppercase character or the top character on the key. For example, pressing  now displays {. Pressing **B** displays **B** rather than **b**.
- To go back to using lowercase and the lower characters, press **LOCK**. The Lock light will go off. You can still use **SHIFT** on the individual keys you type.

### Mode

(OFFICE, DP)

The mode setting applies only to keyboards other than U.S./Canada. (Appendix A shows all the keyboards.) This setting affects keys on your keyboard that can display two different characters. DP is the data processing mode. It applies to any key that shows two separate characters next to each other. The character to the right can be displayed if DP mode is enabled; the character to the left is the office mode character. The initial setting is DP.

### Video

(NORMAL, REVERSE)

This setting affects the display on your video terminal. The initial default screen display, **NORMAL**, produces light characters on a dark background. For dark characters on a light background, select **REVERSE**.

### Monitor

(MONOCHROME, COLOR)

This setting must agree with the type of video monitor you are using. The initial setting is **MONOCHROME**, which means the screen displays one color, for example, white. If you have the Extended Bit Map module and a color monitor, choose **COLOR**. If you have a monochrome monitor (even with the Extended Bit Map module), use the **MONOCHROME** setting.

**CAUTION:** Do not set your monitor to “**COLOR**” if you have a monochrome monitor. Doing so can cause the monitor to malfunction.

### **Cursor**

(BLOCK, UNDERLINE)

This setting affects the shape of your screen cursor. The initial cursor shape is a small rectangle (BLOCK). If you wish, you can change it to an underscore (UNDERLINE).

### **Resolution**

(NORMAL, HIGH)

This setup feature is for Professional 380 systems only. It enables you to increase the resolution of the video display from NORMAL to HIGH (240 noninterlaced or 480 interlaced vertical scan lines). NORMAL is the initial setting. The HIGH setting is useful for applications, such as graphics, where higher resolution is desirable.

### **Columns**

(80, 132)

Your monitor screen is organized for displaying text in lines and columns. There are 24 horizontal lines and either 80 or 132 vertical columns for displaying text. The initial setting is 80 columns. If you wish, you can change to 132 columns (the characters will appear smaller). This column width is useful for displaying very wide tables. (Note that even if the 132 column setting is used, the Terminal Setup Menu itself continues to appear in the 80 column format. This insures readability.)

### **Set Tabs**

Initially, a tab stop is set at every 8 columns, starting at column 9. This results in the cursor moving 8 spaces to the right when the TAB key is pressed. Set tabs enables you to change these tab stops. To change tabs, set the pointer to it and press SELECT. A ruler appears on your screen. Using the  $\Rightarrow$  and  $\Leftarrow$  keys, move the tab selector (V) across the ruler to where you want a tab; then press SELECT. A "T" appears to indicate the tab stop. To clear a tab stop, move the V to the stop you want to clear and press SELECT. When you have selected all the desired tab stops, press EXIT. The Terminal Setup Menu then reappears.

To reset all tab stops to their former settings, press **CANCEL** before pressing **EXIT** while the ruler is displayed.

Tab settings affect only the screen display. They may or may not affect printer output.

### Modify Color

This feature allows you to modify the foreground and background color of your video terminal. To display color, you must have a color monitor and must have "COLOR" selected as your Monitor setting.

To change your screen's background/foreground colors, set the cursor to "Modify Color" and press **SELECT**. The Modify Color Form will appear, as in Figure 5-2:

Press **SELECT** to modify the intensity of the current color.  
Use the **UP** and **DOWN** arrow keys to move between foreground and background.  
Use the **LEFT** and **RIGHT** arrow keys to move between colors.

Foreground

Foreground	Red =6	Green =7	Blue =6
Background	Red =0	Green =0	Blue =4

Press **EXIT** to save the displayed values.

**Figure 5-2**  
**Modify Color Form**

To change the foreground color, set the cursor on "Foreground," and use the **←** and **→** keys to select the color you wish to increase. Then press the **SELECT** key a few times and watch the color gradually become visible and increase in intensity. When a color becomes visible, you can select another color and/or mix colors to create other ones.

To change your terminal's background color, set the cursor on "Background" and choose a color. You will see the background color increase. Now you can see how it matches with the foreground color you have chosen. You can mix the colors to create colors of your choice. It is advisable to use colors that produce the least amount of strain on your eyes. While not everyone's eyes are the same, studies have shown that muted colors on a dark background (such as green on a black background) generally produce the least amount of eye strain.

When you have chosen your colors, press **EXIT** to save them temporarily and return to the Terminal Setup Menu.

### **Change Keyboard**

Keyboards vary according to the country where you bought your Professional. Unless special circumstances exist, your choice should correspond to the keyboard you are using. The 15 types of Professional keyboards are shown in Appendix A.

When you select "Change keyboard," a list of available keyboards appears (the order of keyboard names depends on the country where you bought your P/OS). The names are:

- United States/Canada
- Belgie (Vlaams)
- Canada (Francais)
- Danmark
- Deutschland/Osterreich
- Espana
- France/Belgique
- Italia
- Nederland
- Norge
- Schweiz
- Suisse
- Suomi
- Sverige
- United Kingdom

Choose the country whose language you want for your keyboard and press **DO**. Normally, you should choose the setting that matches your keyboard. However, you can choose a different setting, in which case the screen will display the characters for the keyboard you selected. Your physical keyboard will be different from the one displayed.

When you change your keyboard setting, the keyboard mode changes to the default for the new keyboard (see the section on Mode earlier in this chapter).

## TERMINAL SETUP-SYSTEM VALUES

It is possible to set up system default terminal values. This feature enables the system manager to establish a set of system defaults that can act as a basis, or starting point for individual users. Individual users can override these defaults in their own accounts, and/or can restore the system defaults any time they wish.

### Setting System Defaults for the Terminal

Setting system defaults requires a privileged account. To do so, enter the Terminal Setup Menu and press F12. The following message will appear on your screen:

```
Your system has been reset. You can now modify system values.
```

Now make the settings you want to establish as system defaults. When you are finished, press EXIT and then DO. The settings are now the defaults for the system. These settings are also in effect for your current session. (If you were using other settings and want to restore them, display the Terminal Setup Menu again, press F11 and then EXIT.)

### Restoring the System Defaults

Any Terminal Setup settings made by users in their individual accounts supersede the system default settings. If you want to restore the system default settings for some reason, display the Terminal Setup Menu and press F12. The system default settings will take effect. If you want the defaults to be in effect for this session only, press EXIT twice. To make them your own defaults, press EXIT and then DO.

**NOTE:** During setup, the screen will normally appear with a white foreground and black background. If a monochrome monitor's screen becomes entirely white, it means that it has been set (incorrectly) to color; this situation could result in damage to the monitor. Be certain that monochrome monitors have the correct "Monitor" setting.

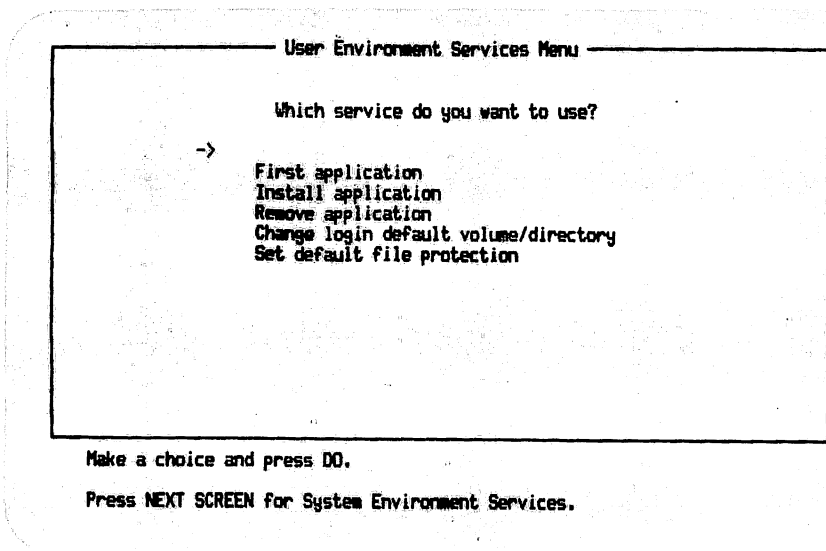
### Exiting the Terminal Setup Menu

When you are finished making your changes to the Terminal Setup Menu, press EXIT. A prompt will appear at the bottom of your screen instructing you to press DO to register the new settings as defaults, or "permanent" settings

(overwriting the existing defaults on the disk). Otherwise, you can press **EXIT** again, which registers the new settings as temporary. If you do the latter, the changes remain in effect until you log out of the account or change them again. When you turn the power on again, the default settings will be in effect. In this way, you can change your settings temporarily without changing any of your default settings. While in the Terminal Setup Menu, you can restore the default settings by pressing the **F11** key.

## THE USER ENVIRONMENT SERVICES MENU

The User Environment Services Menu enables you to tailor your account according to your preference, and set it up to perform certain functions automatically. You can use this menu to modify your personal environment, whether your Professional is a single account or multiple-account system. To reach the User Environment Services Menu, select "Environment services" from the P/OS Main Menu, as shown in Figure 5-3.



**Figure 5-3**  
**User Environment Services Menu**

If, while using the User Environment Services Menu, you want to display the Terminal Setup Menu, press **SET-UP**. To return to the P/OS Main Screen from the User Environment Services Menu, press **MAIN SCREEN** (or **EXIT**). To reach

the System Menu from the User Environment Services Menu, press **NEXT SCREEN**.

### **First Application**

“First application” enables you to specify an application that you have installed in your account to automatically be entered, or invoked, when you log in. If you know that you will be using a particular application (such as PROSE) most of the time, you can use this feature to instruct P/OS to automatically enter PROSE after you log in.

When you select “First application,” a list of the application groups in your account appears. Select the group that the application is in and press **DO**. The list of applications in that group will appear. Choose the application you want to specify for the first application. When you log in in the future, P/OS will automatically enter (run) this application.

If the application you wish to specify as a first application is not available, you can install it. See the following section on Installing Applications.

You can change your First Application by following the steps above. If, after specifying a First Application, you decide you want to remove it (specifying none), just choose “First application.” When the list of your applications appears, press **REMOVE**. You will then have no First Application specified, and the P/OS Main Menu will appear when you log in.

### **Installing Applications**

Application software packages make computers useful. Some applications were supplied with P/OS (*PROSE, PRO/EDT and Command Language*). To use these and other applications, you must copy them onto your disk, using “Install application.” When you choose this option, a submenu presents you with two choices: “Library” and “Diskette.”

#### ***Installing an Application from the Library***

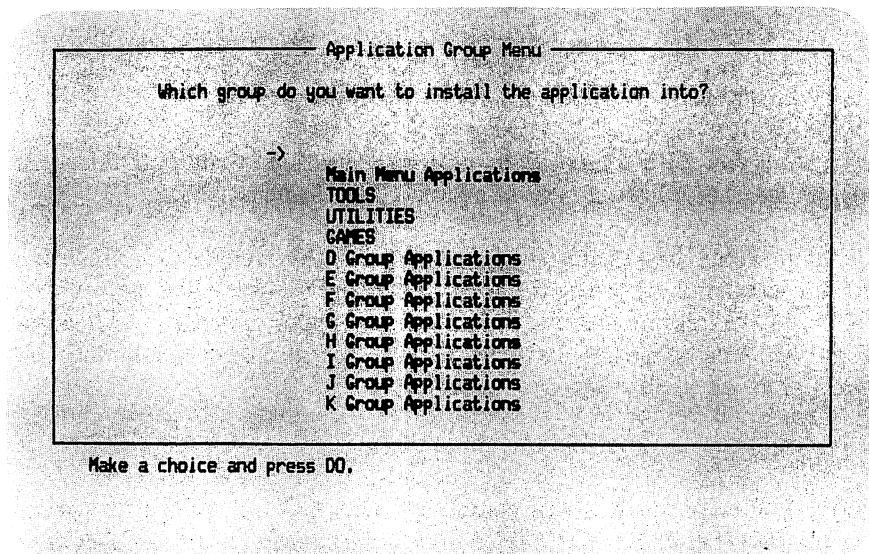
The disk space on your Professional allows applications to be placed into a publicly-accessible library, and into private accounts. The public library is used to maintain copies of applications and/or application components that all users can share.

If your Professional has multiple accounts, the system manager can copy applications to the library (see Copying Applications to the Public Library in

Chapter 6). Users can then copy these applications into their individual accounts. There is no functional difference between applications copied from the library and those copied from diskettes.

To copy an application from the library to your personal account, choose "Install Application" from the User Environment Services Menu. From the submenu, choose "Library." When you do, all the applications in the library will appear on your screen.

Choose the application you wish to install. Then the Application Group Menu will appear (Figure 5-4), showing all your current application groups.



**Figure 5-4**  
**Application Group Menu**

Up to eight applications can be listed on the Main Menu. Install applications here that you will be using frequently. Place the rest of your applications under Additional Applications. Initially, there are eleven groups on the Additional Applications Menu, listed alphabetically as "A Group" through "K Group." To place the application into a group, follow these steps:

1. How many groups of additional applications you set up will depend upon the number of applications you have, and how you choose to

group them. For example, you might have groups for monthly applications, end-of-year applications, tools, languages, games, and so forth. Up to 12 applications can be placed in each group. Select a group and press DO.

2. The Application/Group Name Change Form displays the name of the application and the application group where you have placed it. (If you are installing the application on the Main Menu, the group name will be blank, since you cannot change the name of the Main Menu.)
3. To change the application name, delete the name on the screen by pressing REMOVE or  $\langle X \rangle$ . Then type in the name you want (40 characters maximum, including spaces). Use RETURN to move from one entry to the other.
4. When the names you want appear on the form, press DO. Wait for P/OS to install your application. This can take from 2 to 10 minutes, depending on the size of the application. When the installation is complete, the User Environment Menu reappears.

When you want to use this application, you can select it directly from the Main Menu or the Menu of Application Groups, depending upon where you placed it. Before attempting to use an application, make sure that you have the required system components (for example, a printer). P/OS will allow you to install an application even if you do not have all the components, but you may not be able to use them.

**NOTE:** In order to use an application that has been installed from a public library, you must log into the system where the public library resides.

### ***Installing an Application from Diskette(s)***

“Diskette” on the Application Source Menu (appears after you select “Install application”) enables you to install a diskette-based application. Note that diskette-based applications may have system components that you can copy only if you have a privileged account. If you do have a privileged account, it is advisable to copy diskette-based applications to the application library (see Copying Applications to the Public Library, Chapter 6). If you do this, you then install the application to your own account by following the instructions above (Installing Applications from the Library). If you do not have a privileged account, you can install (nonsystem components of) diskette-based applications using the following steps:

1. Insert the application diskette into one of the diskette drive slots. If the application has more than one diskette, insert the first one.
2. Choose "From diskette" from the Install Application submenu.
3. All applications residing on the diskette will be listed on the screen. Select the one you want to install and press DO. (Press EXIT if you do not want to install any.)
4. The Application Group Menu will then appear. Place the application into the application group you want, following the instructions in the previous section (Installing Applications from the Library). If the application has more than one diskette, you will be prompted when to load the next diskette.

**NOTE:** Applications must be designed to be copied into public areas of the disk. Otherwise, they cannot be copied there.

You will be prompted to install only those diskettes that contain components that you can copy. Some diskettes may contain only system components that require a privileged account. Unless you have a privileged account, you will not be prompted to load those diskettes.

5. When the application has been copied, a message may appear on the screen advising you that the application also has required "system-wide" components. If you are using a privileged account, you can copy the system-wide components by choosing "Copy only system wide application components" from the System Environment Services Menu (see Chapter 6).  
  
If you do not have a privileged account, ask the system manager to install the required components for you.
6. To install another application, repeat the entire procedure. To display the Main Menu, press MAIN SCREEN.

When you are finished installing applications, remember to store your application diskettes safely. Do not erase or reuse them. They are your backups if something should happen to the application files on your disk.

When you want to use this application, you can select it from the Main Menu (or the Application Groups Menu), depending upon where you placed it.

### **Removing Applications**

Use "Remove application" to erase an application from the disk. If you want to use the application again, be sure you still have it stored on diskette.

“Remove application” removes the files you initially installed with the application. Data files you created with the application are not necessarily removed. To remove these files from the disk, you must search through your directories for the files and delete them.

To remove an application, select “Remove application” and follow these steps:

1. A menu appears, listing the application groups: Main Menu, A Group, B Group, etc. If you have changed a group name, its new name will appear. Choose the name of the group with the application and press DO. (Press EXIT to return to the User Environment Services Menu without removing an application.)
2. A menu appears, listing the applications, if any, in the group you selected. Choose the application you want to remove. (Press EXIT to return to the User Environment Services Menu without removing the application.) P/OS removes the application (this may take a minute or so), and the User Environment Services Menu will reappear.
3. If there are any system components associated with this application, a message will tell you so. See the system manager if that message appears. Removing the system components may have an adverse effect on others’ use of applications.

### **Changing Your Login Default Volume and Directory**

The initial default directory is USERFILES, which P/OS automatically enters after you log in. Chapter 8, File Services, describes how to create, manage and delete directories. If you create another directory and use it often, you may want to have P/OS enter it automatically when you log in. The “Change login default volume/directory” feature enables you to do that.

When you select “Change login default volume/directory,” a list of all your directories appears, both in your account and on any currently inserted diskettes. Choose the directory you want for your default. When you log in, the directory you choose will be your current (default) directory.

### **Setting Default File Protection**

As files are created in accounts, *protection* is automatically established for them. This protection prevents them from being read, copied, altered, or deleted by

other users. "Set default file protection" enables you to look at and change, if you wish, the protection for any future files created in the account. (To change the protection of an existing file, see Chapter 8.) When you select "Set default file protection," the Default File Protection form appears on the screen. The form in Figure 5-5 shows the initial default protection settings.

Default File Protection				
Use the arrow keys to move between fields. Press SELECT to change a protection setting. Press CANCEL to reset the values to what they were. Press EXIT to accept the displayed values.				
	Read	Write	Extend	Delete
System Managers	Yes	Yes	Yes	No
Owner	Yes	Yes	Yes	Yes
Owner's Group	Yes	No	No	No
All Users	No	No	No	No

**Figure 5-5**  
Default File Protection Form

### ***The Access Settings***

The four types of access settings are listed horizontally across the form, and are defined as follows:

- |        |   |
|--------|---|
| Read   | The user may read, copy, print, or scroll through the file, and if it is a task, run it.  |
| Write  | The user, or the user's application, may add new information to the file by writing to it.  |
| Extend | The user, or the user's application, may extend the size of the file, if necessary, while writing to it. Generally speaking, this setting should always be the same as the Write setting. |

Delete                      The user, or the user's application, may delete the file.




### **The Users**

The four groupings of users on the form are defined as follows:

System Managers              Users who log into a privileged account on the system where the file is located. (See Chapters 3 and 6 for more information on privileged accounts.) With multiple-account systems, this group will generally apply to system managers. If you are on a single-user system, it applies to the default SYSTEM account (see the section on the SYSTEM account in Chapter 3).

File's Owner                      This is you, or anyone logging into your account on the system where the file is located.

Owner's Group                      All users who log into an account with the same group name, as established by the system manager in multiple-account systems. (See Chapter 6 for more information about user groups.)



All Users                              All users able to use or communicate with the system where the file is located.

The sample form above shows the initial default protection matrix that is applied to each file as it is created. "Yes" specifies that the indicated access is granted for the indicated group. For instance, there is a "Yes" next to "Owner's Group," under "Read." That means that the "Owner's Group" category of users has Read access to your files. Next to "File's Owner" (remember, this is you), all access groups should be "Yes." This provides you with full access. Generally speaking, you should always retain full access to your files. Should you want to change the protection of an existing file (to protect yourself from accidentally deleting it, for instance), see the section on protecting files in Chapter 8.



### **Changing the Protections**

To change the protections, use the ARROW keys to place the cursor to the appropriate place in the matrix and press SELECT. The "Yes/No" designations will switch each time you press SELECT. Make whatever changes you want. If you decide to cancel all changes you have made, press CANCEL. When finished, press EXIT to accept the displayed values. Press EXIT again to accept the values

as temporary values (in memory only), or press **DO** to save them as “permanent” values (written to disk).

### **EXITING THE USER ENVIRONMENT SERVICES MENU**

Press **EXIT** or **MAIN SCREEN** to exit the User Environment Services Menu and return to the P/OS Main Menu. Press **NEXT SCREEN** to display the System Environment Services Menu, which is described in Chapter 6.

6

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The System  
Environment  
Services Menu



## Chapter 6

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### The System Environment Services Menu

This chapter describes the System Environment Services Menu, which is designed to set up P/OS features that apply to more than just individual terminals and accounts. If your system has multiple accounts, then this chapter is intended for the system manager. If you are the system's sole user, you will need to use this chapter for reference. If you are a nonprivileged user of a multiple-account system, you do not need to use this chapter at all.

The System Environment Services Menu functions described in this chapter are:

- The Account Management program, which enables the system manager to set up and maintain multiple user accounts.
- The Copy/Delete Public Applications program, which enables the system manager to copy and delete applications to/from the public library.
- Specifying a default system account.
- Setting the computer's internal clock.

#### **PRIVILEGED ACCOUNTS**

All features on the System Environment Services Menu require the use of a privileged account only (see Chapter 3 for more information about privileged accounts). This restriction is for the protection of users on multiple-account systems.

A default account is included with P/OS, named SYSTEM. This is a privileged account which allows you full access to P/OS. If you are the system manager, use the privileged (SYSTEM) account to perform system management functions. After you learn how to use the account management program, you should create a nonprivileged account for yourself for working on your personal files.

The Account Management program provides you with the means to create and maintain accounts for other users, both privileged and nonprivileged. To reach the System Environment Services Menu, select "Environment services" from the P/OS Main Menu. The User Environment Services Menu will appear. Press the NEXT SCREEN key, and the System Environment Services Menu appears as in Figure 6-1.

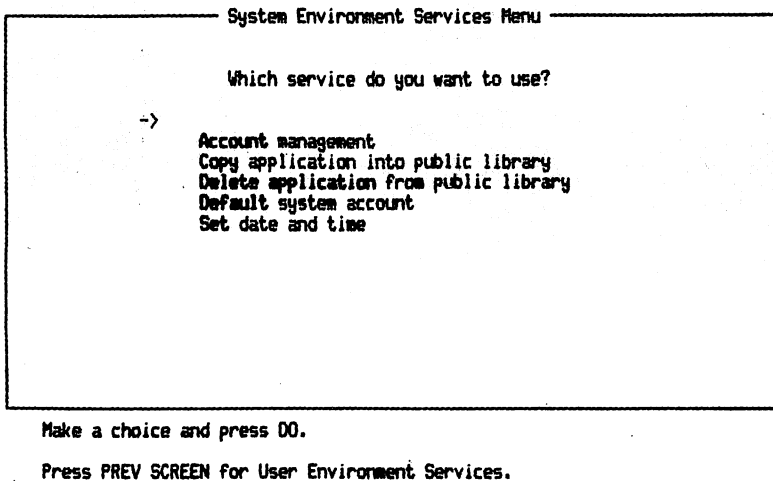


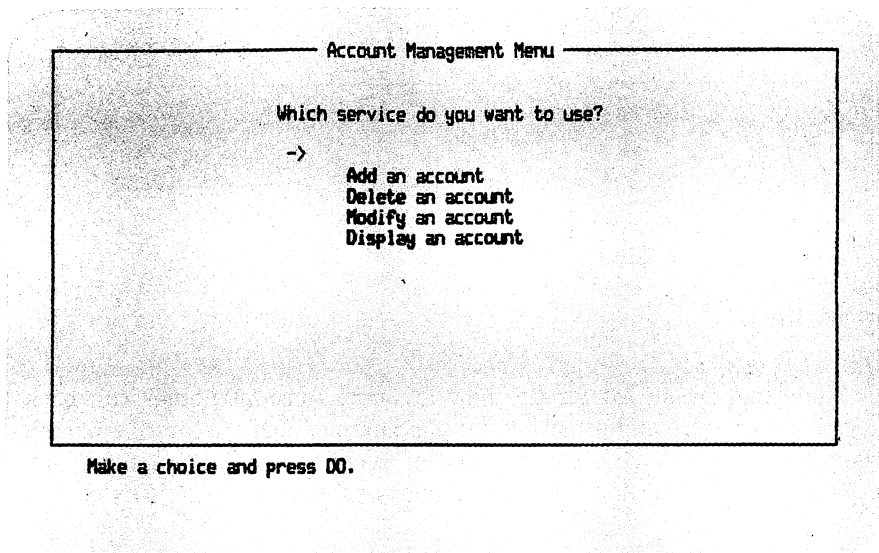
Figure 6-1  
System Environment Services Menu

## ACCOUNT MANAGEMENT

The Account Management program enables you as the system manager to set up and maintain accounts for other (and/or yourself) users on a multiple-account system. Using this program, you can create new accounts, as well as display, modify, and delete existing ones.

**CAUTION:** All information generated by the Account Management is entered into the User Account File. This file is a system file named LB001:[0,0]RSX11.SYS. It is advisable to **back up** this file regularly (preferably whenever it is changed), so that it can be restored, if necessary. If the User Account File were rendered unusable for any reason (and no backup copy existed), users could be permanently barred from logging into their accounts and/or accessing their files. (See Chapter 10 for instructions on backing up and restoring files.)

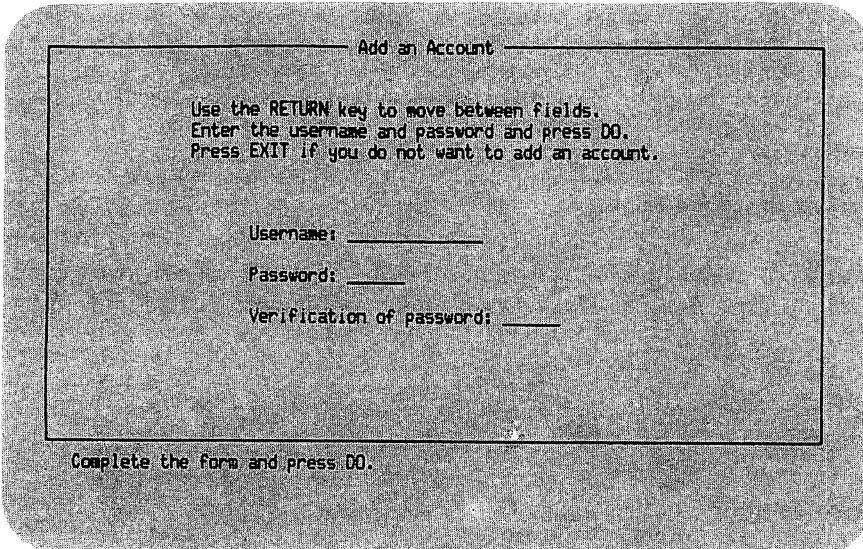
To use the Account Management program, select it from the System Environment Services Menu. The Account Management Menu will appear as in Figure 6-2.



**Figure 6-2**  
**Account Management Menu**

### **Creating an Account**

To create a new account, select "Add an Account." The form in Figure 6-3 appears.



Add an Account

Use the RETURN key to move between fields.  
Enter the username and password and press DO.  
Press EXIT if you do not want to add an account.

Username: \_\_\_\_\_

Password: \_\_\_\_\_

Verification of password: \_\_\_\_\_

Complete the form and press DO.

**Figure 6-3**  
**Add an Account Form**

Enter the name and password for the new account. Account names can be a maximum of 14 characters and passwords, a maximum of 6 characters. Duplicate account names are not allowed. One method of avoiding duplicate names is to use the person's first initial and their last name (example: HJOHNSON).

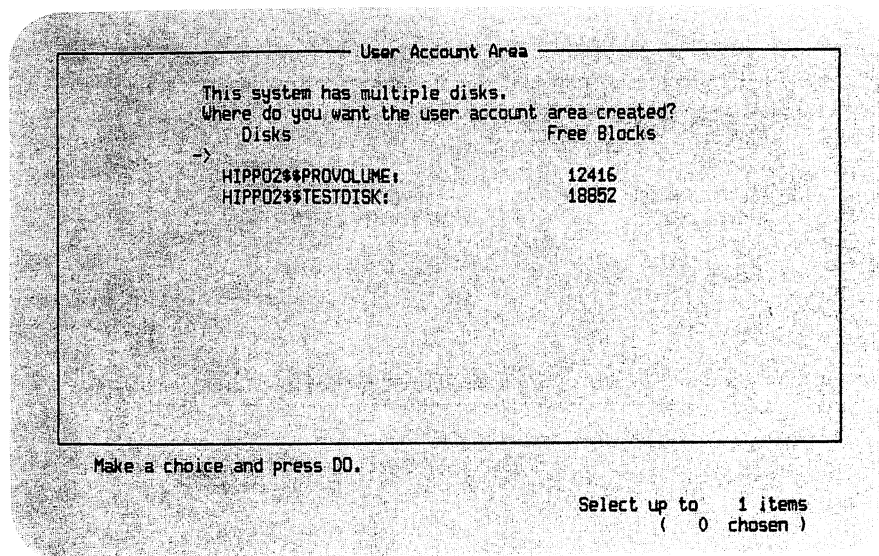
The account name appears on the screen as it is typed, but the password does not. Note that the password entered here is an initial password to create the account only. (Advise the user to change it while logging in.) Enter the password again at "Verification of password." This verifies that there were no typographical errors.

When your entries are complete, press DO. If there are no errors in the entry, it is accepted and the Group List Menu appears.

#### ***Multiple Disks—Placing the User Account Area***

If your Professional has more than one hard disk (called an Expander Box), "Additional Options" appears on the Add an Account Menu. This option enables you to locate the User Account Area on either disk. Each new account has a

User Account Area, which is the logical segment of the physical disk set aside for the user's account. To control the placement of the User Account Area, press the ADDTNL OPTIONS key while the Add an Account Menu is displayed. The Additional Options Menu will appear as the sample in Figure 6-4.



**Figure 6-4**  
**Expander Box Menu**

Choose the disk that you want to store your files on. If you want the system to decide the placement of the User Account Area, just press DO.

**NOTE:** The User Account Area assignment cannot be changed after it is placed.

### Placing the Account in a Group

Next, the Group List Menu appears, providing you with a list of all current account groups and an indication if they are privileged or nonprivileged. The menu in Figure 6-5 shows the initial group list. The "System Manager(s)" and "System User(s)" groups are initial default groups supplied with the system. The System Manager(s) group is where the initial default (SYSTEM) account is located.

You may want to discuss how you group users with them—and possibly with their managers. It may be appropriate to group users by project, department, or function. Grouped users become part of the “Group” classification of users for purposes of accessing each others files. For more information on file protection, see Chapter 5.

```

Group List
-----
Which group do you want to use for the new account?

-> SYSTEM MANAGERS          PRIVILEGED
    SYSTEM USERS           NONPRIVILEGED

Additional options available

Select up to 1 items
( 0 chosen )

```

**Figure 6-5**  
**Group List**

You can place the account in one of the groups on the list, or you can create another one. To place the account in one of the existing groups, place the pointer at the group name and press DO. The account is now completed and added to the specified group. The Add Account Form then appears.

If you want to create a new group for the account, press the ADDTNL OPTIONS key and see the following section on Adding a Group.

**NOTES:** Placing an account into a privileged group makes it a privileged account. Privileged accounts have full access to all files in the system, including P/OS system files and the User Accounts File (containing all user accounts information). Privileged accounts are required to run system management functions, such as those described in this chapter. Normal users should be placed into nonprivileged accounts. Privileged accounts should be limited to those who need them and have the expertise to use them.

Once an account has been added to a group, it cannot be directly transferred to another group. It can be moved only by creating a new account in the new group and deleting the account in the original group.

### Adding Groups

As stated earlier, two account groups initially exist in the system, SYSTEM MANAGERS and SYSTEM USERS. You can create other groups as the need arises. For instance, you may want to create groups and give them appropriate project or department names, such as PAYROLL, TESTING LAB, ANTHROPOLOGY DEPT, etc.

To create more account groups, display the Group List Menu (Figure 6-5) and press the ADDTNL OPTIONS key. The Add a Group Form appears, as in Figure 6-6.

**Add a Group Form**

Use the RETURN key to move between fields.  
 Press EXIT if you do not want to add a group.  
 Enter the group name and indicate whether it is privileged.

Group name: \_\_\_\_\_

Privileged (YES or NO): \_\_\_\_

Complete the form and press DD.

**Figure 6-6**  
**Add a Group Form**

To fill in the form, perform the following steps:

1. Enter the name of the group you wish to add. The group name can be a maximum of 30 characters. Duplicate group names are not allowed.

2. Specify whether or not it is to have privileges (YES or NO ).
3. Press DO to create the group. The Group List Menu will reappear.
4. Now place the pointer to the group in which you want to place this new account and press DO.

The account has now been created and placed into its group. The Add an Account Menu reappears.

### Deleting an Account

To delete an existing account, select "Delete an account." The form in Figure 6-7 appears.

Name an Account to Delete

Enter the username of the account entry to be deleted.  
Press EXIT if you do not want to delete an entry.

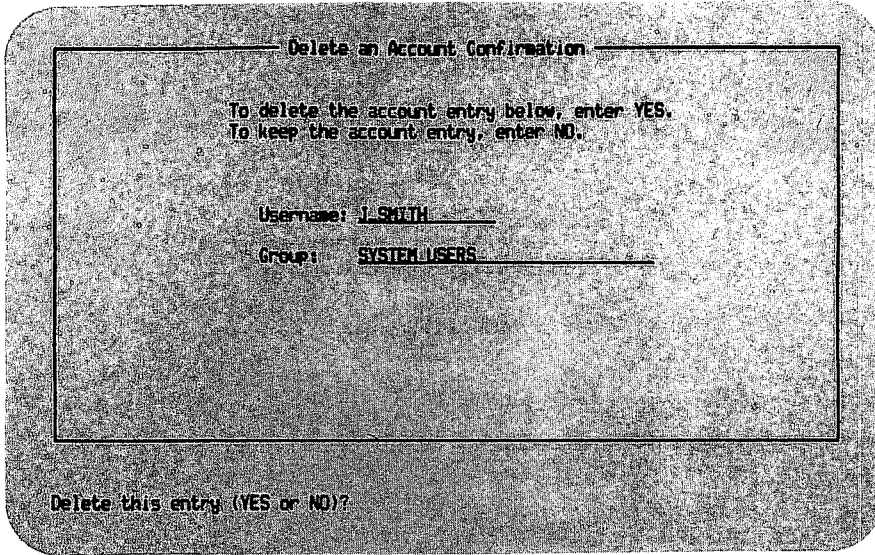
Username: \_\_\_\_\_

Complete the form and press DO.

**Figure 6-7**  
**Name an Account to Delete Form**

**NOTE:** Before deleting an account, back up any important files in the account. See Chapter 8, Copying Files, and Chapter 10 Backing Up Files, for more information.

If the account name does not exist or cannot be deleted, an error message appears. Otherwise, when you press DO, the following display (shown with sample entries) appears, as in Figure 6-8.



**Delete an Account Confirmation**

To delete the account entry below, enter YES.  
To keep the account entry, enter NO.

Username: J. SMITH

Group: SYSTEM USERS

Delete this entry (YES or NO)?

**Figure 6-8**  
**Delete an Account Confirmation**

This form enables you to remove the account from the Accounts File (where all accounts information is stored). If the information on this display is correct, enter YES. Otherwise enter NO to return to the previous form and enter the correct name. When you enter YES, another submenu appears, as the example in Figure 6-9.

**Delete User Files**

The account entry has been deleted from the account file.  
Do you want to delete the user's files?

User account area: PROD#PROVLINE:CJSMITH.J

Do you want to delete this area? (YES or NO)     

Complete the form and press DO.

**Figure 6-9**  
**Delete User Files Form**

Since you have already removed the user's account record, you can use this form to delete the files that existed in the account. To do so, enter YES. If you enter NO, the user's account files will remain on the system. Enter the appropriate answer. If you answer YES, the files are deleted. The Name an Account to Delete Form then reappears. Press EXIT to return to the Account Management Menu.

**Modifying an Account**

Use "Modify an Account" from the Account Management Menu to change the password of an existing account. When you select it, the menu in Figure 6-10 appears.

Name an Account to Modify

Enter the username of the account entry you want to modify.  
Press EXIT if you do not want to modify an entry.

Username: \_\_\_\_\_

Complete the form and press DO.

**Figure 6-10**  
**Name an Account to Modify Form**

Enter the account name to be modified and press DO. If the account does not exist, an error message appears. Otherwise, the form in Figure 6-11 (shown with sample entries) appears.

**Modify an Account Form**

Use the RETURN key to move between fields.  
Enter the new password and press DO.  
Press EXIT to leave the entry unchanged.

**Username:** MJONES

**Group:** SYSTEM MANAGERS

**New password:** \_\_\_\_\_

**Verification of password:** \_\_\_\_\_

Complete the form and press DO.

**Figure 6-11**  
**Modify an Account Form**

This menu allows you to change the account's password. It is provided for system protection (for instance, to change the password of accounts of terminated employees) and to allow you to assist users who may have forgotten their password. Unless special circumstances exist, however, you should not change a user's password without his/her knowledge.

To change the account password, enter the new password at "New Password" and again at "Verify Password." When you press DO, the operation is completed.

### **Displaying Accounts**

To display information about an account, select "Display accounts" from the Account Management Menu. The form in Figure 6-12 appears.

Name an Account to Display

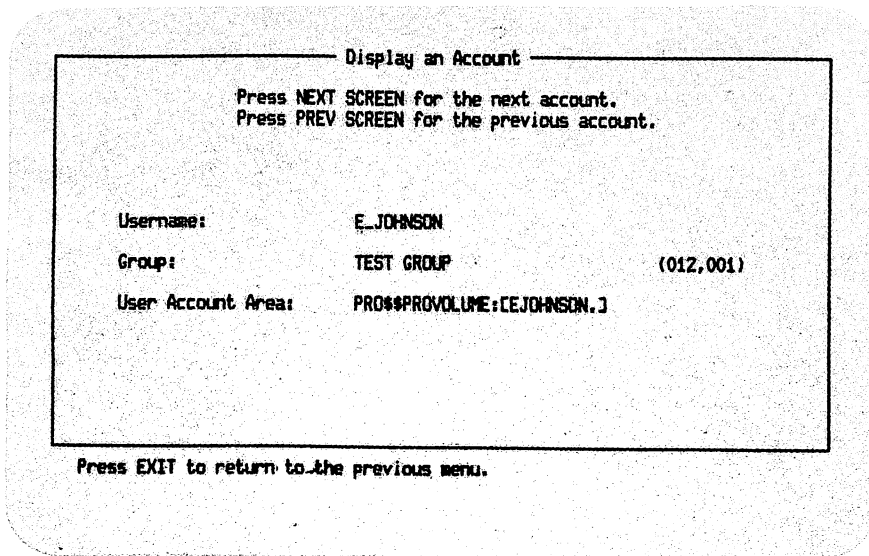
To display all accounts press DO.  
To display a specific account enter the username and press DO.  
Press EXIT if you do not want to display an account.

Username: \_\_\_\_\_

Complete the form and press DO.

**Figure 6-12**  
**Name an Account to Display Form**

To display the information about a particular account, enter the account name. If you do not know the account name, press DO to display the information for the first account. Press NEXT SCREEN to display the information for each succeeding account (press PREV SCREEN for previously displayed accounts) until you reach the display you want. After displaying the account, press EXIT to return to the Name an Account to Display Form. The account information will be displayed on the screen, as shown in Figure 6-13.



**Figure 6-13**  
**Account Information Display Example**

The menu items are defined as follows:

- Account Name—The name of the account.
- Group Name—The name of the group the account is in.
- User Account Area—This shows the name of account's volume, and its root or home directory (which is the same as the account name).

## **COPYING APPLICATIONS TO THE PUBLIC AREAS**

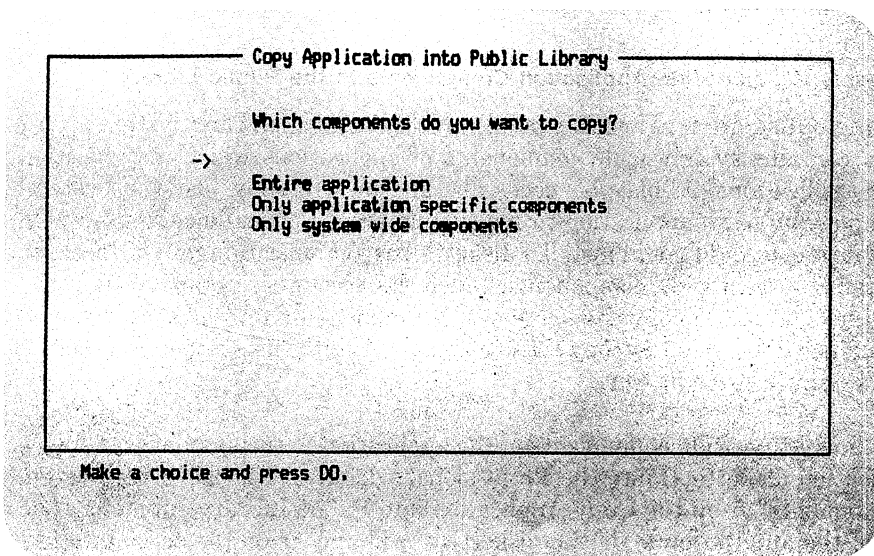
Using the System Environment Services Menu, the system manager is able to copy applications from a diskette to the disk's application library. These applications are thus made available for individual users to copy into their private accounts. Besides allowing for individual account areas, the disk space on your Professional allows the creation of publicly-accessible areas which any account on the system can access (public library and system areas). These public areas can be used to maintain single copies of applications or other data that all users can share.

**CAUTION:** Some applications have piracy protection features that disallow copying. The application should notify you of this. Also, copying an application to a public library may be a violation of copyright laws in some cases. Unless the application diskette specifically tells you to copy the application to the public library, you should not do so.

To copy an application into a public area, do the following:

1. Insert the application diskette into the diskette drive.
2. Choose “Environment services” from the P/OS Main Menu. When the User Environment Services Menu appears, press the NEXT SCREEN key. The System Environment Services Menu will appear.
3. Choose “Copy application into public library.”

The submenu in Figure 6-14 then appears.



**Figure 6-14**  
Copy Application into Public Library Menu

### Copying the Entire Application

P/OS applications typically consist of two types of components: those specific to the application and those shared by the system. To copy both components to

the public library, choose "Entire application." When you do so, a submenu appears, listing the name(s) of the application(s) found on the diskette. Choose the name of the application you want to install. It will be copied to the public library.

Some applications may require you to restart the Professional after copying them.

### **Copying only Application Specific Components to the Public Library**

It may be necessary at times to copy only an application's specific components (excluding the system-wide components) to the library. If, for instance, the application's system-wide components already existed on the system (perhaps shared by another application), it could cause problems if you copied those components again. In this case, choose "Copy only application specific components" from the Copy Application submenu. The application's nonsystem-wide components will be copied to the library.

### **Copying only System Wide Application Components to the Public Library**

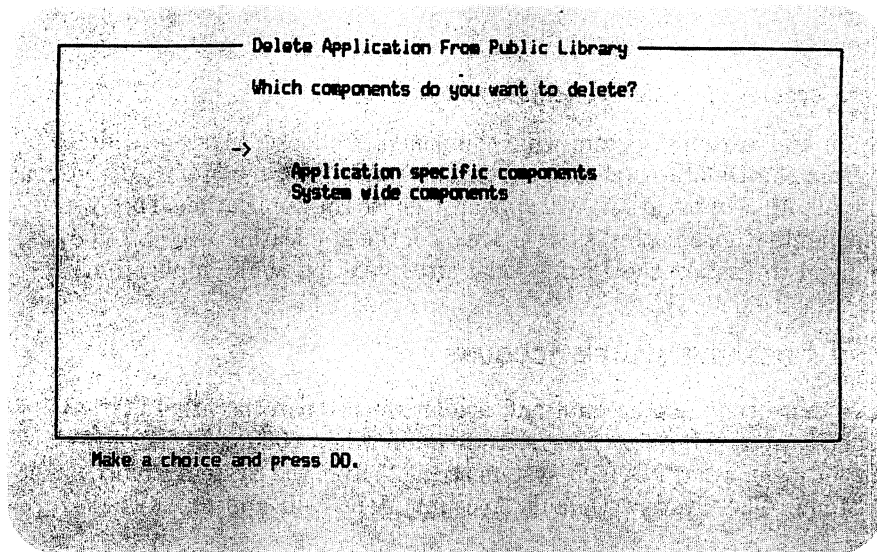
Besides the public library, another public area exists, called the "system area." This area contains system-wide components of applications which may be used by other applications. It may be necessary at times to copy just the system-wide components of an application to the system area. For instance, a user with a nonprivileged account could install a diskette-based application into his account that contains system-wide components. Since the account is nonprivileged, the user will not be able to copy the system-wide components into his account. The system manager will need to copy these components into the system area before the user's application will work.

To copy the system-wide components of the application to the system area, place the application diskette(s) into the Professional's drive(s). Choose "Only system wide components" from the Copy Application into Public Library submenu. The name(s) of the application(s) on the diskette(s) will appear on the screen. Select the application and press DO. The components will be copied. Some applications may require you to restart the Professional after copying them.

### **DELETING APPLICATIONS FROM THE PUBLIC LIBRARY**

For purposes of freeing up disk space, applications that are no longer used should be deleted from the public areas. To do so, choose "Delete application

from public library” from the System Environment Services Menu. The submenu in Figure 6-15 will appear.



**Figure 6-15**  
**Delete Application from Public Library Menu**

**CAUTION:** Exercise great care in deleting any portion of an application from a public area. Doing so makes the application unusable for all users on the system.

When deleting applications from the public library, you must decide whether to delete the application-specific components (from the library), or the system-wide components (from the system area). Note that both public areas may contain components that are shared by all users of the application, so deleting it from either area will render the application useless.

### **Deleting the Application Specific Components**

To delete the application-specific components of an application (those existing in the library), choose “Application specific components.” A list of applications (on all available volumes) will appear on the screen. Choose the application you want to delete. The application will be removed from the library, making it no longer functional for users on the system.

**CAUTION:** Any application you attempt to delete from the library will inform you if it has system components. Before deleting these components, be certain no other users need the application, because the application will not work.

### Deleting the System Wide Components

To delete an application's system-wide components, choose "System wide components" from the Delete Application from the Public Library Menu. When you do so, a list of public applications will appear. Choose the application. The system-wide components (those in the "system area") of the application will be removed. You may need to restart the Professional after deleting some applications.

### SPECIFYING A DEFAULT SYSTEM ACCOUNT

If you have more than one account and use one more than the others, you may want to specify an account for the system to enter when you log in. To designate an account for login, select "Default system account" from the System Environment Services Menu. The System Default Account Menu will appear as in Figure 6-16.

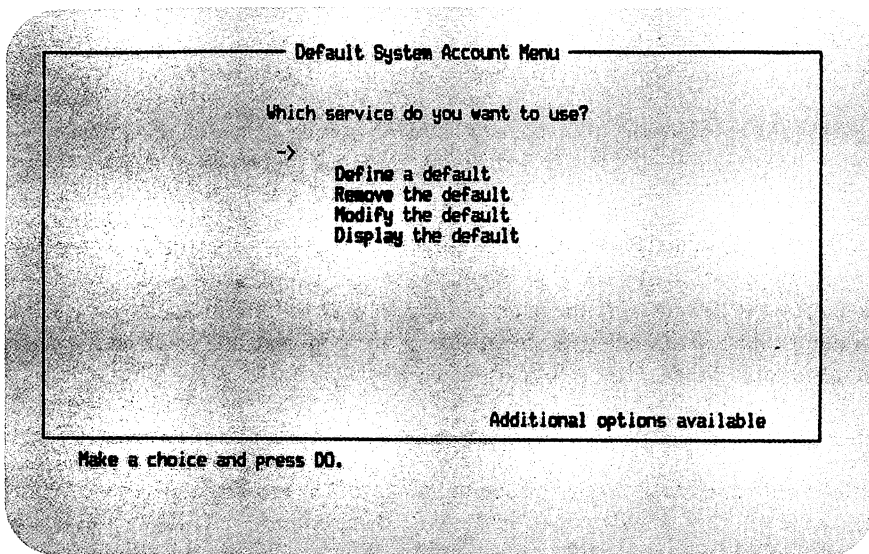


Figure 6-16  
Default System Account Menu

### Defining a Default System Account

To specify a default system account, choose “Define a default” from the Default System Account Menu. The menu will appear, listing your accounts on the system. Choose the account you want as a default.

After you specify a default system account, the prompts on your Login Message (described in Chapter 3) will appear as follows:

```

      Press a key to log in.
Or, Press DO to log into the default account.

```

If you press DO, you will automatically be logged into the default system account you have specified here (bypassing the login procedure). If you press another key, the Login Form will appear.

**CAUTION:** The default system account specified applies to all users on the Professional, and has no password protection. Any user can start up the Professional and press DO to enter this account. The default system account should contain only those files that all users may rightfully have access to. Other files should be provided with adequate protection, and kept in accounts protected by a password. (See Chapter 5 for more information.)

### Removing a Default System Account

If you want to remove (or change) the account you are currently using as a default, choose “Remove the default” from the Default System Account Menu. The username and (undisplayed) password will appear with the prompt:

```

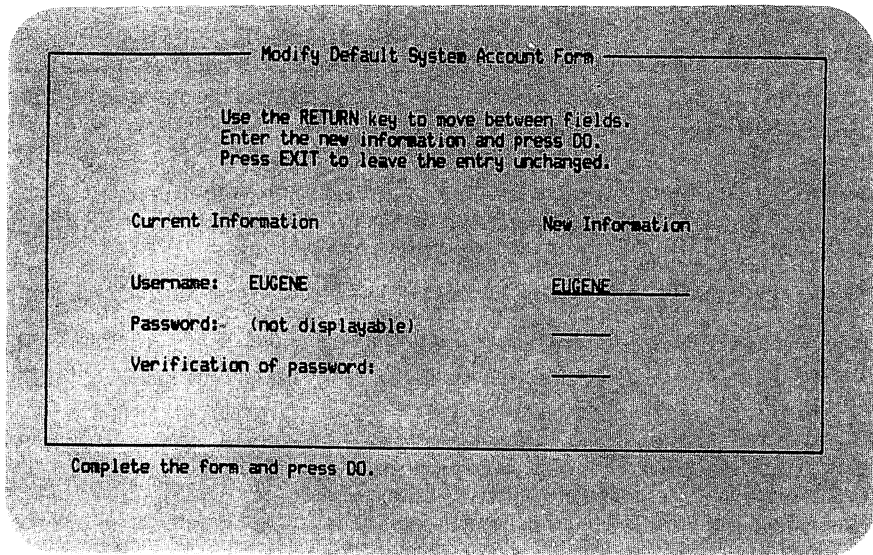
Remove this default (YES or NO)?

```

If you enter YES, the account is removed. If you enter NO, the menu is exited without changing the account.

### Modifying a Default System Account

To modify your current default system account, choose “Modify the default” from the Default System Account Menu. A menu will appear, as in Figure 6-17.

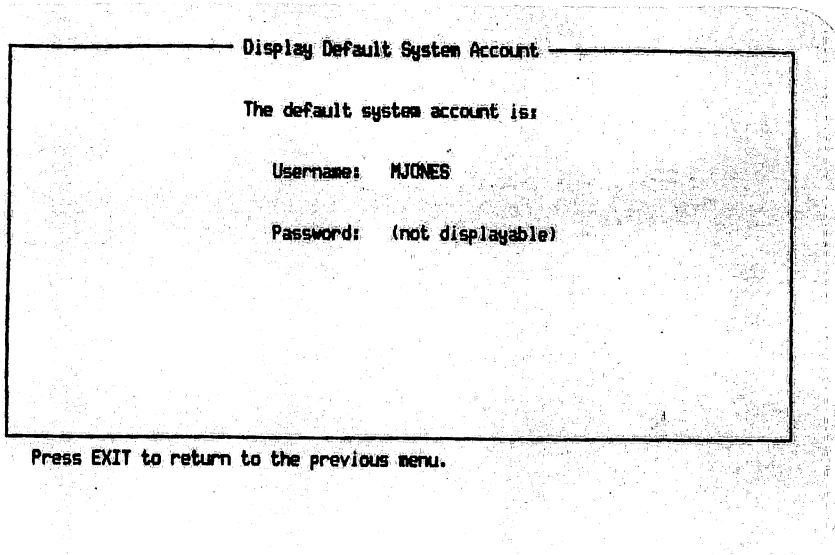


**Figure 6-17**  
**Modify Default System Account Form**

You can change the account name and/or password if you wish. If you enter a new password, enter it again at "Verification of password." When you press DO, your changes will take effect.

### **Displaying the Default System Account**

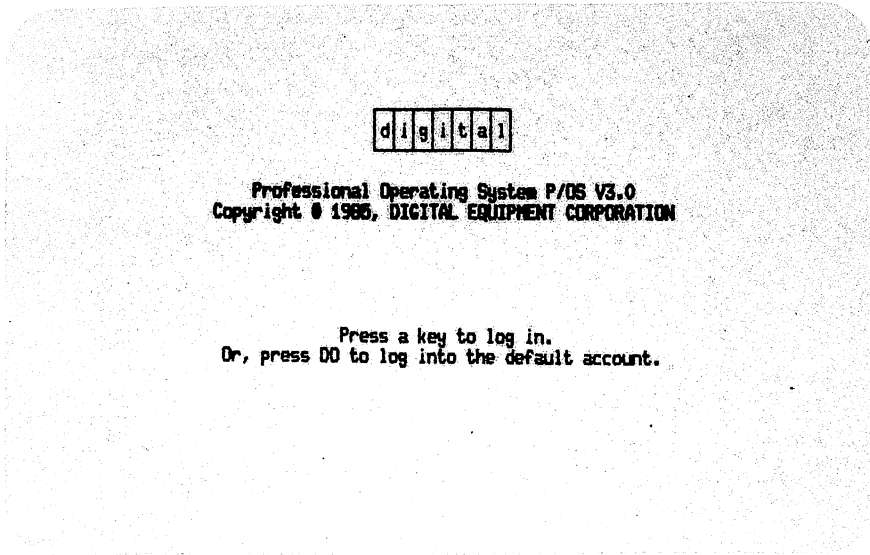
To display your current default system account, choose "Display the default" from the Default System Account Menu. The name and (undisplayed) password of your default system account will appear as in Figure 6-18.



**Figure 6-18**  
**Default System Account Display**

### **Enabling/Disabling the Login Message**

When you turn on your Professional or log out of your account, the Login Message in Figure 6-19 appears.



**Figure 6-19**  
**Login Message**

An additional option on the Default System Account Menu is to disable (or enable) this login message. If it is disabled, the Login Message will not appear when you start up your Professional. The Login Form will appear instead (unless you have a default system account defined. See the following note.) To disable or enable this message, display the Default System Account Menu and press the ADDTNL OPTIONS key. The submenu offers you the choice of enabling or disabling the message. Make the appropriate choice.

**NOTE:** It is possible to disable the Login Message and also specify a default system account (described in the previous section). If you do, you will automatically be logged into your default system account whenever you turn on your Professional or log out of any account.

## **SETTING THE DATE AND TIME**

Use "Set date and time" if the date or time displayed on your Message/Status display is not correct. For example,

- If you move the Professional to a time zone requiring a date and/or time change.
- If the battery that runs the time and date clock has lost its charge. This situation would occur if the power to the Professional was left off for a long period of time. (The Professional normally keeps track of the date and time even when the power is off.)

When you select “Set date and time,” a form appears requesting the new date and time. Follow the directions on the form. When entering the hour, use 24-hour time with 00:00 as midnight. For example, if it is 3:45 p.m., enter 15:45 for the hour.

When you press DO, the Professional time and date clock is reset to the date and time you entered. However, any new setting applies to the entire system, thus applying to all accounts in a multiple-account system.

# 7

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## Introduction to the P/OS Files System





## Chapter 7

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### Introduction to the P/OS Files System

This chapter provides you with a basis for using the P/OS files system. You should read it through before using File Services, which is described in Chapter 8. If you are not familiar with computer files, you should also read *Hard Disk System for Beginners*.




#### **CREATING FILES IN P/OS**

All information in computers is stored in files, which are named and grouped into directories. You create files in P/OS by using P/OS File Services, or applications such as PROSE, PRO/EDT, *PRO/BASIC*, PRO/Communications and other applications. P/OS file names must be one to nine characters long (letters A–Z and/or numbers 0–9 only).

#### **File Storage (Volumes)**

Files take up space on your Professional. P/OS stores a file by placing magnetic signals on the disk or on a diskette in somewhat the same way as sounds are put on a cassette tape. The Professional reads the signals and translates them to characters you can understand.



P/OS calls the disk and diskettes volumes. Each diskette has a volume name, assigned by those who first place files on that diskette (for example, the people who made the applications or you). The volume name for the hard disk in your Professional is already assigned by P/OS as PROVOLUME.

Before you create a file, decide what volume you want P/OS to store it on. Experience will teach you how much space you need for a file and how to organize your files. Later in this chapter, there is a more detailed discussion of file size.

When you first use a diskette, it must be **initialized** and given a volume name. Initializing is a process by which P/OS makes the diskette ready for you to use. Sometimes P/OS can initialize a diskette automatically, but in many cases you need to initialize your diskette using the “Initialize” feature on the File Services Menu. Initialize your personal diskettes as soon as you know what kind of files you want to put on them.

The diskette volume name must be one to twelve characters. Each volume should have a different name.

### **Reserved Volume Names**

There are several names that are reserved for P/OS and P/OS applications. Do **not** use the following names for your personal diskettes.

PROGDISK	LB0	TT
PROVOLUME	LB00	TT0
DISKETTE1	L400	TT00
DISKETTE2	PLP	TT000
DW1	LP0	TT1
DW01	LP00	TT01
DW001	LP000	TT001
DZ01	SHnnn	USERDISK
DZ001	SY	XK
DZ2	SY0	XK0
DZ02	SY00	XK00
DZ002	SY00	XK000
DZ2	SYSDISK	XT
DZ02	TI	XT0
DZ002	TI0	XT00
FRnnn	TI00	XT000
LB	TI000	

Table 7-1 illustrates volume names. Those in lowercase are just examples, you name your own diskettes.

**Table 7-1**  
**Example of Volume Names**

<i>Volumes</i>	<i>Names</i>
disk	PROVOLUME
diskette a	myvolume
diskette b	reports
diskette n	memos

Application diskettes are named by those who created the application.

In addition to volume names, the disk and diskettes are named by the hardware drive (*device*) that contains them. These device names are listed in Table 7-2:

**Table 7-2**  
**Device Names**

<i>Device Name</i>	<i>Refers to</i>
DISKETTE1	The first (top) diskette slot
DISKETTE2	The second (bottom) diskette slot

Your Message/Status display, for instance, refers to the disk and diskettes by device name.

### **File Grouping (Directories)**

On each disk or diskette, P/OS files are grouped into directories. See *Hard Disk System for Beginners* if you are not familiar with computer directories and how they work. Your system disk initially has the following directories.

**USERFILES** This is the directory initially set up as your default directory. When you first install P/OS, this directory is empty. If you create files using PROSE, PRO/BASIC, or any service, the files are stored in this directory unless you create more directories.

**ZZxxxxxxx** A number of directories contain P/OS system and application files. Most of these directories begin with the letters ZZ. There are also four other P/OS

system directories: 000000, 001001, and 001002 001005. Applications are stored in directories beginning with the letters ZZAP. **You should not create or change files in any of these directories.** If you do, you could destroy P/OS or your application.

You can create other directories on your disk by using the "CreateDirectory" feature on the File Services Menu. You can also delete these directories later if you wish, but you should not delete "ZZ" directories, except by removing applications or reinstalling P/OS. Also, you should not delete system default directories, such as [USERFILES].

As you begin using your Professional extensively, you may want to think about the types of files you are creating, and set up directories for groups of related files. For example, if you plan to do payroll periodically, you could keep all your payroll files in a directory called PAYROLL. If you plan to write memos, you could keep them in a directory called MEMOS. It is usually advisable to keep the number of files in each directory to less than 50 and to keep files you create using different applications in different directories.

Directory names have one to nine characters (letters A–Z and/or numbers 0–9 only). Each directory on a volume must have a unique name. Under normal circumstances, you should not create directories with names that have just numeric characters or that begin with the letters ZZ, since these names may conflict with P/OS system directories.

### File Types

Besides grouping files in directories, P/OS also identifies files by the following types:

- BASIC program
- Data
- Document
- Text
- Other

Files have types based on their use. The PRO/BASIC application runs *BASIC* program files (.BAS). Data files (.DAT) contain data for your programs. You

create Document (.DOC) files with the PROSE editor. BASIC program, Data, Document, and Text (.TXT) files are all types you can create, edit, delete, and so on.

“Other” refers to any file type other than BASIC program, Data, Text, or Document. These types all have the format XXX, where XXX can be one to three numbers (0–9) and/or letters (A–Z).

Sometimes a service or application assumes a default file type. For example, PROSE assigns its files as .DOC (Document) unless you specifically change the type. If you create a BASIC program using PROSE, you have to explicitly change the file type to .BAS either when you exit the editor or by using the “Modify” option on the File Services Menu.

P/OS system files have file types such as .SYS (system), .TSK (program), and .FLB (forms). Many of these files are installed on your disk during the P/OS installation procedure. Others are installed with applications. You should not create these types of files, or change existing ones. You can see them listed in the system directories.

If you have PRO/Communications installed, you can transfer files from other computers to your Professional and vice versa. These files may have different types from those described here. Files from PDP-11 or VAX computers will have types of the format on one computer as on another. For information about transferred files, see the *PRO/Communications User's Guide*.

### **File Size**

Files vary in size and are measured in *blocks*. A block is the amount of space needed to store 512 characters, or *bytes*. A byte is a storage space big enough for one character. For example, if you write a 600-character memo, each of those characters is stored in a byte. Additional bytes are needed to indicate blank spaces, paragraph breaks, and other information P/OS keeps on that file. The total space used for your memo might be about 660 or more bytes—or somewhat over one block. P/OS does not use fractions of blocks, so the file size for your 600-character memo is actually two blocks. Therefore, for every file, some unused space is assigned. The amount varies, but averages approximately one half block per file.

### **Diskette Files**

A Professional diskette has room for about 800 blocks. Some of that space is used to format (initialize) the diskette, leaving about 750 blocks available for

use. An individual file can use all or part of this diskette space. If you are creating a file on a diskette and run out of space, you can either break up the file into smaller files, or copy the file to the hard disk and make it larger there.

### **Disk Files**

A file created on a hard disk can take up as much space as there is available on the disk. Hard disk sizes are usually expressed in millions of bytes, or *megabytes* (MB). Available for the Professional are 5-, 10- and 33-megabyte hard disks. The total number of blocks on the your hard disk depends upon its size. The 5MB disk has 10,000 total blocks, the 10MB disk has 20,000, and the 33MB disk has 66,000 blocks. Since P/OS and any applications you have installed use some of this capacity, it is not entirely available for your use. You can always determine the amount of available disk space by using the Message/Status display, which is described in Chapter 4.

Diskette sizes are often expressed in thousands of bytes, or *kilobytes* (KB). A Professional diskette total capacity is 400 kilobytes.

It is important to be aware of the amount of free space you have on your disk and on any diskettes you are actively using. While you are editing a file, PROSE keeps two copies of it on the disk, so check your Message/Status display periodically to make sure there is adequate free space on the disk. When free space is low, it is usually an indication that the time has come to do some "housekeeping" to free up more space on the disk. You should check through your directories and delete outdated and unnecessary files, purge all but the most recent versions of files, copy seldom-used files to storage diskettes and delete them from the disk. Also, since disk space is utilized more efficiently with smaller files, it may help to divide very large files into several small files.

Set up your Professional to fit your needs best. If you plan to create a lot of files that you want to remain on the disk, then plan ahead to allow room there for your files.

### **File Versions**

When you edit a file with an editor or change a BASIC program or any other file, the previous version of that file is saved. The standard listing displays only the latest version of each file (File Services also enables you to display all versions of each file). You can change a file many times—thousands of times, if you want to. Your previous versions are saved unless you specifically delete them. The "Cleanup" feature on the File Services Menu enables you to automatically delete all but the latest version of a file.

It is a good idea to frequently delete old versions of files, especially large ones (10 or more blocks) to free up your disk space.

## PROTECTING FILES

This section describes ways of maintaining the integrity of files:

- Backing up files
- Preventing accidental file deletion
- Using *write-protect tabs* on diskettes
- Unlocking locked files
- Watching the active light

### Backing Up Your Files

To back up a file is to make an extra copy on a diskette and then store it away. To back up a disk file, use the (Files) “Copy” feature on the File Services Menu, which is described in Chapter 8. If the file is too large to fit on one diskette, use the Backup/Restore program described in Chapter 10. To back up a diskette file, use the (Files) “Copy” feature in File Services. To back up all files on a diskette, use the (Volumes) “Copy” feature in File Services.

Backing up files is important for the following reasons:

- You can accidentally delete files or parts of files. For example, you can sometimes damage files by pulling diskettes out at the wrong time, by choosing the wrong function, or by turning off the power at the wrong time.
- A power failure or accidentally pulling out the power plug can damage your files.
- Diskettes wear out. An average diskette can, if used continuously for 8 hours a day, 5 days a week, run for about 5 months before developing problems caused by wear. (That is, a diskette can run quite safely for about 830 hours if it is performing reads and writes 30% of the time.) If you use a diskette longer than this time, it begins to develop “bad blocks,” or regions that cannot be used to store information. Bad blocks cause errors in reading and writing information. (If you reinitialize these diskettes, P/OS will check for bad blocks, and will not store any information in those blocks. This

offers a way of extending the life of a diskette, when necessary. However, the reinitializing procedure erases all files on the diskette. Also, when bad blocks begin to appear on a diskette, it is usually advisable to transfer the contents to another diskette. You can use the "Copy" (Volumes) feature described in Chapter 8 to do this, or the Backup/Restore program described in Chapter 10.)

- Diskettes can become damaged. A damaged diskette can lose some or all of its information.
- The disk, though highly reliable, can also be damaged. If this should happen, you can replace the disk, but unless your files are backed up they will be lost.

The P/OS diskettes you bought with your Professional are your backup for the P/OS system files. Each time you buy an application, save the diskette it came on as your backup.

When you create or edit an important file on your disk, you can back it up by using "Copy" (Files) in File Services. To back up many files or an important volume, use the Backup/Restore program described in Chapter 10. Keep your backup copies on a separate labeled set of diskettes. Since you generally need only the most recent copies of a file as backup, you can rotate your backup diskettes, reinitializing old sets of backup diskettes (containing obsolete files) for new backups.

If you try to back up a disk file to a backup diskette without enough room for the file, a message tells you what to do. To back up a very large disk file, you must use several backup diskettes.

If you discover that a file has been damaged, try using another copy, if you have made one, or perhaps a recent version. If you have copied it with the Backup/Restore program, restore it with procedures described in Chapter 10. You can only restore disk files that have been backed up. If the damage was done before the most recent backup was made, you may find that you have to go back a version or two to get a good backup copy.

### **Preventing Accidental File Deletion**

You can protect files from accidental deletion using "Modify" (Files) described in Chapter 8. When you protect a file against deletion, no one can delete the file without first changing its protection.

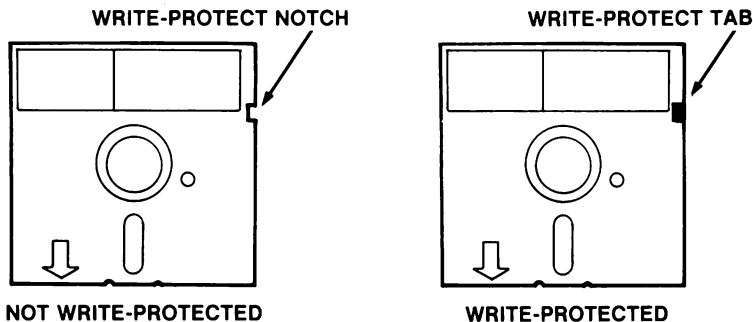
File protection is especially useful for data files that you do not want disturbed. Anyone with access to your account can change the protection of any file. Anyone with a Professional can insert your diskettes into any other Professional and access your personal files.

To protect your files completely, you need to prevent other people from accessing your account and lock up your diskettes.

### Using Write-Protect Tabs on Diskettes

Special adhesive tabs called write-protect tabs (Figure 7-1) are available for diskettes. If you stick these tabs on the write-protect notch on a diskette (see *Hard Disk System for Beginners*), the Professional hardware will not allow you to create, change, or delete any file on that diskette. The tabs are removable.

Do not use write-protect tabs on the volume labelled PROSYSTEMV3, or PRO SYSTEM OVERVIEW V3.0. These diskettes, which are provided with your Professional, will not work if they are write-protected.



**Figure 7-1**  
Write-Protect Tab on Diskette

### Unlocking Locked Files

A locked file is one that you cannot access because P/OS has taken it out of your control. Files can become locked if an application or program you are running stops suddenly, leaving open any files it was using. For example, files can become locked:

- If you press INTERRUPT and then DO while an application is operating.

- If an application terminates abnormally.

(In normal operation, the application or program “closes” files and then stores them.) Suspect a locked file if, when you try to use a file, a message appears, indicating that the file is locked or unavailable. To determine if a file is locked, see *Displaying More Information About Your Files*, and *Modifying Files* in Chapter 8.

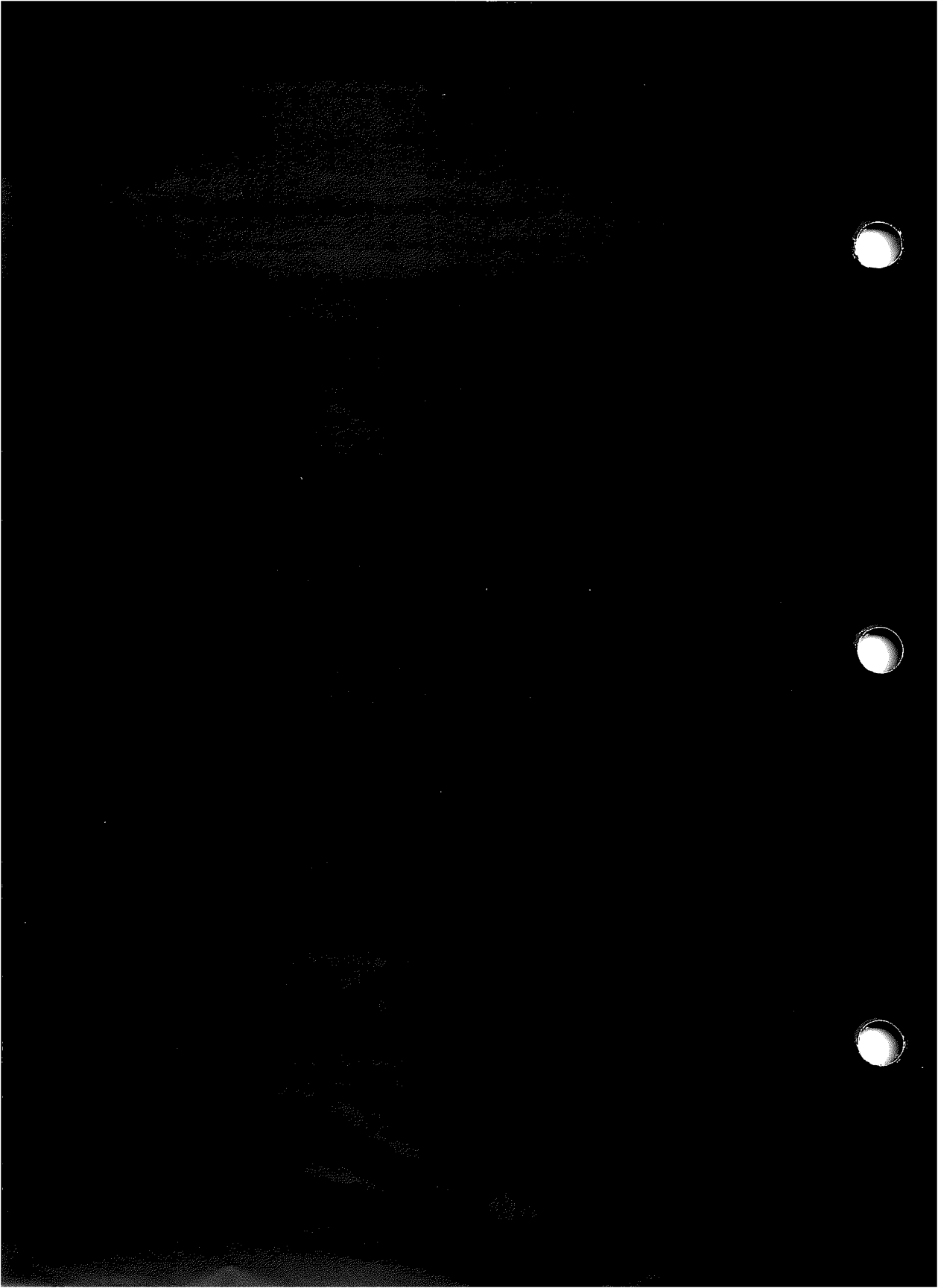
To unlock a locked file, see *Modifying Files* in Chapter 8. Sometimes, even after a file is unlocked, it is unusable. In this case, you have to use a recent version of the file or a backup copy.

### **The Active Light**

When P/OS is accessing a diskette, a small light goes on next to the diskette drive slot containing the diskette. Do not remove the diskette while this light is on; wait until the function in process has completed. When you are backing up or restoring files to more than one diskette, wait until a message tells you to remove a diskette.

8

File Services






## Chapter 8

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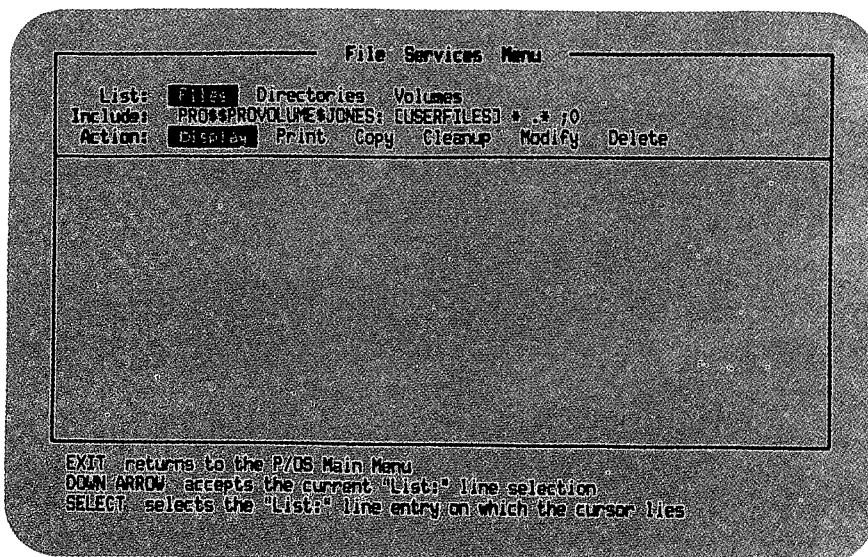
### File Services

To use your Professional effectively, you must use files effectively. P/OS File Services provides you with the necessary tools for managing your files, directories and volumes, which hold all information stored on your Professional.



This chapter instructs you in using P/OS File Services. If you are not familiar with DIGITAL's file systems, you should read *Hard Disk System for Beginners* as well as Chapter 7 in this book, Introduction to the P/OS Files System before proceeding with this chapter.

To display the File Services Menu, you select "File services" from the P/OS Main Menu. The File Services Menu appears as in Figure 8-1:



**Figure 8-1**  
**File Services Menu**

## THE FILE SERVICES MENU

Most File Services submenus are organized like the main File Services Menu.

- The blinking cursor indicates your current position on the menu.
- You control this position by using the ARROW keys.
- In each menu area where selections can be made, current selections are highlighted.
- You change or add selections by moving the cursor to the entry you want and pressing SELECT. (For your convenience in the upper portion of the menu, pressing DO or RETURN is equivalent to pressing SELECT.)

You perform the various functions in File Services by building lists of objects (Files, Directories, or Volumes), selecting the specific object(s) in the list on which you want to perform an action, and selecting the action. Then, after confirming that the screen is correctly set up for the function you want to

perform, you initiate the action by moving the cursor into the *list box* and pressing DO.

### The Four Menu Areas

There are four separate areas on the menu: the List line, the Include line, the Action line, and the list box. They work together to assist you in performing various File Services as described in the following sections.

#### The List Line

On the List line you specify what kind of objects (Files, Directories, or Volumes) you want to work with. If you want to change the List line selection, move the cursor to the appropriate entry on the line and press SELECT.

Whenever you do this, the rest of the menu changes to display the options that apply to the type of object you chose, and the list box area is cleared to prepare for a list of these objects. The cursor advances automatically to the Include line.

#### The Include Line

On the Include line, you control which objects of the type (selected in the List line) will appear in your list. Enter any desired changes to the information displayed, and press SELECT.

It is seldom necessary to change the Include line, but is often more efficient than other means of accomplishing the same result. The format and use of the Include line vary according to what you are doing.

The Include line on your Professional might appear as:

```
PRO$$USERDISK$JONES: [USERFILES] *.*;0
```

This specification has three basic elements: your default volume, your default directory, and a files listing specification (\*.\*;0), all of which displays in the following format:

```
volumename: [directoryname] filename .filetype ;fileversion
```

Each element, (except the file name) has a special identifier. At the end of the volume name it is a colon (:). Around the directory name there are brackets ([ ]). Before the file type is a period (.). Before the file version is a semicolon (;). When entering these elements, you must include these identifiers, to identify to the system which element you are changing. If you enter more than one element, they must be in the order indicated.

If you are generating a "Volumes" list, the Include line is blank, because all available volumes are included in the list automatically. (DECnet volumes are an exception to this.)

You can change any elements of the specification that you can see on the Include line. When specifying a Files list for instance, you can change the volume, directory, or type of files list. When specifying a Directories list, you can specify which directory and the volume as well.

Using the Include line, you can also list the type of files listing you want to display. This is explained later in this chapter under the sections entitled, Listing All File Versions and Displaying More Information About Your Files.

Whenever you specify a new Include line, the list box area is cleared to prepare for the new list you have defined, and the cursor advances automatically to the Action line.

After you become familiar with using the Include line, you can use it in more effectively. Ways of doing so are described later in this chapter in the section entitled Advanced Use of the Include Line.

### ***The Action Line***

On the Action line, you specify the action you will want to perform on the entries you select in the list box. If you want to change the Action line selection, move the cursor to the appropriate entry on the line and press **SELECT**.

When you specify an action, the cursor advances automatically into the list box.

### ***The List Box***

The list box is initially empty. When you move the cursor into it, either by selecting an action or using the ↓ key, the list you specified in the List and Include lines appears there and remains available for your use until you make another List or Include line decision.

You specify which entry or entries in this list you want to perform an action on by moving the cursor to each and pressing **SELECT**. You can deselect all your choices by pressing **CANCEL**. (If you have not selected any items in the list box, pressing **CANCEL** selects all of them.)

### Performing File Services Functions

You can always determine what action you are about to perform, and what object(s) it will be performed on, by looking at the Action line and the list box to see what is currently selected. If they do not reflect exactly what you want, you can easily change them. When all areas of the menu are correct, press DO (with the cursor in the list box) to initiate the action. Each action is described in detail in this chapter.

When you press DO to execute the action, further forms and submenus may appear. This depends upon the action chosen.

You can leave File Services, or any of its submenus and forms, by pressing the EXIT key.

#### **Sample Session: Displaying and Deleting Files**

Suppose you want to Display (read the contents of) one of your text files in your normal working area (your default volume/directory). After specifying File Services on the P/OS Main Menu, the File Services Menu appears:

1. The cursor appears on the List line, with “Files” already selected. Since that is what you want, press the ↓ key.
2. The cursor moves to the Include line, which is already set up to list files in your usual working area (this is your default directory, and is explained later). Press the ↓ key again.
3. The cursor moves to the Action line, with “Display” already selected. That is what you want, so press the ↓ key a third time.
4. The cursor moves into the list box, and shortly thereafter a list of the files in your working area appears there.
5. Use the ARROW keys to move the cursor to the file you want to read, then press SELECT.
6. Press DO to begin reading the file.
7. When you are finished looking at the file, press EXIT to return to the File Services Menu.

Now, suppose that after reading the file you decide that it is obsolete and want to Delete it.

8. After you have finished steps 1–7 above, the File Services Menu is on the screen with the file you just displayed still selected.

9. Since you now want to delete the file, use the **ARROW** keys to move the cursor to "Delete" on the Action line.
10. Press **SELECT**. "Delete" will be selected on the Action line, and the cursor will return into the list box. The file you previously selected (in the steps above) is still selected.
11. Press **DO** to delete the file. A prompt will ask you to press **DO** again to verify that you really want to delete the file. If you do, the file is deleted and the list box will refresh, showing a new list without the deleted file.

As a variation, suppose that the file you wanted to Display and then Delete were not in your normal (default) directory.

The only difference would be Step 2. Instead of pressing the ↓ key to accept the Include line without change, you would enter (type in) the name of the desired directory, including the brackets, and press **SELECT**. Everything else would be the same, but you would list the files in that directory instead of those in your normal working area.

## FILES

When you want to perform a file operation, place the cursor at the List line on "Files" and press **DO**. Notice that the Action line displays a horizontal list of operations that can be performed on files: Display, Print, Copy, Clean up, Modify, and Delete.

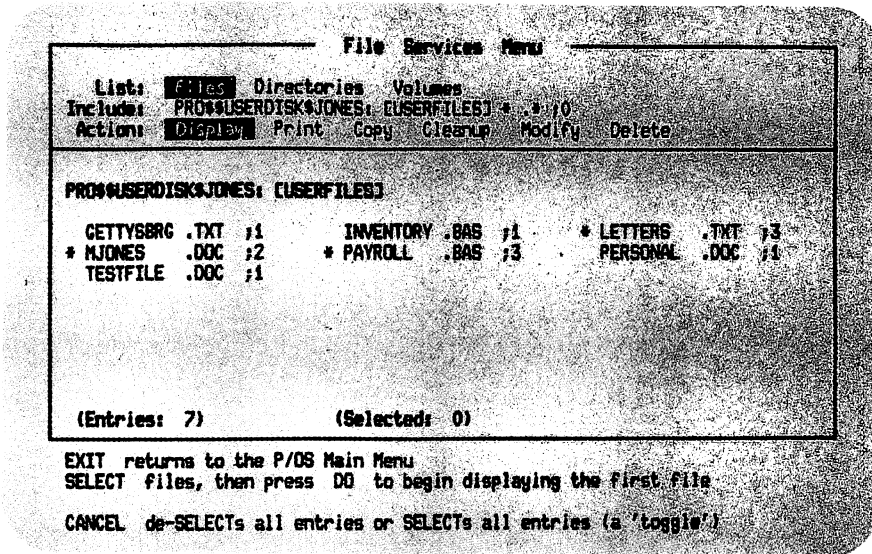
The cursor is now at the Include line. This line works in conjunction with the List line to specify the list that is to appear in the list box. For now, you will use the Include line to create different types of file listings.

### Specifying File Versions to List

Notice that the Include line ends with the following specification:

```
*.*;0.
```

(If it is other than this, read on anyway.) This specification orders all file names and types in the directory to be listed—but only the most recent version of each file. This specification produces the type of file listing shown in Figure 8-2.



**Figure 8-2**  
**File Listing—Latest Versions**

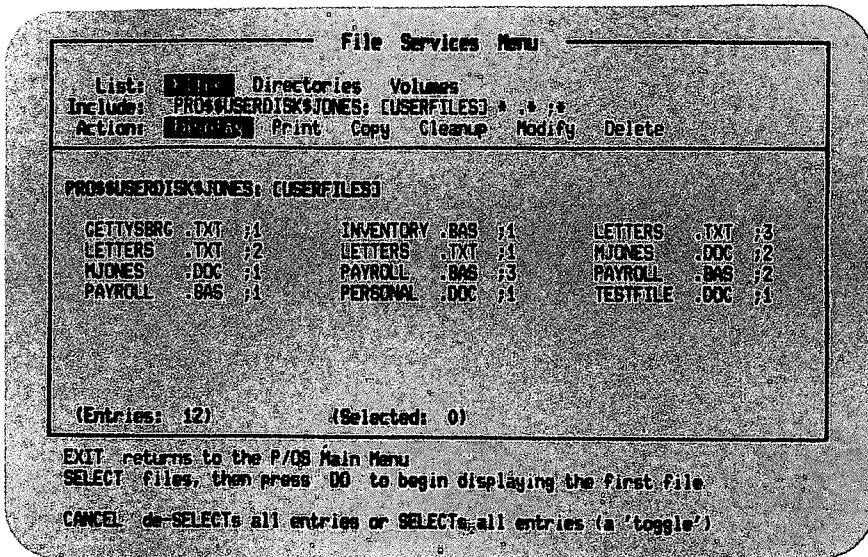
Note that each file appears only one time on the listing. There could be several versions of each file (each time it is saved to the disk). If a file has more than one version, it has an asterisk (\*) next to it.

### **Listing All File Versions**

If you want, you can specify to list all versions of files. To do that, place the cursor at the Include line and enter:

;\*

and press SELECT. Notice that the last part of the Include line specification has changed to \*.\*;\*. This specification will produce the type of files listing shown in Figure 8-3.



**Figure 8-3**  
**File List—All Versions**

In this listing, all versions of all files are displayed. For certain types of file operations (such as Delete), this type of listing may be desirable. To return to the standard type of listing (latest versions only), place the cursor at the Include line and enter:

:0

and press SELECT.

### **Displaying More Information About Your Files**

If you want, you can also use the Include line to specify your list of files to provide the following information:

- The file's size (in blocks)
- The file's creation date/time
- The file's last revision date/time
- If the file is inaccessible for any reason (e.g., locked)

To specify this type of files listing, display the Files Services Menu and choose "Files" at the List line. With the cursor at the Include line, note the message at the bottom of your screen:

ADDTNL OPTIONS **IN**cludes size\_date information whenever listing files.  
Now press the ADDTNL OPTIONS key. Note that the message has now changed to:

ADDTNL OPTIONS **EX**cludes size\_date information whenever listing files.  
The first time you press ADDTNL OPTIONS, the files list will include the size/date information, producing the type of list shown in Figure 8-4.

File Services Menu							
List:	<b>Files</b>	Directories	Volumes				
Include:	PRO%USERDISK%JONES; [USERFILES] * .* ;0						
Action:	<b>Display</b>	Print	Copy	Cleanup	Modify	Delete	
Name	Type	Version	Size	Created	Revised		
PRO%USERDISK%JONES; [USERFILES]							
GETTYSBRC	.TXT	;1	1	6-Aug-85 17:01	6-Aug-85	17:01	
INVENTORY	.BAS	;1	1	6-Aug-85 16:40	6-Aug-85	16:40	
* LETTERS	.TXT	;3	1	6-Aug-85 16:40	6-Aug-85	16:40	
* MJONES	.DOC	;2	1	6-Aug-85 16:21	6-Aug-85	16:21	
* PAYROLL	.BAS	;3	1	6-Aug-85 16:37	6-Aug-85	16:37	
PERSONAL	.DOC	;1	1	6-Aug-85 16:38	6-Aug-85	16:38	
TESTFILE	.DOC	;1	1	6-Aug-85 16:34	6-Aug-85	16:34	
(Entries: 7)		(Selected: 0)					
EXIT returns to the P/OS Main Menu							
SELECT files, then press DD to begin displaying the first file							
CANCEL de-SELECTs all entries or SELECTs all entries (a 'toggle')							

Figure 8-4  
Full Information Files Listing

To switch it back to the standard listing format (no size/date information), press ADDTNL OPTIONS again.

This type of listing is possible, whether listing latest versions or all versions of files.

If a file is locked, see Modifying Files in this chapter for instructions on how to unlock it.

### Protected Files

Since file access is controlled by the file's protection, you may not have access to all the files that appear on your screen. P/OS system files, for instance, appear in alphabetical order at the end of your list (these are always numeric names, or begin with ZZ).

Whenever File Services cannot perform a requested action because of the file's protection, a message informs you. You then have the option of exiting immediately, or continuing (for instance, you may have selected more than one file, and some of them may allow access.)

### Displaying Files

Use "Display" to read the contents of a file on your screen. You may want to display a file for any number of reasons; for example, to determine whether or not to copy or delete it. To display a file, perform the following steps:

1. Select "Files" at the List line (press **SELECT**).
2. If the correct volume/directory specification appears at the Include line, skip it by pressing the **↓** key. Otherwise, enter the correct specification and press **SELECT**. For more information, see the section on The Include Line discussed earlier in this chapter.
3. At the Action line, select "Display" and press **SELECT**.
4. When the cursor enters the list box, the list of files specified (at the List and Include lines) appears. Place the cursor at the file(s) you want to display, pressing **SELECT** at each one. If the files exceed one screen, you can display succeeding screens with **NEXT SCREEN**.
5. After selecting the file(s) you want to display, press **DO**.

The top of the first file selected displays on the screen, as shown in Figure 8-5.

```
PRO$USERDISK$JONES:[USERFILES]GETTYSBURG.TXT;1
```

---

LINCOLN'S GETTYSBURG ADDRESS

Fourscore and seven years ago, our forefathers brought on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal.

---

Press DO if you want to continue, or EXIT to quit the operation.

**Figure 8-5**  
Displaying a File

If the file is longer than one screen, you can scroll through the remainder of it by pressing NEXT SCREEN. (If you do this, the file scrolls to its end. Use HOLD SCREEN to stop and restart the scroll.) If you selected more than one file for display, while viewing the first screen of one file, you can press DO to access the beginning of the next file. To return to the File Services Menu, press EXIT.

**NOTE:** Do not try to display system and application files (type .TSK). If you do, strange characters may appear on your screen; press EXIT if this happens. If you do not exit the file, press INTERRUPT DO.

### Printing Files

You print files with the File Services Menu, using the Action line's "Print" option. As an additional option, "Print" also enables you to select the print queue to print on. Before printing, however, your printer must be physically attached to your system, and a print queue set up. All printing services are covered in Chapter 9.

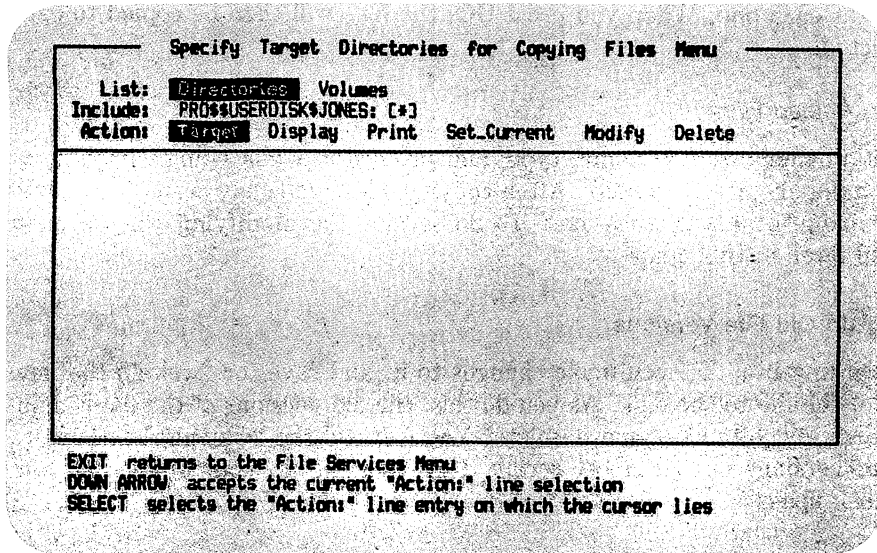
## Copying Files

The File Services “Copy” feature enables you to copy one or more files from any available volume/directory to any available volume/directory. You may want to use “Copy” to back up a diskette file, copy a file to another of your directories, or copy a file from another user’s account to yours. To copy files, use the following steps:

1. Select “Files” at the List line.
2. Provided the correct volume/directory/versions specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include line section discussed earlier in this chapter.) Other ways of changing the volume and directory are described in this chapter under *Displaying Directories* and *Displaying Volumes*.
3. At the Action line, select “Copy” and press **SELECT**.
4. When the cursor enters the list box, the list of files specified (at the List and Include lines) appears. Place the cursor at the file(s) you want to copy, pressing **SELECT** at each one. If the list of files exceeds one screen, you can display them by pressing **NEXT SCREEN**.
5. To copy the file(s) into your default volume/directory, just press **DO**. Note that your default directory appears at the Include line unless you have changed it.

### **Copying Files to Other Directories**

If you want to copy the file(s) into another directory, (or to several directories at once), you must specify the directory(s). To do so, select all the files you wish to copy, and then press **ADDTNL OPTIONS** (instead of **DO**). The Specify Target Directory Menu appears as in Figure 8-6.



**Figure 8-6**  
**Specify Target Directories for Copying Files Menu**

At the Action line, “Target” will be already highlighted, so press SELECT. All directories on the volume will appear in the list box. Select the directory(s) where the file(s) are to be copied and press DO. The file(s) will be copied into the selected directory(s).

### **Copying Files to Other Volumes**

If the “target” directory you want to copy the file to is on another volume, you can specify the volume by entering it at the Include line (on the Specify Target Directories for Copying Files Menu). If you want a list of all your volumes, first select “Volumes” at the List line and “Display” at the Action line. After finding the volume(s) you want (you can enter more than one if you wish), enter it (including the colon) at the Include line. Then place the cursor on the Include line and press SELECT.

Now you must also specify the directory(s) you want to copy the files to. Be sure “Directories” is selected at the List line and “Target” at the Action line. Then press SELECT. The list of directories on the volume(s) you specified appears in the list box. Select the directory(s) you want from the list, pressing

**SELECT** at each one. When you press **DO**, the files will then be copied to each one selected.

### *Modifying Copied Files*

Files retain their original name, type, and protection while being copied (new version numbers are assigned). After copying files, you may want to rename them or make other modifications. To do so, see the *Modifying Files* section discussed later in this chapter.

### **Cleaning Up Old File Versions**

While working in a file, you make changes to it, and save (or “write”) the new version of the file to the disk. As you do this, the old versions of the file remain on the disk and often become obsolete. You can use the “Cleanup” feature to delete all versions but the most recent, thus cleaning up your directories and saving disk space.

**WARNING:** “Cleanup” deletes old files permanently from the disk. Before using it, be certain that you want to delete all versions of the file but the most recent.

Do not delete files in system and application directories. Doing so may destroy P/OS or P/OS applications. This option is available for maintenance purposes only.

To use “Cleanup,” follow these steps:

1. Select “Files” at the List line.
2. If the correct volume/directory/versions specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)
3. At the Action line, select “Cleanup” and press **SELECT**.
4. When the cursor enters the list box, the list of files appears. Place the cursor at the file(s) you want to clean up, pressing **SELECT** at each one. If the files exceed one screen, you can display them by pressing **NEXT SCREEN**.
5. After selecting the file(s) you want to clean up, press **DO**. Just the most recent versions of files will remain.

### ***Cleaning Up an Entire Directory***

If you want, you can clean up all files in a directory at once. After choosing the “Cleanup” action, the cursor enters the list box. Press **CANCEL** to select all items in the list box and then **DO**.

### **Modifying Files**

Use the “Modify” action when you want to rename a file, unlock it or change its protection. To do so, perform the following steps:

1. Select “Files” at the List line.
2. If the correct volume/directory/versions specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)
3. At the Action line, select “Modify” and press **SELECT**.
4. When the cursor enters the list box, the list of files specified (at the List and Include lines) appears. Place the cursor at the file you want to modify and press **SELECT** at each one. If the list of files exceed one screen, you can display them by pressing **NEXT SCREEN**.
5. You can select one file for modification, or several. If you want to modify several files, but each file in different ways, you must modify them individually, selecting just one at a time. If you want to make a “global” change(s) to several files at once, you can do so. See **Modifying Multiple Files** below.

After selecting the file(s) you want to modify, press **DO**.

### **Modifying an Individual File**

If you selected just one file for modification, the Modify File Menu appears, as shown in Figure 8-7.

**Modify Files Form**

Use the **ARROW** keys to move the cursor to items you wish to change.  
Press **DO** when all areas have been set as you want them.

File Name: MJOHNSON  
File Type: .DOC  
File Version: ;3

Access Allowed:	Read	Write	Delete
System Managers	Yes	No	No
File Owner	Yes	Yes	Yes
Owner's Group	Yes	No	No
All Users	No	No	No

**EXIT** returns to the File Services Menu  
To change the file name, delete characters with the **<X>** key and enter the new name (up to nine letters and/or numbers).

**Figure 8-7**  
**Modify Files Form—Individual File**

The file's name, type and version appear in the first three lines, and the cursor is at "File name." Use the **ARROW** keys to move between them. To make a change in these lines, place the cursor on the line, delete the existing specification with the **<X>** key, and type in the new one. To enter the file protection matrix, use the **↓** key. Then use the **ARROW** keys to move the cursor to any protection assignment you want to change and press **SELECT**. "Yes" will change to "No" and vice versa. For an explanation of the protections and groups of users, see Setting Default File Protection in Chapter 5.

### **Modifying Multiple Files**

If you want to modify several files at once, you can do so *provided you are making the same change(s) to all of them*. (For instance, if you wanted to change all their file types to .DOC.) If you want to make different changes to several files, you must treat them individually. For more information, see the previous section, Modifying an Individual File.

If you selected several files, the Modify Files Menu will appear as in Figure 8-8.

**Modify Files Form**

Use the **ARROW** keys to move the cursor to items you wish to change.  
Press **DO** when all areas have been set as you want them.  
(Any item which is blank will be left unchanged.)

File Name:  
File Type:  
File Version:

Access Allowed:	Read	Write	Delete
System Managers			
File Owner			
Owner's Group			
All Users			

**EXIT** returns to the File Services Menu  
To change the names of all files selected, enter the new name (up to nine letters and/or numbers). Use the **<XJ>** key to correct typing errors.

**Figure 8-8**  
**Modify Files Menu—Multiple Files**

As you can see, the menu's fields are blank, and the cursor is next to "File Name." Note that any entries you make to any field on the menu will apply to all files you selected on the File Services Menu. For instance, if you enter a name at "File Name," all files you selected will be renamed to that.

The file protection fields are also blank. (For an explanation of file protections, see Setting Default File Protection in Chapter 5.) To assign file protections for all the files you have selected, use the **ARROW** keys to place the cursor to each protection and press **SELECT**. When you do, the protection field will change to "Yes." If you press **SELECT** again, it will change to "No." If you press **SELECT** a third time, it will become blank again (signifying no change). When you have assigned the protections you want for these files, press **DO**.

Note that the protection assignments made here are for the selected file(s) only. If you want to change the protections for all your future files, see Setting Default File Protection in Chapter 5.

### Unlocking Files

If the file is locked, an error message will inform you. A locked file must be unlocked before it can be used. A file or group of files can become locked:

- If you press the **INTERRUPT** key followed by the **DO** key while using an application.
- If an application has a defect that causes a file to lock.
- If there is a power failure while an application is in progress.

If a message informs you a file is locked, press the **SELECT** key to unlock it. Occasionally, an unlocked file is not usable, since important information may have been destroyed when the file was locked. In this case, delete the file (see *Deleting Files* in this chapter). In some circumstances you may be able to remedy the situation. Some suggestions are as follows:

1. If you have backed up the file to a diskette, you should be able to restore (copy) it back to your disk. See Chapter 10 for information on backing up and restoring files.
2. If you have not deleted the previous versions of the file from your disk, the most recent one may suffice, if it is not too outdated. (If all previous versions have been deleted, check to see if a previous version was renamed.)
3. If the file was copied to your account by another user, perhaps the owner can send you another copy.

### Deleting Files

Use "Delete" to erase files from your disk. It is a good practice to look through your directories frequently, deleting files you no longer need, including old versions of files to free up disk space for your current work. If you want to delete all old versions of files except for the latest, see the section on *Cleaning Up Old File Versions* discussed earlier in this chapter.

**NOTE:** "Delete" does not work on files protected against deletion (such as P/OS system files), or on write-protected diskettes.

To use "Delete," perform the following steps:

1. Select "Files" at the List line.
2. If the correct volume/directory/versions specification appears at the

Include line, skip it by pressing the **↓** key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)

3. At the Action line, select "Delete."
4. When the cursor enters the list box, the list of files specified (at the List and Include lines) appears. Place the cursor at the file(s) you want to delete, pressing **SELECT** at each one. If the list of files exceeds one screen, you can display them by pressing **NEXT SCREEN**.
5. After selecting the file(s) you want to delete, press **DO**. A message appears, requesting you to press **DO** again to confirm that you want to delete the file(s). If you no longer want to delete the file(s), press any key except **DO** or **RETURN**.

**WARNING:** Deleting files erases them permanently. Be certain you do not want the file before deleting it.

Do not delete files in system and application directories. Doing so may destroy P/OS or P/OS applications.

Should you delete a file accidentally, you may be able to use one of the following suggestions to minimize the loss.

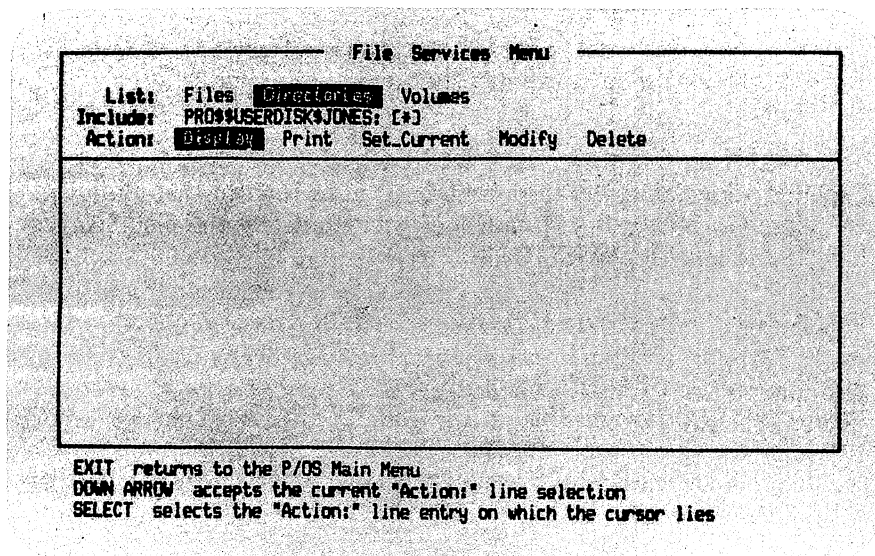
1. If the file has been backed up, you should be able to restore (copy) it back to your disk. See Chapter 10 for information on backing up and restoring files.
2. If you have not deleted the previous versions of the file from your disk, another version may suffice if it is not too outdated. (If all previous versions have been deleted, check to see if a previous version was renamed.)
3. If the file was sent by another user, you may be able to obtain another copy.

## DIRECTORIES

Files are grouped into directories, which are named and stored on volumes. A copy of the P/OS default [USERFILES] directory is placed automatically in every user account. You can use this directory, and create more if you wish. As the number of your files increases, you may want to create additional directories to organize the files. To do that, you first need to create directories, and then

manage them. This section instructs you in managing your existing directories. The next section, "Volumes," tells you how to create directories.

To perform operations on directories, place the cursor at the List line on "Directories" and press DO. The menu appears as in Figure 8-9.



**Figure 8-9**  
File Services Menu—Directory Services

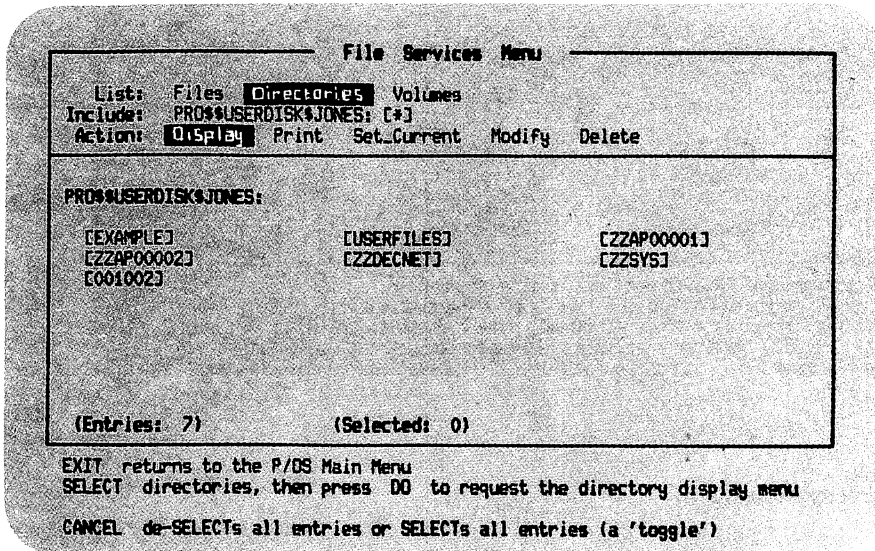
Notice that the Action line for Directories is different than for Files. These operations (Display, Set\_Current, Modify, Delete) represent the operations you can perform on directories.

### Displaying Directories

You can use the "Display" option to list the contents of a directory (its files). To display directories, perform the following steps:

1. Choose "Directories" at the List line.
2. If the correct volume specification appears at the Include line, skip it by pressing the  $\downarrow$  key. Otherwise, enter the correct specification and press DO. (For more information, see the Include Line section discussed earlier in this chapter.)

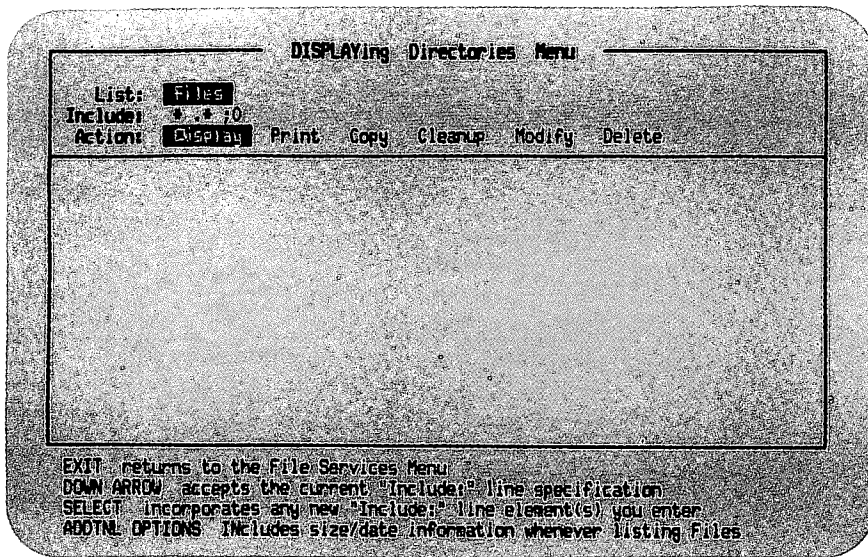
3. At the Action line, select "Display" and press DO.
4. When the cursor enters the list box, the list of directories specified (at the List and Include lines) appears in the list box as in Figure 8-10.



**Figure 8-10**  
Displaying Directories

Place the cursor at the directory(s) you want to display, pressing SELECT at each one. If the files exceed one screen, you can display them by pressing NEXT SCREEN.

5. After selecting the directory(s) you want to display, press DO. The Display Directories submenu appears as in Figure 8-11.



**Figure 8-11**  
**Display Directories Menu**

6. The cursor is at the Include line. For the standard files list (latest versions only), use the ↓ key to move the cursor into the list box. The files in the directory(s) are listed there, as in the example in Figure 8-12. If more than one directory was selected, they will be displayed in succession.

```

DISPLAYing Directories Menu
-----
List:  Files
Include:  *,* ;0
Action:  Display  Print  Copy  Cleanup  Modify  Delete
-----
PRO#USERDISK#JONES: [USERFILES]
GETTYSBRC .TXT ;1      INVENTORY .BAS ;1      * LETTERS .TXT ;3
* MJONES .DOC ;2      * PAYROLL .BAS ;3      PERSONAL .DOC ;1
TESTFILE .DOC ;1

(Entries: 7)      (Selected: 0)

EXIT returns to the File Services Menu
SELECT files, then press DO to begin displaying the first file
CANCEL de-SELECTs all entries or SELECTs all entries (a 'toggle')

```

**Figure 8-12**  
**Displaying Directories Menu—with Sample Files**

Suppose you now want to perform an action on one of the files listed. To do so, place the cursor at the Action line on the action you want and press DO. You can then use this menu to perform file actions the same as you would the File Services Menu (for more information, see the section on Files discussed earlier in this chapter). For instance, to display one of the files, choose “Display.” Then select the file(s) you want to display, and press DO. The file(s) are then displayed.

### Setting a Current Directory

Your initial directory is [USERFILES], which initially appears at the Include line when you first display the File Services Menu. As the number of your files increases, you may want to create more directories to keep the files organized. With the User Environment Menu, you are able to specify a default directory that your account automatically enters when you log in (see Change Login Default Disk/Directory in Chapter 5). Presumably this is the directory you usually work in.

As may be apparent to you by now, your default directory provides the starting point and “context” for most file and directory activities you perform in File

Services. Therefore, if you know you will be working in another directory for an entire session, it may be advantageous to make it your default directory on a temporary basis. You can change your default directory on a more “permanent” basis, or on a more “temporary” basis. (In reality, any default directory is temporary because it can be changed at any time.) As mentioned earlier, a more “permanent” default directory is set with the “Change login default disk/directory” feature described in Chapter 5. This method records the setting on your Professional’s disk, meaning it takes effect whenever you log into your account.

The “temporary” method of setting your default directory is with the “Set\_Current” feature on the File Services Menu. A default directory specified in this way has all the attributes of the “permanent” setting, except that it is recorded only in the Professional’s memory, meaning it is erased (thus reverting to the “permanent” default when you log out of the account or turn off the Professional). To use the “Set\_Current” feature, perform the following steps:

1. Select “Directories” at the List line.
2. If the correct volume specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)
3. At the Action line, select “Set\_Current.”
4. When the cursor enters the list box, the list of directories specified (at the List and Include lines) appears in the list box. Place the cursor on the directory you want and press **SELECT**.
5. When you press **DO**, the selected directory is your default directory until you change it again, log out of the account, or turn off the Professional.

### **Modifying Directories**

Use the “Modify” action when you want to rename a directory or change its protection. To modify a directory, perform the following steps:

1. Select “Directories” at the List line.
2. If the correct volume specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)
3. At the Action line, select “Modify.”

4. When the cursor enters the list box, the list of directories specified (at the List and Include lines) appears in the list box. Place the cursor on the directory you want to modify and press **SELECT**. You can select just one directory at a time.
5. When you press **DO**, the Modify Directory Menu appears, as shown in Figure 8-13.

**Modify Directory Form**

Use the **ARROW** keys to move the cursor to items you wish to change.  
Press **DO** when all areas have been set as you want them.

Directory Name: [MJOHNSON]

Access Allowed:	Examine	Change
System Managers	Yes	No
Directory Owner	Yes	Yes
Owner's Group	Yes	No
All Users	Yes	No

**EXIT** returns to the File Services Menu  
To change the directory name, delete characters with the **<X>** key  
and enter the new name (up to nine letters and/or numbers).

**Figure 8-13**  
Sample Modify Directory Form

### **Renaming Directories**

The directory name [MJOHNSON] appears in the sample Modify Directory Form shown above. To change the directory's name, place the cursor at "Name" and type in the new name, including the brackets. Your entry appears below the menu as you type it. Use the **<X>** key to correct typing errors. When you press **DO**, the new entry appears on the menu.

### **Changing Directory Protection**

When a directory is created, it receives the default protection assignments as indicated by the Modify Directory Form in Figure 8-13. While these default protection assignments cannot be changed, you can change the protection for the directory you have selected. To do so, move the cursor with the **ARROW**

keys and press **SELECT** where you want to make a protection assignment. As you do so, the “Yes” or “No” will reverse. For an explanation of the protections, see Setting Default File Protection in Chapter 5. The “Examine” and “Change” protections on this menu are identical to the “Read” and “Write” protections described there.

A directory's protection does not directly apply to the individual files in the directory; they each have their own protection mechanism (for more information, see the section on Modifying Files discussed earlier in this chapter). However, the directory's protection can affect the ability to access the files within it. For instance, if a directory's protection allows “Examine” access only, it means you can list the directory's files but cannot perform any action that would change that list. However, if you attempted to rename, delete, or create a new version of a file, the directory protection would prevent you from doing so, because that would alter the list of files. If a directory's protection allows “Change” access, it means you can make changes to files in the directory that alter the list of files (for instance, renaming or deleting a file).

After you have made all desired modifications to the directory, press **DO** to return to the File Services Menu.

### **Deleting Directories**

If a directory becomes obsolete, you can delete it. Before doing so, you must first delete all the files in the directory (see the section on Deleting Files discussed earlier in this chapter).

To delete a directory, perform the following steps:

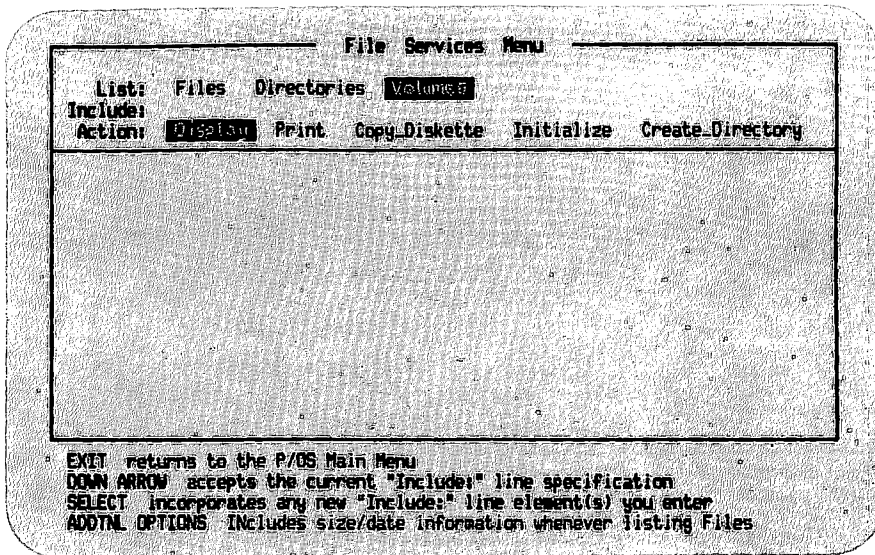
1. Select “Directories” at the List line.
2. If the correct volume specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press **SELECT**. (For more information, see the Include Line section discussed earlier in this chapter.)
3. At the Action line, select “Delete.”
4. When the cursor enters the list box, the list of directories specified (at the List and Include lines) appears in the list box. Place the cursor on the directory(s) you want to delete and press **SELECT**.
5. When you press **DO**, the selected directory(s) are deleted.

If a directory cannot be deleted for any reason, an error message informs you.

**WARNING:** Do not delete any P/OS system directories (those starting with ZZ). Doing so can destroy the operating system.

## VOLUMES

Computer media such as tapes, disks, and diskettes are referred to as volumes. Your Professional's hard disk is a volume and is the one you are primarily concerned with. You may also have access to other hard disk volumes, such as through a P/OS Server or DECnet. Diskettes are also volumes, and may be necessary for certain operations such as copying files, directories, and volumes. With File Services, you perform operations on volumes in much the same way you do files and directories. To perform operations on volumes, place the cursor at the List line on "Volumes." When you press DO, the menu appears as in Figure 8-14.



**Figure 8-14**  
Volume Services

Notice that the Action line for volumes is different than for directories and for files. These operations (Display, Copy, Initialize, Create\_Directory) represent the operations you can perform on volumes.

## Displaying Volumes

Use “Display” to list all the directories on your disk and any currently inserted diskettes. To display a volume(s), use the following steps:

1. Select “Volumes” at the List line.
2. Skip the Include line by pressing the ↓ key.
3. At the Action line, select “Display.”
4. When the cursor enters the list box, the list of available volumes appears in the list box. Place the cursor on the volume(s) you want to display, pressing SELECT at each one.
5. When you press DO, the Display Volumes submenu appears, as in Figure 8-15.

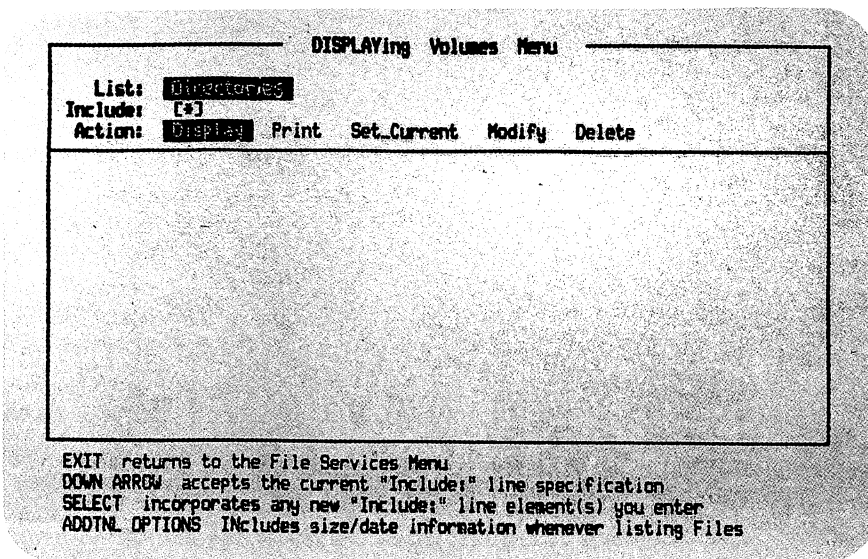


Figure 8-15  
Displaying Volumes Menu

6. The cursor is on the Include line. Press the ↓ key twice to move the cursor into the list box. The list of directories on the volume appears, as in Figure 8-16.

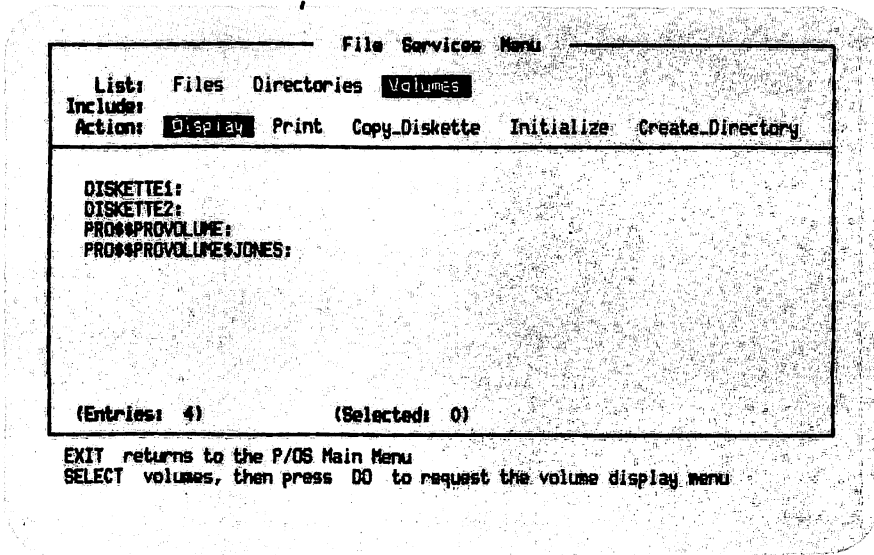


Figure 8-16  
Sample Displaying Volumes Menu

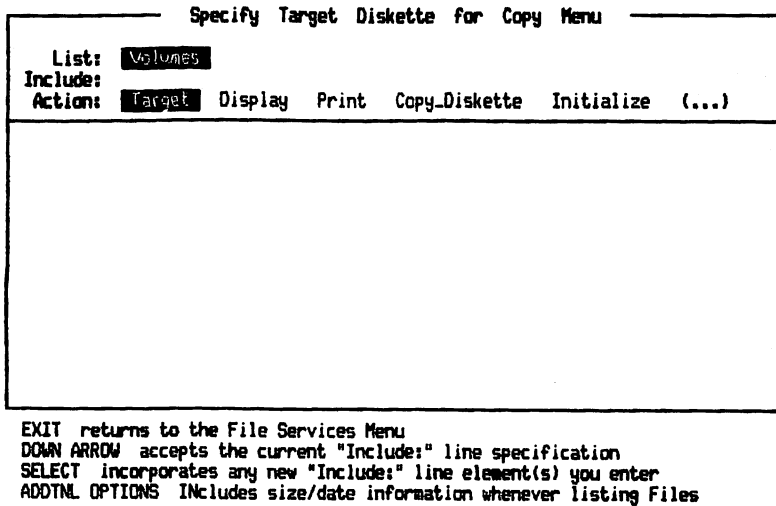
### Copying Diskettes

The volume "Copy\_\_Diskette" feature enables you to copy the entire contents of a diskette to another one. To do so, first insert both diskettes (source and target) in the drive.

**NOTE:** The Volume "Copy" function applies to diskettes only.

To copy the diskette, use the following steps:

1. Select "Volumes" at the List line.
2. Skip the Include line by pressing the ↓ key.
3. At the Action line, select "Copy."
4. When the cursor enters the list box, a list of all available volumes appears. Choose the **diskette** volume you wish to copy **from** and press DO. The Specify Target Diskette for Copy Menu appears, as in Figure 8-17.



**Figure 8-17**  
**Specify Target Diskette for Copy Menu**

5. Use this menu to select the target (destination) diskette. If you need to perform another action first, you may do so by placing the cursor on the appropriate action at the Action line and pressing SELECT.
6. When you select "Target" and press DO, the cursor moves into the list box. Select the target diskette and press DO.
7. A prompt asks you to enter a name for the target diskette. Enter it and press DO.

The copy operation is then performed.

While the copy operation is taking place, you can do other work on your Professional. All messages resulting from the operation will be directed to the Message Board.

### Initializing Volumes

Before any volume—hard disk or diskette—can be used by P/OS, it must be initialized. Initialization is discussed in Chapter 7; it involves labelling a volume and formatting it for P/OS. Initialization also erases any information that may

be on the volume and creates an empty [USERFILES] directory. Use “Initialize” to prepare and label a new volume—or to erase and relabel a used volume. Some P/OS functions automatically initialize the volume (such as when you installed P/OS). The initialization procedure also performs a check for bad blocks. If found, those blocks will not be used by P/OS for storing information. (See Chapter 10 for more information about bad blocks.)

**WARNING:** “Initialize” erases all information on the volume and creates an empty directory named USERFILES. Do not use “Initialize” on a used volume without first copying files you want to keep to another volume.

To initialize a volume, perform the following steps:

1. If you are initializing a diskette, insert it in the drive.
2. Select “Volumes” at the List line.
3. Skip the Include line by pressing the ↓ key.
4. At the Action line, select “Initialize.” A list of all volumes appears on the screen. Select the volume you want to initialize and press DO.
5. If there is information on the volume, a message informs you. If you want to proceed, press DO. If you do not, press EXIT. When you press DO, you are prompted for a volume name (1–12 characters). Enter the name you want for the initialized volume and press DO. The volume is then initialized and checked for bad blocks.

When the initialization is complete, a message will inform you. The diskette is now ready for use.

### Creating New Directories

Use “Create\_\_Directory” when you want to create a new directory on a volume. Creating directories helps you to organize your files into distinct, logical groups.

To create a new directory, perform the following steps:

1. Select “Volumes” at the List line.
2. Skip the Include line by pressing the ↓ key.
3. At the Action line, select “Create\_\_Directory.”
4. A list of available volumes appears on the screen. Select the volume you want to create the directory on, press SELECT and then DO.

A message appears, requesting the directory name. Enter a name with up to nine letters (A–Z) and/or numbers (0–9) and press **DO**. The directory will be created on the volume you have specified. (If you decide not to create a directory, press **EXIT** instead of **DO**.)

**NOTE:** Directories with names consisting of numbers only (no letters) or with names beginning with the letters **ZZ** are reserved for use by the system. You should not name directories beginning with **ZZ** or with numbers only.

If there is already a directory with the name you chose on the volume, an error message informs you. Should this happen, retry using another name.

### **“NESTING” ACTIONS WITHIN ACTIONS**

Whenever an action in File Services produces a list in the list box that contains lists within them, you can perform “actions within actions.” For instance, if the action you perform on a directory results in a list of files, you can perform actions on those files. As an example, if you choose “Display” (Directories) and list the directory’s files, you can then choose “Delete” and delete some of the files.

As an example of further nesting, if you choose “Display” (Volumes) and list a volume’s directories and then choose “Display” (Directories) to list a directory’s files, you could then choose “Delete” and delete some of the files.

### **ADVANCED USE OF THE INCLUDE LINE**

After you become familiar with using the Include line, you may want to try using it to perform your file operations more effectively—and powerfully. This section describes some advanced Include line techniques.

#### **Multiple Specifications**

You can enter multiple specifications (such as multiple volumes and directories) on the Include line separated by commas. Any specifications that exceed the internal work space limits will be rejected (with a beep). Each specification fills in any unspecified elements from those in the preceding specification. For example, if you were using Files “Cleanup” to purge files in multiple directories and volumes, you might enter the following on the Include line:

```
PRO$$PROVOLUME:[USERFILES],PRO$$PROVOLUME$JONES:[TESTING],
```

If the first character you enter is a comma, the current Include line appears at the base of the screen. You can then add to it or modify it using the **DELETE** key.

### Using Wildcards on the Include Line

The Include line allows you to use DIGITAL wildcard protocols. By now, you should already be familiar with the asterisk (\*) wildcard character. The asterisk is used as follows on the Include line:

[\*] = all (main) Directories  
 \*] = all file names.  
 \* = all file types  
 ;\* = all file versions

In directories, names, and types (but not versions), you can use the asterisk in combination with other characters to mean “any, or no, character(s).” For example, [PRO\_\*] means “all (main) Directories with names beginning with the letters PRO.” .\*R means “all file types that end with the letter R.” \_\*FRED\*\_ means “all names containing the sequence FRED.”

Percent (%) is another kind of wildcard. It stands for exactly one character in a directory, file name, or file type. The percent and asterisk wildcards can be used together to form complex specifications. For example, you could enter the following in the Include line:

[ZZ\_\*] TAX%%\_\*.\* ;\_\*

This entry would mean to search all main directories beginning with the letters ZZ for all file names that begin with the letters TAX and are 5 or more characters long.

### USING FILE SERVICES WITH PRO/DECnet

When using PRO/DECnet to communicate with other computers, you can use P/OS File Services to perform actions on files, directories and volumes to which you have access. You perform these File Services operations with PRO/DECnet in very much the same way you perform File Services operations on your own Professional. In all cases, you use the Include line on the File Services Menu to indicate the files, directories, and volumes with which you want to work. Be certain you are familiar with File Services (the Include line in particular) before using it with PRO/DECnet.

You can use this kind of nesting when using “Display” in order to operate temporarily within different directories and volumes, rather than entering the directory or volume on the Include line. Use whichever method is most convenient.

### **Accessing Files with PRO/DECnet**

When accessing files using PRO/DECnet, you need to enter a volume name (and usually a directory as well) at the Include line. You may also enter the file elements (name, type, and/or version) if you wish.

The volume name for a PRO/DECnet volume is similar, but not identical, to volume names on your Professional. Your Professional's volume names begin with:

systemname\$\$

a PRO/DECnet volume name begins with:

systemname::

or with:

systemname“username password”::

(the latter contains security information used by the remote system to allow access), and then continues with the name by which the volume is known on the remote system.

### **Example: Accessing Files on a VAX System**

For example, suppose user Jones has an account on a VAX/VMS system on the PRO/DECnet network. The system is named MYVAX on the network: the account has username JONES and password SECRET. On this VAX/VMS system there is a volume named USERS, and on this volume is a directory named JONES.

If someone wants to work with the files in this directory from a Professional on the network, the proper volume name and directory to enter at the Include line are:

MYVAX“JONES SECRET”::USERS:[JONES]

This specifies the system (MYVAX), the security information to use for the access (Jones's username and password on the VAX), and the name by which the volume is known on the VAX (USERS:) as the volume name element, plus the directory on that volume as the directory element. After entering these elements, the File Services Include line appears as follows:

```
Include: MYVAX"JONES SECRET":USERS: [JONES] *.*;0
```

and when the cursor moves into the list box, a list of the latest versions of all files in that directory on the VAX appears for use.

The security information is required only when the JONES directory and/or the files in that directory are protected from general access (but allow access by the user Jones). If the JONES directory and its files allow everyone to access them, no security information is required. The above example would then have the volume name MYVAX::USERS: and the directory name [JONES] would then be adequate. The Include line would then appear as:

```
Include: MYVAX::USERS: [JONES] *.*;0
```

### **Example: Accessing Files on Another Professional**

As another example, suppose you need to access files on another Professional on the network. This Professional is owned by your friend Sam Smith. The system's name is SMITH, and Sam's personal area on the system is known by the volume name SMITH\$\$MAINDISK\$SMITH:. The files you need to use are in his personal account area in the directory [USERFILES].

Sitting at Sam's Professional, you log into his account (the password is GLACIER) and enter File Services. If Sam's default volume/directory specification (as specified in the User Environment Services Menu) is SMITH\$\$MAINDISK\$SMITH: [USERFILES], then the Include line appears as follows when you enter File Services:

```
Include: SMITH$$MAINDISK$SMITH: [USERFILES] *.*;0
```

since this is exactly what you want, do not change anything.

If you are sitting at your own Professional and you want to access Sam's account, you must enter a volume name that specifies the system (SMITH), the security information needed to access Sam's system ("SMITH GLACIER"), the name of the volume as Sam's system knows it (SMITH\$\$MAINDISK\$SMITH:), plus the directory name [USERFILES]. You would enter at the Include line:

```
SMITH"SMITH GLACIER":SMITH$$MAINDISK$SMITH:[USERFILES]
```

The Include line would then appear as:

```
Include: SMITH"SMITH GLACIER"::SMITH$$MAINDISK$SMITH: [USERFILES] *.*;0
```

That entry, while correct, requires a very long entry. There is a shorter way to access files in another account. Since Sam's account is already set up to use SMITH\$\$MAINDISK\$SMITH: [USERFILES] as its default volume/directory, and since you are using that account for your access (because you gave it as security information), there is an easier way. Just enter:

```
SMITH"SMITH GLACIER"::SY:[]
```

where SY means "use the current volume" and the [] means "use the current directory." The Include line then appears as:

```
Include: SMITH"SMITH GLACIER"::SY: [] *.*;0
```

This specification is much shorter to type than the previous example, but the two are interpreted exactly the same by Sam's Professional, and access the same account.

### **Example: Accessing Files from Another Account**

As a final example, suppose that user Doe has a regular nonprivileged account (password TRUE), and a privileged account named SYSTEM. Doe has allowed you access to his regular account (by giving you the password), and the protections on the files in his SYSTEM account allow you to copy them, but Doe is reluctant to give out the password to this privileged SYSTEM account. This means that from the DOE account you must access files in the SYSTEM account (in the [USERFILES] directory).

To explain how to do this, it would be easiest to first describe the operation from Doe's Professional, and then from yours. If you were sitting at Doe's Professional logged into the SYSTEM account, you would probably find that its User Environment Services had set the default volume/directory to DOE\$\$MAINDISK\$SYSTEM: [USERFILES], so you would have no problems. You could access the files using the procedures in the previous example—substituting the name and password, of course.

However, if you were sitting at Doe's Professional logged into the regular Doe account, your personal area would be DOE\$\$MAINDISK\$DOE: (rather than DOE\$\$MAINDISK\$SYSTEM:), therefore you would have to change the volume name.

Most applications require that you change the structure of both the volume name and the directory. The Doe account knows only its own personal area

(DOE\$\$MAINDISK\$DOE:) on the hard disk DOE\$\$MAINDISK:, and does not know the personal area associated with any other account. So you can enter:

```
DOE$$MAINDISK:[SYSTEM.USERFILES]
```

while in the Doe account. The Include line then appears as:

```
Include: DOE$$MAINDISK:[SYSTEM.USERFILES] *.*;0
```

Now assume you are sitting at your own Professional. Since you have to use Doe's password to gain access to the system, you must enter the system name and security information DOE"DOE TRUE": as part of the volume name. Also, you have to specify the volume DOE\$\$MAINDISK: and the directory [SYSTEM.USERFILES]. All this information is necessary to access files in the [USERFILES] directory in the SYSTEM account on the hard disk DOE\$\$MAINDISK:.

You can enter:

```
DOE"DOE TRUE":DOE$$MAINDISK: [SYSTEM.USERFILES]
```

This results in the Include line appearing as:

```
Include: DOE"DOE TRUE":DOE$$MAINDISK: [SYSTEM.USERFILES] *.*;0
```

Since this specification does not depend on any personal area's volume name, it is most generally acceptable to all applications.

Using the procedures in the last example (actually three examples in one), you would be able to access files in Doe's protected SYSTEM account from the DOE account—whether from his Professional or yours.

### **Other Operating Systems**

Since PRO/DECnet allows your Professional to exchange information with many different types of computers and operating systems, the file specification that you enter for a PRO/DECnet operation varies depending on the operating system with which you are communicating. Refer to the other operating system's documentation, or ask your network coordinator if you have a question about the required file specification format. The *Command Language User's Guide* gives examples of file specifications for different operating systems.

### **Performing File Services Operations with PRO/DECnet**

To perform File Services operations with PRO/DECnet, see the description of the action you want, all of which are described earlier in this chapter. For instance, if you want to display the file in one of the (simpler) examples used

earlier, use the following steps (this example assumes that no security information is required).

1. Select "Files" at the List line.
2. At the Include line, enter the specification for the volume and directory:  

```
MYVAX::USERS:[JONES]
```
3. At the Action line, select "Display."
4. The list of files in the directory appears in the list box. Place the cursor on the file you want to display, press **SELECT** and then **DO**. The file will appear on your screen.

Before you can reach a node (system) for a remote operation, the node must have a defined node address. Node addresses are assigned by the network coordinator, and are described in the *PRO/DECnet User's Guide*.

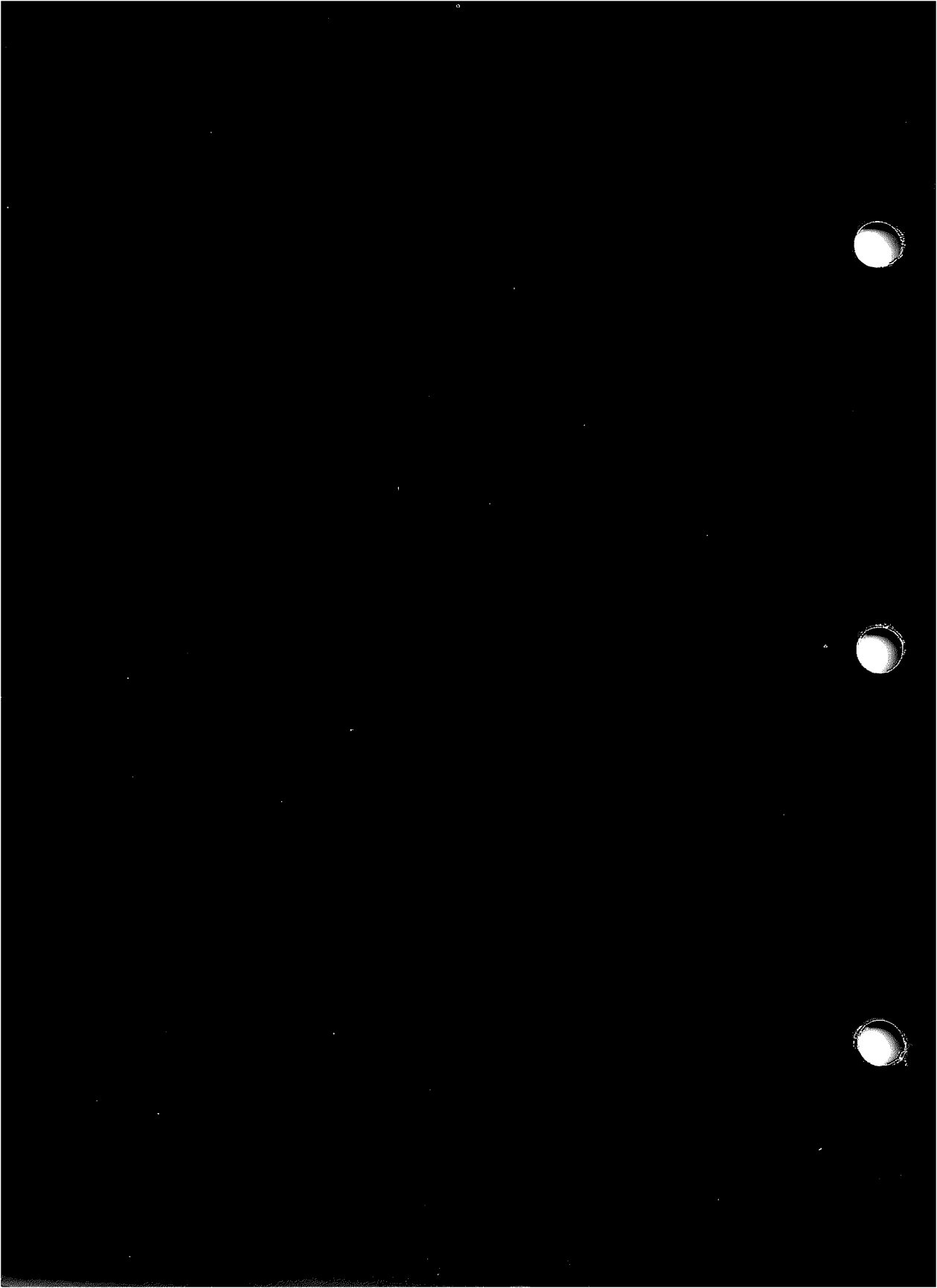
#### **File Services Restrictions with PRO/DECnet**

All File Services operations can be performed with PRO/DECnet except for the following:

- Files and directories cannot be modified. Modifying files is discussed in this chapter.
- Directories cannot be deleted. Deleting directories is discussed in this chapter.
- Volumes cannot be initialized or copied, and directories cannot be created on them. Initializing and copying volumes, and creating directories are discussed in this chapter.
- When accessing systems other than VAX/VMS, RSX, and other Professionals, further restrictions on the Directory and Volume actions may apply.

9

Printing Services



## Chapter 9

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### Printing Services

If you are using a printer with your Professional, you need to know how to set up *print queues* and print out jobs. If you are the system manager (multiple-account systems), or the Professional's sole user, you also need to know how to set your printer's characteristics and how to manage the print queues. This chapter instructs you in using all the printing services provided by P/OS. Using them you are able to:

- Add print queues to your system
- Set default and temporary printer characteristics
- Select default and temporary print queues
- Print files (and directories, volumes, and single screens)
- Remove print queues
- Abandon queued print requests
- Hold queued print requests
- Release held print requests

Print Control Services and File Services work together to provide your total printing services. Print Control Services enables you to set up and manage your print queue(s) and printer(s), and File Services enables you to submit jobs into the queue(s). You make default settings with Print Control Services that you can override (for individual print jobs) with File Services.

Print Control Services provides the services necessary for creating, maintaining, and controlling print queues and the jobs in them, as well as making default

settings on your printer. A print "job" (also called a print request) is any single order for printing made to the printer. A job can consist of one file or several.

Each printer attached to your Professional must have a queue. A print queue receives print jobs, holds them in the order received, and submits them for printing in the same order (unless they are placed "on hold" by the user). If the print queue did not exist, the printer would accept print jobs only when it was not currently busy.

Other methods of printing, such as PRINT SCREEN, are also described in this chapter.

### PRINT CONTROL SERVICES

To use Print Control Services, choose it from the Main Menu. The Print Control Services Menu is shown in Figure 9-1.

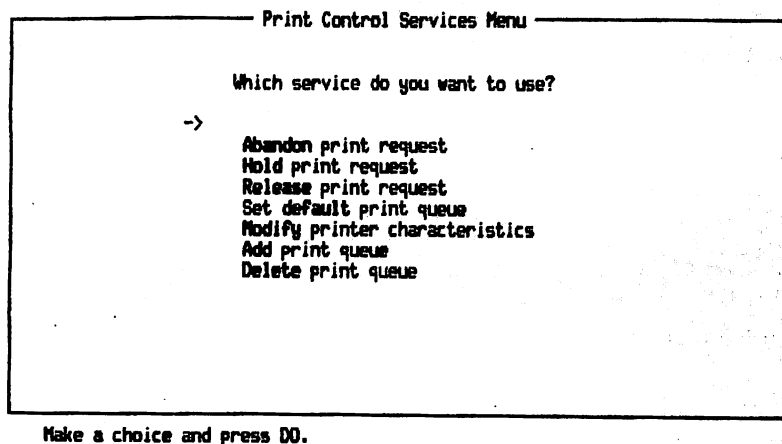


Figure 9-1  
Print Control Services Menu

Unlike the other chapters in this book, this chapter describes the menu items in a different order than they appear on the menu.

## PRESET PRINT QUEUE

The printer(s) on your Professional must have a queue. One queue has been supplied with your system, named PRO\$\$PROVOLUME\$PRINT. If you are connecting more than one printer on your system, you must add a queue for each additional one. See Adding Print Queues in this chapter.

**NOTE:** The preset print queue communicates through the Printer port. If your printer is connected by one of the optional devices (Mini-Exchange or Quad-Port SLU), you must specify that. See Adding Print Queues in this chapter.

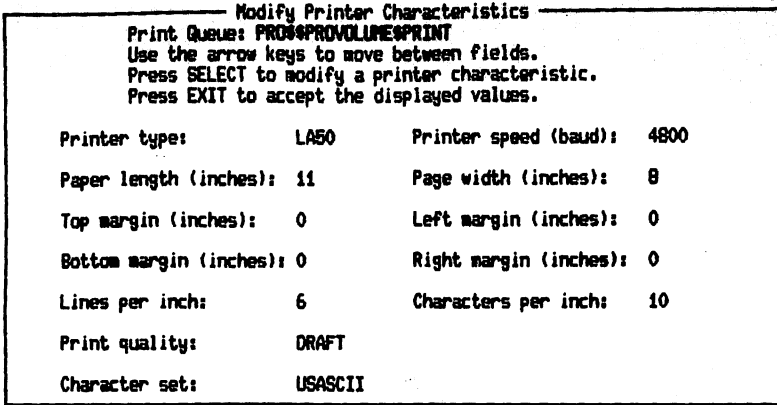
### Specifying a Default Print Queue

When printing files, you must inform the system which printer you want to use. Therefore, it will prompt you for the name of the print queue each time you try to print out a job. This prompt will occur even if you have just one print queue (locally), because the system may not know the names of all your available printers (through DECnet). Therefore, to expedite print jobs, you should specify the printer you will be using most often as your default print queue. The system will automatically use this specified queue (unless you specify otherwise on a per-job basis).

To specify a default queue, choose “Set default print queue.” A list of available system printers will appear on your screen. If you are the first user of the system, the preset queue (PRO\$\$PROVOLUME\$PRINT) will appear. Choose this queue as your default. If your system has multiple accounts (and/or multiple printers), select the print queue you want as your default. See your system manager for more information, if necessary. When you press DO, the Print Control Services Menu reappears.

### Modifying Printer Characteristics

The printer(s) on your system have certain default characteristics that control the behavior of the printer. While it may not be necessary at this point, at some point you may want to change the default characteristics settings for your default printer. (Note that when you chose a default print queue, you also chose a default printer.) To modify the characteristics of your printer, choose “Modify printer characteristics” from the Print Control Services Menu. A default characteristics menu (LA50 printer) appears as shown in Figure 9-2.



**Figure 9-2**  
**Modify Printer Characteristics Menu—LA50 Printer**

You can use this menu to change the printer's options, all of which are described in the following sections. In order to change a setting, select it by placing the cursor on it and pressing **SELECT**. Use the **DELETE** key to erase the existing value, and then type in the new one. If, after you select the item, a horizontal list of choices appears at the bottom of the menu, use the **ARROW** keys to move the cursor to the correct choice and then press **SELECT**. If you want to use an existing value, do not change it. If, after making changes, you decide you do not want them, press **EXIT** to leave the menu without any changes. When you are finished making your changes to the menu (or if you decide to use the existing values), press **DO** to accept them.

If you want to modify the printer characteristics of another queue, press **ADDTNL OPTIONS** and choose another queue from the submenu that appears.

**Dot-Matrix Printers**

DIGITAL's LA50, LA100 and LA210 are dot-matrix printers. The LA50 is a desktop unit that prints on paper up to 9 inches wide, using a print field 8 inches wide. If using an LA50 printer, you obtain the best results by changing the graphics aspect ratio from the factory setting, especially if you intend to print

out graphic images. To do so, set switch 5 of SW1 to the closed position. See your LA50 documentation for more information.

The LA100 and LA210 dot-matrix printers print on paper up to 13.2 inches wide. They have two printing modes: draft quality, which prints at 240 characters per second; and letter quality, which prints at 30 or 80 characters per second, depending on the character ROM installed in the printer. To display the characteristics for the LA100 printer, select "Printer type" on the Modify Printer Characteristics Menu. A list of printers will appear beneath the menu. Place the cursor on "LA100" and press SELECT. The initial default settings for the LA100 printer are listed on the menu, as shown in Figure 9-3.

```

      _____ Modify Printer Characteristics _____
Print Queue: MURALI$PROVLINE$PRINT

Use the arrow keys to move between fields.
Press SELECT to modify a printer characteristic.
Press EXIT to accept the displayed values.

Printer type:      LABO      Printer speed (baud): 4800
Print header page: YES
Paper length (inches): 11    Page width (inches): 8

Top margin (inches): 0      Left margin (inches): 0
Bottom margin (inches): 0   Right margin (inches): 0
Lines per inch: 6          Characters per inch: 10
Print quality:      DRAFT
Character set:      USASCII
  
```

**Figure 9-3**  
Modify Characteristics Menu—LA100 Printer

### *Printer Type*

Characteristics differ between printers, so a different list of characteristics will appear for each printer you select. The options for the LA50 printer are described below first, followed by features unique to other DIGITAL printers.

### *Print Header Page*

If you wish, you can have a header page precede your print jobs. This page carries identifying information such as the account name and the time the job

is printed. If you want this header page, YES should appear after the "Print header page" selection on the Modify Printer Characteristics Menu. To change this item, set the cursor to it and press SELECT. At the bottom of the menu, move the cursor to YES or NO and press SELECT. Your choice will appear on the menu.

#### *Setting the Printer Speed (Baud Rate)*

"Printer speed (baud)" specifies the speed (in *bits* per second) at which information is sent from your Professional to your printer. Note that this setting does not typically affect the speed at which text is printed out, but this setting must match the baud rate setting at which your printer operates. See your printer's or plotter's documentation to find the correct baud rate.

Place the cursor on "Printer speed (baud)" and press SELECT. A list of available settings appears underneath the menu:

100 150 200 300 600 1200 1800 2000 2400 3600 4800 7200 9600 19200

Place the cursor on the correct setting and press SELECT. The new setting will appear on the menu.

#### *Paper Length*

"Paper length" indicates the length, in inches, of the paper you are using in your printer. Note that this setting does NOT specify the length of the printed text on the paper. If your paper length is different than the value that appears, select "Paper length," use the  $\langle X \rangle$  key to erase the current length and enter the correct one.

#### *Page Width*

"Page width" specifies the maximum width, in inches, that your printer will be able to print out text on the paper. (Unlike paper length, it does not necessarily indicate the size of the paper.) If you want your page width to be different than the value that appears (for instance, 5.0), select "Page width" and enter the correct value.

**NOTE:** The LA50, LNO and LN03 printers have a maximum page width of 8 inches. The LA100, LA210, and LQP printers have a maximum page width of 13.2 inches. Larger settings than those will be ignored. Be certain you use paper that is wide enough to accommodate the page width you specify.

### *Top Margin*

Use “Top margin” to set the amount of space, in inches, between the top of the paper and the first line of text. To change it, select “Top margin” and enter the correct value. Note that your actual top margin may be affected by formatting commands within the file, and the positioning of paper in the printer.

### *Left Margin*

Use “Left margin” to designate the amount of space, in inches, between the left edge of the paper and left edge of the text. If you want a different margin than the value that appears, select “Left margin” and enter the correct value.

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#### *Technical Notes*

The “Left margin” setting indicates the position of column 1 on the printer and, as such, provides the basis for all other formatting commands made within the file. Some formatting commands that can be made within files are: margins, tabs, and X/Y coordinates such as *escape sequences*. For example, you could set this “Left margin” to 1 inch. Then, while editing a file with PROSE, you could order a left margin setting of 10 columns (or spaces). If you do that, your resultant left margin would be 1 inch + 10 columns.

Since this “Left margin” setting dictates the position of column 1 on the printer, it also provides the basis for tab settings made within the file. For instance, if you have entered tab settings within the file (using PROSE), and then set the “Left margin” setting here to 1.00 inches, all tab settings will shift 1.00 inches to the right. (Left margin settings made within the file do not affect tab settings.)

All other positional commands, such as escape sequences, and other X/Y coordinate commands also refer to this left margin setting (as opposed to other left margin settings) since they use column 1 as a reference point.

It is possible to shift the paper on some DIGITAL printers. Doing this affects the relative position of all printed output.

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### *Bottom Margin*

Use “Bottom margin” to set the amount of space, in inches, between the last line of text and the bottom of the paper. To change it, select “Bottom margin”

and enter the correct value. Note that your actual bottom margin may be affected by formatting commands within the file, and the positioning of paper in the printer.

### *Right Margin*

Use “Right margin” to specify the amount of space, in inches, between the right edge of the text and right edge of the paper (as defined by the “Page width” setting). To change it, select “Right margin” and enter the correct value. As with the left margin setting, your text’s actual right margin can be affected by other formatting commands within the file, and the position of the paper in the printer.

### *Lines Per Inch*

Use “Lines Per Inch” to specify the number of vertical lines of text to be printed per inch. Six lines per inch corresponds to typewriter single-spacing, three lines per inch corresponds to double-spacing. To change it, select it and enter the new value. Possible lines per inch values for the various printer types are as follows:

LA50 – 2, 3, 4, 6, 8, 12  
 LA100 – 2, 3, 4, 6, 8, 12  
 LA210 – 2, 3, 4, 6, 8, 12  
 LQP02 – 2, 3, 4, 6, 8  
 LQP03 – 2, 3, 4, 6, 8

### *Characters Per Inch (CPI)*

Use “Characters Per Inch” to specify the horizontal number of characters to be printed per inch. For dot-matrix printers, this setting affects character size; for example, to create a size equivalent to Pica, use 10 characters per inch (the initial default). For a size equivalent to Elite, use 12 characters per inch.

The possible characters per inch values for the various printer types are as follows:

LA50 – 5, 6, 8.5, 10, 12, 16.5  
 LA100 – 5, 6, 6.6, 8.25, 10, 12, 13.2, 16.5  
 LA210 – 5, 6, 6.6, 8.25, 10, 12, 13.2, 16.5  
 LQP02 – 10, 12, 15  
 LQP03 – 10, 12, 15

For letter-quality printers, the CPI setting should be appropriate for the print wheel being used. (See the section on Letter Quality Printers discussed later in this chapter.) The CPI feature works with some, but not all, proportional spacing print wheels. If it does not work, it is overridden. To change this setting, select it and enter the new value.

### *Print Quality*

Use the “Print quality” option to print in either draft quality or letter quality. This feature applies only to dot-matrix printers, such as DIGITAL’s LA50 and LA100. Draft quality prints faster, and letter quality has a better appearance.

When you select “Print quality,” the choices of DRAFT and LETTER appear beneath the menu. To change it, place the cursor and press SELECT. Your choice will appear on the menu.

**NOTES:** Dot-matrix letter-quality is not equivalent to that of a letter-quality printer.

With the LN03 printer, print quality affects only pictures. LN03 text is always printed in letter quality.

### *Character Set*

Use “Character set” to specify either the USASCII (United States ASCII) character set or one of the National Replacement Character (NRC) sets. When you select this option, the available character sets appear at the bottom of the menu. Place the cursor on the appropriate set and press SELECT.

### **Letter-Quality Printers**

Letter-quality printers are impact printers that use print wheels (with various typefaces), operate at a slower speed than dot-matrix printers, but produce typewriter-quality output. DIGITAL’s letter-quality printers that work with your Professional are the LQP02 and LQP03. They are full-character, daisy wheel printers that print on paper up to 13.2 inches wide and operate at 32 characters per second.

To display the characteristics for the LQP02 printer, select “Printer type” on the Modify Printer Characteristics Menu and “LQP02” from the submenu that appears beneath the menu. The list of characteristics for the LQP02 printer appears in Figure 9-4 (the characteristics for the LQP03 are identical).

Modify Printer Characteristics			
Print Queue: PROS#PROVLINESPRINT			
Use the arrow keys to move between fields. Press SELECT to modify a printer characteristic. Press EXIT to accept the displayed values.			
Printer type:	LQP02	Printer speed (baud):	4800
Proportional spacing:	NO		
Paper length (inches):	11	Page width (inches):	8
Top margin (inches):	0	Left margin (inches):	0
Bottom margin (inches):	0	Right margin (inches):	0
Lines per inch:	6	Characters per inch:	10

**Figure 9-4**  
**Modify Characteristics Menu—LQP02 Printer**

Many of the menu options for the letter-quality printers are the same as for the LA50 printer. Instructions for setting the characteristics on this menu are given earlier in this chapter under *Modifying the Printer's Characteristics* (except for "Proportional spacing," which is described in the next section).

#### *Proportional Spacing*

To space proportionally means to slightly vary the character space (and space between characters). This allows for a more natural character spacing and gives the printed output a more professional, typeset-like appearance. To use the proportional spacing feature, you must have a print wheel that allows it. The following is a list of some of the commonly used print wheels that allow (in fact, require) proportional spacing.

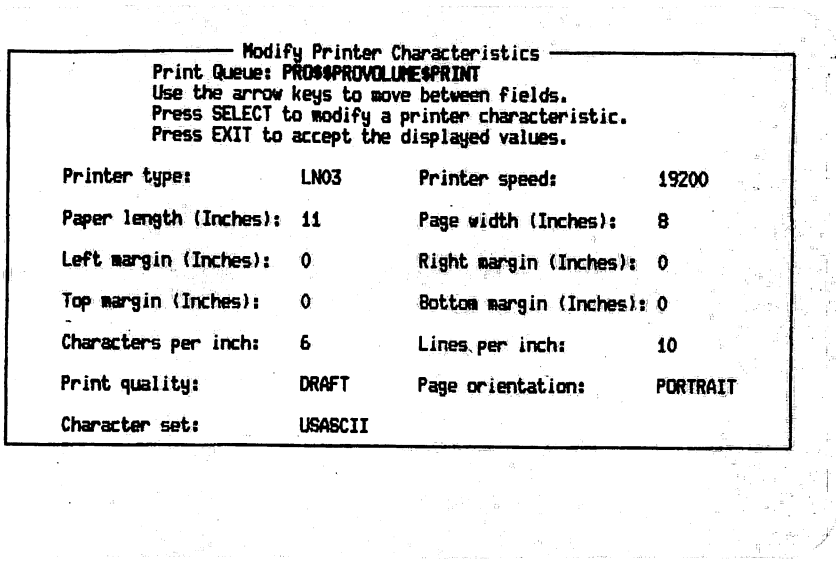
- WPS Boldface (LQP02,03–MW)
- WPS Title (LQP02,03–MX)
- WPS Thesis (LQP02,03–MY)
- WPS Boldface Italic (LQP02,03–NA)

**NOTE:** Proportional spacing **must** be specified when using the above print wheels.

**Laser Printers**

Print Control Services enables you to use DIGITAL's laser printer, the LN03. Detailed information for using the LN03 with Print Control Services is provided in Appendix C.

If you select the "LN03" as your printer type, its list of characteristics appears, as in Figure 9-5.



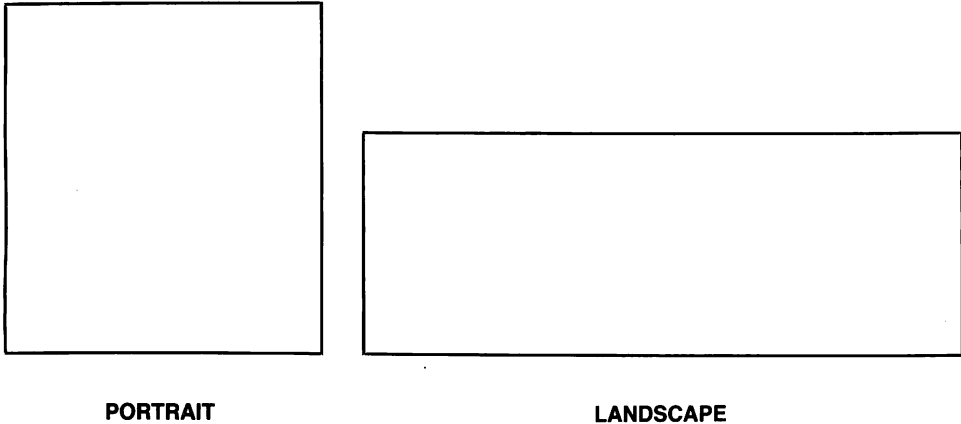
**Figure 9-5**  
**Modify Characteristics Menu—LN03 Printer**

Many of the menu options for the laser printer are the same as for the LA50 printer. Instructions for setting the characteristics on this menu are provided earlier in this chapter (except for "Page orientation," which is described in the next section).

*Specifying Page Orientation for the LN03 Printer*

The laser printer "Page orientation" feature enables you to specify the orientation of your text image. Note that it applies only to DIGITAL's LN03 laser printer.

The choices are **PORTRAIT** (the initial default) and **LANDSCAPE**. Both are rectangular formats. **PORTRAIT** has a long vertical dimension and **LANDSCAPE** has a long horizontal dimension, as shown in Figure 9-6. All other settings remain in effect, except for page width and length (see note).



**Figure 9-6**  
**Text Layouts—LN03 Laser Printer**

**NOTE:** When “Page orientation” is changed, note that the page length and width measurements are reversed, to accommodate the new orientation. Also, changing “Page orientation” will affect the desired settings for “Characters per inch” and “Lines per inch.” You will probably need to change these settings in order to achieve a desirable printed output.

**Color Plotters**

P/OS supports color plotters that use the Hewlett-Packard (HP-GL) protocol. DIGITAL’s LVP16, is a six-pen plotter that is useful for creating colorful charts and graphs. Files to be plotted should be graphics files (type .GID), such as those created by the PROSE PLUS and PRO/SIGHT applications. Other types of files may not plot correctly.

The Hewlett-Packard 7470 and 7475 plotters are also supported, as well as any others using the HP-GL protocol. Appendix C provides detailed information about using plotters with Print Control Services.

If you select “LVP16” as your printer type its list of characteristics appears (Figure 9-7).

```

      Modify Printer Characteristics
    Print Queue: PRO#PROVOLUME#PRINT

    Use the arrow keys to move between fields.
    Press SELECT to modify a printer characteristic.
    Press EXIT to accept the displayed values.

    Printer type:      LVP16      Printer speed (baud): 4800
    Paper length (inches): 11      Page width (inches): 8
    Top margin (inches): 0      Left margin (inches): 0
    Bottom margin (inches): 0      Right margin (inches): 0
  
```

**Figure 9-7**  
**Modify Characteristics Menu—LVP16 Plotter**

For an explanation of the settings, see the section on Modifying Printer Characteristics discussed earlier in this chapter.

## PRINTING A PICTURE FILE

Many DIGITAL printers, including the dot-matrix printers, LN03 and LVP16 plotter, are capable of printing picture (.GID) files, which can be created with a variety of applications. There are certain limitations when printing these picture files. These limitations are discussed in the following sections.

### Drawing Time

When you print a picture (.GID) file, you will notice a pause before the drawing starts on an LA50, LA100, LA210, or LN03. During this period, the picture is drawn in the Professional's main memory. When the picture has been completely drawn, Print Control Services begins outputting the picture to the printer. In the case of the LN03, output is signalled by a flashing "6" in the error box. After the LN03 has received the entire picture, it starts printing.

### **Available Drawing Space**

As you have seen, the Set Characteristics Menu enables you to control the size, placement, and orientation of a picture on paper. The available space for a picture is paper size minus the margins. For example, if the paper size is 8 inches wide by 11 inches high, and each margin is 1 inch, the available space is 6 inches wide by 9 inches high.

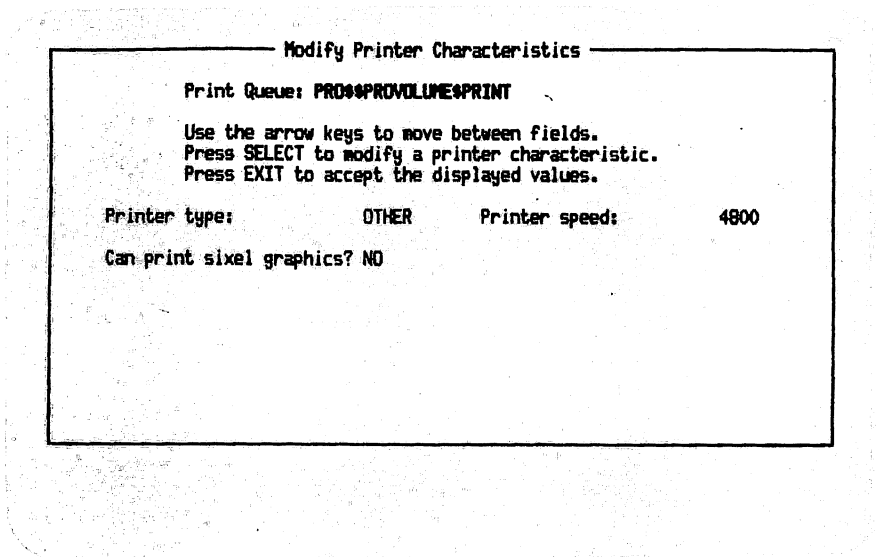
Built into a picture is a description of its shape. Print Control Services always draws a picture as large as it can without distorting the picture's shape. Suppose you have a picture 9 units wide and 6 units high:

- If the available space is 6 inches wide by 9 high, the picture will be drawn sideways—6 inches wide by 9 inches high.
- If the available space is 3 inches wide by 5 high, the picture would be drawn sideways—3 inches wide by 4.5 inches high.
- If the available space is 6 inches wide by 4 inches high, the picture would be drawn upright—6 inches wide by 4 inches high.

### ***Non-DIGITAL Printers and Printer Software***

If your printer is not one of the standard DIGITAL printers mentioned in this chapter, select "Other" as your printer. This option enables you to use non-DIGITAL printers, but cannot provide the printer options discussed earlier in this chapter. Also, since there are many brands and types of printers available today, DIGITAL cannot guarantee that your printer will work with P/OS.

When you select "Other," the Modify Printer Characteristics Menu appears as in Figure 9-8.



**Figure 9-8**  
**Modify Characteristics Menu—"Other" Printers**

With the "Other" designation, you can designate only printer type and speed (baud). Note that if your printer requires other than 4800 baud, it takes effect only after you print your first file. See the descriptions for printer type and printer speed discussed earlier in this chapter.

When using "Other" for your printer type, you should disable parity, and set eight bits per character on your printer.

#### *Printing Sixel Graphics*

If your printer is a dot-matrix type (LA50, LA100, LA210), it may support the sixel graphics protocol. This means that your printer can print out graphics and other nontext output. Check your printer hardware documentation to be certain. If it does support sixel graphics, answer the question YES. If it does not, set it to NO.

#### **Exiting the Set Printer Characteristics Menu**

When you have set all your printer's characteristics, press EXIT to accept and register them and return to the Print Control Services Menu. If you want to

nullify all changes you have made on the menu, press **CANCEL**. Then press **EXIT** to return to the Print Control Services Menu.

Since you have specified a default queue, all your print jobs will be automatically routed into it. You can choose other queues on a per-job basis by designating a temporary queue, which is described later in this chapter.

## PRINTING FILES

To print files, you need to use File Services. Before attempting to print a file, you should be familiar with File Services, which is described in Chapter 8.

To use File Services, you choose it from the P/OS Main Menu. The File Services Main Menu appears as shown in Figure 9-9.

```

File Services Menu
-----
List:  Files Directories Volumes
Include: PRO$PROVOLUME$HJONES; [USERFILES] * .* ;0
Action: Display Print Copy Cleanup Modify Delete

```

**EXIT** returns to the P/OS Main Menu  
**DOWN ARROW** accepts the current "Action:" line selection  
**SELECT** selects the "Action:" line entry on which the cursor lies

Figure 9-9  
File Services Main Menu

To print out a file, perform the following steps:

1. Select "Files" at the List line.

2. If the correct volume, directory and files listing specification appears at the Include line, skip it by pressing the ↓ key. Otherwise, enter the correct specification and press DO. See The Include Line section in Chapter 8 for more information.
3. At the Action line, select “Print” and press DO.
4. When the cursor enters the list box, the list of files specified (by the List and Include lines) appears. Place the cursor at the file(s) you want to print, pressing SELECT at each one. If the file list exceeds one screen, you can display more by pressing NEXT SCREEN.
5. If you want to print out the file(s) on the default print queue, using the printer’s default characteristics, press DO. If you want to specify different printer characteristics and/or another print queue (for this print job only) press ADDTNL OPTIONS.

**Modifying Printer Characteristics for Single Jobs**

To specify different printer characteristics for a single print job, press ADDTNL OPTIONS after selecting the files you want to print (Step 4 above). A list of the printer characteristics that you can change will appear. Figure 9-10 shows this list for the LA50 printer.

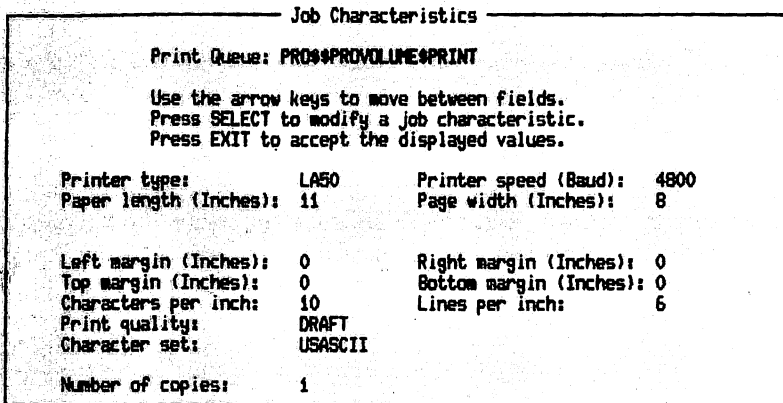


Figure 9-10  
 Job Characteristics Menu—LA50 Printer

This menu varies, depending upon which type printer is to print the job. Note that these settings apply to the current print job only, and do not affect the printer's default settings. Also note that some of the settings cannot be changed from this menu. They are there for informational purposes only. In the case of the LA50, as shown in Figure 9-10, the first four settings cannot be changed.

Procedures for setting these single-job characteristics are identical to those for setting the default characteristics, all of which are described in this chapter. See the section on Modifying Printer Characteristics.

### ***Specifying the Number of Copies to Print***

Unless you specify otherwise, your printer prints one copy of the submitted job. To specify more than one copy, place the cursor at "Number of copies" and press SELECT and enter the number of copies you want (1-100)

### **Selecting Another Print Queue**

If you want to use a queue other than the default, press the ADDTNL OPTIONS key again (while the Job Characteristics Menu is showing). A list of available print queues will appear. Place the arrow at the one you want and press DO.

### ***Selecting a DECnet Printer***

If you want to use a DECnet printer, press ADDTNL OPTIONS again (with the Select a Print Queue Menu displayed) and enter the queue name in the form NODE::QUEUE. For instance, to use the PRO\$\$PROVOLUME\$PRINT queue on node EDEN, you would enter EDEN::PRO\$\$PROVOLUME\$PRINT. Note that printer characteristics cannot be changed for DECnet printers.

The Job Characteristics Menu (for the queue you have chosen) will then appear. You can then change the printer's characteristics for this print job if you want, using instructions earlier in this chapter. If you want to nullify all your changes, press CANCEL. To accept the values on the menu, press DO. The File Services Menu will then reappear. The changes you have made (if any) are now in effect. Press DO to print the file, using the printer characteristics and queue you have specified.

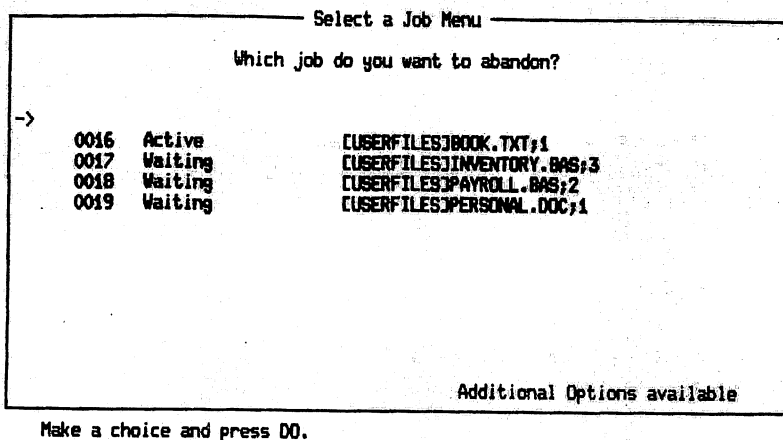
## **MANAGING YOUR PRINT QUEUES**

Three of the options on the Print Control Services Menu enable you to maintain and control the jobs submitted to your print queues. These services are:

- Abandon print request
- Hold print request
- Release print request

### Abandoning Print Requests

Use “Abandon print request” on the Print Control Services Menu to remove a print job from the queue. (Print jobs are queued as “requests” until they finish printing.) When you choose “Abandon print request,” a status menu appears as in Figure 9-11, listing the jobs in your default print queue and their status.



**Figure 9-11**  
Select a Job Menu—Abandon Print Job

Each job is listed sequentially by number, file name (name of the first file if the job contains more than one file), and status (Active, Waiting, or Held). “Active” means the job is currently printing, “Waiting” means it is in the queue to be printed, and “Held” means it has been placed on hold (for more information, see the section on Holding Print Requests in this chapter). If a request does not appear on the queue, it means it has finished printing.

Using the **ARROW** keys, place the pointer at the job you want to abandon and

press DO. It is removed from the queue. If the job is "Active," the printer will stop printing it within 20 seconds.

### ***Abandoning a Job on Another Queue***

If your system has more than one printer, and the job you want to abandon is on another queue, you can display the queues of all available printers by pressing the ADDTNL OPTIONS key. A list of available printers and printer queues appears on the submenu. Choose the queue the job is on that you want to hold. The jobs on that queue will then appear. Choose the job you want to abandon. It will be removed from the queue. If it is currently active, the printer will stop printing it within 20 seconds.

### **Holding Print Requests**

Use "Hold print request" from the Print Control Services Menu to put a queued print job on hold. You can release it for printing later (see the section on Releasing Print Requests in this chapter). When you choose "Hold a print request," a submenu appears, listing the jobs in your default print queue and gives you their status.

Using the ARROW keys, place the pointer at the job you want to hold and press DO. If the job is already printing, it cannot be held and a message informs you. Otherwise, when you press DO, the job is given a "Held" status in the queue. It remains in the queue, but does not print until you release it. (See the section on Releasing Print Requests in this chapter.)

### ***Holding a Job on Another Queue***

If you have more than one printer on your system, and the job you want to hold is on another queue, you can display the queues of all available printers by pressing the ADDTNL OPTIONS key. A list of available printer queues appears. Choose the queue the job is on that you want to hold. The jobs on that queue will then appear. Choose the job you want to hold. It will be placed on hold until you release it.

### **Releasing Print Requests**

Use "Release print request" from the Print Control Services Menu to release a print job you have put on hold (see Holding Print Requests in this chapter), and place it back in the queue to be printed. When you choose "Release a print request," a submenu appears, listing the jobs in your (default) print queue, along with their status.

Using the **ARROW** keys, place the pointer at the job you want to release and press **DO**. The job you choose must have a "Held" status, or an error message appears.

**Releasing a Job on Another Queue**

If you have more than one printer on your system, and the job you want to release is on another queue, you can display the queues of all available printers by pressing the **ADDTNL OPTIONS** key. A submenu appears, listing all the available print queues. Choose the correct print queue. The jobs on that queue will then be displayed. Choose the job you want to release. The job must have a "Held" status.

**Adding Print Queues**

Adding a printer to your system requires two steps: (1) physically attaching the printer hardware, and (2) creating a print queue for it. See your printer's installation instructions to connect the printer hardware to the system and then choose "Add print queue" to create a queue for it and make it available for use.

When you choose "Add print queue," the Add Print Queue submenu appears, as in Figure 9-12 (which displays the initial defaults).

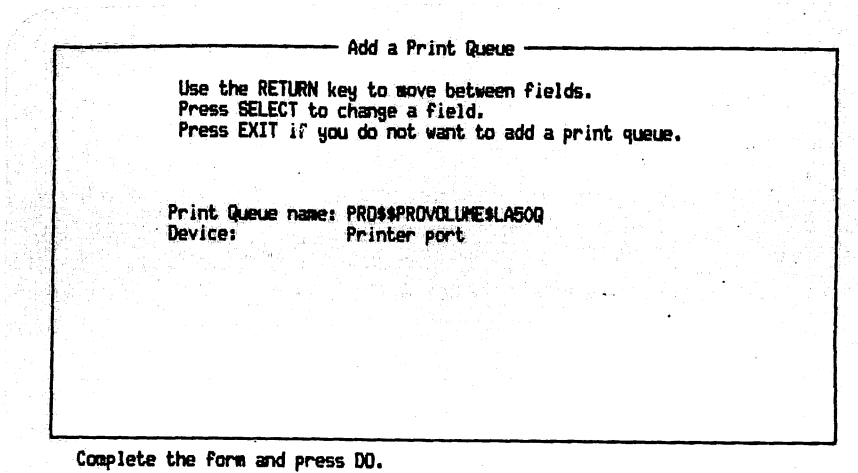


Figure 9-12  
 Example Add Print Queue Menu

**Print Queue Name**

Use this feature to name the print queue. The first part of the name already appears (up to the "\$"), which identifies the system and device names. The last portion (after the "\$"), identifies the portion of the queue name that you can change. To change it, use the **ARROW** keys to place the cursor on the correct line. Then press **SELECT**. A prompt will appear under the menu, requesting the name. Enter any unique name you wish up to 6 characters and press **RETURN**. The name will appear in its place on the menu. Duplicate queue names are not allowed and result in an error. Generally, it is a good idea to identify the printer type with the name; for instance, LA50Q, LQP02Q, LA100Q, and so on.

**Device Name**

Use "Device" to identify the (hardware) method used to connect the printer to the system. A printer can be connected to your system in the following ways:

- At the Printer Port
- At the Communication Port
- To a *Mini-Exchange* unit\* (through the Communication Port)
- To a Quad Port Serial Line Unit (SLU)\*

Your system's first printer is usually connected at the Printer Port (unless an optional device is being used). If it is connected there, "Printer Port" will appear next to "Device name" (this is the initial default). If it does, skip over this option.

If you are attaching a printer to the Communication Port, to a Mini-Exchange, or to a Quad Port Serial Line Unit (SLU), you must specify the correct device, using the "Device" option. To do so, place the cursor and press **SELECT**. The device choices will appear horizontally beneath the menu, as shown in Figure 9-13.

---

\*Mini-Exchange and Quad Port Serial Line Unit are optional DIGITAL products.

Add a Print Queue

Use the RETURN key to move between fields.  
 Press SELECT to change a field.  
 Press EXIT if you do not want to add a print queue.

Print Queue name: PRO\$\$PROVOLUME\$LA50Q  
 Device: Printer port

Complete the form and press DO.

**Printer port** Communications port Mini-exchange(Port 1) (...)

**Figure 9-13**  
**Choosing the Device Name**

Use the ← and → keys to place the cursor on the correct device. The “(. . .)” designator indicates that more options exist.

#### *Printer Port*

As already stated, your system's first printer is usually connected at the Printer Port (unless an optional product such as a Mini-Exchange is being used). You only need designate it if you have chosen one of the other ports for your printer and now want to change it back. To do so, place the cursor on it and press SELECT (or DO or RETURN). Your choice will appear on the Add a Print Queue Menu.

#### *Communication Port*

A printer can be attached at the Communication Port—this is sometimes done with a second printer. Before doing so, however, be certain the Communication Port is not needed for other purposes, such as for communicating with other computers. If you are adding a second printer and your Communications port is in use, consider one of the optional DIGITAL products that provide extra ports: Mini-Exchange or the Quad Port Serial Line Unit.

Choose "Communication Port" if you are connecting the printer directly to it. When you press **SELECT**, it will appear next to "Device" on the Add a Print Queue Menu.

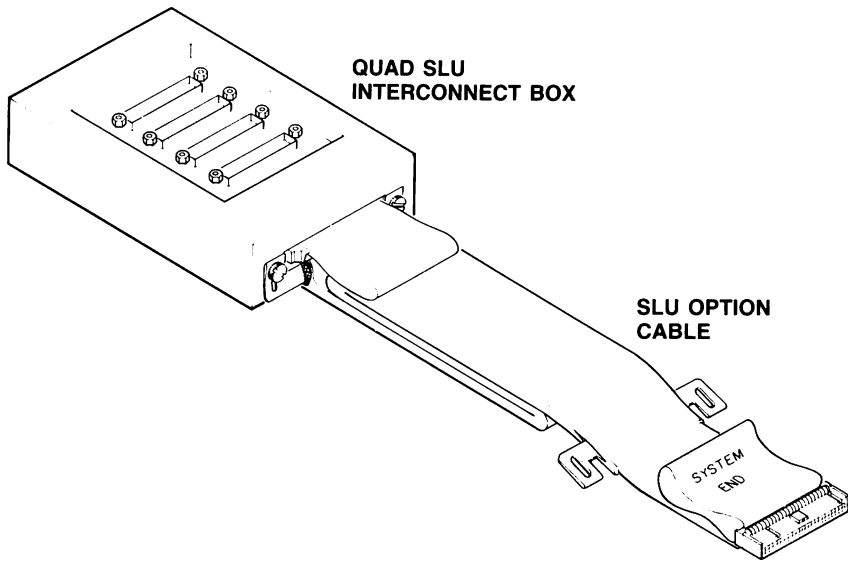
#### *Mini-Exchange*

All the Mini-Exchange ports are listed horizontally and will scroll through ports 1-8 as you press the **→** key. Mini-Exchange ports are physically numbered, and you can check it to be certain of the correct port number. Choose the correct port number. "Mini-Exchange" along with the port number will appear next to "Device" on the Add a Print Queue Menu.

**NOTE:** The Mini-Exchange unit must be attached to the Communication Port. It cannot be attached to a Quad Port Serial Line Unit.

#### *Quad Port Serial Line Unit*

If you are attaching a printer to a Serial Line Unit (SLU), place the cursor at "Device" and press **SELECT**. When the horizontal menu appears below, keep pressing the **→** key until you see "SLU(TT3) SLU(TT4) SLU(TT5) SLU(TT6)." Since the Serial Line Unit ports are not physically numbered, you must determine the correct number by looking carefully at the unit. Figure 9-14 illustrates the four sequentially numbered ports (TT3-TT6) for the Serial,Line Unit.



**Figure 9-14**  
**Quad Port Serial Line Unit**

The port located closest to the ribbon has the lowest number for the group. If you have just one SLU unit, it is TT3, with the remaining ports numbered sequentially (TT4, TT5, TT6).

The SLU ports are listed horizontally and will scroll as you use the **ARROW** keys. Place the cursor on the correct port and press **SELECT**. "SLU" and its port number (for instance SLU(TT3)) will appear on the Add a Print Queue Menu.

#### ***Leaving the Add a Print Queue Menu***

To leave the Add Print Queue Menu, press **DO** to accept all the specifications you have made (press **EXIT** to nullify your changes and exit the menu). When you press **DO**, the Print Control Services Menu will appear.

#### ***Setting the Added Printer's Characteristics***

After you have finished with the Add a Print Queue Menu, the Set Printer Characteristics Menu appears on your screen. This menu enables you to specify

the characteristics of the printer you are adding. These characteristics can greatly affect the operation of your printer and the appearance of its output. This menu is the same as described earlier in this chapter. See the section on *Modifying the Printer Characteristics* for instructions in setting the characteristics of the new printer.

### **Deleting Print Queues**

Use "Delete print queue" whenever a printer is being disconnected from the system for any significant length of time. If you plan to disconnect the printer temporarily, for instance for service, it may not be necessary to remove the queue. When you disconnect a printer without removing its queue, the queue appears to users to be available and functioning, and jobs can still be submitted to it. When you reconnect the printer (or one identical to it), the queued jobs will print.

When you choose "Delete print queue," a list of queues appears. Choose the queue you want to delete and press **DO**. If the printer is busy, or if there are print jobs in the queue, a message informs you. If you want to remove the queue anyway, press **RESUME** (press **CANCEL** if you decide you do not want to remove it). The queue is removed.

### **ALTERNATIVE METHODS OF PRINTING**

Besides using File Services, there are two other ways your Professional can print: the **PRINT SCREEN** key and **PRO/DCL**. The following provides a brief description of each.

#### **The PRINT SCREEN key**

Use the **PRINT SCREEN** key to print out currently visible images (text only) on your screen. To do so, just bring up the screen you want and press **PRINT SCREEN**. It begins printing immediately, unless the printer is busy.

The **PRINT SCREEN** key also works in conjunction with other function keys to provide you with more flexibility, as follows:

- **SHIFT/PRINT SCREEN** causes the screen to print in *sixel* (graphics) mode, which prints out graphics images that cannot be printed by **PRINT SCREEN** alone.
- **CTRL/PRINT SCREEN** enables the Professional's *auto print* mode,

meaning that new lines automatically print as the cursor moves to them. To return to the default mode, press CTRL/PRINT SCREEN again.

**NOTE:** If you are using PRINT SCREEN with a shared printer, check to be certain the printer is not busy. If the printer is busy, the PRINT SCREEN request waits for a *timeout* period (a few seconds), and then terminates the request. During the timeout period, the keyboard and cursor are locked. When the cursor starts blinking again, your keyboard is operable.

After using PRINT SCREEN, reset the paper in your printer so that the print head is at the first line of a page. Use the form feed control on your printer to do this. The LA100 and LA210 printers must be set off-line before form feeding; set them on-line again before you begin printing. PRINT SCREEN works only with the dot-matrix (LA50, LA100, and LA210) printers.

### **Digital Command Language (DCL)**

Files can be printed with certain PRO/DCL commands, including PRINT, PRINT/REMOTE, COPY/PRINT, and CREATE/PRINT. DCL enables you to print from a local printer or one on a DECnet node. Refer to the *Command Language User's Guide* for more information.

### **Printing with PRO/DECnet**

File Services enables you to print files to which you have access through PRO/DECnet. See Using File Services with PRO/DECnet in Chapter 8 for more information.

### **PRINTING GIDIS FILES**

GIDIS is a DIGITAL application used to create graphics files. GIDIS files can be printed from File Services with the LA50, LA100/LA210, and LN03 printers, and the LVP16 plotter. GIDIS files have a .GID designation; for example, CHART.GID;1.

When you print a GIDIS file on the LVP16 plotter, the picture rotates (and its size adjusts) to best fit within your chosen margins.

## **CONVERTING AND PRINTING ReGIS FILES**

ReGIS is another DIGITAL application used to create graphics files. You can print ReGIS files with File Services by using a conversion program (RTOG) to convert them into GIDIS (.GID) files. To perform the conversion, enter PRO/DCL and type:

```
RUN APPL$DIR:RTOG
```

Then enter the name of the ReGIS file, for example: GRAPH.PIC. RTOG creates GRAPH.GID in your default directory; you can print this file with P/OS File Services.

If you wish, you can install RTOG on your Professional as a separate application.

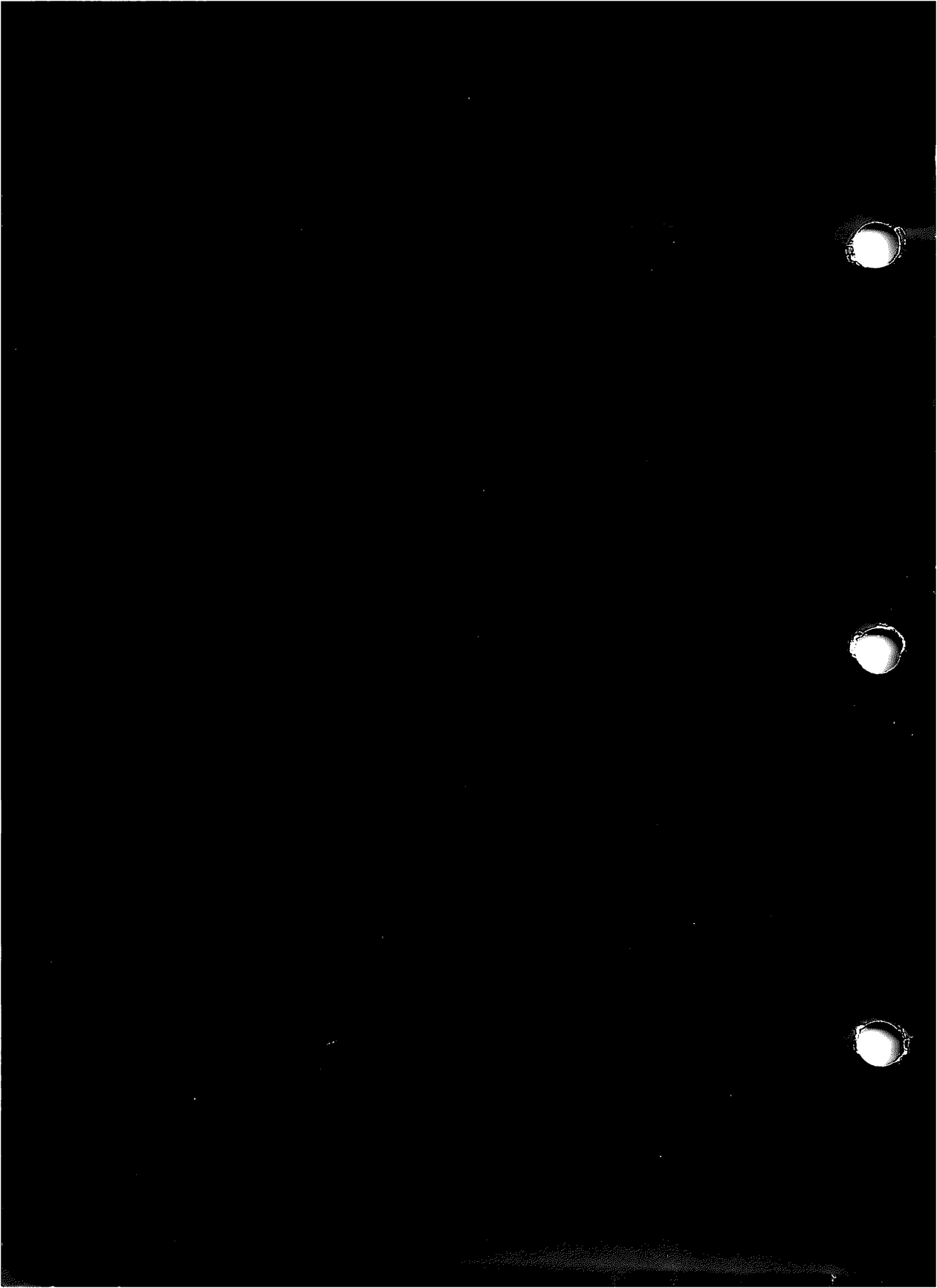
## **PRINTING COMPOSITE (TEXT/GRAPHIC) FILES**

Composite files (containing both text and graphics), such as those created by the PROSE PLUS application, can be printed with File Services on all DIGITAL dot-matrix (LA50, LA100, LA210) printers. These files can also print on DIGITAL's letter-quality printers (LQP02 and LQP03), but the picture areas are left blank. Composite files cannot be printed on the LVP16, and can be printed on non-DIGITAL printers only if the appropriate private driver software exists.

# 10

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## Backing Up and Restoring Files



## Chapter 10

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# Backing Up and Restoring Files

The Backup and Restore Utility (BRU) is supplied on a separate diskette with your other P/OS diskettes. You can run this utility from the diskette or you can install it into your account. BRU enables you to back up specified files from your hard disk to diskettes, copy a disk to another disk, and restore files back to the disk when necessary. It provides you with a measure of protection in case your system should malfunction or data on your disk is accidentally destroyed. Also, it is possible to erase files accidentally. Therefore, it is a good practice to maintain copies of important files. This chapter describes the Backup and Restore Utility. The predecessor to this utility, called the Backup and Restore Application (Archive) is also described. This application is needed for backing up and/or restoring files with earlier versions of P/OS.

### **BACKUP PROCEDURES**

Sound backup procedures are your insurance against loss of important information. Disks and diskettes can be misplaced, stolen, or damaged by misuse or accidents. Also, while your computer equipment is highly reliable, no equipment is absolutely foolproof, and certain types of malfunctions (such as loss of power) can result in loss of information. The extent and frequency of your standard backup procedures should be determined by your company's circumstances and the importance of the information.

### **BACKUP AND RESTORE APPLICATION (ARCHIVE)**

As indicated, BRU's predecessor, the Backup and Restore Application (Archive) is also described in this chapter. This application is included with your Professional

to provide “backward compatibility” for existing P/OS users. You will need to use this Backup and Restore program only if you restore files that were backed up with an earlier version of P/OS, or if you want to create a backup diskette that will be used with an earlier version of P/OS.

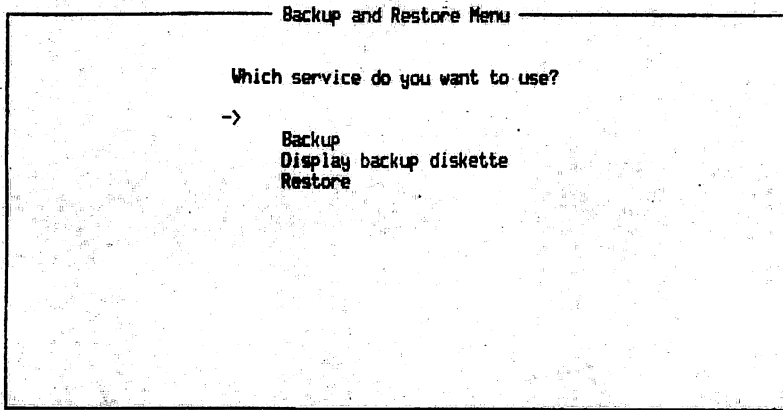
### **COPY FUNCTIONS IN FILE SERVICES**

It is not always necessary to use a Backup and Restore program to protect your files. File Services (described in Chapter 8) provides services for copying files, and entire diskettes. It is simple to use, and will suffice for many of your simpler backup requirements. However, the Backup and Restore Utility provides services not offered by File Services. For instance, the Backup and Restore Utility is definitely necessary for backing up files that require more than one diskette (approximately 775 blocks). Also, if you want to display the list of files on a backup diskette, you must use the Backup and Restore Utility (rather than File Services), since files backed up with the Backup and Restore Utility are reformatted.

### **USING THE BACKUP AND RESTORE UTILITY (BRU)**

To use the Backup and Restore Utility (BRU), you must either install it into your account, or run it directly from the diskette. For instructions in installing it into your account, see Chapter 5, Installing Applications, and Chapter 6, Copying Applications into the Public Library. After BRU is installed, choose the application (display the Main Menu and press ADDTNL OPTIONS to find its group). Then insert your source diskette (the diskette you are backing up) into the first (top) slot and choose BRU. The Backup and Restore Menu will appear as in Figure 10-1.

To run the Backup and Restore Utility directly from the diskette, turn off the Professional, and insert the application diskette into the first (top) slot. When you turn on the power again, the DIGITAL logo appears, followed by the Backup and Restore Menu.

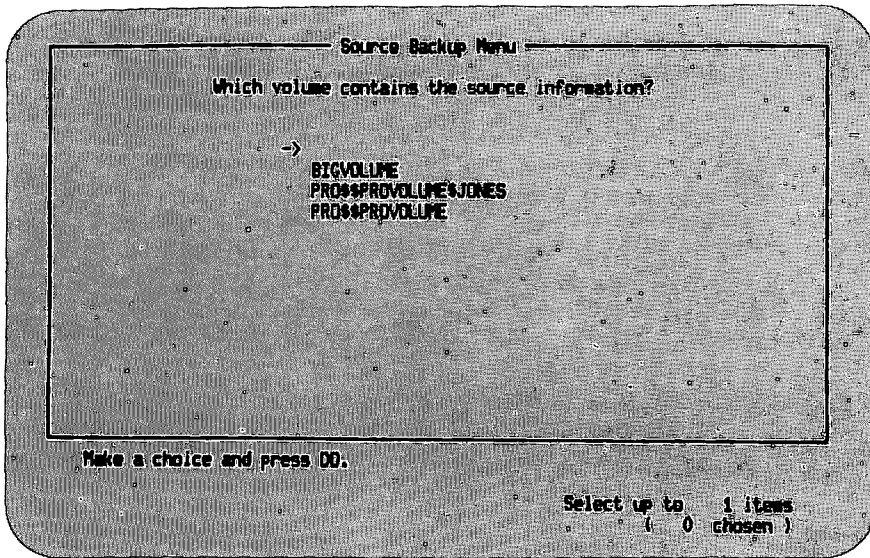


Make a choice and press DD.

**Figure 10-1**  
Backup and Restore Menu

### Performing Backups

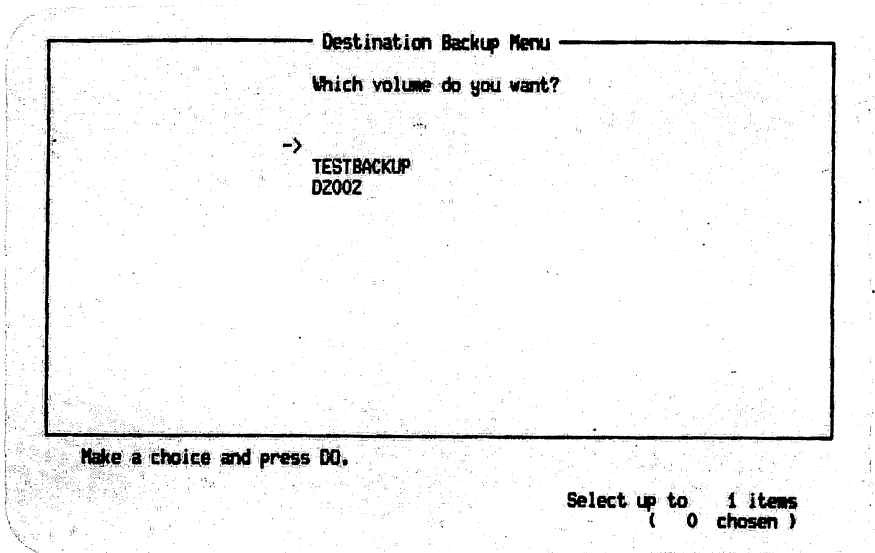
When you want to back up files, choose “Backup.” The Source Backup Menu will appear, as shown in Figure 10-2.



**Figure 10-2**  
**Source Backup Menu**

This menu displays the labels of all the hard disk volumes available for you to back up from. If you choose the entire physical volume (such as PRO\$\$PROVOLUME in Figure 10-2), you will back up the entire volume (this would probably require many diskettes). Or you can choose a “volume” that actually includes only your account (such as PRO\$\$PROVOLUME\$JONES in Figure 10-2). In that case, you will back up just the files in your account.

If the file(s) you want to back up are in your own account, choose the “volume” with your account name at its end. To back up files other than in your own account, choose the physical volume label. When you do, the Destination Backup Menu will appear, as shown in Figure 10-3.



**Figure 10-3**  
**Destination Backup Menu**

Use this menu to specify the location of the backup diskette. If you have diskettes in both drives (you are operating BRU directly from diskette), both volume names will appear on the menu. If you have just the backup diskette inserted (you are operating BRU as an installed application), the name of the backup diskette will appear. If a "DZxxx" name appears, it is simply the name of the diskette drive device, because no diskette is inserted there. If you have not already inserted the backup diskette, insert it. Choose the name of your backup diskette and press DO. Then the Diskette Backup Menu will appear as in Figure 10-4.

```

Diskette Backup Menu

Use the RETURN key to move between fields.
Press EXIT if you do not want to perform the backup.
Enter the information and press DO.

FROM:      PR04$PR0VOLUME$JONES:[*]*.*
TO:        TESTBACKUP:

Backup set name: _____
Do you want to check the volume for bad blocks [YES/NO]? _____

After Date/Time: Year: 26
                  Month: 01
                  Day: 01
                  Hour: 00
                  Minute: 00
                  Second: 00

Complete the form and press DO.

```

**Figure 10-4**  
Diskette Backup Menu

You use this menu to:

1. Enter the name of the directory and file(s) you want to back up.
2. Enter a name for the set of backup files.
3. Designate whether or not to check the diskette for bad blocks.
4. Specify the point in time after which all new (including revised) files under the specified (file or directory) name are to be backed up.

### Specifying the Backup Source

The cursor is at the end of the line beginning with "FROM." The name of the volume you chose for backup appears there. This name cannot be changed on this menu. After the volume name is an underlined "wildcard" directory/file specification [\*]\*.\*;\*. You can change any portion of this wildcard specification. For example, if you wanted to back up all files named BOOK.TXT in the directory named PERSONAL, you would enter [PERSONAL]BOOK.TXT;

**Full Volume Backup**

The `[*]*.*;*` (wildcard) specification designates all directories and files on the specified volume for backup. If you want to back up the entire volume, do not change this line. Note that if your account name appears at the end of the volume name (such as JONES), it means that just that account will be backed up.

**Full Directory Backup**

To specify a full directory backup, enter the directory name inside square brackets (for example, [USERFILES]). If the file is in a subdirectory, enter it also (for example, [USERFILES.MEMOS]). When you press DO, all files in the named directory will be designated for backup.

If the volume name (on the first line of the menu) does not include the account name (such as JONES in Figure 10-4), it must be included as part of the directory specification. For instance, to back up the entire USERFILES directory in the JONES account, you would enter [JONES.USERFILES].

**File Backup**

To specify a particular file for backup, enter the file's directory, name and type. For example, [USERFILES]TESTFILE.TXT. When you press DO, all files with that name will be designated for backup. If the file has more than one version and you want to back up a particular one, enter the version number also. For example, [USERFILES]TESTFILE.TXT;3.

**The Backup Destination**

The menu line beginning with "TO" contains the destination volume you chose earlier. It cannot be changed on this menu.

**Backup Set Name**

It is necessary to name each backup that you create. This makes it easier to locate the set of backup files when you want to restore them. Also, it is necessary to know the name of the backup set name when you want to display the directories of files on a backup diskette. To enter the name for this backup, place the cursor on the "Backup Set Name" line. Then enter any name you want for the backup set (up to 12 characters). Enter a name that indicates something about the files in the backup set, for instance JUNE85PAYRLL. The name will appear on the line.

### Checking the Backup Diskette for Bad Blocks

If the program encounters bad blocks on the backup diskette you are using, it will abort the backup (requiring you to start again at the beginning). To prevent that, you can use this feature, which marks the bad blocks, enabling the Backup and Restore Utility to circumvent them. To check for bad blocks, place the cursor, and enter YES.

### Specifying the Date/Time to Begin Backup

After you have specified the files you want to back up, you can specify a date and time after which the file was created (and/or revised). This means that all files (with the directory/file name you specified) that were created after that date and time will be backed up. For example, if you specified (on the first line of the form) to back up an entire volume, you may just want to back up files on the volume that were created yesterday or last week. To specify the point in time you want the backup to begin, move the cursor to the "After Date/Time" line. Then place the cursor on the date field you want (year, month, day) and use the **<X>** key or REMOVE key to delete the existing number and enter the new one. If the time fields (hour, minute, second) are left to "00," files created after midnight on the date specified will be backed up. Use RETURN or the ARROW keys to move between the lines. If you do not change any of the Date/Time fields, all versions of files you named will be backed up. When you have specified the date and time you want the backup to begin, press DO.

**NOTE:** Backup diskettes are automatically initialized before the backup occurs. Note that initialization erases all information on the diskette.

A message display will appear, prompting you to insert the backup diskette and press RESUME to continue. (If you have not inserted your backup diskette, do so.) Press RESUME. A message will inform you when the backup operation is complete. Press EXIT to return to the Backup and Restore Menu.

### Displaying the Backup Diskette

The backup diskette is then used if and when its files need to be restored. When you want to restore files, you should first display the backup diskette to determine which files are actually there. To do so, follow these steps:

1. Enter the Backup and Restore Utility (if it is installed in your account). Otherwise, insert the Backup and Restore Utility diskette in the top diskette drive.

2. Insert your (first) backup diskette into the diskette drive and choose "Display Backup Diskette" from the Backup and Restore Menu. A submenu will display your diskette name(s). If a drive is empty, the drive's name (such as DZ002) will appear.
3. Choose the diskette you want to display.
4. Another submenu will appear, requesting the name of the backup set you want to display. As described in the previous section, backup files are stored in named "backup sets." If you know the name of the backup set you want to display, enter it and press DO.
5. If you do not know the backup set name, just press DO and the list of backup sets on the diskette will appear on the screen. Find the name and press EXIT.
6. The previous menu (requesting the backup set name) will reappear. Enter the backup set name at the prompt and press DO. The list of files contained in the backup set will then appear on the screen. If an error appears on the screen, check to determine that the backup diskette is the proper one, and not damaged.
7. Repeat the process for other backup sets, if necessary.

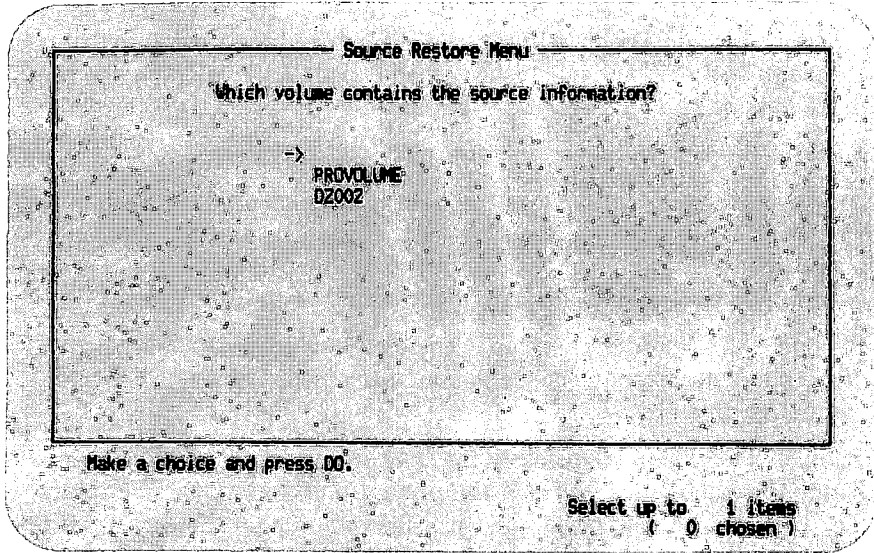
Press EXIT to return to the Backup and Restore Menu.

### Restoring Files

The purpose of backing up information on the disk is so it can be restored if and when necessary. To restore a file from diskette means to reformat the information and copy it back to the disk. To restore files from a backup diskette to the hard disk, insert the diskette containing the backup files in the drive. If you need to see the contents of the backup diskette before restoring it, see the previous section, Displaying the Backup Diskette.

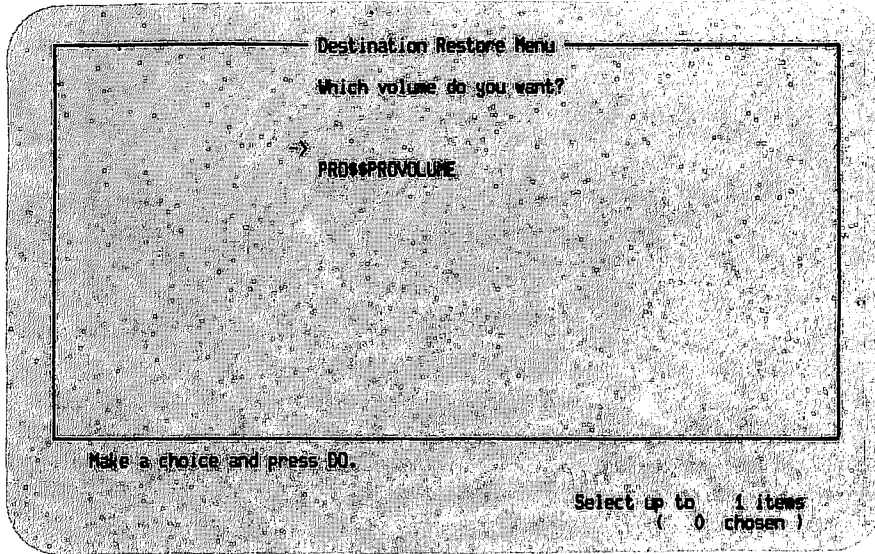
**NOTE:** As mentioned earlier in this chapter, it is possible to back up files from one hard disk to another (no diskette involved). This type of backup differs from a backup to diskette in that no reformatting is involved; the backup is simply a direct copy. Since the information is not reformatted, the "Restore" function will not work with this type of backup. If you have backed up one hard disk to another, and now want to restore the files to the original disk, just perform another backup operation—this time to the original disk.

When you choose "Restore" from the Backup and Restore Menu, the submenu as the example in Figure 10-5 appears.



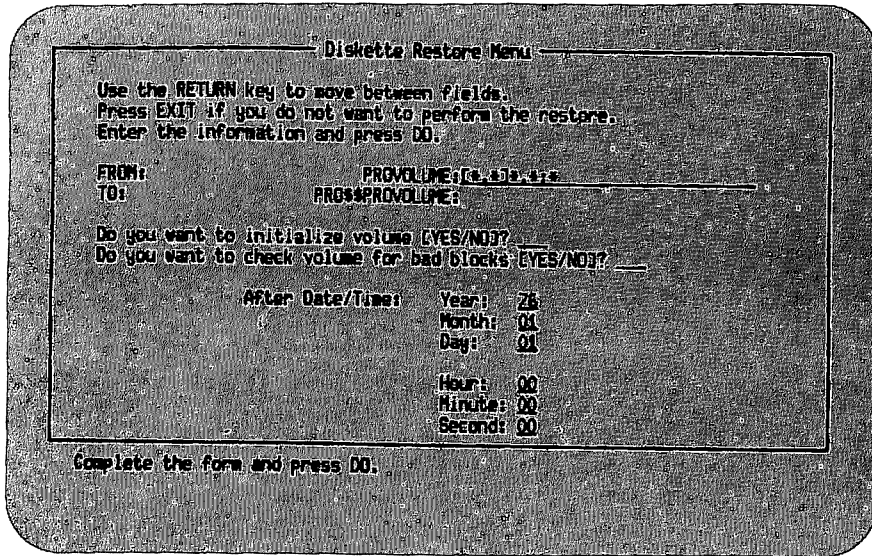
**Figure 10-5**  
**Source Restore Menu**

This menu displays the volume names of your backup diskette(s). If one of your drives does not contain a diskette, it will be designated by its device name, such as DZ002. Choose the diskette you are restoring files from and press DO. The following menu will appear, as in Figure 10-6.



**Figure 10-6**  
**Destination Restore Menu**

Use this menu to specify the hard disk volume you want to restore the files to. All available hard disk volumes are displayed. Choose the volume you want to restore the files to and press DO. The file(s) will be restored to the directory and/or account it was backed up from. The Diskette Restore Menu will appear as in Figure 10-7.



**Figure 10-7**  
**Diskette Restore Menu**

You use this menu to:

1. Specify the name of the file and directory you want to restore.
2. Initialize the disk, if desired.
3. Check the disk for bad blocks.
4. Specify the date/time after which all files under the specified (file or directory) name are to be restored.

**Identifying the Files to be Restored**

The menu line beginning with "FROM" identifies the source diskette containing the files you want to restore to the hard disk. It is there for informational purposes only and cannot be changed on this menu. It is followed by an underlined "wildcard" directory/file specification [\*]\*.\*;\*. This portion of the specification can be changed. Enter the directory and/or file name of the file(s) you want to restore to the disk.

### *Restoring an Entire Backup Set*

The `[*.*]*.*;*`  entry specifies all directories and files contained on the diskette to be restored. If you want to do that, do not change this line.

### *Restoring All Files in a Directory*

To restore all files in a directory, enter the directory name inside square brackets (for example, `[JONES.USERFILES]`). Then press **DO**.

### *Restoring Individual Files*

To restore a particular file, enter the file's directory, name and type. For example, `[USERFILES]TESTFILE.TXT`. If the file has more than one version and you want to back up a particular one, enter the version number also. For example, `[USERFILES]TESTFILE.TXT;3`.

### *The Restore Destination*

The next line (beginning with "TO") identifies the volume name of the disk that the files are being restored to. The name of the destination disk you chose earlier (on the Destination Restore Menu) appears there. It cannot be changed on this menu.

### *Initializing the Disk*

The next line on the menu asks you if you want to initialize the hard disk. If you want to initialize your hard disk before restoring the files, enter **YES** here. You should always initialize the disk when restoring an entire volume, or are reinstalling P/OS.

**WARNING:** Initializing the disk erases all information on it. Be certain that you have backup copies of all important files and applications before doing so.

### *Checking the Hard Disk for Bad Blocks*

The next line asks you if you want to check the volume (hard disk) for bad blocks. If bad blocks are encountered during the restore operation, it will abort it, requiring you to start it over. Doing the check for bad blocks enables all bad blocks to be marked and circumvented by the Restore operation. To check for bad blocks, enter **YES**.

**Specifying the Date/Time to Begin Restore**

After you have specified the files you want to restore, you can specify the date and time (forward) to restore files. All files created (and revised) after the date/time entered here will be restored. If many files, such as an entire volume or directory are contained on the diskette, you may want to restore only those files that were created during the last day, week, or month. (If you need to first display all the files contained on the source diskette to determine this, read the section on Displaying the Backup Diskette discussed earlier in this chapter). To specify this date and time, place the cursor in the "After Date/Time" area. Place the cursor on the field you want (year, month, etc.) delete the existing number and enter the new number. Use RETURN or the ARROW keys to move between the lines. When finished specifying the date/time, press DO.

**Performing the Restore Operation**

A message display will appear, prompting you to insert the Restore diskette and press RESUME. (If you have not inserted the Restore diskette, do so.) Press RESUME and the Restore operation will begin. Messages will inform you when the operation is complete, or if an error condition is present.

**THE BACKUP AND RESTORE APPLICATION (ARCHIVE)**

Earlier versions of P/OS also have a Backup and Restore program. It is supplied with your present system as an application, called the Backup and Restore Application (Archive). Instructions for using this program are provided below. For most of your Backup and Restore operations, use the Backup and Restore Utility described earlier in this chapter. Use this previous Backup and Restore version only in the following circumstances:

- You need to restore a file that was backed up with an earlier version of P/OS.
- You need to create a backup diskette that will be used with an earlier version of P/OS.

Since this Backup and Restore program is a separate application, you must install it before using it. To install it, see *Hard Disk System for Beginners*.

The following sections instruct you in backing up one file, multiple files, and an entire directory.

### Backing Up One File

1. Get a blank (new or newly initialized) diskette or a diskette with other backup files on it. If you are backing up a file over 624 blocks long, you need more than one diskette. Each diskette holds from 624 to 780 blocks of the file. Diskettes can have bad blocks, so the amount of available space can vary.
2. Insert your backup diskette into a diskette drive slot. If you are backing up a long file to several diskettes, insert the first blank diskette.
3. Select the Backup and Restore program from the Main Menu (or wherever you installed it). A menu with two options appears.
4. Choose "Back up selected file(s)." A menu showing the latest versions of the files in your current directory will appear.

### Choosing the Source File—Additional Options

If the file you want to back up is not listed, you can use the Additional Options Menu to find and/or specify it. Press the ADDTNL OPTIONS key. This will erase any information you may have typed in so far and a menu will appear displaying the following additional options:

Choose a different directory/volume  
 Display next group of files  
 Use extended file name  
 Show all versions  
 Show only latest versions

#### Choosing a Different Directory/Volume

"Choose a different directory/volume" displays your directory selection menu. Choose the directory you want. When you press DO, a File Selection Menu appears, listing the files in the selected directory.

#### Display the Next Group of Files

"Display next group of files" displays more of a file selection menu that contains the names of more than 60 files. This option is only applicable if the message "To see more groups of files, press ADDTNL OPTIONS" is displayed. Choose this option if pressing NEXT SCREEN does not display more of the files in the list.

### *Using the Extended File Name*

“Use extended file name” results in a prompt for the RMS file specification.

### *Listing all File Versions*

“Show all versions” displays a File Selection Menu with all versions of all files in the current directory.

### *Listing Only Latest File Versions*

“Show only latest versions” displays a file selection menu with only the most recent versions of the files in the current directory.

1. Choose the file you want to back up. Press DO.
2. A menu appears listing the diskette device names. Choose DISKETTE1 if your backup diskette is in slot 1. Choose DISKETTE2 if your backup diskette is in slot 2. Press DO.
3. A menu appears asking you whether or not you want to initialize the volume\*. The initialization procedure takes up to two minutes and erases any information already on the diskette. When you have selected your answer to the question, press DO. If you chose not to initialize the volume, go on to Step 8. If you want to initialize the volume, perform the following steps:
  - a. A form appears, asking you to enter a volume name for the newly initialized volume. Type in a name of up to twelve letters (A–Z) and/or numbers (0–9).
  - b. Press DO.
  - c. If there are files already on the diskette, a warning message appears. If you still want to initialize, press DO and the initialization will proceed. If you decide not to initialize, press CANCEL, replace the diskette with another one and press RESUME. Press EXIT to exit the Backup and Restore program without backing up the file.
  - d. P/OS now checks to see if the file will fit on the diskette you have chosen.

---

\* Note that the initialization for backup is not exactly the same as that performed with “Initialize” on the File Services Menu. If you are using a newly initialized diskette, you will need to initialize it again at this point for backup files.

- If the file fits, the backup proceeds. Depending on the size of the file, the back up procedure can take from a few seconds to about five minutes.
- If the file does not fit, but will fit on another diskette that has more empty space, a message appears telling you to either initialize your diskette or insert a different diskette. You can, if you want, insert a new diskette at this point. When you are ready to continue, press **RESUME**. Then the Device Selection Menu reappears as in Step 6. When you press **DO**, the Initialize Diskette Menu appears as in Step 7. Messages tell you what to do.
- If the file will not fit on one diskette at all, a message appears telling you how many blocks long the file is and approximately how many diskettes you need to copy it. Make sure you have the necessary number of diskettes. You cannot back up to a diskette that has another backup file already on it (unless you first reinitialize it, thus erasing it).

When you are ready to perform the backup, press **RESUME**. (Otherwise, press **EXIT** to exit the Backup and Restore program without doing anything or **MAIN SCREEN** to return to the Main Menu.) Messages will tell you what to do. **DO NOT** remove your first backup diskette until the backup is completed. When a message tells you to insert the second backup diskette, do so and press **RESUME**. Repeat this procedure for the remaining diskettes.

- e. When the backup is completed, remove, label, and store the backup diskette(s). When multiple diskettes are involved, and part of a file is on the diskette, indicate on the label which part. This is important to do, particularly if you have to restore the file, you must start with the first part and proceed sequentially to the last part. Keep your backup diskettes in a separate location from your other diskettes.

To restore a damaged disk file, use “Restore disk file(s).”

### Backing Up Multiple Files

1. Get a blank (new or newly initialized) diskette. If you are backing up files which total over 624 blocks in length, you need more than one diskette. Each diskette holds from 624 to 780 blocks of data. (Since some diskettes may have “bad blocks,” or space that is unusable, the amount of available space can vary.)

2. Insert your backup diskette into a diskette drive slot. If you will be backing up to a series of diskettes, insert a blank diskette, which will become the first backup diskette for the files.
3. Choose "Back up disk file(s)" from the File Services Menu. A menu with two options appears.
4. Choose "Back up selected file(s)." A menu showing the latest versions of the files in your current directory appears.

---

#### *Additional Options*

Pressing ADDTNL OPTIONS erases any information you may have typed in so far and displays a menu of the following additional options:

- Choose a different directory/volume
- Display next group of files
- Use extended file name
- Show all versions
- Show only latest versions

"Choose a different directory/volume" displays your directory selection menu. Choose the directory you want. When you press DO, a File Selection Menu appears, listing the files in the selected directory.

"Display next group of files" displays more of a file selection menu that contains the names of more than 60 files. This option is only applicable if the message "To see more groups of files, press ADDTNL OPTIONS" is displayed. Choose this option if pressing NEXT SCREEN does not display more of the files in the list.

"Use extended file name" results in a prompt for the RMS file specification. Wildcards can be used with this option; see Chapter 5 for information on their use.

"Show all versions" displays a File Selection Menu with all versions of all files in the current directory.

"Show only latest versions" displays a file selection menu with only the most recent versions of the files in the current directory.

---

5. Choose the files you want to back up. Press **DO**.
6. A menu appears listing the diskette device names. Choose **DISKETTE1** if your backup diskette is in slot 1. Choose **DISKETTE2** if your backup diskette is in slot 2. Press **DO**.
7. A menu appears asking you whether or not you want to initialize the volume. The initialization procedure takes up to two minutes and erases any information already on the diskette. Enter **YES** and press **DO**.
8. A form appears asking for the volume name you want the newly initialized volume to have. Type in a name of up to 12 letters (A–Z) and/or numbers (0–9).
9. Press **DO**.
10. If there are any files already on the diskette, a warning message appears. If you still want to initialize, press **DO** for the initialization to take place. If you decide not to initialize, press **CANCEL**, replace the diskette with another one, then press **RESUME**; or press **EXIT** to return to the File Services Menu without backing up the files.
11. P/OS now backs up your files to the inserted diskette.
  - a. If the files fit on the inserted diskette, the backup takes place. Depending on the size of the files, the back up procedure can take from a few seconds to about five minutes per file.
  - b. If some, but not all of the selected files will fit on the inserted diskette, P/OS backs up as many of the files as will fit on the inserted diskette. A message will appear telling you which files were backed up to the inserted diskette, and will tell you to insert another backup diskette when necessary.
  - c. In the case of individual files which will not fit on one diskette at all, a message appears telling you the size of the file(s) and approximately how many diskettes you need. Make sure you have the necessary number of diskettes. You cannot back up a file of this size to a diskette that has another backup file already on it (unless you first reinitialize and thus erase that diskette).

When you are ready to perform the backup, press **RESUME**. (Otherwise, press **EXIT** to exit the Backup and Restore program without doing anything or **MAIN SCREEN** to return to the Main Menu.) Messages will tell you what to do. **DO NOT remove your first backup diskette until the backup is completed.** When a

message tells you to insert the second backup diskette, put it in the other diskette slot, close the slot door, and press **RESUME**. Wait for another message. If a third backup diskette is required, remove the **second** backup diskette when the appropriate message appears, insert the third diskette, and press **RESUME**. Continue in this fashion until the backup is completed.

12. When the backup is completed, remove, label, and store the backup diskette(s). Be sure to write on the labels before sticking them on the diskette covers. If part of a file is on the diskette, indicate on the label which part. This is important because if you have to restore the file, you must start with the first part of the file and proceed sequentially through it. Keep your backup diskettes in a separate location from your other diskettes.

To restore a damaged disk file, use “Restore disk file(s).”

### **Backing Up an Entire Directory**

1. Get a blank (new or newly initialized) diskette. If you are backing up files which total over 624 blocks in length, you need more than one diskette. Each diskette holds from 624 to 780 blocks of data. (Since some diskettes may have “bad blocks,” or space that is unusable, the amount of available space can vary.)
2. Insert your backup diskette into a diskette drive slot. If you will be backing up to a series of diskettes, insert a blank diskette, which will become the first backup diskette for the file(s).
3. Choose “Back up disk file(s)” from the File Services Menu. A menu with two options appears.
4. Choose “Back up selected directory.” A directory selection menu appears on your screen.

---

#### *Additional Options*

Pressing **ADDTNL OPTIONS** erases any information you may have typed so far and displays a menu of the following additional options:

- Choose system directory
- Display next group of directories

“Choose system directory” displays a menu of P/OS system and application directories. Choose the directory you want.

“Display next group of directories” displays more of a menu that contains more than 60 directory names. Use this option if pressing NEXT SCREEN does not display more names in the list.

---

5. Choose the directory you want to back up. Press DO.
6. A menu appears listing the diskette device names. Choose DISKETTE1 if your backup diskette is in slot 1. Choose DISKETTE2 if your backup diskette is in slot 2. Press DO.
7. A menu appears asking you whether or not you want to initialize the volume. The initialization procedure takes up to two minutes and erases any information already on the diskette. Answer YES and press DO.
8. A form appears asking for the volume name you want the newly initialized volume to have. Type in a name of up to 12 letters (A–Z) and/or numbers (0–9).
9. Press DO.
10. If there are any files already on the diskette, a warning message appears. If you still want to initialize, press DO for the initialization to take place. If you decide not to initialize, press CANCEL, replace the diskette with another one, then press RESUME; or press EXIT to return to the File Services Menu without backing up the files.
11. P/OS now checks to see if the files in the selected directory will fit on the diskette you have chosen.
  - a. If the files in the selected directory fit, the backup takes place.
  - b. If some, but not all of the files in your selected directory will fit on the inserted diskette, P/OS backs up as many of the files as will fit on the inserted diskette. A message will appear telling you which files were backed up to the inserted diskette, and will tell you to insert another backup diskette when necessary.
  - c. In the case of individual files which will not fit on one diskette at all, a message appears telling you the size of the file(s) and approximately how many diskettes you need. Make sure you have the necessary number of diskettes. You cannot back up a file of this size to a diskette that has another backup file already on it (unless you first reinitialize and thus erase that diskette).

When you are ready to perform the backup, press **RESUME**. (Otherwise, press **EXIT** to exit the Backup and Restore program without doing anything or **MAIN SCREEN** to return to the Main Menu.) Messages will tell you what to do. **DO NOT remove your first backup diskette until the backup is completed.** When a message tells you to insert the second backup diskette, put it in the other diskette slot, close the slot door, and press **RESUME**. Wait for another message. If a third backup diskette is required, remove the **second** backup diskette when the appropriate message appears, insert the third diskette, and press **RESUME**. Continue in this fashion until the backup is completed.

12. When the backup is completed, remove, label, and store the backup diskette(s). Be sure to write on the labels before sticking them on the diskette covers. If part of a file is on the diskette, indicate on the label which part. This is important: if you have to restore the file, you must start with the first part and proceed sequentially to the last part. Keep your backup diskettes in a separate location from your other diskettes.

To restore a damaged disk file, use "Restore disk file(s)."

Appendix A



## Appendix A

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### Keyboards

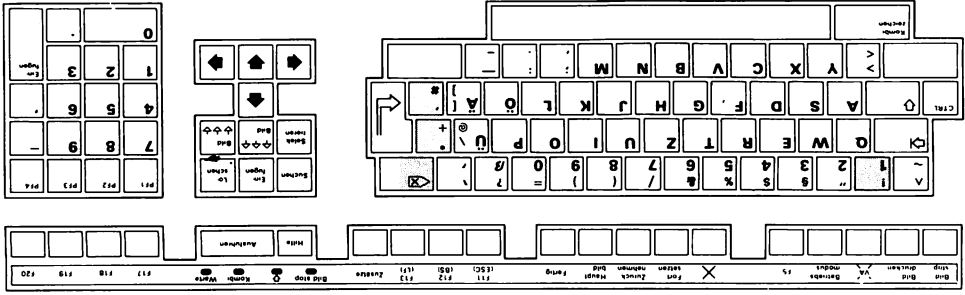
The following pages in this appendix illustrate the keys on each of the 15 Professional keyboards.

All the keyboards except the U.S./Canada keyboard have one or more keys that display different characters, depending on whether the keyboard is in office mode or data processing (DP) mode. Use the Terminal Setup Menu to switch from one mode to the other. In the illustrations that follow, keys that differ depending on the mode are shown in red. The character(s) on the right side of the key are displayed in DP mode.

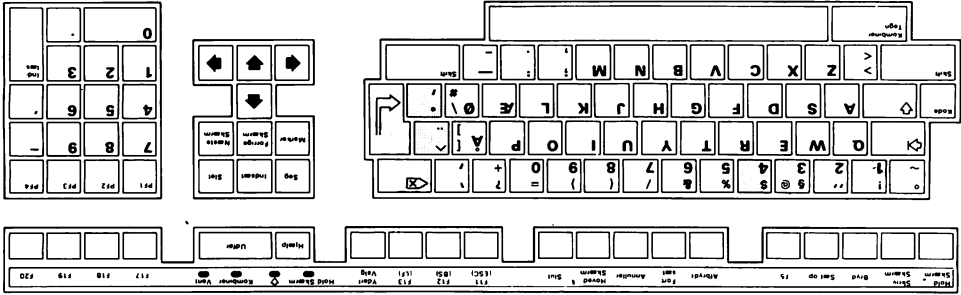
All the keyboards except the U.S./Canada keyboard allow some “two-stroke” compose sequences which allow you to compose a character by pressing a “dead key” and then pressing a key that, together with the dead key, displays a legitimate character. For example, to display é on a Danish keyboard, press ' followed by e. Dead keys in the following illustrations are shown in gray. See Appendix B for more information on compose sequences.

If you make a mistake using the dead keys, your keyboard will beep (provided the keyboard bell is set to ON).

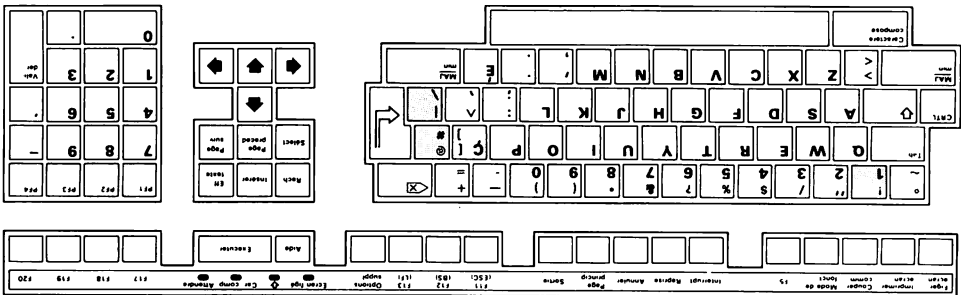




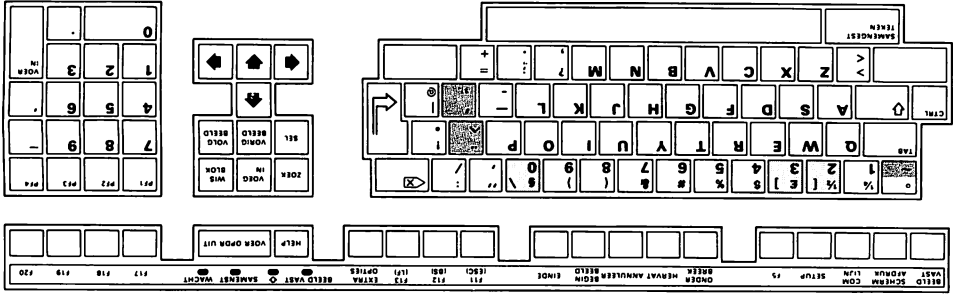
GERMANY/AUSTRIA



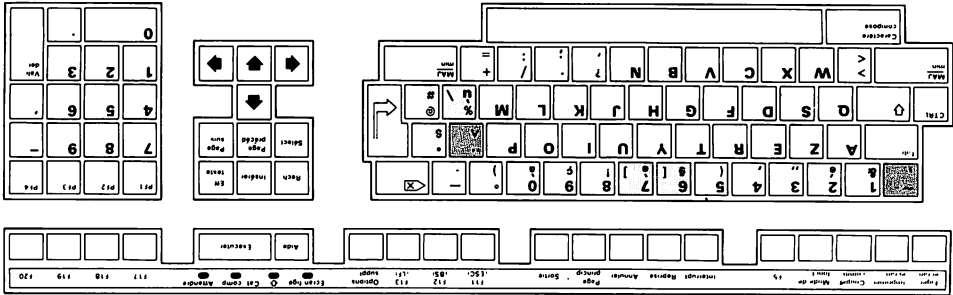
DENMARK



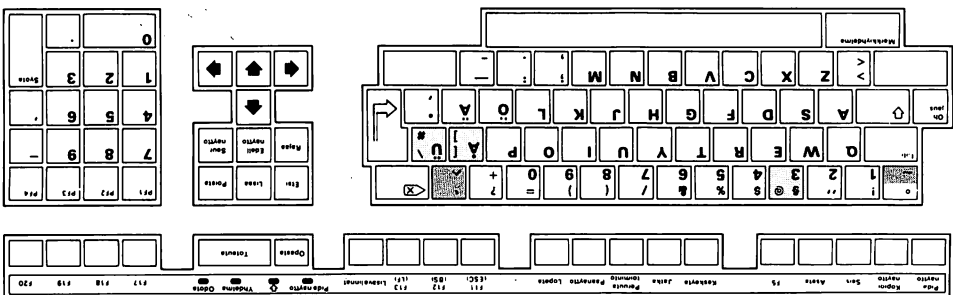
CANADA/FRENCH



HOLLAND

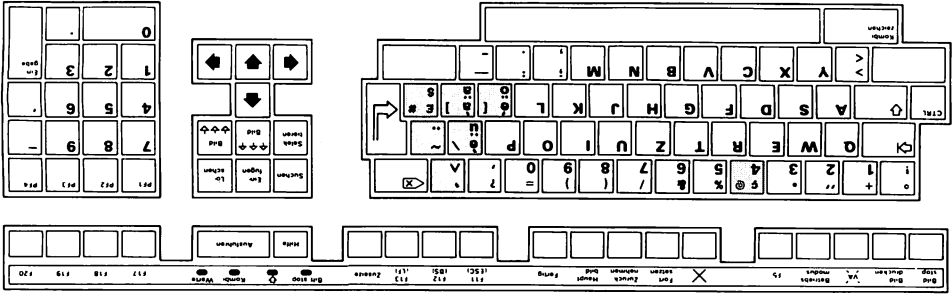


FRANCE/BELGIUM

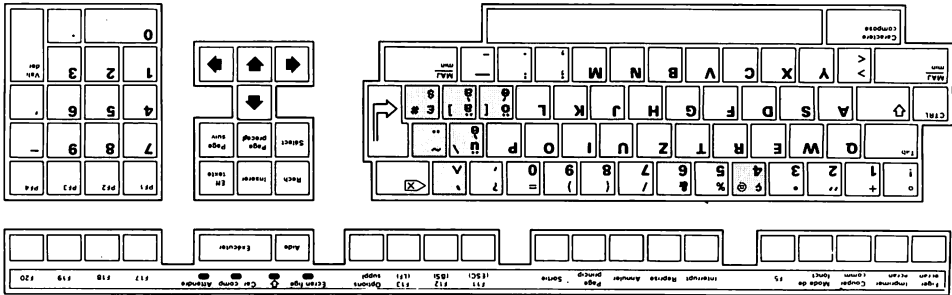


FINLAND

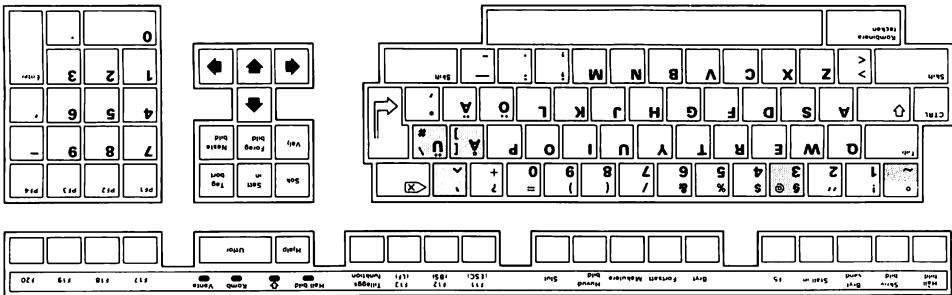




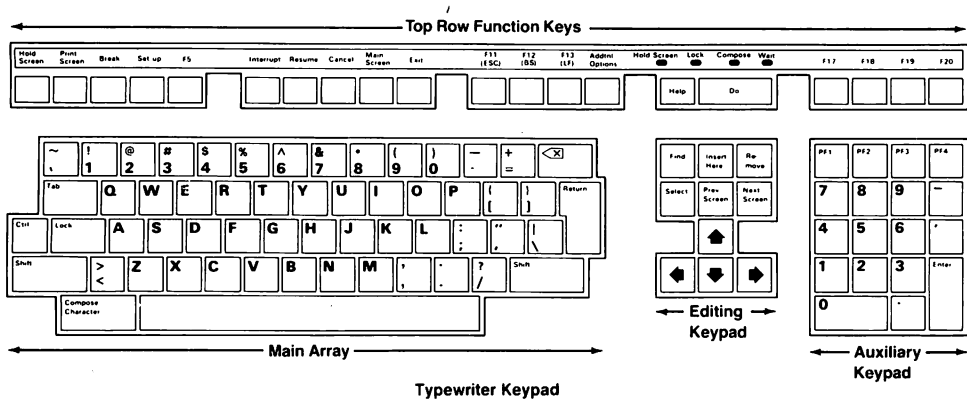
SWITZERLAND/GERMAN



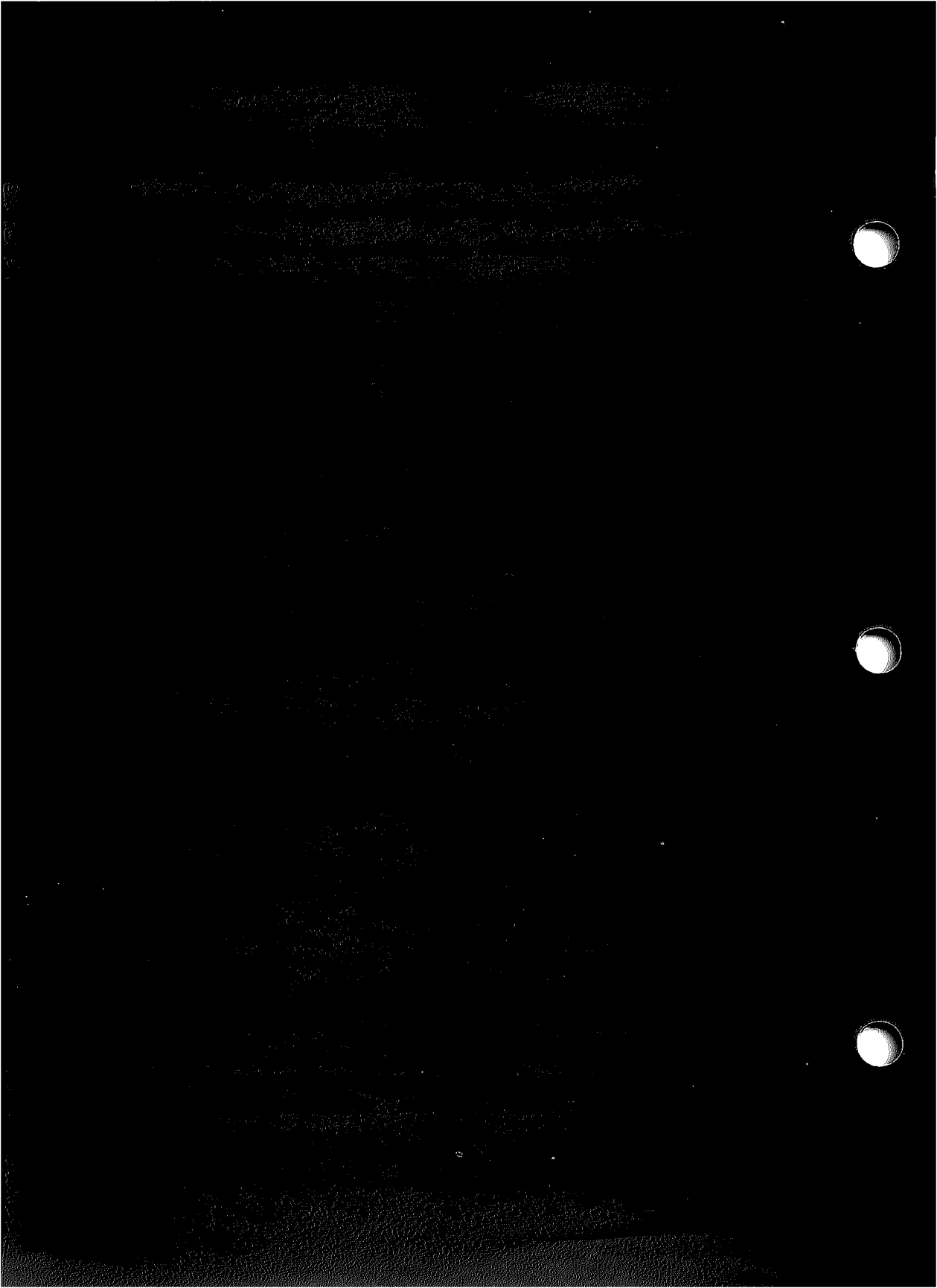
SWITZERLAND/FRENCH



SWEDEN



Appendix B



## Appendix B

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### Compose Sequences

This appendix lists the sequences and characters that can be created with the COMPOSE key. See Chapter 4 for instructions on using this key.

**Table B-1**  
**Compose Key Sequences**

1	2	3
Ä	A	"
ä	a	"
Á	A	'
á	a	'
À	A	^
à	a	^
Ã	A	`
ã	a	`
Æ	A	E
æ	a	e
~Á	A	~
~á	a	~
Å	A	*
å	a	*
ä	a	—

1	2	3
@	a	a
Ç	C	,
ç	c	,
ç	c	/
©	C	O
È	E	"
é	e	"
É	E	'
é	e	'
Ê	E	^
ê	e	^
Ë	E	`
ë	e	`
Ï	I	"
ï	i	"

1	2	3
Í	I	'
í	i	'
Î	I	^
î	i	^
Ï	I	`
ï	i	`
£	L	-
Ñ	N	~
ñ	n	~
Ö	O	"
ö	o	"
Ó	O	'
ó	o	'
Ô	O	^
ô	o	^

1	2	3
Ò	O	`
ò	o	`
Œ	O	E
œ	o	e
Õ	O	~
õ	o	~
Ø	O	/
ø	o	/
Œ	O	X
œ	o	—
¶	P	!
§	S	O
ß	s	s
Ü	U	"
ü	u	"

1	2	3
Ú	U	'
ú	u	'
Û	U	^
û	u	^
Ü	U	`
ü	u	`
ÿ	Y	"
ÿ	y	"
Ÿ	Y	-
°	^	0
1	^	1
2	^	2
3	^	3
1/2	1	2
1/4	1	4

1	2	3
[	(	(
{	(	-
]	)	)
}	)	-
<<	<	<
>>	>	>
¿	?	?
i	!	!
.	^	.
	^	/
#	+	+
±	+	-
\	/	/
μ	/	u

<sup>1</sup>For these sequences, the character in column 2 must be typed first, then that in column 3.

<sup>2</sup>The letters in these sequences can be either upper- or lowercase as long as both characters in the sequence have the same case.

Appendix C



## Appendix C

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### DIGITAL Printers and Your Professional

The operation of DIGITAL printers is described in their respective owner's manuals. In order to operate certain printers with your Professional, however, you will require certain specific information that is not provided by the owner's manuals. This appendix describes those requirements. It should be used in conjunction with Chapter 9, Printing Services.

#### **LN03 LASER PRINTER**

##### **Required Hardware**

On the front of your LN03 are slots for two cartridges. If you plan to print graphics, you should purchase one RAM cartridge. If you set LETTER mode or print artwork as well as business graphics, you should purchase two RAM cartridges. Each RAM cartridge gives the LN03 128 Kbytes more room for storing picture and font data.

##### **Picture Resolution**

The Print Control Services Modify Printer Characteristics Menu for the LN03 gives you the option of specifying LETTER mode or DRAFT mode. This feature controls picture resolution only—text is always printed in letter-quality mode. In DRAFT mode, picture resolution is 75×100 dots/inch. In LETTER mode, picture resolution is 150×150 dots/inch.

##### **Very Complex Pictures**

A picture may be too complex for an LN03 to print. If this is the case, the problem will be indicated one of two ways: a flashing “1” will appear in the

error box, or the picture will be printed on two sheets of paper (top half and bottom half). If the "1" appears, you can try one of the following solutions:

- Use the Modify Printer Characteristics Menu (Print Control Services) and set the printer to DRAFT mode.
- If a halftone or other "busy" pattern is being used across the width of the page, use solid fill or some other simple pattern.

If the top half of the picture is output on one piece of paper and the bottom half on a second piece, you can try adding a RAM cartridge in addition to the remedies already described.

## Fonts

### **Disk Fonts**

You can buy disk fonts for your LN03. (Contact your DIGITAL representative for the list of available fonts.) These are packaged in kits that you install like normal P/OS applications. Print Control Services loads disk fonts into your LN03 automatically—when a document references new fonts.

### **Font Cartridges**

You can buy font cartridges for the LN03 as well as RAM cartridges. Obviously if you use a font cartridge, you can only have one RAM cartridge. We therefore suggest that you purchase disk fonts rather than cartridges unless your printer usage is limited to a small number of fonts (6 or 8).

If you purchase a font cartridge, you should copy (to LB:[ZZFONT]) its associated FDF file. You will find this file in the P/OS installation kit on the diskette labeled PROGRAPH2 in [LN03CART]. The file name corresponds to the family ID for the fonts on the cartridge. For example, RTIMES0.FDF is the file to copy for the C. G. Times cartridge.

You can determine a cartridge's family ID by inserting the cartridge in the LN03 and pressing the Test button to generate a summary sheet. The first seven characters of each long ID is the font's family ID.

### **Paper Sizes**

The LN03 supports two paper sizes: A (8.5×11) and A4 (8.3×11.7 approximately). "A" size is the default. To set "A4" size, turn off the LN03, set the switch on

the back of the LN03 labeled “US/A4” to “A4” and power on again. You must also indicate (on the Modify Printer Characteristics Menu) what the current paper size is. To set paper size to “A4” paper, set the value of the longer side (length in Portrait mode, width in Landscape mode) to greater than 11 inches.

## PLOTTERS

The plotters supported on the Professional are the LVP16, and compatible Hewlett-Packard plotters: HP7470, HP7475, and HP7550. Except for the HP7550, you may only specify one file at a time to print (because you must manually remove and insert paper into the plotter).

### Setup for the LVP16 (and HP7475 and HP7470)

Refer to the Hewlett-Packard manual for general guidelines. The Professional-specific settings are:

- Set B1 through B4 to match the baud rate on the Modify Printer Characteristics Menu for the LVP16 Plotter. Initially, this setting is 4800.
- For a direct connection to your Professional, you need to use the BCC19-15 cable and set the “Y/D” switch to “Y.” For an “eavesdrop” connection, you need to use a BCC24-05 cable, and set the “Y/D” switch to “Y.”
- Set S1 and S2 switches to OFF (establishes 8-bit mode and no parity checking).

### Setup for the HP7550

Refer to the *Operation and Interconnection Manual* for the HP7550 to become familiar with operating the front panel. The settings you need for the Professional are:

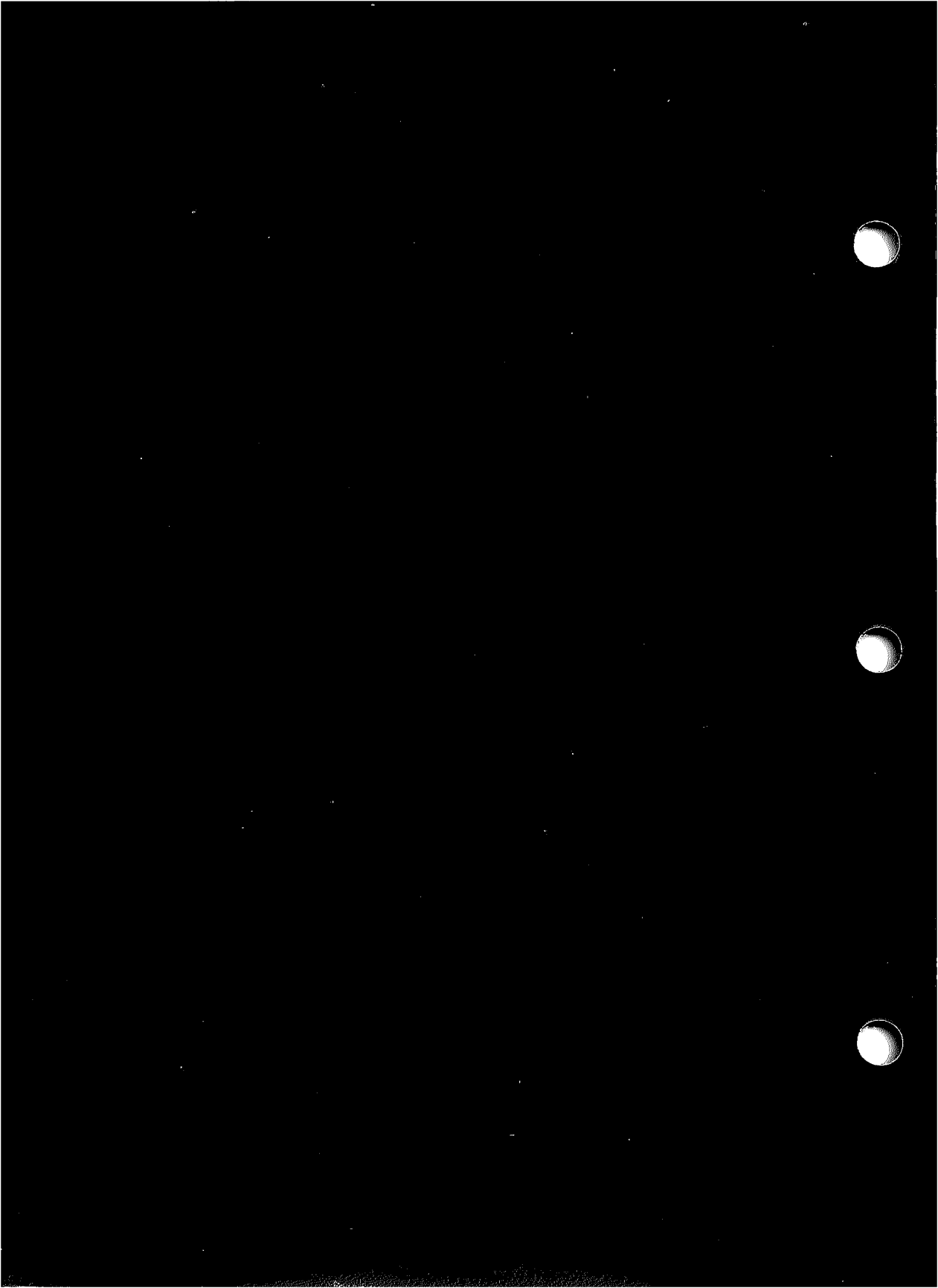
- Display 5: select STANDARD (lower left corner).
- Display 6, DATA FLOW sub-display: select REMOTE (upper left) and STANDARD (lower right).
- Display 6, BYPASS sub-display: select OFF (lower right).

- Display 6, HANDSHAKE sub-display: select NONE (lower left) and DIRECT (lower right).
- Display 7, DUPLEX sub-display: select FULL (lower right).
- Display 7, PARITY sub-display: select 8-BITS (lower left) and OFF (lower right).
- Display 7, BAUD sub-display: select value (lower right) to match value in Modify Printer Characteristics Menu for plotter. This is initially 4800 baud.

To connect the HP7550 to your Professional, you use a standard printer cable and insert its 25-pin end into the middle receptable on the plotter, labeled COMPUTER/MODEM.

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# Glossary



# Glossary

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**access string**

Information that you supply in a node specification for a network operation. The access string indicates the kind of privilege you have for the account with which you are working.

**Account Management**

A program in P/OS that enables the system manager to create, modify, and maintain accounts for other users.

**application (or application program)**

A computer program that meets some specific user need. For example, an application program can control an inventory or monitor a manufacturing process. Applications for the Professional are available from DIGITAL and other companies.

**auto print**

A print mode that is achieved by pressing CTRL/PRINT SCREEN. In this mode, new lines automatically print as the cursor moves to them.

**auxiliary keypad**

The set of keys on the far right of the Professional keyboard. Some applications interpret these keys as special function keys; with other applications these keys do nothing. Application documentation tells you how the keys on this keypad function with specific applications.

**back up**

To copy one or more files on a diskette for safekeeping, in case the original volume (disk or diskette) gets damaged or lost. It is good practice to back up all new or newly revised files.

## **BASIC**

Beginner's All-purpose Symbolic Instruction Code. A widely used, simple programming language capable of handling industry and business applications. PRO/BASIC is a form of this language.

## **bit**

Short for "binary digit." A bit has only two possible values, 0 and 1. It is the smallest unit of information recognized by a digital computer. All information handled by a computer is digitized; that is, it is expressed entirely as some particular combination of bits, each having a value of either 0 or 1.

## **block**

A group of characters or words stored on a volume (disk or diskette) as a unit, in binary format. A block has 512 bytes (roughly 512 characters). P/OS measures the size of a file and the available storage on a disk or diskette in blocks.

## **byte**

The number of bits used to represent a character. The size of a byte varies among computers, but a byte on the Professional contains 8 bits, the number needed to express a single character.

## **cursor**

The blinking rectangle or underscore on the monitor screen that shows where the next typed character will appear, if appropriate.

## **DECnet**

A set of software products that (together with hardware components) enable communication between computers. PRO/DECnet is available for Professional 300 series computers.

## **default**

Information that the Professional assumes as input if you do not explicitly provide it.

## **device**

In an RMS file specification, refers to a disk drive, diskette drive, or tape drive you want to specify. You can enter a volume name instead of a device name if you want.

## **Digital Command Language (DCL)**

An application provided with P/OS which enables you to manipulate your files and directories by typing commands instead of choosing from menus.

**directory**

A group of files stored on a volume (a disk or diskette). A directory can include all or only some of the files on the volume.

When you initialize a volume, P/OS creates a directory for you called USERFILES. You can create your own directories, if you want.

**disk**

A magnetic, file-storage medium. The disk (also called hard or "Winchester" disk) is permanently precision-mounted to its drive, and has many times the storage capacity of a diskette.

**diskette**

A magnetic, file-storage medium, also called floppy disk. Diskettes for the Professional are 5-1/4 inches in diameter and are encased in a protective cover. You store private and seldom-used files on diskettes, copy files onto them for safekeeping (backing up), and use them to bring new programs to your Professional. Diskette storage capacity is a small fraction of the capacity of a hard disk.

**diskette drive**

A unit that holds and operates one or more diskettes. All Professionals have a dual diskette drive capable of holding two diskettes.

**EDT**

Digital's standard interactive text editor. EDT is included on a diskette with your Professional software.

**editing keypad**

The set of gray keys to the right of the main keyboard. Like the keys of the auxiliary keypad, these keys can function differently for different applications.

**editor**

An application program that allows you to create and modify text files. You can change text with the Professional editor (PROSE) by choosing commands from a menu and by using function keys.

**escape sequence**

Code that can be used in graphics files to accomplish certain goals, such as positioning the cursor.

**file**

A collection of information treated as a unit. A file may contain a memo, a program, or other information. Its fundamental purpose is analogous to that of a conventional office file.

A file is the means by which information is stored on disk or diskette so it is efficiently usable by both P/OS and a user. A file occupies one or more blocks on a volume and has a file name.

**form**

A request for information that is displayed on the Professional screen when P/OS requires information that you provide.

**function key**

A type of key on the Professional keyboard that, when pressed, instructs P/OS or a P/OS application to do something specific. The HELP, DO, INTERRUPT, HOLD SCREEN, PRINT SCREEN, and ARROW keys perform the same function all the time. Other function keys, such as PREV SCREEN, RESUME, CANCEL, EXIT, F5, F17, and so on, have functions that depend on the application currently in use.

**hardware**

The physical equipment that makes up a computer system.

**host (or host computer)**

A computer whose resources can be shared by several individual users at other computers that are connected to the host by communications lines and hardware. With PRO/Communications or PRO/DECnet, a Professional user can connect to a host computer. Once connected, the user can transfer files to and from the host and use the Professional as if it were a terminal attached to the host.

**initialize**

To set up (format) a volume so that P/OS can store and retrieve files on that volume. When initializing a volume, P/OS erases any information already on the volume. In addition, the initialization process creates a name (supplied by the person who initializes) for the volume and an empty directory called USERFILES.

**install**

(1) To copy the P/OS software from the P/OS system diskette(s) onto the disk.

(2) To copy a P/OS application from an application diskette onto the disk, integrating that application into the menu system.

**keyboard**

The component that enables you to communicate with the Professional. It contains the main keyboard (similar to a typewriter keyboard), a row of function keys at the top, the editing keypad, and the auxiliary keypad.

**kilobyte (KB)**

Roughly a thousand bytes (actually 1024 or two blocks). A Professional diskette holds 400 kilobytes of information.

**list box**

The lower area of the File Services Menu where the lists (of files, directories, and volumes) are generated.

**log in**

Entering your personal system account. The standard requirement is to enter the account name and password. P/OS provides a form for logging in.

**megabyte (MB)**

Approximately a million bytes (actually 1024 squared). Current Professional disks hold 5, 10 or 33 megabytes of information.

**menu**

A list of available P/OS services or functions appearing on the Professional screen. You tell P/OS what to do by making a selection from a menu.

**Message/Status display**

A screen display that shows status information about P/OS and one-line messages from applications to the user.

**Mini-Exchange**

A device which allows personal computers to share resources. The Mini-Exchange has eight ports; each one can be connected to a personal computer or printer. It is also possible to connect one of the ports to a modem (a device which enables data transmission via telephone lines).

**monitor**

The part of the Professional that contains the video display screen.

**network**

A hardware/software connection between computers that enables them to communicate.

**node**

A computer with the hardware and software necessary to send data and receive data from other computers. An entity on the network.

**password**

A private character string assigned to each account that is required for access. The password can be changed by the account owner or the system manager.

**port**

A hardware unit that allows peripheral equipment, such as printers or terminals, to be connected to your system.

**P/OS**

The Professional's operating system. The operating system manages the computer.

**print queue**

The queue associated with each printer that submits print jobs to the printer in the order received.

**PRO/BASIC**

The BASIC programming language designed specifically for the Professional.

**PRO/Communications**

A P/OS application that enables you to use your Professional to communicate with DIGITAL PDP-11 and VAX host computers. With the PRO/Communications, you can transfer files to and from the host and use your Professional as if it were a terminal on the host computer. See also host.

**PRO/DECnet**

See DECnet

**program**

A sequence of instructions used by a computer to perform specific operations. A programmer writes a program in PRO/BASIC or some other programming language by first creating a program source file at the keyboard.

**prompt**

A request displayed on the screen for you to type in certain information. On menus, a prompt appears on a line below the menu list.

**PROSE**

The editor supplied with P/OS. See editor.

**P/OS SERVER**

A DIGITAL hardware/software product that enables several Professionals to be connected together in a small local network.

**protection**

You can protect your files in various ways to prevent unauthorized access and accidental deletion. You can restrict access to your files by setting the file's protection.

Another method of file protection is to create and store duplicates of them on separate diskettes using the File Services "Copy" function or one of the Backup and Restore programs. These diskettes can be protected from accidental erasure by using the protect tabs.

### **Quad Port Serial Line Unit**

A DIGITAL hardware product that provides your Professional with more Communication Ports to which additional printers or terminals can be attached.

### **restore**

To copy the contents of a backup diskette to the hard disk.

### **RMS**

Record Management Services. A DIGITAL file system used on many DIGITAL computers, including VAX, PDP-11, and the Professional.

### **scrolling**

The movement of lines of text up or down the monitor screen.

### **sixel**

A six-bit graphics character which can be processed as a standard ASCII character. It is the smallest unit of printable information.

### **software**

The collection of programs and information that are run on a computer, enabling it to perform its various tasks.

### **stand-alone system**

A Professional that is not connected to a P/OS Server. Stand-alone systems can have one or more accounts.

### **System Maintenance Diskettes**

Diskettes provided with the Professional that diagnose hardware problems. The *Owner's Manual* describes these diskettes.

### **system manager**

Person who uses a privileged account to create and maintain all user accounts on the system, as well as perform other system-wide functions.

### **system unit**

The part of your Professional that contains the diskette drive, disk, option modules, power supply, and the computer itself. The system unit is the main component of the Professional.

**timeout**

The mechanism, associated with a computer's internal clock, whereby the computer rejects a user's request if not completed within a specified length of time.

**username**

The name of an account. Entered on Login forms.

**volume**

A generic name for a magnetic, file-storage medium, such as a disk or diskette.

**wildcard**

A character used in a file specification to indicate that all files with a certain element in common are being specified. The wildcard character is an asterisk.

**word processing**

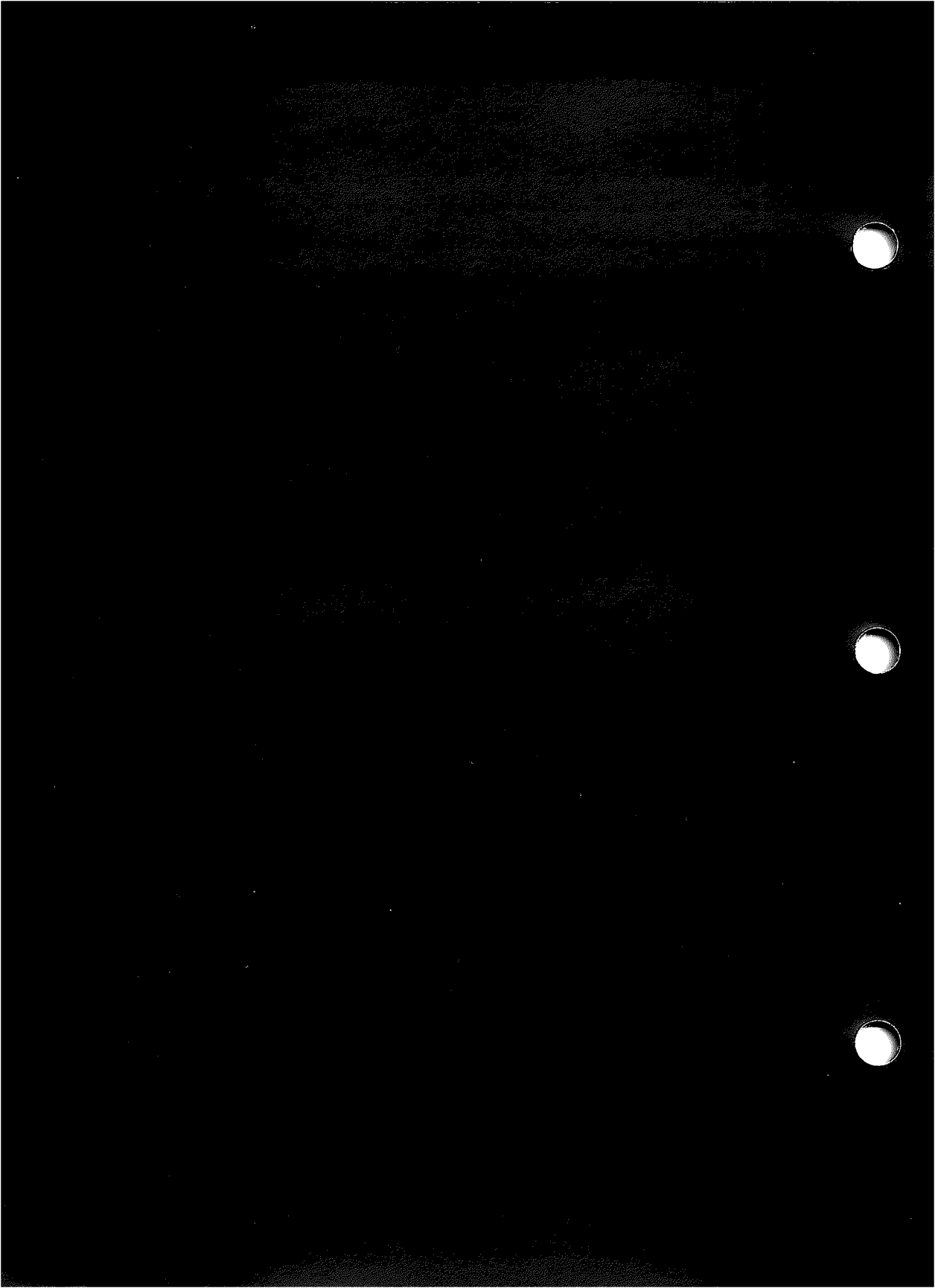
The manipulation of words and text with a computer.

**write-protect tab**

An adhesive tab that, when applied to the write-protect notch on a diskette, prevents you from changing or deleting any file on that diskette. It is necessary to remove the tab to create, change, or delete any files on the diskette.

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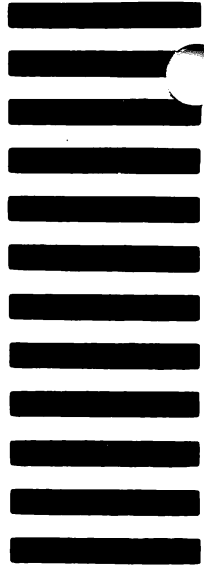


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