

**TOPS-20 KL Model B  
Installation Guide**

Electronic Distribution

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This manual describes the procedures for installing TOPS-20 Version 7.0 on a new system and updating TOPS-20 software on an existing KL10 Model B system.

Change bars in the margins indicate material that has been added or changed since the previous release of this manual.

This manual supersedes the manual of the same name and order number, AA-M229C-TM. Please read it in its entirety.

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SOFTWARE: RSX-20F Version 16-00  
KLINIT Version 16-00  
Microcode Version 442

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## PREFACE

The TOPS-20 KL Model B Installation Guide describes the procedures for installing TOPS-20 software on a new DECSYSTEM-20. This guide also provides information on updating TOPS-20 software on an existing KL10 Model B system, installing TCP/IP-20 (Transmission Control Protocol/Internet Protocol), and generating tailored GALAXY software.

### AUDIENCE

This guide addresses TOPS-20 operators, system managers, and others who have the responsibility to:

- o Install the TOPS-20 software on a new DECSYSTEM-20.
- o Update the TOPS-20 software on an existing DECSYSTEM-20.
- o Install TCP/IP-20 software.
- o Generate a tailored batch and spooling (GALAXY) system.

### ORGANIZATION

- Chapter 1 INTRODUCTION, describes what you need to do to prepare for installation. It also describes the tools you need to install the software.
- Chapter 2 CREATING THE TOPS-20 FILE SYSTEM, describes powering up the DECSYSTEM-20 and obtaining the DECSYSTEM-20 front-end monitor from floppy disk. This chapter also describes loading the TOPS-20 bundled software from magnetic tape.
- Chapter 3 TAILORING THE SYSTEM, describes how to select the

proper monitor, declare the system name, and change the system defaults for terminals, system devices, accounting, performance improvements, scheduler controls, file archiving and migration, and other system functions.

- Chapter 4 CREATING THE FRONT-END FILE SYSTEM, describes how to create the front-end file system for the DECSYSTEM-20 and copy files into it from the floppy disks. (When you finish this chapter, the installation is complete.)
- Chapter 5 STARTING THE SYSTEM, describes how to boot the system from disk.
- Chapter 6 INSTALLING THE TOPS-20 DISTRIBUTION TAPE, describes how to install TOPS-20 Distribution, Update, and Tools tapes.
- Chapter 7 RUNNING THE TOPS-20 UETP PACKAGE, describes how to run the User Environment Test Package (UETP program). This program performs a cursory check of the system.
- Appendix A UPDATING THE DECSYSTEM-20 SOFTWARE, contains step-by-step instructions, with pointers to various chapters within this guide, describing how to update a TOPS-20 software system on the DECSYSTEM-20.
- Appendix B POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20, is a pocket installation guide for the experienced installer. It contains the text and output from a sample installation of the TOPS-20 software on a DECSYSTEM-20, Model 2060. (This appendix does not have error recovery procedures.) The steps are keyed to the steps within the body of this guide that describe how to install the TOPS-20 software on a new DECSYSTEM-20.
- Appendix C INSTALLING TCP/IP-20, contains the steps for installing TCP/IP-20, with pointers to various chapters within this guide.
- Appendix D GENERATING A TAILORED BATCH AND SPOOLING SYSTEM, contains the steps for generating a batch and spooling (GALAXY) system tailored for your particular site.

#### RELATED DOCUMENTS

The following manuals are valuable as references while using this guide. All of these manuals are included in the TOPS-20 Software Notebook Set.

TOPS-20 Commands Reference Manual

TOPS-20 EDIT Reference Manual

TOPS-20 Monitor Calls Reference Manual

TOPS-20 Operator's Guide

TOPS-20 Operator's Command Language Reference Manual

TOPS-20 System Manager's Guide

TOPS-20 User's Guide

TOPS-20 User Utilities Guide

#### USING RECOGNITION INPUT

TOPS-20 offers a helpful feature to prompt you when you type a command. Simply type the first few characters, and then press the ESCape key. This tells TOPS-20 to examine the characters you typed and to complete the command for you. If TOPS-20 recognizes the characters you typed, it completes as much of the command as it can. When it cannot print any more or does not recognize the characters you typed as part of a valid command, TOPS-20 rings the terminal bell (your terminal bell may be a buzzer) and waits for you to type additional characters. If you type part of a command that means more than one thing to TOPS-20, it rings the terminal bell to indicate that it needs more information. Using the ESCape key in these ways is how you use the TOPS-20 feature called **recognition input**.

When you use recognition input, TOPS-20 also prints some words in parentheses. These words, called guidewords, make the command more readable and also tell you what kind of argument TOPS-20 expects you to type.

In this guide, commands are shown as complete words followed by the appropriate arguments. For example:

\$BUILD PS:<OPERATOR> <RET>

If you use recognition input for this command, it looks like this:

<ESC>  
|  
\$BUILD (DIRECTORY NAME) PS:<OPERATOR> <RET>

Using recognition input provides the guidewords (DIRECTORY NAME).

Here is another example:

\$COPY PS:<SYSTEM>FILE.CMD PS:<OPERATOR>FILE.CMD <RET>

Using recognition input, the command looks like this:

```
  <ESC>           <ESC>
  |               |
$COPY (FROM) PS:<SYSTEM>FILE.CMD (TO) PS:<OPERATOR>FILE.CMD <RET>
```

If you type accurately, the command lines shown in this guide will be accepted and interpreted correctly by TOPS-20. If you choose, you can use recognition input. In most cases, if you press the ESCape key after you type a command or an argument, TOPS-20 will provide guidewords or instruct you to press the RETURN key.

Recognition input offers several advantages. First, you can double-check your typing, because the completed command as printed by TOPS-20 verifies that your typing has been interpreted correctly. Second, you can minimize typing, because you need only type enough characters to make a unique match with a command or argument. And third, TOPS-20 prompts your next response, because it prints guidewords in parentheses.

#### HOW TO USE THIS GUIDE

Before using this guide, be familiar with the information in the TOPS-20 User's Guide, the TOPS-20 System Manager's Guide, and the TOPS-20 Operator's Guide.

If you are installing a new system, read Chapters 1 through 7. If you are updating an existing TOPS-20 system, read Appendix A. If you are installing a system with TCP/IP capability, read Appendix C. If you are generating a tailored GALAXY, read Appendix D.

The following conventions are used in this guide:

<u>Symbol</u>	<u>Indicates</u>
<RET>	The RETURN key.
<ESC>	The ESCape (ESC, ALT, ALTMODE, or PREFIX) key.
\$	The ENABLED prompt <u>or</u> the echo of the ESCape key.
\$\$	The subcommand prompt.
<CTRL/\>	Pressing the CTRL (CONTROL) key and the backslash key simultaneously. The backslash key is located near the key labeled LINEFEED

or LF on your console terminal (CTY).

<CTRL/x>	Pressing the CTRL (CONTROL) key and another key simultaneously.
^x	The echo of <CTRL/x>. For example, pressing <CTRL/Z> echoes as ^Z. Note that pressing <CTRL/x> does not always echo with ^x on your terminal. For example, <CTRL/\> has no echo.
@	The TOPS-20 prompt.
UPPERCASE	Actual input required in a command string. You must type an uppercase element in full or with an abbreviation acceptable to the system.
lowercase	An input variable in a command string (for example, name or number). These are variables that you must determine.
Spaces	Separate elements of a command. Spaces must be input where shown.
{ }	A list of alternatives within a command. You must specify one of the alternatives in your command string. Do not type braces in the actual command string.
.	That some of the lines in the example or figure are not shown.
.	.
.	.
<u>Underlined text</u>	What you type at your terminal in command examples (in either uppercase or lowercase characters).
Regular Print	What the system prints or displays at your terminal (in either uppercase or lowercase characters).

The commands you type are underlined. If you type accurately, all you have to do is perform the indicated function and verify that your actual terminal output resembles the sample output. Be sure to include the spaces shown in the command lines. Remember that systems differ in memory size and peripherals, so steps that describe configuring memory, initializing line printers and disk packs, and assigning logical unit numbers to tape drives, require you to type the values that are correct for your system and not the sample parameters.

If your terminal output does not resemble the sample output, first

read ALL of the instructions after the word "Error," then choose the recovery procedure that corrects your problem.

NOTE

The version and edit numbers in this guide could differ from those printed on your console terminal. The numbers printed on your console must be equal to or greater than the numbers in this guide.

Time estimates are included so that you know about how long a step takes. Times are estimated to the nearest minute, so don't worry if a step takes somewhat longer or shorter than this.

CHAPTER 1

INTRODUCTION

This introductory chapter describes collecting information before you start an installation, what tools you will need, the monitors available to you, and information on GALAXY.

When installing the TOPS-20 software on a DECSYSTEM-20 model number 2060 or on a DECSYSTEM-20 model number 2040S, you should be using software package QT023, which contains the Installation tape and the Distribution tapes. (The installation of a DECSYSTEM-20 Model 2065 is identical to that of a DECSYSTEM-20 Model 2060. Throughout this guide, Model 2060 will be used to designate both Model 2060 and 2065.)

NOTE

Before starting the installation, read the listing labeled **TOPS20.BWR**, which accompanies your software. The TOPS20.BWR file describes changes in the software and installation procedures made too late for inclusion in this guide.

1.1 COLLECTING INFORMATION

A DIGITAL Field Service Representative will install your DECSYSTEM-20 hardware and inform you when the system runs diagnostics correctly. Before he leaves, you need to obtain the following information:

- o The channel, unit, and controller number of each disk drive
- o A list of terminal line numbers and line speeds
- o The serial number of each magnetic tape drive
- o The unit number and type of each line printer





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### NOTE

The serial numbers on TU70 and/or TU71 tape drives are made up of three factors. These factors consist of the RH20 channel number, the DX20 number, and a two-digit tape unit number. Assuming that the RH20 channel number is 2, the serial number for tape unit 3 would be 2003. In this example, the RH20 channel is the first digit (2), the DX20 number is the second digit (0), and the last two digits are the tape unit number (03). The serial number for a TU72 tape drive can be found on the back of the tape drive.

### 1.1.4 Line Printers

You need the unit number and type of each line printer. Use this information in Section 3.3.5 to initialize the line printers. Use the following chart to record this information.

#### Line Printers

Unit #	Model #	Lowercase ?	Programmable VFU ?
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----

## 1.2 INSTALLATION TOOLS

You need the following tools to install the TOPS-20 software on a DECSYSTEM-20:

- o The TOPS-20 RSX-20F Version 16-00 System Floppy A
- o The TOPS-20 RSX-20F Version 16-00 System Floppy B
- o The TOPS-20 RSX-20F Version 16-00 System Floppy C
- o The TOPS-20 Version 7.0 Installation Tape
- o The TOPS-20 Version 7.0 Distribution Tape 1

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- o The TOPS-20 Version 7.0 Distribution Tape 2
- o A separate tape for each optional software product you have purchased
- o Formatted disk packs (If your disk packs are not formatted, ask your DIGITAL Field Service Representative to format them for you)

### RP20 Disks

If you are installing the TOPS-20 software on a DECSYSTEM-20, Model 2040s or 2060, that contains an RP20 disk subsystem, be sure you have Floppy C, as this floppy disk contains the microcode necessary to boot the RP20.

### 1.2.1 Floppy Disks

System Floppy A contains the files to boot the central processor from an RP04 or RP06 disk pack.

System Floppy B contains the files for various functions used to install and maintain the software on a DECSYSTEM-20.

System Floppy C contains the RSX-20F Version 16-00 map file and the RP20/DX20 microcode files.

### 1.2.2 Tapes

The TOPS-20 Installation tape, for DECSYSTEM-20s Models 2040S and 2060, contains the TOPS-20 monitor and related programs. The files are:

- o The TOPS-20 monitor (SAVE format)
- o The TOPS-20 command processor (SAVE format)
- o The DLUSER program (SAVE format)
- o DLUSER data (ASCII file)
- o The DUMPER program (SAVE format)
- o Four DUMPER savesets recorded at 1600 bpi in DUMPER format for the following directories:

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- PS:<SYSTEM> for the monitor and related programs.
- PS:<SUBSYS> for the system program files and the GALAXY files.
- PS:<UETP.LIB> for the UETP files.

The TOPS-20 Distribution tapes for all DECSYSTEM-20s contain the TOPS-20 bundled software. TOPS-20 Distribution tape 1 contains one DUMPER saveset recorded at 1600 bpi in DUMPER format. This saveset contains source files needed to build the software in the directory <SUBSYS>, except for the monitor and the TOPS-20 command processor.

TOPS-20 Distribution tape 2 contains three DUMPER savesets recorded at 1600 bpi in DUMPER format.

- o Saveset 1 contains documents about the software.
- o Saveset 2 contains language source files.
- o Saveset 3 contains GALAXY source files.

### NOTE

The term "bundled software" refers to the contents of the Installation and Distribution tapes considered together, or to the contents of the Distribution tapes alone. The term "unbundled software" refers to the contents of the tapes for optional software products.

### 1.3 THE TOPS-20 MONITORS

Two monitors are distributed with the TOPS-20 software for the DECSYSTEM-20, Models 2040S and 2060. They are:

2060-MONBIG.EXE  
2060-MONMAX.EXE

Read Chapter 3 for descriptions of these monitors. The installation will proceed more smoothly if you take time now to choose the monitor you want to use.

### 1.4 THE BATCH AND SPOOLING SYSTEM

Your TOPS-20 software system initialization includes a standard GALAXY batch and spooling system. If you need a special batch and spooling system, first install the standard system; then see Appendix D of this

## INTRODUCTION

manual for instructions on how to build your own specialized batch and spooling system.

## CREATING THE TOPS-20 FILE SYSTEM

### CHAPTER 2

#### CREATING THE TOPS-20 FILE SYSTEM

This chapter describes how to create a new TOPS-20 file system on the DECSYSTEM-20. To create a new file system, you must load and start the TOPS-20 monitor, initialize the file system, restart the monitor, and restore the bundled software from tape.

##### STOP: These Procedures Install a New System

Follow the procedures in this chapter if you are installing TOPS-20 software on a new system, or if you are creating a new file system on a set of disk packs. Use Appendix A to update TOPS-20 software on an existing system.

#### 2.1 CHECKING THE TOPS-20 SOFTWARE PACKAGE

The TOPS-20 software package contains the following items:

1. The TOPS-20 RSX20F Version 16-00 System Floppy A
2. The TOPS-20 RSX20F Version 16-00 System Floppy B
3. The TOPS-20 RSX20F Version 16-00 System Floppy C
4. The TOPS-20 Installation Tape Version 7.0
5. The TOPS-20 Distribution Tape 1 Version 7.0
6. The TOPS-20 Distribution Tape 2 Version 7.0
7. A separate tape for each optional software product purchased

Be sure that you have all of these items. See Chapter 1, Sections 1.2.1 and 1.2.2 for the contents of the floppy disks and magnetic tapes.

#### 2.2 PREPARING THE DECSYSTEM-20 FOR INSTALLATION

You prepare the system for installation by powering it up, checking for formatted disks, and labeling the disk packs. You then mount the disk packs and turn on the disk drives; mount the floppy disks; and mount the Installation tape.

Perform Steps 1 through 9 to prepare for installation.

##### Step 1: Read the listing labeled TOPS20.BWR.

Read the listing labeled TOPS20.BWR to learn about any last minute changes made to the installation procedure or to the TOPS-20 software.

##### Step 2: Ask your DIGITAL Field Service Representative if the disk packs are formatted.

Ask your DIGITAL Field Service Representative if the disk packs are formatted for use with the DECSYSTEM-20. If they are not, ask him to format them. The packs must be formatted before you proceed further. Note that you cannot use an RP20 for the system structure.

##### Step 3: Power up the system.

Turn on the power by pressing the POWER switch if the light under the word POWER on the operator's panel is off. (Do not touch the emergency power switch unless you see smoke or sparks coming from the system.) The system is ready after a few seconds, and the power light comes on.

Be sure that the system is completely powered on:

1. Check the disk drives.
2. Check the magnetic tape drives. If power is off, press the rocker switch (the white switch containing the ON/OFF light) on the front panel. If you have trouble with the disk drives or magnetic tape drives, call your DIGITAL Field Service Representative for assistance.
3. Check the line printers. If power is off for an LP20A or LP20B printer (which has four buttons on the right of the top panel), reset the knee-level breaker on the lower panel. The TAPE light may be on; disregard it. If you have an LP20F or LP20H printer (which has four rocker switches on the left of the top panel), lift the cover just above the lights and reset the breaker. Be sure that the printer has paper.

#### CREATING THE TOPS-20 FILE SYSTEM

4. Turn on the console terminal (CTY). Be sure that it is on line and has paper.

##### Step 4: Label the disk packs.

This guide contains the procedures for creating the system structure for your system. The system structure name can be up to six characters and contains the files needed to run the system. The system structure cannot include RP20, RA81, or RA60 disk drives. If the system structure is on an RP07 disk drive, the front-end file system must reside on a RP04 or RP06 dual-ported disk drive.

Decide how many packs you will have, and assign them consecutive "logical unit numbers," starting with 0. These are the logical pack numbers referred to in Step 25. Identify each pack by writing these numbers with a felt-tip pen on the pack cover with a gummed label. A sample of the format of the label is:

```
TOPS-20 Disk Pack
Structure ID:  structure name
Logical Unit:  n
```

##### CAUTION

Do not use a gummed label on the surface of the pack itself, because it can spin off and cause severe damage to the drive.

##### Step 5: Mount the RP04 or RP06 disk pack.

Mount the disk packs on the proper drives. RP04 and RP06 disk packs are similar in appearance but can be distinguished by the name RP04 or RP06 written on the upper surface of the pack. Make sure you place one pack on the drive that is unit 0, dual-ported, and connected to the front end. The installation procedure stores the files used by the front end on this pack. After the installation is complete, you can dismount the disk packs to clean and maintain the drives. However, during system operation, the pack that contains the front-end files must be on dual-ported drive 0 as it was during installation.

##### NOTE

RP07 and RP20 disk packs are non-removable. To mount an RA60 disk pack see the HSC-50 User's Guide.

Be careful when mounting a disk pack because the drive shaft can be damaged if the pack is jammed off center into the drive. Follow these instructions when mounting a pack:

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1. If another RP04 or RP06 disk is already mounted on the drive and spinning, do the following:
  - a. Press the START/STOP button and wait until the drive stops.
  - b. Push the door back. Slide the pack cover down over the pack.
  - c. Turn the cover handle counterclockwise a few turns until it turns freely. Gently lift the pack vertically. If there is any resistance, turn the handle a few more turns counterclockwise and lift again.
  - d. Lift the pack out of the drive and place it on the protective bottom cover. Be sure that the cover clicks closed.
2. Pick up the pack to be mounted and remove the protective bottom cover by squeezing the handle of the bottom cover.

##### CAUTION

If you insert a pack without removing the bottom cover, you will be unable to use or remove the pack.

3. Gently lower the pack vertically into the drive, being careful not to hit the sides of the drive. Keep the pack centered in the drive while lowering it.
4. Turn the handle clockwise about two full turns. You will feel a resistance roughly equal to the power steering on a car. When the resistance increases noticeably, stop turning or damage will result.
5. Lift off the cover vertically.
6. Close the door to the drive.
7. Start the drive by pressing the START/STOP button. The disk is ready to be used when the READY light comes on. (On an RP06 the DOOR LOCKED light ensures that the disk is mounted properly.)
8. Be sure that the drive is not write protected. The switch labeled WRITE PROTECT must be off.

##### CAUTION

Do not leave a disk pack or magnetic tape on top of a disk drive. The vibration from the

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drive can cause these items to fall to the floor, causing expensive and irreparable damage.

### Step 6: Check the CONTROLLER SELECT switches on the disk drive.

Be sure that the CONTROLLER SELECT switch on dual-ported drive 0 is set to A/B and that every other drive has the CONTROLLER SELECT switch set to A. To change the CONTROLLER SELECT switch, set the switch to the desired position and press the STOP button to cycle the drive down. When the drive has stopped spinning, press the START button and wait for the READY light to come on.

### Step 7: Mount System Floppy A in drive 0.

Place the floppy disk labeled **System Floppy A** in the left floppy drive (drive 0). To mount a floppy disk, hold the floppy disk with your thumb on the label. Then with your thumb and the label facing upward, slide the floppy disk into the floppy drive until it contacts the back of the drive and stops. Press down the bar until it clicks.

#### CAUTION

Make sure that the paper directory that is sometimes included with the floppy disk is not sticking to the back of the floppy disk. Failure to do so will damage the floppy disk and the floppy disk drive.

### Step 8: Mount System Floppy B in drive 1.

In the right floppy drive (drive 1), place the floppy disk labeled **System Floppy B**.

#### HINT

Be sure that you have mounted the floppy disks in the correct drives, or problems will develop in Step 12.

### Step 9: Mount the Installation tape on MTA0.

Mount the correct version of the Installation tape for your system. (See Chapter 1 for the correct Installation tape for your system.) Remove the write ring (if present) from the magnetic tape labeled **TOPS-20 Installation Tape** and mount the tape on drive 0. Drive 0 is the lowest unit on the lowest channel on the lowest TM03, TM02 controller or DX20 controller. (Your DIGITAL Field Service Representative gives you this information.) If you cannot determine which drive is drive 0, make sure that all drives are off line except

## CREATING THE TOPS-20 FILE SYSTEM

the one you want to use.

#### CAUTION

The logical unit number for a magnetic tape drive is not determined by the numbered thumbwheel on the left side of TU45 drives. The numbered thumbwheel is the slave number of the drive. Never change the setting of this thumbwheel.

To mount a reel of tape on a TU45 tape drive:

1. Place the reel on the top hub with the labeled side of the tape facing you.
2. Lock the reel on the hub by pressing the rocker in the center of the hub.
3. Thread the tape through the slot in front of the tape heads by following the arrows. Move the head shields back for easier access to the tape slot.
4. Wind the tape one turn clockwise onto the take-up reel.
5. Press the LOAD button. The tape slowly advances onto the take-up reel and moves to the logical beginning of the tape. If the drive overshoots the beginning of the tape, it repositions itself.
6. Make sure the ON LINE button is lit; if it is not, press the ON LINE button.

To mount a reel of tape on a TU77 or TU78/TU79 tape drive:

1. Place the reel of tape on the top hub with the labeled side of the tape facing you.
2. Lock the reel on the hub by pressing the rocker in the center of the hub.
3. Press, in order, the RESET and LOAD buttons. The tape is wound counterclockwise a few turns. Then the tape leader is threaded automatically through the slot near the upper right-hand corner of the drive, and the tape is positioned at the logical beginning of tape.
4. Press the ON LINE button.

On completion, the LOAD, ON LINE, and FILE PROTECT (FPT) lights should be on, indicating that the tape is positioned at the beginning. When the FILE PROTECT light is on, the system cannot write on the tape. If the FILE PROTECT light is not on, remove the write ring from the back

## CREATING THE TOPS-20 FILE SYSTEM

of the tape.

To mount a reel of tape on a TU72 tape drive:

1. Place the reel of tape on the rightmost hub with the labeled side of the tape facing you.
2. Thread the tape leader down the slot until it is approximately three inches in front of the read/write head.
3. Press, in order, the RESET, LOAD, and START buttons. The tape leader is threaded automatically on the take-up reel and the tape is positioned at the logical beginning of tape.

### 2.3 LOADING AND STARTING THE TOPS-20 MONITOR

To create the TOPS-20 file system, you must:

1. Load the front-end monitor from the floppy disks. Use the front end to initialize the central processor and memory.
2. Use the front-end monitor to load the TOPS-20 Magnetic Tape Bootstrap (MTBOOT) program from System Floppy A into the central processor.
3. Use MTBOOT to load the TOPS-20 monitor from magnetic tape into memory.
4. Use MTBOOT to start the TOPS-20 monitor at the file system initialization routine.

Perform steps 10 through 21 to load and start the TOPS-20 monitor.

Step 10: Place the front-end HALT switch in the ENABLE position.

Open the second door from the left side of the DECSYSTEM-20, directly under the DECSYSTEM-20 control panel, to access the front-end switches.

Be sure that the front-end HALT switch is in the ENABLE position. If the switch is in the HALT position, move it up to the ENABLE position. When the HALT switch is in the HALT position, the front end will not operate.

Step 11: Set the switch register to 000007 (octal).

The front-end control panel has 16 switch register switches. Set them to 000007 (octal) by setting switches 2, 1, and 0 up, and leaving the

## CREATING THE TOPS-20 FILE SYSTEM

rest down. (See the TOPS-20 Operator's Guide for a detailed description of all switches.)

Booting the front end from a floppy disk with the switch register set to 000007 causes the front-end monitor to run the central processor initialization dialog. This loads the central processor microcode and configures central processor memory.

Step 12: Hold ENABLE and press the SWITCH REGISTER button.

Hold ENABLE and press the SWITCH REGISTER button on the control panel (Figure 2-1). This loads the front-end monitor and starts the initialization dialog. The system prints:

```
RSX-20F VB16-00 12:00 3-Mar-88
```

```
[SY0: redirected to DX0:]  
[DX0: mounted]  
[DX1: mounted]  
KLI -- VERSION VB16-00 RUNNING  
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?  
KLI>
```

where:

Item	Identifies
RSX-20F	The name of the front-end monitor.
VB16-00	The version of the front-end monitor.
12:00 3-Mar-88	The time and date that the front-end monitor was built.
SY0:	The area from which the front end obtains its files. If SY0: is redirected to DX0:, the front end obtains the files from floppy drive 0. If SY0: is redirected to DB0:, the front end obtains the files from disk drive 0.
KLI VB16-00	The name and version of the central processor initialization dialog.
KLI>	The prompt for the central processor initialization dialog.

**Error:** If the system does not print the above heading, be sure that the floppy disks are mounted in the proper drives and the HALT switch is in the ENABLE position. Then retry Step 12.

#### NOTE

The version and edit numbers in this manual could differ from the numbers printed on your console. The numbers printed on your console must be equal to or greater than the numbers in this manual.

## CREATING THE TOPS-20 FILE SYSTEM

### Step 13: Type YES and press the RETURN key.

To enter the central processor initialization dialog, type YES and press the RETURN key. Following this, if you answer either NO or YES to this question, you will see a description of your system's hardware. First comes the serial number (S/N) of the CPU, followed by its type and power line frequency (either 50 or 60 Hertz). Then comes a list of hardware options present on your system. If an item is not present, it will not be listed. The example below shows all available options. Following this, the system prints KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?

```
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>YES <RET>
KLI -- KL10 S/N: 2102., MODEL B, 60 HERTZ
KLI -- KL10 HARDWARE ENVIRONMENT:
      MOS MASTER OSCILLATOR
      EXTENDED ADDRESSING
      INTERNAL CHANNELS
      CACHE
```

```
KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?
KLI>
```

Error: If the system does not print the above heading, be sure that the floppy disks are mounted in the proper drives, then return to Step 12.

#### NOTE

For a DECSYSTEM-20 Model 2065, the system prints:

```
KLI -- SELECT PAGE TABLE [FILE,BOTH,0,1]?
KLI>
```

A Model 2065 has two page tables, whereas there is one page table in a Model 2060. Answer BOTH to utilize this additional page table.

```
KLI>BOTH <RET>
KLI -- PAGE TABLE SELECTED: BOTH
KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?
KLI>
```

#### DELETE KEY

If you make a typing error, press the DELETE key to erase a single character at a time. Type <CTRL/U> to delete the entire line.

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### Step 14: Type YES KLX and press the RETURN key.

To load the central processor microcode, type YES KLX and press the RETURN key. After 30 seconds, during which the floppy drives click, the microcode is loaded and the system prints KLI -- MICROCODE VERSION 2.1[442] LOADED followed by KLI -- RECONFIGURE CACHE [FILE,ALL,YES,NO]?

```
KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?
KLI>YES KLX <RET>
KLI -- MICROCODE VERSION 2.1[442] LOADED
```

### Step 15: STOP.

Go to Step 16 if the system prints:

```
KLI -- RECONFIGURE CACHE [FILE,ALL,YES,NO]?
```

Go to Step 17 if the system prints:

```
KLI -- CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?
KLI>
```

### Step 16: Type ALL and press the RETURN key.

To reconfigure the central processor cache, type ALL and press the RETURN key. Upon receiving this reply, the system configures all available cache. After the configuration is complete, the system prints KLI -- CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?

```
KLI>ALL <RET>
KLI -- ALL CACHES ENABLED
KLI -- CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?
KLI>
```

Error: If the system does not print one of the headings above, be sure that the floppy disks are mounted in the proper drives, then return to Step 12.

### Step 17: Type ALL and press the RETURN key.

To configure the central processor memory, type ALL and press the RETURN key. This answer configures all available memory in the most useful manner and then prints a message indicating the results. These results will vary, depending on the type of hardware you have. Check the two sample outputs below to see which one pertains to your system. (See the TOPS-20 Operator's Guide for details on memory configuration.) After the configuration is complete, the system prints KLI -- LOAD KL BOOTSTRAP [YES,NO,FILENAME]?

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```
KLI -- CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?  
KLI>ALL <RET>
```

Depending on the size of your system, your output will resemble one of the following:

```
LOGICAL MEMORY CONFIGURATION  
ADDRESS SIZE INT TYPE CONTROLLER  
00000000 768K 4 MF20 10
```

```
KLI -- LOAD KL BOOTSTRAP [FILE,YES,NO,FILENAME]?
```

or

```
LOGICAL MEMORY CONFIGURATION  
ADDRESS SIZE INT TYPE CONTROLLER  
00000000 128K 4 MB20 0 & 1  
00400000 512K 4 MF20 10  
02400000 256K 4 MF20 14  
03400000 3200K NON-EXISTENT
```

```
KLI -- LOAD KL BOOTSTRAP [FILE,YES,NO,FILENAME]?
```

Error: If the system does not print a heading similar to one of those above, be sure that the correct floppy disks are mounted in the proper drives, then return to Step 12.

### NOTE

The MOS memory configurator is capable of configuring 4096K of memory. The message concerning the NON-EXISTENT memory can be ignored. This message is specifying the difference between the actual physical memory and 4096K.

### Step 18: Type MTBOOT and press the RETURN key.

After the prompt KLI>, type MTBOOT and press the RETURN key.

```
KLI -- LOAD KL BOOTSTRAP [FILE,YES,NO,FILENAME]?  
KLI>MTBOOT <RET>  
KLI -- WRITE CONFIGURATION FILE [YES,NO]?  
KLI>
```

The system now asks whether it should write the front-end configuration file KL.CFG, which describes your current configuration and the method you used to bring up the system (disk, floppy disks, or magnetic tape). If this file is written, the front end will attempt to use the same method and the same configuration when you next install or reload the system. The default answer to the question WRITE CONFIGURATION FILE [YES,NO]? is YES. Therefore, it is

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recommended that you answer NO to this question for the present. Later, when you have a front-end configuration that should be recorded (Step 148 in Chapter 4), the configuration file will be written for you.

### Step 19: Type NO and press the RETURN key.

After the prompt KLI>, type NO and press the RETURN key.

```
KLI -- WRITE CONFIGURATION FILE [YES,NO]?  
KLI>NO <RET>  
KLI -- BOOTSTRAP LOADED AND STARTED
```

```
BOOT V11.0(315)
```

```
MTBOOT>
```

The front end loads the central processor memory with the bootstrap program from the floppy mounted on drive 0, and then starts the bootstrap program. When at bootstrap command level (about 45 seconds), the system prints MTBOOT>.

Error: If the system prints:

```
KLI> -- ?BOOTSTRAP LOAD FAILED
```

or any other error message, you may have the wrong floppy disk mounted in drive 0 or you may not have stopped the central processor. Type <CTRL/\>. (The backslash key (\) is near the LINEFEED key.) After 10 seconds, the system prints PAR>. Type the command ABORT and press the RETURN key. The system prints PAR%, which means the central processor has stopped. Go back to Step 12.

If the system prints the following message exactly:

```
KLI -- ?BOOT FILE NOT FOUND  
KLI -- ?BOOTSTRAP LOAD FAILED  
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?  
KLI>
```

you either have the wrong floppies mounted or you mistyped the name of the bootstrap. Go back to Step 13. If the error recurs, make sure that you have mounted the proper floppy disks. If the error continues, contact DIGITAL Software Support.

### Step 20: Type /L and press the RETURN key.

To load the TOPS-20 monitor from magnetic tape into memory, type /L



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and press the RETURN key. The system rewinds the tape on drive 0, loads the resident monitor, skips a line, and prints MTBOOT>.

```
MTBOOT>/L <RET>
[BOOT: LOADING] [OK]
```

MTBOOT>

### DX20 Microcode

You will receive a message concerning the DX20 microcode ONLY if you are installing the TOPS-20 software on a DECSYSTEM-20 with an RP20 tape or disk controller.

Error: If you made a typing error and pressed the RETURN key, the system prints MTBOOT> again. Reissue the correct command.

If you did not put the magnetic tape on line, the system prints:

```
?NO RDY DRIVE
MTBOOT>
```

Place the tape on line and give the /L command again.

If the system prints one of these messages:

```
?BAD FIL FMT
?BAD EXE DIR
```

do the following:

1. Make sure that you have mounted the correct TOPS-20 Installation tape on drive 0 and that all other tape drives are off line.
2. Rewind the tape and try giving the /L command again.

If the error recurs, call DIGITAL Software Support.

Error: If the system does not print MTBOOT>, you probably mistyped the name MTBOOT. The system then prints:

```
KLI -- ?BOOT FILE NOT FOUND
KLI -- ?BOOT LOAD FAILED
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>
```

If the floppy disks are mounted properly and you typed MTBOOT properly, go back to Step 12. If the error recurs, contact DIGITAL Software Support.

## CREATING THE TOPS-20 FILE SYSTEM

The system will use the magnetic tape that is on line. Check to see if you have more than one tape drive on line. If so, press the ON LINE button to take each unwanted drive off line. Try typing /L again.

### NOTE

The following procedure is intended for use during installation only. If you are trying to bring up a monitor that has already been installed on a set of TOPS-20 disk packs, see Chapter 5 of this guide or to the TOPS-20 Operator's Guide for the correct procedure.

Step 21: Type /G143 and press the RETURN key.

To start the TOPS-20 file-system initialization routine, type /G143 and press the RETURN key. The system starts the TOPS-20 monitor at the file-system initialization routine.

```
MTBOOT>/G143 <RET>
```

[FOR ADDITIONAL INFORMATION TYPE "?" TO ANY OF THE FOLLOWING QUESTIONS.]

DO YOU WANT TO REPLACE THE FILE SYSTEM ON THE SYSTEM STRUCTURE?

Error: If you make an error and the system reprints MTBOOT>, reissue the correct command.

If the system does not print MTBOOT>, check your typescript. Go back to Step 12.

If the system prints:

```
?BAD EXE DIR
```

you probably typed the wrong command. Try giving the /G143 command again. If you still get an error, go back to Step 12.

## 2.4 INITIALIZING THE TOPS-20 FILE SYSTEM

To initialize the TOPS-20 file system, you must define the name of the system structure and the number and location of each disk pack that is part of the system structure.

The steps in this section initialize the TOPS-20 file system by

## CREATING THE TOPS-20 FILE SYSTEM

creating:

1. New home blocks (which contain pointers to the beginning of the file system).
2. The directory <ROOT-DIRECTORY> (which contains pointers to all the directories in the system).
3. The directories <SYSTEM>, <SUBSYS>, <NEW-SYSTEM>, <NEW-SUBSYS>, <UETP>, <UETP.LIB>, <UETP.RUN>, <ACCOUNTS>, <SYSTEM-ERROR>, <OPERATOR>, and <SPOOL>.
4. Space for the front-end file system.
5. The system swapping space (the area allocated for the movement, by the monitor, of pages between memory and disk).

### NOTE

See the TOPS-20 System Manager's Guide for a detailed explanation of all the above.

Perform Steps 22 through 36 to initialize the TOPS-20 file system.

Step 22: Type YES and press the RETURN key.

To create the system structure, type YES and press the RETURN key.

[FOR ADDITIONAL INFORMATION TYPE "?" TO ANY OF THE FOLLOWING QUESTIONS.]

DO YOU WANT TO REPLACE THE FILE SYSTEM ON THE SYSTEM STRUCTURE? YES <RET>

DO YOU WANT TO DEFINE THE SYSTEM STRUCTURE?

Step 23: Type YES and press the RETURN key.

To write the home blocks for each unit in the system structure, type YES and press the RETURN key.

DO YOU WANT TO DEFINE THE SYSTEM STRUCTURE? YES <RET>

HOW MANY PACKS ARE IN THIS STRUCTURE:

Step 24: Type the number of packs and press the RETURN key.

Count the number of disk packs you plan to have in your system structure. Type the answer and press the RETURN key. The example

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uses 1.

HOW MANY PACKS ARE IN THIS STRUCTURE: 1 <RET>

ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED:

Error: If you type the wrong number of disk packs, type <CTRL/\>. After the system prints PAR> (10 seconds), type ABORT and press the RETURN key. The system prints PAR%, indicating that the central processor has stopped. Go back to Step 12 and start again.

Step 25: Type ? (do not press the RETURN key).

You must inform the system of the location of each disk pack that is to be in the public file system. If you are not sure of the channel, controller, and unit numbers of each disk pack, type ?. This causes the system to print the channel and unit number of each disk drive.

### NOTE

The example shows channel and unit numbers for a specific configuration. The numbers for your system will probably be different, as they are generated by your own system configuration.

ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED: ?  
[ENTER A TRIPLE OF NUMBERS SEPARATED BY COMMAS THAT SPECIFY THE CHANNEL, CONTROLLER, AND UNIT UPON WHICH THE APPROPRIATE PACK IS MOUNTED. THE FOLLOWING IS A LIST OF VALID CHANNEL, CONTROLLER, AND UNIT NUMBERS:  
1,-1,0 ;TYPE=RP06,DUAL PORT  
1,-1,1 ;TYPE=RP06,OFFLINE,DUAL PORT  
1,-1,2 ;TYPE=RP04,OFFLINE,DUAL PORT  
1,-1,3 ;TYPE=RP07,OFFLINE  
]

ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED:

### NOTE

The controller number is always -1 for all system structures.

Error: If you followed the procedure in Step 6 exactly, drive 0 will be listed as dual-ported. Of the remaining drives, those that contain the packs that are to be your system structure will be listed as on line. All other drives will be listed as off line.

If a drive that you want to use is not listed, the drive's controller select switch is probably set to B. Follow the

## CREATING THE TOPS-20 FILE SYSTEM

procedure in Step 6 for changing it to A. Then type <CTRL/\>. After 10 seconds, the system prints PAR>. Type ABORT and press the RETURN key to halt the central processor. Return to Step 12 and start again.

If a drive you want to use is listed as off line, turn it on line and wait for the READY light to come on. Go back to Step 12.

Step 26: Type the channel number, controller number, and unit number and press the RETURN key.

Type the channel number, the controller number, and the unit number of the dual-ported drive, and press the RETURN key. You must answer this question once for each disk pack. If there is any problem, ask your DIGITAL Field Service representative to give you the channel and unit number of each drive. The controller number of all drives (except the RP20) is -1. (The RP20 controller number cannot be -1 as it cannot be used in the system structure.)

ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED:  
1,-1,0 <RET>

DO YOU WANT THE DEFAULT SWAPPING SPACE?

Error: If your answer is invalid, the system prints one of several messages and repeats the question. You can simply repeat the current step.

If your answer is valid but is not the one you wanted, type <CTRL/\>. After 10 seconds, the system prints PAR>. Type ABORT and press the RETURN key to halt the central processor. Go back to Step 12 and start again.

Step 27: Type ? (do not press the RETURN key).

To determine the default size of the swapping space for your system, type ?. The system prints the default swapping space, which is 10070 for a 2060.

If you are planning on using a monitor other than MONBIG for the 2060, see Chapter 3 Section 3.1 for the correct swapping space for the monitor you choose.

DO YOU WANT THE DEFAULT SWAPPING SPACE? ?  
[THE DEFAULT IS 10070 PAGES]

DO YOU WANT THE DEFAULT SWAPPING SPACE?

Step 28: Type YES or NO and press the RETURN key.

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## CREATING THE TOPS-20 FILE SYSTEM

If you want to accept the default swapping space size, type YES, press the RETURN key, and proceed to Step 30.

DO YOU WANT THE DEFAULT SWAPPING SPACE? YES <RET>

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM?

If you want to specify the size of the swapping space, type NO and press the RETURN key. (The formula for determining the proper swapping space for your system is found in the TOPS-20 System Manager's Guide.) After you determine the size of the swapping space you need, proceed to Step 29.

DO YOU WANT THE DEFAULT SWAPPING SPACE? NO <RET>

HOW MANY PAGES FOR SWAPPING?

Error: If you type the wrong answer, type <CTRL/\>. After 10 seconds, the system prints PAR>. Type ABORT and press the RETURN key to halt the central processor. Return to Step 12 and start again.

Step 29: Type the decimal number of pages and press the RETURN key.

Type the decimal number of disk pages you want to assign for swapping and press the RETURN key. This option is provided so you can increase the amount of swapping space in the future. The default size is the maximum amount that your present monitor will use for swapping. If you decide to increase the amount used by the monitor in the future, you must already have assigned that much space on the disk during the installation procedure. Otherwise, you must repeat the installation procedure and specify the larger number. The system will round the number of pages specified up to an integral number of cylinders on the disk.

To check the number of swapping pages for the monitor you have selected, see Chapter 3, Section 3.1.

For TCP/IP installations, see Appendix C, Section C.5, for the correct number of swapping pages for TCP/IP monitors.

HOW MANY PAGES FOR SWAPPING? n <RET>

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM?

Error: If you type an invalid number, the system prints:

? INVALID NUMBER OF SWAPPING PAGES FOR THIS TYPE OF DISK

and returns to the question in Step 28. If you type an answer that is valid but is not the one you wanted, type <CTRL/\>. After 10 seconds, the system prints PAR>. Type ABORT and

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## CREATING THE TOPS-20 FILE SYSTEM

press the RETURN key to halt the central processor. Go back to Step 12 and start again.

### Step 30: Type ? (do not press the RETURN key).

To determine the default size of the front-end file system, type ?. If you already know what the default is, you can omit this step.

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM? ?  
[THE DEFAULT IS 950 PAGES]

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM?

#### NOTE

If you are using an RP07 disk drive as the system structure, do not reserve any pages for the front-end file system.

### Step 31: Type YES and press the RETURN key.

Type YES, press the RETURN key, and proceed to Step 32.

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM? YES <RET>

DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA?

### Step 32: Type ? (do not press the RETURN key).

To find out how many pages are assigned as the default boot file space, type ?. The system responds with the number of pages allocated for the boot file space.

DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA? ?  
[THE DEFAULT IS 64 PAGES]

DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA?

### Step 33: Type YES and press the RETURN key.

It is recommended that you take the default bootstrap space. Type YES and press the RETURN key.

DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA? YES <RET>

DO YOU WANT TO ENABLE PASSWORD ENCRYPTION FOR THE SYSTEM STRUCTURE?

## CREATING THE TOPS-20 FILE SYSTEM

### Step 34: Type YES and press the RETURN key.

If you want user passwords to be encrypted on the disk, type YES and press the RETURN key.

DO YOU WANT TO ENABLE PASSWORD ENCRYPTION FOR THE SYSTEM STRUCTURE? YES<RET>

WHAT IS THE NAME OF THIS STRUCTURE?

#### NOTE

Before proceeding with Step 35, see the TOPS-20 System Manager's Guide for information on naming structures.

### Step 35: Type the name of the structure and press the RETURN key.

TOPS-20 recognizes any six-character name as a valid structure name. Type the name of the structure and press the RETURN key. The system prints a message to indicate that the structure is successfully defined and mounted. The following examples use PS: as the structure name.

WHAT IS THE NAME OF THIS STRUCTURE? PS: <RET>

[STRUCTURE "PS" SUCCESSFULLY DEFINED]  
[PS MOUNTED]  
%%NO SETSPD.

%%NO SETSPD means that the system cannot run the SETSPD program. This is expected because you have not yet loaded the SETSPD program into the file system. This message can be printed at any time before the system requests the date and time.

Error: If certain error conditions occur while the monitor is mounting the structure (a drive is write protected, for example), the system prints an error message followed by:

?HAVE THE PROBLEMS MENTIONED ABOVE BEEN CORRECTED YET:

When the problem has been corrected, type Y and press the RETURN key. Go back to Step 12.

### Step 36 STOP.

If the system prints a message similar to:

?PS UNIT 0 HAS NO BAT BLOCKS  
DO YOU WANT TO WRITE A SET OF PROTOTYPE BAT BLOCKS?

## CREATING THE TOPS-20 FILE SYSTEM

type yes and press the RETURN key. Continue with the next step.

### 2.5 RESTARTING THE MONITOR

Now that the file system is initialized, you can start the system by performing Steps 37 to 43.

Step 37: Type the date and time and press the RETURN key.

The system prints:

System restarting, wait...

ENTER CURRENT DATE AND TIME:

Type the date and time in the format dd-mmm-yy hhmm. Then press the RETURN key. Be sure to enter the time in 24-hour format. For example, 4:30 PM on the twelfth day of March can be entered as 12-MAR-88 1630.

ENTER CURRENT DATE AND TIME: 12-MAR-88 1630 <RET>

The system responds by retyping the date and time.

YOU HAVE ENTERED SATURDAY, 12-MARCH-1988 4:30PM,  
IS THIS CORRECT (Y,N)

Step 38: Type Y and press the RETURN key if the date is correct.

If the date and time are correct, type Y and press the RETURN key. If the date and time are incorrect, type N and press the RETURN key. The system again asks for the date and time.

YOU HAVE ENTERED SATURDAY, 12-JUNE-1988 4:30PM,  
IS THIS CORRECT (Y,N) Y <RET>  
WHY RELOAD?

CI20

If your system configuration does not include CI20, ignore the following message when you start the monitor:

BUGCHK "NOLODF" AT dd-mmm-yy hh:mm  
COULD NOT FIND CI-20 MICROCODE LOAD PROGRAM

If you are installing CI20, you can also ignore this message, as the necessary files are not yet on disk.

## CREATING THE TOPS-20 FILE SYSTEM

Step 39: Type NEW and press the RETURN key.

Type NEW and press the RETURN key. The text you type following this question is entered into the system error file, PS:<SYSTEM-ERROR>ERROR.SYS. The TOPS-20 monitor starts running, and the system prints PROBLEM WITH <SYSTEM>ACCOUNTS-TABLE.BIN CANNOT FIND ERROR MESSAGE FILE - ACCOUNT VALIDATION IS DISABLED and RUNNING DDMP.

NOTE

If you do not respond to the WHY RELOAD question within 60 seconds, the system assumes OTHER and continues the startup procedure.

WHY RELOAD? NEW <RET>

PROBLEM WITH <SYSTEM>ACCOUNTS-TABLE.BIN  
CANNOT FIND ERROR MESSAGE FILE - ACCOUNT VALIDATION IS  
DISABLED

RUNNING DDMP

NO SYSJOB

The system prints the message ACCOUNT VALIDATION IS DISABLED because the ACTGEN program did not run. (See the TOPS-20 System Manager's Guide for more information.) The system runs DDMP and then prints NO SYSJOB because the SYSJOB program is not stored on disk. Ignore this message as SYSJOB is not needed yet.

Error: If you type an incorrect string to the WHY RELOAD? question, the system prints the valid abbreviations and then prompts you again for the answer.

Ethernet

If your system configuration does not include an Ethernet, ignore the following message when you start the monitor:

BUGCHK "KNICFF" AT dd-mmm-yy hh:mm:ss  
PHYKNI - CANNOT RELOAD THE KLNI

If you are installing an Ethernet, you can also ignore this message, as the necessary files are not yet on disk.

Step 40: Type <CTRL/C>.

## CREATING THE TOPS-20 FILE SYSTEM

After the system prints NO SYSJOB, type <CTRL/C> to start a job.

```
NO SYSJOB
```

```
<CTRL/C>  
NO EXEC  
MX>
```

The system prints NO EXEC because the file PS:<SYSTEM>EXEC.EXE (containing the TOPS-20 command processor) does not exist. The command processor is not needed at this point, so ignore this message.

Step 41: Type G, then MTA0:. Press the RETURN key.

The system is now at the miniexec command level, and you can type any miniexec command. Use this command language to load the TOPS-20 command processor from tape. (Type <CTRL/U> if you want to erase a line while at miniexec command level.)

Type G. The system prints ET FILE. Type MTA0: and press the RETURN key. The system skips over the end of the monitor save file and prints the miniexec prompt MX>.

```
NO EXEC  
MX>GET FILE MTA0: <RET>  
MX>
```

### NOTE

If you are using a tape drive other than tape drive 0, reply accordingly in the following steps and/or error recovery procedures, for example, MTA1:, MTA2:.

Error: If you get a question mark (?) after issuing the command, you can ignore this message and continue with the next step.

Step 42: Again type G, then MTA0:. Press the RETURN key.

To load the TOPS-20 command processor from magnetic tape into memory, type G. The system prints ET FILE. Type MTA0: and press the RETURN key. The system reads the program from MTA0: into memory and prints the miniexec prompt when it is finished.

```
MX>GET FILE MTA0: <RET>  
MX>
```

Error: If you get an error in the form "INTERRUPT AT location," the tape could be bad or you may be specifying the wrong tape drive. Start at Step 10 once more. If the errors continue, call DIGITAL Software Support.

## CREATING THE TOPS-20 FILE SYSTEM

If you make a typing mistake and press the RETURN key, the system prints MX>. Try again.

Step 43: Type S and press the RETURN key.

To start the TOPS-20 command processor that you just loaded into memory, type S. The system prints TART. Press the RETURN key. The system prints the name and version of the TOPS-20 command processor and the TOPS-20 prompt (@).

```
MX>START <RET>
```

```
TOPS-20 Command processor 7(4123)
```

```
@
```

Error: If the system prints INTERRUPT AT 1, you typed only one G command to the miniexec. Repeat the command in this step. If you still get the error, go back to Step 12. If the errors continue, contact DIGITAL Software Support.

If you receive the error message INTERRUPT AT 601772, follow these error recovery procedures:

1. Rewind the tape manually and give the following commands:

```
MX>GET FILE MTA0: <RET>  
MX>RESET <RET>  
MX>GET FILE MTA0: <RET>  
MX>START <RET>
```

2. Proceed to Step 44.

If you make a typing error and press the RETURN key, the system prints MX>. Try again.

Error: If many error messages are repeatedly printed, the tape could be bad. Press the front-end HALT switch and wait one minute. Go back to Step 12. If the errors persist, ask for another tape.

## 2.6 CREATING SYSTEM DIRECTORIES

With the system running, you must create directories to store system files and files for testing the system. You create these directories by running the DLUSER program from tape (Steps 44 through 47).

Step 44: Type ENABLE and press the RETURN key.

## CREATING THE TOPS-20 FILE SYSTEM

To load files into privileged areas and to create directories, give the ENABLE command to obtain the required capabilities.

```
@ENABLE <RET>
$
```

Step 45: Type RUN MTA0: and press the RETURN key.

To run the DLUSER program from the magnetic tape, type RUN MTA0:. After you issue this command, the system prints the prompt DLUSER>.

```
$RUN MTA0: <RET>
DLUSER>
```

Error: If you receive an error message, rewind the tape, skip two files, and reissue this command. The following example shows how to do this for MTA0:.

```
$REWIND MTA0: <RET>
$SKIP MTA0: 2 FILES <RET>
$RUN MTA0: <RET>
DLUSER>
```

Step 46: Type LOAD MTA0: and press the RETURN key.

To load the directory structure from the tape into the file system, type LOAD MTA0:. After a few seconds, the system prints DONE. and the DLUSER prompt.

```
DLUSER>LOAD MTA0: <RET>
```

```
DONE.
DLUSER>
```

Error: If you mistype the command and have not pressed the RETURN key, delete the entire line by typing <CTRL/U>, and then reissue the command.

If you mistyped the command and pressed the RETURN key, follow the error recovery procedure in Step 45.

If you get a group of JSYS error messages, you probably did not give the ENABLE command in Step 44. Type <CTRL/C> twice, type ENABLE, press the RETURN key, and give the following commands:

```
$REWIND MTA0: <RET>
?Device MTA0: open on JFN 3
%Close JFN? YES <RET>
```

## CREATING THE TOPS-20 FILE SYSTEM

```
3 MTA0: [OK]
$SKIP MTA0: 2 FILES <RET>
$RUN MTA0: <RET>
DLUSER>LOAD MTA0: <RET>
```

```
DONE.
DLUSER>
```

Step 47: Type EXIT and press the RETURN key.

Type EXIT to end the DLUSER program. The system prints the ENABLED prompt (\$).

```
DLUSER>EXIT <RET>
$
```

## 2.7 RUNNING DUMPER FROM TAPE

The DUMPER program places files from the magnetic tape into the TOPS-20 file system. The DUMPER program is the fifth file on the Installation Tape.

For the output from the DUMPER command FILES to print the width (132 columns) of the CTY paper, rather than wrap after 80 columns, enter the following command before starting DUMPER:

```
$TERMINAL WIDTH 132 <RET>
```

To run DUMPER, perform Steps 48 and 49.

Step 48: Type RUN MTA0: and press the RETURN key.

The DUMPER program is on the tape mounted on drive 0. Since the tape is already positioned at the DUMPER program, type RUN MTA0:. After the DUMPER program starts, the system prints the DUMPER prompt.

```
$RUN MTA0: <RET>
DUMPER>
```

Error: If you get errors, the magnetic tape was either not recorded properly or not positioned properly. Rewind the tape, skip four files, and try again. The following lines show how to do this for MTA0:. If the errors persist, contact DIGITAL Software Support.

```
$REWIND MTA0: <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
```

## CREATING THE TOPS-20 FILE SYSTEM

DUMPER>

Step 49: Type TAPE MTA0: and press the RETURN key.

Tell DUMPER which tape drive to use by typing TAPE MTA0:. The system then prints the DUMPER prompt.

```
DUMPER>TAPE MTA0: <RET>
DUMPER>
```

Error: If you make a typing error, reissue the command.

### 2.8 RESTORING TOPS-20 BUNDLED SOFTWARE FROM TAPE

Restore the files for the directories PS:<SYSTEM>, PS:<SUBSYS>, and PS:<UETP.LIB> from the tape.

Give the DUMPER command FILES just before the RESTORE command if you want the system to print the file specification of each file it restores. (The installation takes longer if you print this information.) To stop printing each file specification, give the NO FILES command after the current RESTORE command finishes. (See the TOPS-20 User Utilities Guide for an explanation of any messages that DUMPER may print on your terminal.)

#### NOTE

This procedure restores the files on the Installation tape to a structure called PS:. If in Step 35 of this guide you gave a structure name other than PS:, type the structure name you specified in place of PS: in the following steps. For example:

```
RESTORE PS:<*>*. *.* FOO:<SYSTEM> <RET>
```

Note that the files are being restored to a structure called FOO:.

Perform Steps 50 through 57 to restore the bundled software.

Step 50: Type RESTORE PS:<\*>\*. \*.\* PS:<SYSTEM>\*. \*.\* and press the RETURN key.

To copy the TOPS-20 monitor and its related programs from magnetic tape to disk, type the RESTORE command. This command restores all the files in the first saveset to the directory PS:<SYSTEM>. When all the files are restored, you return to the DUMPER prompt.

## CREATING THE TOPS-20 FILE SYSTEM

```
DUMPER>RESTORE PS:<*>*. *.* PS:<SYSTEM>*. *.* <RET>
Saveset "SYSTEM Files for TOPS-20 V7.0" 17-Mar-88 1441
Loading files into PS:<SYSTEM>
End of Saveset.
```

```
Total files restored: 26
Total pages restored: 1765
DUMPER>
```

Error: If you do not type the correct input structure, PS:, or if the tape is not positioned correctly, no files are restored from tape. In this case you will not see the message "Loading files into PS:<SYSTEM>." To correct this error, type <CTRL/E>, give the following commands, and begin again at Step 49.

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>
```

Error: If you do not type the correct structure and directory name, PS:<SYSTEM>, the files are restored to the wrong directory. To correct this error, type <CTRL/E>, and give the following commands. Then reissue the RESTORE command in this step. Be sure to delete and expunge the files in the incorrect directory.

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>TAPE MTA0: <RET>
DUMPER>
```

Step 51: Type RESTORE PS:<\*>\*. \*.\* PS:<SUBSYS>\*. \*.\* and press the RETURN key.

Restore the system program files to the directory PS:<SUBSYS> with the RESTORE command. When all the files are restored, you return to the DUMPER prompt.



CREATING THE TOPS-20 FILE SYSTEM

```
DUMPER>RESTORE PS:<*>*. *.* PS:<SUBSYS>*. *.* <RET>
Saveset "SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1442
Loading files into PS:<SUBSYS>
End of Saveset.
```

```
Total files restored: 177
Total pages restored: 4534
DUMPER>
```

Error: If you do not type the correct input structure, PS:, or if the tape is not positioned correctly, no files are restored from tape. In this case you will not see the message "Loading files into PS:<SUBSYS>." To correct this error, type <CTRL/E>, give the following commands, and begin again at Step 49.

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>
```

Error: If you forget to type the directory PS:<SUBSYS>, the files are restored to the wrong directory. Type <CTRL/E> and give the following commands to correct the error. Then reissue the RESTORE command in this step. Be sure to delete and expunge the files in the incorrect directory.

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>TAPE MTA0: <RET>
DUMPER>SKIP 1 <RET>
DUMPER>
```

Step 52: Type RESTORE PS:<\*>\*. \*.\* PS:<SUBSYS>\*. \*.\* and press the RETURN key.

To restore the GALAXY files into the directory PS:<SUBSYS>, type the RESTORE command. When all the files are restored, you return to the DUMPER prompt.

CREATING THE TOPS-20 FILE SYSTEM

```
DUMPER>RESTORE PS:<*>*. *.* PS:<SUBSYS>*. *.* <RET>
Saveset "GALAXY SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1443
Loading files into PS:<SUBSYS>
End of Saveset.
```

```
Total files restored: 24
Total pages restored: 585
DUMPER>
```

Error: If you forget to type PS:<SUBSYS>, the system restores the files to the wrong directory. Type <CTRL/E> to stop DUMPER and enter the commands listed below. Then reissue the RESTORE command in this step. Be sure to delete and expunge the files in the incorrect directory.

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>TAPE MTA0: <RET>
DUMPER>SKIP 2 <RET>
DUMPER>
```

Step 53: Type RESTORE PS:<\*>\*. \*.\* PS:<UETP.LIB>\*. \*.\* and press the RETURN key.

To restore the files into the directory <UETP.LIB>, type the RESTORE command. When all the files are restored, you return to the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<UETP.LIB>*. *.* <RET>
Saveset "UETP Files for TOPS-20 V7.0" 17-Mar-88 1444
Loading files into PS:<UETP.LIB>
End of Tape.
```

```
Total files restored: 55
Total pages restored: 482
DUMPER>
```

Error: If you do not type the correct input structure, PS:, for example, or if the tape is not positioned correctly, no files are restored from tape. In this case you will not see the message "Loading files into PS:<UETP.LIB>." To correct this error, type <CTRL/E>, give the following commands, and begin again at Step 49.

## CREATING THE TOPS-20 FILE SYSTEM

```
<CTRL/E>
Interrupting...
DUMPER>>ABORT <RET>
Aborting RESTORE command...
DUMPER>REWIND <RET>
DUMPER>EXIT <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>
```

### Step 54: Type EXIT and press the RETURN key.

Type EXIT to end DUMPER. The system prints the ENABLEd prompt (\$).

```
DUMPER>EXIT <RET>
$
```

### Step 55: Type UNLOAD MTA0: and press the RETURN key.

To remove the TOPS-20 Installation tape from the tape drive, type UNLOAD MTA0:. The system rewinds the tape onto the source reel.

```
$UNLOAD MTA0: <RET>
$
```

You can now remove the tape from the tape drive.

Error: If the system prints:

```
%Device open in lower fork
%Kill lower fork?
```

type YES and press the RETURN key. The system unloads your tape.

### Step 56: Type INFORMATION DISK-USAGE PS:<\*> and press the RETURN key.

If you give the command INFORMATION DISK-USAGE PS:<\*>, the system prints the size of every directory on the public structure, PS:. The example in Figure 2-1 was obtained using a DECSYSTEM-20, model 2060. You will notice that there are two directories called <NEW-SYSTEM> and <NEW-SUBSYS>. These directories should have no files associated with them. They were created by the monitor and will be used in the event you update your system to a newer release of the TOPS-20 operating system.

Error: If the "Pages assigned" for each directory shown do not approximately match the value shown in this guide or the value derived from the directory listing shipped with your

## CREATING THE TOPS-20 FILE SYSTEM

Installation tape, some files may not have been copied correctly. Mount the tape again on MTA0:, skip four files and begin again at Step 48.

## CREATING THE TOPS-20 FILE SYSTEM

\$INFORMATION DISK-USAGE PS:<\*> <RET>

PS:<ROOT-DIRECTORY>  
-881 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<ACCOUNTS>  
17 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<NEW-SUBSYS>  
0 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<NEW-SYSTEM>  
0 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<OPERATOR>  
0 Pages assigned  
250 Working pages, 250 Permanent pages allowed

PS:<SPOOL>  
0 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<SUBSYS>  
5119 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<SYSTEM>  
1765 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<SYSTEM-ERROR>  
1 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<UETP>  
6 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<UETP.LIB>  
482 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

PS:<UETP.RUN>  
0 Pages assigned  
+INF Working pages, +INF Permanent pages allowed

Total of 6509 Pages assigned, in 12 directories.  
52134 Pages free on PS:, 23866 Pages used.

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Figure 2-1: Directories on the Public Structure

### 2.9 CREATING THE DUMP.EXE FILE

To record system failures, create the DUMP.EXE file by performing Steps 57 through 59.

Step 57: Type RUN PS:<SUBSYS>MAKDMP.EXE and press the RETURN key.

To create the DUMP.EXE file, which records any system failures, type RUN PS:<SUBSYS>MAKDMP.EXE. The system prints the prompt MAKDMP>.

```
$RUN PS:<SUBSYS>MAKDMP.EXE <RET>  
MAKDMP>
```

#### NOTE

If you do not know how much memory your system has, type the HELP command and press the RETURN key after the system prints MAKDMP>. MAKDMP prints examples of physical memory size with the corresponding number of words.

Step 58: Type CREATE PS:<SYSTEM>DUMP.EXE.1 memory-size and press the RETURN key.

To overwrite the existing DUMP.EXE file with a new DUMP.EXE file, type CREATE PS:<SYSTEM>DUMP.EXE.1 memory-size. Be sure to enter the total amount of memory your system has. The following example uses 2048K words as the memory size.

```
MAKDMP>CREATE PS:<SYSTEM>DUMP.EXE.1 2048 <RET>  
[Dump file: <SYSTEM>DUMP.EXE.1 created]  
MAKDMP>
```

Step 59: Type EXIT and press the RETURN key.

Type EXIT to end the MAKDMP program and return to TOPS-20 command level.

```
MAKDMP>EXIT <RET>  
$
```

#### NOTE

If in the future you add some additional memory to your system, you should recreate the DUMP.EXE file to

## CREATING THE TOPS-20 FILE SYSTEM

allow it to accommodate the additional memory.

## CHAPTER 3

### TAILORING THE SYSTEM

After you have installed the bundled TOPS-20 software from the Installation Tape, tailor your system for your specific needs.

1. Select a monitor that is correct for your system.
2. Change the system name.
3. Create system defaults for the following:
  - o terminal speeds
  - o dial-up lines
  - o system logical names
  - o magnetic tape drive numbers
  - o line printer parameters
  - o local time zone
  - o directory parameter setting
  - o account validation
  - o performance improvements
  - o scheduler controls
  - o file archiving parameters
  - o migration parameters
  - o tape drive allocation
  - o accounting shift changes

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- o assigning MSCP-served disk drives
- o daylight savings time
- o remote line conditions
- o controlling system message levels
- o network information
- o cluster data gathering
- o off-line structures time out interval
- o login structures
- o minimum password length
- o password expiration
- o password dictionary
- o dumping memory on non-fatal errors
- o Security parameters

These defaults are set in the configuration command file.

4. Change the operator's password and user group.
5. Create the directory PS:<REMARKS>.
6. Create the PS:<SYSTEM>LPFORM.INI file.

### 3.1 SELECTING A TOPS-20 MONITOR

At this time you are running the TOPS-20 monitor 2060-MONBIG.EXE. You should now select the monitor that most closely meets your system's requirements. Choose a monitor that supports at least:

1. As much memory as your system contains. A monitor that supports less memory than your system contains will not use all available memory.
2. The number of terminal lines you need. Do not count the operator's console in this number. Just count the local terminal lines and remote lines.
3. The number of user jobs that you plan to run, plus two (one operator job and job 0). For example, if you expect to run

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20 user jobs, the monitor you select should support at least 22 jobs.

4. The number of pseudo-terminals that you need. The system needs at least two pseudo-terminals, one for the PTYCON program to run the operator program OPR and one for unplanned situations that may arise.

For example, if you want to run five pseudo-terminals in your batch system, you need a monitor that supports at least seven pseudo-terminals.

5. The number of peripheral devices on your system.
6. The number of LAT (Local Area Transport) lines on your system.

All monitors are stored in the directory <SYSTEM>. They all run timesharing and batch concurrently. Do not select a monitor that has fewer resources than you need, or a monitor that is unnecessarily large. The TOPS-20 monitors and their characteristics are listed below. See Table 3-1 for the maximum structure size.

**2060-MONBIG.EXE** A big timesharing monitor. This monitor supports:

- 100 jobs
- 96 lines
- 64 LAT lines
- 30 pseudo-terminals
- 4MEG of memory
- 8 magnetic tape drives
- 2 line printers
- 1 card reader
- 120 million words of disk storage (six RP04, three RP06, one RP07, three RP20 spindles, two RA60, or one RA81) per structure
- 10000 pages for swapping space

**2060-MONMAX.EXE** The largest timesharing monitor. This monitor supports:

- 128 jobs
- 128 lines
- 128 LAT lines
- 50 pseudo-terminals
- 4MEG of memory
- 16 magnetic tape drives
- 2 line printers
- 1 card reader
- 120 million words of disk storage (six RP04, three RP06, one RP07, three RP20 spindles, two RA60, or one RA81) per structure

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15000 pages for swapping space

Table 3-1: Maximum Structure Size

Type of Disk Drive	Max. No. Packs Per Structure	No. Pages Per Pack *
RP04	6	38,000
RP06	3	76,000
RP07	1	216,376
RP20	5	201,420
RA60	6	90,516
RA81	5	200,928

\* a page = 512 36-bit words

In Steps 60 and 61, you choose the monitor most appropriate for your needs and copy it to the file MONITR.EXE.

Step 60: Type CONNECT PS:<SYSTEM> and press the RETURN key.

Connect to the directory PS:<SYSTEM> by typing the CONNECT command.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

TCP/IP Installations

If you are performing a TCP/IP installation, you must choose a TOPS-20 monitor at this time. After you restore the TCP/IP Distribution tape, you will be able to choose a TCP/IP monitor.

Step 61: Type COPY montyp.EXE.\* MONITR.EXE.\* and press the RETURN key.

Use the COPY command to copy the monitor that you have selected to the file MONITR.EXE. "Montyp" designates the type of monitor you have selected for your system. When the copy is successfully completed, the system prints an OK message. The different monitors are 2060-MONBIG.EXE and 2060-MONMAX.EXE.

```
$COPY montyp.EXE.* MONITR.EXE.* <RET>
montyp.EXE.n => MONITR.EXE.n [OK]
```

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\$

Error: If you type the wrong name, reissue the command.

3.2 CHANGING THE SYSTEM NAME

Whenever a user types <CTRL/C> before logging in or gives the INFORMATION VERSION command, the system prints a message similar to:

```
TOPS-20 BIG SYSTEM, TOPS-20 Monitor n.n(nnnn)
```

where n.n(nnnn) is the version and edit number of the operating system. You can change the system name "TOPS-20 BIG SYSTEM" by entering the name you want into the file PS:<SYSTEM>MONNAM.TXT. If the name contains lowercase letters, give the command TERMINAL NO RAISE before entering the name.

The text of the system name can contain up to 105 characters. For practical purposes, it should not exceed 32 characters to fit on a single 72-character line of terminal output. Steps 62 through 64 show how to change the system name to "Installation-test System" and how to change the new system name to the abbreviated name "Instal-tst."

Step 62: Type TERMINAL NO RAISE and press the RETURN key (optional).

If you want lowercase letters in the system name, type the TERMINAL command. Make sure that the CAPS LOCKED button on the terminal is up.

```
$TERMINAL NO RAISE <RET>
$
```

Step 63: Type COPY TTY: MONNAM.TXT and press the RETURN key. Then enter the system name and type <CTRL/Z>.

Change the system name by entering the name you want into the file PS:<SYSTEM>MONNAM.TXT. The system name should not exceed 32 characters.

Use the COPY command to give the system a new system name. After you enter the command, the system waits for you to type the new name of your system. After you enter the new system name, type <CTRL/Z>. In the example, the new system name is Installation-test System.

```
$COPY TTY: MONNAM.TXT <RET>
TTY: = MONNAM.TXT.1
```

```
Installation-test System ^Z
$
```

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You can change this file at any time, but the system reads the system name only when the monitor is started (whenever you boot the system).

Step 64: Type COPY TTY: TAPNAM.TXT and press the RETURN key. Enter the abbreviated system name and type <CTRL/Z>.

You should also change the system name that will be written on the volume header label of any tape initialized by users of the system. Do this by entering the name you want into the file PS:<SYSTEM>TAPNAM.TXT. This system name must contain ten or fewer characters, so you will probably have to abbreviate the name given in the previous step. The example shows how to change the system name (that appears on tape labels written by the system) to "Instal-tst."

Give the system an abbreviated name with the COPY command. After you enter the command, the system waits for you to type the abbreviated system name. After you enter the abbreviated system name, type <CTRL/Z>. In the example, the abbreviated system name is Instal-tst.

```
$COPY TTY: TAPNAM.TXT <RET>
TTY: = TAPNAM.TXT.1
```

```
Instal-tst ^Z
$
```

### 3.3 CREATING SYSTEM DEFAULTS IN THE CONFIGURATION COMMAND FILE

You must create a configuration command file to define:

Terminal line speeds	Logical names
Magnetic tape drives	Line printers
Local time zone	Directory parameter setting
Account validation	Performance improvements
Scheduler controls	File archiving and migration
Tape drive allocation	Accounting shift changes
MSCP-served disk drives	Daylight savings time
Remote line conditions	System level messages
Network information	Off-line structures
Login structures	Password management
Memory dumps	Cluster data gathering
	Security controls

The next time the system starts, the SETSPD (SET System Parameter Defaults) program uses the definitions entered into this file. This program runs automatically at system startup.

The formats of the commands are described in Sections 3.3.1 through 3.3.23 (Steps 65 through 99). You can include comment lines if they are preceded by exclamation points.

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### NOTE

The following sections describe how to create the configuration command file. These steps illustrate the use of the EDIT editor program. You can use any editor of your choice, as long as you accomplish the goal of each step.

Step 65: Type CREATE 7-CONFIG.CMD and press the RETURN key.

Use EDIT to CREATE the 7-CONFIG.CMD file. (See the TOPS-20 EDIT Reference Manual for more information on how to use EDIT.) The system prints the file name and the line number.

```
$CREATE 7-CONFIG.CMD <RET>
Input: PS:<SYSTEM>7-CONFIG.CMD.1
00100
```

Do not confuse the CREATE command, which creates a file, with the privileged ^ECREATE command, which creates a directory.

### 3.3.1 Setting Terminal Speeds

Whenever the system starts, the SETSPD program reads the TERMINAL commands from the configuration command file and sets the terminal lines to the specified speeds.

Users can change the speeds of their terminals by giving the TERMINAL SPEED command. When one user logs out and another user logs in on the same terminal, the system does not change the line speed back to the default listed in the configuration command file. However, if the line is defined as REMOTE, the speed is changed back after the line is disconnected. Note that the operator can change the speed of the line by giving the privileged ^ESET command.

To set the default speed for a particular line, enter a command in the following format into the configuration command file:

```
TERMINAL line SPEED input output
```

where:

line is an octal line number, or a range of lines in the form line-line. Your DIGITAL Field Service Representative will provide you with a list of line numbers and the corresponding locations. (See Section 1.2.)

input is the input speed (to the system) of the terminal(s).

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output is the output speed of the terminal(s). If you do not specify both output and input, the system assumes that the output speed is the same as the input speed.

Valid terminal speeds are:

0 (to shut off the line)	300
50	600
75	1200
110	1800
134 (actually 134.5)	2400
150	4800
200	9600

NOTE

If you do not specify a speed for a line, the system uses 300 for both input and output. If you have lines in the terminal controller (the DH11) that are not installed, you should define those lines with a speed of 0. Otherwise, the lines run open, causing degradation in system performance.

Line numbers are always octal (see Table 3-2).

Table 3-2: DECSYSTEM-20 Terminal Line Numbers

Number of Lines (Decimal)	Line Numbers (Octal) for Directly-Connected Lines
8	1 to 10
16	1 to 20
32	1 to 40
64	1 to 100
96	1 to 140
128	1 to 200

Step 66: Type the TERMINAL SPEED commands.

Type your required TERMINAL SPEED commands and press the RETURN key after each definition. You can include comment lines by preceding each with an exclamation point. The lines shown are only an example. Determine the most useful definitions for the system according to the terminals that you have.

```
00100 ! Terminal Speeds <RET>
00200 ! Line 1 has input=9600 and output=9600 <RET>
```

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```
00300 TERMINAL 1 SPEED 9600 <RET>
00400 ! Lines 2 to 20 have input and output=2400 <RET>
00500 TERMINAL 2-20 SPEED 2400 <RET>
00600 ! Lines 23 to 40 are shut off <RET>
00700 TERMINAL 23-40 SPEED 0 <RET>
00800
```

3.3.2 Defining Dial-Up (Remote) Lines

For each dial-up line, you have the option of declaring that line to have a specified speed or you can declare a line to be autobaud. If a dial-up line is declared an autobaud line, the line is automatically set to the correct baud rate for that line at system startup.

To declare a line autobaud, replace the word SPEED with the word AUTO in the TERMINAL command and do not specify any input and output speeds.

Include a TERMINAL command for each dial-up line. Use the same form as described in Section 3.3.1, but insert the word REMOTE after the line number.

If you do not use the AUTO argument and omit the output speed, the system assumes that the output speed is the same as the input speed. The command format is:

TERMINAL line REMOTE SPEED input output

or

TERMINAL line REMOTE AUTO

Whenever a user starts a job on a dial-up line, and AUTO has not been specified, the system sets the speed of that line to the speed specified in the configuration command file.

You can specify whether or not a particular line receives system or user messages. A line receives messages by default, so to specify that a particular line is not to receive system or user messages use the following command formats:

TERMINAL line IGNORE-SYSTEM-MESSAGES

TERMINAL line IGNORE-USER-MESSAGES

You can specify that input on a specified terminal line is to be ignored when the line is inactive. When input is being ignored and characters are typed, no CTRL/G (bell) is sent, as is the normal case when characters are typed on an inactive line. The command format is:



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TERMINAL line NOBELL

### Step 67: Define REMOTE lines.

If you have remote lines, obtain the line numbers from your DIGITAL Field Service Representative and enter the proper commands in the configuration command file. Press the RETURN key after each definition. The lines shown are only an example. You must determine the correct commands for your own system.

```
00800 ! Lines 21 and 22 are dialup lines <RET>
00900 TERMINAL 21 REMOTE SPEED 9600 <RET>
01000 TERMINAL 22 REMOTE AUTO <RET>
01100 TERMINAL 21 IGNORE-SYSTEM-MESSAGES <RET>
01200 TERMINAL 21 IGNORE-USER-MESSAGES <RET>
01300 TERMINAL 22 NOBELL <RET>
01400
```

### 3.3.3 Defining System Logical Names

Insert a command in the following format to define any special system logical names that you require. These logical names are defined when the system starts. The command format is:

DEFINE name definition-list

The logical name SYS: defaults to PS:<SUBSYS> if you do not define it in the configuration command file. See the TOPS-20 System Manager's Guide for descriptions of logical names.

### Step 68: Type the system logical name definitions.

Enter any system logical name definitions into the configuration command file. Press the RETURN key after each definition. The lines shown are recommended definitions. PS:<directory> indicates that you can use a directory of your own choosing. Be sure to include the correct structure names for your system if you are using a structure name other than PS:.

```
01400 DEFINE NEW: PS:<NEW>,SYS: <RET>
01500 DEFINE OLD: PS:<OLD>,SYS: <RET>
01600 DEFINE HLP: SYS: <RET>
01700 DEFINE SERR: PS:<SYSTEM-ERROR> <RET>
01800 DEFINE DMP: PS:<directory> <RET>
01900 DEFINE POBOX: PS: <RET>
02000
```

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**3.3.3.1 Selecting an Editor** - You have the option of selecting the default editing program (editor) with which your users create and edit files using the CREATE and EDIT commands. If you want them to use the TV program, enter the command DEFINE EDITOR: SYS:TV.EXE into the configuration command file. If you do not put this command into the configuration command file, the default editor used for the CREATE and EDIT commands will be the EDIT program.

By defining the logical name EDITOR: for their own jobs, users can override your choice of default editor, as long as the editor they specify is available at your installation. The following step is an example of making TV the default editor for your installation.

### Step 69: Type DEFINE EDITOR: SYS:TV.EXE and press the RETURN key.

If you are using the TV editor as your system's default editor, type DEFINE EDITOR: SYS:TV.EXE.

```
02000 DEFINE EDITOR: SYS:TV.EXE <RET>
02100
```

#### NOTE

If you want your system's default editor to be the EDIT program, do not put a DEFINE EDITOR: command into the configuration command file.

### 3.3.4 Defining Magnetic Tape Logical Unit Numbers

The system assigns logical unit numbers to magnetic tape drives. It starts with the lowest numbered unit on the lowest numbered controller on the lowest numbered channel, and proceeds upward. If the cabling connecting the tape drives to the system changes, the logical unit numbers referencing the tape drives can also change, unless you enter the appropriate commands in the configuration command file. The commands in this file guarantee that the physical drives always have the same logical unit numbers.

Request the tape drive serial numbers from your DIGITAL Field Service Representative, or open the back door of the magnetic tape drives and look on the sticker containing the number. The last 4 digits of the serial number are the most significant. Use only the last four digits of the number to identify the magnetic tape drive in the MAGTAPE command.

#### NOTE

SETSPD will not recognize tape drives with serial numbers longer than 4 characters.

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To define magnetic tape drives, use the MAGTAPE command, in the following format, in the configuration command file:

MAGTAPE unit serial slave

where:

- unit is the logical unit number to be assigned to the drive. The unit number can be 0, 1, 2, 3, 4, 5, 6, or 7.
- serial is the last four digits of the serial number. (Leading zeros can be omitted.)
- slave is the type of tape drive. The types of tape drives are TU45, TU70, TU71, TU72, TU73, TU77, TU78.

**NOTE**

If no slave number is entered, the system assumes that the slave number is TU45.

**Step 70: Define the magnetic tape drive logical unit numbers.**

Enter the definitions of the magnetic tape drive logical unit numbers into the configuration command file. Press the RETURN key after each definition. The commands shown are only examples. You must determine the correct definitions for your system.

```
02100 MAGTAPE 0 24 TU45 <RET>
02200 MAGTAPE 1 2001 TU77 <RET>
02300 MAGTAPE 2 2002 TU71 <RET>
02400 MAGTAPE 3 2003 TU70 <RET>
02500 MAGTAPE 4 1500 TU72 <RET>
02600
```

**3.3.5 Defining Line Printer Parameters**

The characteristics of several line printers that can be ordered with your DECSYSTEM-20 are listed in Table 3-3. Ask your DIGITAL Field Service Representative which type you have.

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**Table 3-3: DECSYSTEM-20 Line Printers**

Model	VFU	Lowercase	Identification
LP20A LP20B	PROGRAMMABLE	NO YES	Four buttons on the right top panel, with the top button being POWER ON ALARM/CLEAR.
LP20C LP20D	PROGRAMMABLE	NO YES	Four buttons on the right top panel, with the top button being POWER ON ALARM/CLEAR.
LP20F LP20H	TAPE	NO YES	Four rocker switches on the left of the top panel.

Sections 3.3.5.1 and 3.3.5.2 (Steps 71 and 72) describe the PRINTER commands.

**3.3.5.1 Specifying the VFU File** - The VFU (Vertical Formatting Unit) is used to control paper advance through the line printer. For a line printer with a programmable VFU, place a command in the configuration command file that specifies the file to program the VFU. For installation purposes, use SYS:NORMAL.VFU. The command format is:

PRINTER n LOWERCASE VFU dev:<dir>name.typ

where:

- n is the unit number of the printer.
- LOWERCASE means the printer has the 96-character set. If your printer has the 64-character set, do not include the word LOWERCASE in the command.
- VFU is the type of file specified by the command.
- dev:<dir>name.typ is the location of the VFU file.

Examples of typical VFU commands in the configuration command file are:

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<b>Printer</b>	<b>VFU Command</b>
LP20A or LP20C	PRINTER 0 VFU SYS:NORMAL.VFU
LP20B or LP20D	PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU

Note that you do not need VFU commands for LP20F and LP20H line printers.

Step 71: Type the VFU command and press the RETURN key.

If you have one or more line printers with programmable VFUs, enter the appropriate PRINTER commands in the configuration command file.

```
02600 PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU <RET>
02700 PRINTER 1 VFU SYS:NORMAL.VFU <RET>
02800
```

**3.3.5.2 Specifying the RAM File** - You must identify a file that will load the translation RAM (Random-Access Memory). This RAM controls the way in which each character is treated by the line printer. Use SYS:LP96.RAM for line printers that have lowercase letters. Use SYS:LP64.RAM for printers that do not have lowercase letters. The command format is:

```
PRINTER n LOWERCASE RAM dev:<dir>name.typ
```

where:

- n is the line printer unit number.
- LOWERCASE means the printer has the 96-character set. If your printer has the 64-character set, do not include the word LOWERCASE in the command.
- RAM is the type of file specified by the command.
- dev:<dir>name.typ is the file that contains the translation RAM.

Examples of typical RAM commands in the configuration command file are:

<b>Printer</b>	<b>RAM Command</b>
LP20A, LP20C, or LP20F	PRINTER 0 RAM SYS:LP64.RAM

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LP20B, LP20D, PRINTER 0 LOWERCASE RAM SYS:LP96.RAM  
or LP20H

Step 72: Type the RAM command and press the RETURN key.

Enter the appropriate RAM command into the configuration command file.

```
02800 PRINTER 0 LOWERCASE RAM SYS:LP96.RAM <RET>
02900 PRINTER 1 RAM SYS:LP64.RAM <RET>
03000
```

**3.3.6 Defining the Local Time Zone**

The time zone in which your installation is located can be represented as the number of hours west or east of Greenwich. For example, Eastern Standard Time is zone 5; Central Standard Time is zone 6; Mountain Standard Time is zone 7; and Pacific Standard Time is zone 8. To set your local time zone, you can enter the following command in the configuration command file:

```
TIMEZONE n
```

where n is a decimal number between -12 and 12 inclusive. Zones -12 and 12 represent the same clock time but on opposite sides of the international date line. If you do not specify a time zone in the configuration command file, the time zone will default to zone 0, signifying Greenwich mean time.

Step 73: Type the TIMEZONE n command and press the RETURN key.

Enter the TIMEZONE n command into the configuration command file.

```
03000 TIMEZONE 5 <RET>
03100
```

**3.3.7 Directory Parameter Setting**

You have the option of allowing users to change their directory parameters. If you decide to allow users to do this, no command is entered into the configuration command file, because the system default is to ENABLE DIRECTORY-PARAMETER-SETTING. However, if you decide not to allow users to change their directory parameters, you should enter the command DISABLE DIRECTORY-PARAMETER-SETTING into the configuration command file. When this command is given, it prevents the user from changing any of his directory parameters unless he has WHEEL or OPERATOR capabilities. Step 74 is an example of disallowing

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users from changing their directory parameters.

**Step 74:** Type DISABLE DIRECTORY-PARAMETER-SETTING and press the RETURN key.

To prevent users from changing their directory parameters, type DISABLE DIRECTORY-PARAMETER-SETTING.

```
03100 DISABLE DIRECTORY-PARAMETER-SETTING <RET>
03200
```

### NOTE

If the default is taken, users are allowed to change some of their directory parameters with the SET DIRECTORY commands.

### 3.3.8 Account Validation

You have the option of requiring all users to enter a valid account name when they are logging in to the system. If you decide to require valid accounts, you do not have to enter any command into the configuration command file, because the system default is to ENABLE ACCOUNT-VALIDATION. However, if you decide not to validate accounts, you must enter the command DISABLE ACCOUNT-VALIDATION into the configuration command file. Step 75 is an example of not using the account validation facility.

**Step 75:** Type DISABLE ACCOUNT-VALIDATION and press the RETURN key.

If you are not validating accounts, type DISABLE ACCOUNT-VALIDATION.

```
03200 DISABLE ACCOUNT-VALIDATION <RET>
03300
```

### 3.3.9 Performance Improvements

Sections 3.3.9.1 and 3.3.9.2 (Steps 76 and 77) describe full latency optimization and working set swapping, respectively.

**3.3.9.1 Full Latency Optimization** - When you enter the command ENABLE FULL-LATENCY-OPTIMIZATION into the configuration command file, the number of revolutions needed to read pages off the disk is minimized.

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### NOTE

Before you can use this performance feature, you must obtain from your DIGITAL Field Service Representative the following information about your hardware:

1. If you have a KL10-E processor, it must be at revision level 3 or later.
2. If you have board M7772, it must be at version level E and CS revision level F; or you may have board M7786.

If your hardware does not meet these requirements, take the default: DISABLE FULL-LATENCY-OPTIMIZATION.

**Step 76:** Type ENABLE FULL-LATENCY-OPTIMIZATION and press the RETURN key.

If your hardware meets the above requirements, type ENABLE FULL-LATENCY-OPTIMIZATION.

```
03300 ENABLE FULL-LATENCY-OPTIMIZATION <RET>
03400
```

**3.3.9.2 Working Set Swapping** - If you enter the command ENABLE WORKING-SET-PRELOADING into the configuration command file, the entire working set of a process is brought into memory at once when it is the process's turn to run. Otherwise, this action occurs on a page-by-page basis.

### NOTE

You should enable working set swapping only if your system runs large compute-bound jobs. However, if your system runs many interactive jobs or if you are unsure which description better fits your system, take the default: DISABLE WORKING-SET-PRELOADING.

**Step 77:** Type ENABLE WORKING-SET-PRELOADING and press the RETURN key.

If your system runs large compute-bound jobs, type ENABLE WORKING-SET-PRELOADING.

```
03400 ENABLE WORKING-SET-PRELOADING <RET>
03500
```

**3.3.10 Scheduler Controls**

Sections 3.3.10.1 and 3.3.10.2 (Steps 78 through 81) describe bias controls and class scheduling, respectively.

**3.3.10.1 Bias Controls** - You have the option of deciding how your system's CPU time is to be divided between interactive and batch jobs. You do this by entering the command `BIAS n` into the configuration command file, where `n` is any integer between 1 and 20. The smaller the value of `n`, the larger the percentage of CPU time that is given to interactive jobs. If you do not give this command, a default value of 11 will be taken, which provides a balance between good interactive response and reasonable throughput.

Step 78: Type the `BIAS n` command and press the RETURN key.

The example shows how to enter a `BIAS n` command with a value of 6, which favors interactive jobs. You must determine the correct value of `n` for your own system.

```
03500  BIAS 6 <RET>
03600
```

**3.3.10.2 Class Scheduling** - You can use class scheduling to divide your system's CPU time among different classes of jobs. Class scheduling assigns percentages of CPU time to jobs according to their account or according to a policy program written especially for your site.

If you do not want to use class scheduling, you do not have to enter any command into the configuration command file, because the system default is to `DISABLE CLASS-SCHEDULING`.

If you use either kind of class scheduling, you can allocate any unused CPU time (windfall) among active jobs, or withhold it from all jobs. The command for enabling class scheduling using a policy program and allocating windfall is `ENABLE CLASS-SCHEDULING POLICY-PROGRAM ALLOCATED`. The command for enabling class scheduling using a policy program and withholding windfall is `ENABLE CLASS-SCHEDULING POLICY-PROGRAM WITHHELD`. If you enable class scheduling using a policy program, you cannot also enable class scheduling using accounts, and should skip to Section 3.3.11 after giving one of these two commands.

If you do not have a policy program to use with class scheduling at your site, you can still enable class scheduling by assigning jobs to classes according to the account under which each job is running.

(See the TOPS-20 System Manager's Guide for information about associating accounts with particular classes.) To do this you must first enter commands into the configuration command file, specifying the percentage of CPU time that is to be given to jobs in each class.

Step 79: Type the `CREATE` commands for scheduler classes.

You must enter a `CREATE` command for each class that your system will use, with a different percentage for each class. The sum of the percentages you specify must not add up to more than 100%, although they may add up to less than 100%. If they add up to less than 100%, the percentage of CPU time that is not assigned becomes part of the system's windfall. Press the RETURN key after each `CREATE` command.

The commands shown are an example of dividing up 75% of the system's CPU time among three classes of jobs. For example, the command `CREATE 1 .20` specifies that jobs running under accounts in class 1 are to be given a total of 20% of your system's CPU time. You must supply the correct class numbers and percentages for your own system.

```
03600  CREATE 1 .20 <RET>
03700  CREATE 2 .40 <RET>
03800  CREATE 3 .15 <RET>
03900
```

Step 80: Type the `BATCH-CLASS n` command and press the RETURN key. Then assign a percentage to this class with the `CREATE` command.

Batch jobs can be put into a special class of their own by including the `BATCH-CLASS n` command, where `n` is the number of the class you choose for batch jobs. If you do not enter a `BATCH-CLASS` command, batch jobs are given CPU time according to the class associated with the account of the job's owner at the time of submission. The example creates a class for batch jobs and then assigns 25% of CPU time to this class with the `CREATE` command. You must enter commands that are appropriate for your system.

```
03900  BATCH-CLASS 4 <RET>
04000  CREATE 4 .25 <RET>
04100
```

Step 81: Type `ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED` and press the RETURN key.

Now you must enter the command that enables class scheduling using accounts. You must also decide whether to allocate any windfall CPU time to the jobs that are running or to withhold this windfall. The

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default for this command is ALLOCATED. It is recommended that you take this default.

```
04100  ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED <RET>
04200
```

### CAUTION

Do not enter the above command (Step 81) into the configuration command file until you have entered the commands shown in Steps 79 and 80. If you enable class scheduling before creating classes, class scheduling will not function properly.

### 3.3.11 File Archiving and Migration Parameters

Sections 3.3.11.1 and 3.3.11.2 (Steps 82 and 83) describe tape recycle periods for use with the file archiving and migration features.

**3.3.11.1 Archive Tape Recycle Period** - TOPS-20 provides a feature that allows off-line storage of selected files on magnetic tape for long periods of time. You can specify for how long these files are saved by inserting a command into the configuration command file stating, in days, the recycle period of the tapes. For example, to save archival files on tape for five years, you would enter the command, ARCHIVE-TAPE-RECYCLE-PERIOD 1825 (because 5 years x 365 days/year = 1825 days). If you do not insert an ARCHIVE-TAPE-RECYCLE-PERIOD command in the configuration command file, a default value of 3650 (ten years) will be taken.

**Step 82:** Type the ARCHIVE-TAPE-RECYCLE-PERIOD n command and press the RETURN key.

The example shows how to enter an ARCHIVE-TAPE-RECYCLE-PERIOD n command with a value of 1825 (five years). You must determine a suitable value of n for your own system.

```
04200  ARCHIVE-TAPE-RECYCLE-PERIOD 1825 <RET>
04300
```

**3.3.11.2 Migration Tape Recycle Period** - TOPS-20 provides a feature that allows automatic off-line storage of old or little-used files on magnetic tape for short periods of time. You can specify for how long these files are saved by inserting a command into the configuration command file stating, in days, the recycle period of the tapes. For

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example, to save migrated files on tape for three months, you would enter the command TAPE-RECYCLE-PERIOD 90 (because 3 months with 30 days/month = 90 days). If you do not insert a TAPE-RECYCLE-PERIOD command in the configuration command file, a default value of 180 (six months) will be taken.

**Step 83:** Type the TAPE-RECYCLE-PERIOD n command and press the RETURN key.

The example shows how to enter a TAPE-RECYCLE-PERIOD n command with a value of 90 (three months). You must determine a suitable value of n for your own system.

```
04300  TAPE-RECYCLE-PERIOD 90 <RET>
04400
```

### 3.3.12 Tape Drive Allocation

Sections 3.3.12.1 and 3.3.12.2 (Steps 84 and 85) describe putting tape drive allocation into effect, and specifying a response to certain error conditions.

**3.3.12.1 Enabling Tape Drive Allocation** - TOPS-20 provides for the automatic assignment of tape drives to users who wish to read or write magnetic tapes. In order to use this feature, which also allows your system to read and write the labels of standard labeled tapes, you must insert the command ENABLE TAPE-DRIVE-ALLOCATION into the configuration command file. If you do not give this command, your users must assign tape drives with the TOPS-20 ASSIGN command and their labeled tapes will be treated as unlabeled tapes.

**Step 84:** Type ENABLE TAPE-DRIVE-ALLOCATION and press the RETURN key.

To allow labeled tape processing and the automatic assignment of tape drives, type ENABLE TAPE-DRIVE-ALLOCATION.

```
04400  ENABLE TAPE-DRIVE-ALLOCATION <RET>
04500
```

**3.3.12.2 Treatment of Unrecognized Tapes** - If you enabled tape drive allocation in the previous step, you must decide what action the system should take if a labeled tape is mounted improperly (for example, the user specifies the wrong label type or density). If you want the system to unload the tape so that it cannot be accidentally

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erased, you must insert the command TAPE-RECOGNITION-ERRORS UNLOAD into the configuration command file. If you do not give this command, the system will treat improperly mounted labeled tapes as unlabeled tapes and will continue processing them. That is, the system default is TAPE-RECOGNITION-ERRORS REGARD-AS-UNLABELED.

Step 85: Type TAPE-RECOGNITION-ERRORS UNLOAD and press the RETURN key.

To force the automatic unloading of any tapes that are improperly mounted, type TAPE-RECOGNITION-ERRORS UNLOAD.

```
04500 TAPE-RECOGNITION-ERRORS UNLOAD <RET>
04600
```

### 3.3.13 Accounting Shift Changes

The accounting facility allows you to provide varied billing rates for system use at different times. You do this by entering commands into the configuration command file specifying the time of day for each rate change. You should give one command for each time the rate changes. Use days of the week or the keywords WEEKDAYS, WEEKENDS, and ALL, and times in either 24-hour or AM/PM format. (See the TOPS-20 System Manager's Guide for detailed information about accounting shift changes.)

Step 86: Type the CHANGE commands for accounting shift changes.

CHANGE commands are entered into the configuration command file to provide special rates for evenings and weekends. Press the RETURN key after entering each command. This is only an example. You must provide the correct days and times for your own system.

```
04600 CHANGE 9:00 WEEKDAYS <RET>
04700 CHANGE 17:00 WEEKDAYS <RET>
04800 CHANGE 0:00 SATURDAY <RET>
04900
```

#### NOTE

You do not have to enter CHANGE commands into the configuration command file. If you do not enter any CHANGE commands, the accounting shift change feature of system accounting is not used.

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### 3.3.14 Assigning MSCP-served Disk Drives

MSCP (Mass Storage Communication Protocol) is responsible for granting access to MASSBUS disks across the CI (Computer Interconnect). To have MSCP grant access to disks across the CI, use the ALLOW command, in the following format, in the configuration command file:

```
ALLOW drive-type serial-number
```

where:

drive-type is RP04, RP05, RP06, RP07, or RP20.

serial-number is serial number of the disk drive.

To determine the disk drive's serial number, use the OPR command SHOW CONFIGURATION. (See the TOPS-20 Operator's Command Language Reference Manual for information about this command.)

To disallow access to a served disk that was allowed access, enter the following command in the configuration command file:

```
RESTRICT drive-type serial number
```

Disks are RESTRICTED by default if you do not specify ALLOW commands.

Step 87: Define MSCP-served disk drives.

Enter the ALLOW command for each disk drive to be served by MSCP and press the RETURN key. (Determine the disk drive's serial number with the OPR command SHOW CONFIGURATION.) The commands shown are only examples. You must determine the correct definitions for your system.

```
04900 ALLOW RP06 1243 <RET>
05000 ALLOW RP20 3327 <RET>
05100
```

### 3.3.15 Specifying Daylight Savings Time

You can specify one of three daylight savings time (DST) options in the configuration command file. The three options are:

- o AUTOMATIC (change at the prescribed time; that is, set DST to automatically go on the last Sunday in April and to automatically go off the last Sunday in October)
- o OFF (never do DST conversions)

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- o ON (always do DST conversions)

The most convenient option is AUTOMATIC, but you must determine which option is best for your site.

### Step 88: Type the DAYLIGHT n command and press the RETURN key.

To specify the DST option for your system, type DAYLIGHT followed by the appropriate argument. The following is only an example. You must enter the correct definition for your system.

```
05100 DAYLIGHT ON <RET>
05200
```

### 3.3.16 Specifying Remote Line Conditions

You can specify whether or not a remote line will be hung up after the LOGOUT command is issued on logged-out or logged-in terminal jobs. Setting these parameters can be especially useful for dial-up lines or for resource contention devices such as terminal concentrators. To specify whether a remote line will be hung-up, you must enter either an ENABLE or DISABLE command in the configuration command file.

### Step 89: Type the ENABLE HANGUP-IF-LOGGED-IN and ENABLE HANGUP-IF-LOGGED-OUT commands.

To enable the remote line to be disconnected after a logout command is issued on logged-out or logged-in terminal jobs, type the following two commands into the configuration command file. Press the RETURN key after each command.

```
05200 ENABLE HANGUP-IF-LOGGED-IN <RET>
05300 ENABLE HANGUP-IF-LOGGED-OUT <RET>
05400
```

### 3.3.17 Controlling System Message Levels

You have the option of notifying users of certain events, such as resource problems. The following two commands allow you to control what class of messages users will receive.

```
ENABLE SYSTEM-MESSAGE-LEVEL-0
DISABLE
```

informs (or not inform) users about resource problems. These messages are:

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- o [Caution -- Swapping space low]
- o [Caution -- SPT space low]
- o [Caution -- Disk space low on system structure]

```
ENABLE SYSTEM-MESSAGE-LEVEL-1
DISABLE
```

informs (or not inform) users of operational type messages. These messages, which are on by default, are:

- o [System name going down in...]
- o [Shutdown canceled]
- o [Deleted files will be expunged from system structure in 30 seconds]
- o [System structure expunge completed]

### Step 90: Type the ENABLE SYSTEM-MESSAGE-LEVEL-n commands and press the RETURN key.

To enable users to receive both types of system messages, type the ENABLE SYSTEM-MESSAGE-LEVEL-n commands.

```
05400 ENABLE SYSTEM-MESSAGE-LEVEL-0 <RET>
05500 ENABLE SYSTEM-MESSAGE-LEVEL-1 <RET>
05600
```

### 3.3.18 Network Information

Enter the following command lines (Steps 91 and 92) into your configuration command file in order to identify your system and to turn off LAT (Local Area Transport) terminal servers.

### Step 91: Type NODE nodename nodenumber and press the RETURN key.

Use the NODE command to define your system's node name and node number. By providing this information in the configuration command file, you enable several processes to work properly. In the example, the node name is DISNEY and the node number is 8.164.

```
05600 NODE DISNEY 8.164 <RET>
05700
```



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Step 92: Type LAT-STATE OFF and press the RETURN key.

The LAT access state is enabled by default. Disabling it is useful if you wish to establish guidelines and set restrictions for LAT use before you enable it. You can set groups and the host identification, for example, before enabling LAT. The command to enable the LAT access state is LAT-STATE ON.

Type the LAT-STATE OFF command if you are not using terminal servers.

```
05700  LAT-STATE OFF <RET>
05800
```

For information on installing LAT terminal servers, see the installation guide for any LAT terminal servers that you have.

### 3.3.19 Designating Off-line Structures

The off-line structure facility designates to the monitor which structures are offline. This prevents processes from opening files on or accessing disk units that the TOPS-20 monitor knows are offline. You can also set a timeout interval between the time the disk goes offline and the monitor sets the structure offline.

The command to enable the off-line structure facility is ENABLE OFFLINE-STRUCTURES mm:ss. This is the default (with a timeout interval of one minute). You need only to enter a command in the configuration command file if you want to change the timeout interval (between 1 and 15 minutes) or to turn the off-line structure facility off. The command to turn off the off-line structures facility is DISABLE OFFLINE-STRUCTURES.

Step 93: Type ENABLE OFFLINE-STRUCTURES 05:00 and press the RETURN key.

This example shows how to change the off-line structures timeout interval to five minutes.

```
05800  ENABLE OFFLINE-STRUCTURES 05:00 <RET>
05900
```

### 3.3.20 Designating Login Structure

The login structure facility allows you to specify a structure other than the swapping structure as the login structure. You can define any structure that is available to the system at startup time as the login structure. This structure would be used by the monitor to

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obtain the user names and login directories. The logical name PS: is defined to point to the login structure. The boot structure is the structure from which the monitor is booted and to which the monitor swaps.

The command to enable the login structure facility is ENABLE LOGIN-STRUCTURE, which instructs the monitor to attempt to find a login structure when the system is booted. If this command is not issued, the monitor will not attempt to find a separate login structure and the boot structure is used as the login structure.

The command to turn off the login structure facility is DISABLE LOGIN-STRUCTURE, which bypasses any attempt to define a login structure that is separate from the boot structure. This is the default.

Step 94: Type ENABLE LOGIN-STRUCTURE and press the RETURN key.

If you want the monitor to search for a login structure when the system is booted, type ENABLE LOGIN-STRUCTURE.

```
05900  ENABLE LOGIN-STRUCTURE <RET>
06000
```

### 3.3.21 Preventing Fast logins

By using the /FAST switch with the LOGIN command, users can bypass processing of the LOGIN.COMD and COMMAND.COMD files, which are set up to limit users' computing environments. For example, sets of users may be allowed only to read mail or run some other computer application. You can prevent fast logins by entering the command DISABLE FAST LOGIN-OPTION in the configuration command file.

ENABLE FAST-LOGIN-OPTION is in effect by default.

See the TOPS-20 User's Guide for information on the LOGIN.COMD and COMMAND.COMD files. The TOPS-20 Commands Reference Manual describes the LOGIN command.

Step 94.1: Type DISABLE FAST-LOGIN-OPTION and press the RETURN key.

If you want to prevent fast logins, type DISABLE FAST-LOGIN-OPTION.

```
06000  DISABLE FAST-LOGIN-OPTION <RET>
06100
```

**3.3.22 Cluster Data Gathering**

Cluster data gathering is a feature that allows systems in a cluster to easily share information from any system in the cluster. This feature enables users to obtain a SYSTAT of the entire cluster or of a specified job on a node in the cluster. It also allows a user to obtain the system status of nodes in the cluster and to send messages to nodes in a cluster.

**3.3.22.1 Cluster Information** - You can allow information to be shared among nodes in the cluster. If you want cluster information to be shared, you do not have to enter any command into the configuration command file, because the system default is to ENABLE CLUSTER-INFORMATION. However, if you decide not to share information with a node in the cluster, you must enter the command DISABLE CLUSTER-INFORMATION in the configuration command file. (This feature is not totally turned off, since GALAXY components are allowed to gather remote information at any time.) Step 95 is an example of disabling the cluster information feature.

Step 95: Type DISABLE CLUSTER-INFORMATION and press the RETURN key.

If you do not want the local node to share information with remote nodes in the cluster, type DISABLE CLUSTER-INFORMATION.

```
06100  DISABLE CLUSTER-INFORMATION <RET>
06200
```

**3.3.22.2 Cluster Sendalls** - You can allow the local node to receive information from remote nodes in the cluster. This information includes class scheduling information, job information, and other miscellaneous information. If you want the local node to receive cluster sendalls, do not enter any command into the configuration command file, because the system default is to ENABLE CLUSTER-SENDALLS. However, if you decide not to receive cluster sendalls, you must enter the command DISABLE CLUSTER-SENDALLS in the configuration command file. (This feature is not totally turned off, since GALAXY components are allowed to perform cluster sendalls when necessary). Step 96 is example of disabling the cluster sendalls feature.

Step 96: Type DISABLE CLUSTER-SENDALLS and press the RETURN key.

If you do not want the local node to receive cluster-sendalls from remote nodes, type DISABLE CLUSTER-SENDALLS.

```
06200  DISABLE CLUSTER-SENDALLS <RET>
06300
```

**3.3.23 Password Management**

Password management features allow you to check that users at your site do not choose passwords that are too short or that are otherwise easy to guess, such as a name or initials.

**3.3.23.1 Designating Minimum Password Length** - You can control the minimum length of each user's unencrypted password string. The minimum password length can be set to between 1 and 39 characters. To set the minimum password length always at system startup, enter the command ENABLE MINIMUM-PASSWORD-LENGTH n in the configuration command file.

Step 97: Type ENABLE MINIMUM PASSWORD LENGTH n and press the RETURN key

If you want to set the minimum password length at system startup, type ENABLE MINIMUM PASSWORD LENGTH n. The following example sets the minimum password length to six characters.

```
06300  ENABLE MINIMUM-PASSWORD-LENGTH 6 <RET>
06400
```

**3.3.23.2 Changing Passwords Regularly** - You can control how often users must change their passwords. You can set the numbers of days a password is valid since the time it was last changed. You can set the number from 1 through 366. The default number of days is 30. To add this feature, you must insert the command ENABLE PASSWORD-EXPIRATION n into the configuration command file.

Step 97.1: Type ENABLE PASSWORD-EXPIRATION n and press the RETURN key

If you want to enable the password expiration, type ENABLE PASSWORD-EXPIRATION n. The following example sets the password expiration date to 45 days since the time it was last changed.

```
06400  ENABLE PASSWORD-EXPIRATION 45 <RET>
06500
```

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**3.3.23.3 Disallowing Certain Passwords** - You can make certain combinations of characters illegal for use as passwords. Perhaps they would be too easily guessed by an intruder. You can place such words in the file SYSTEM:PASSWORD.DICTIONARY and have them automatically matched against newly supplied passwords. See the TOPS-20 System Manager's Guide for details on how to setup the file.

To add this feature, you must insert the command ENABLE PASSWORD-DICTIONARY into the configuration command file.

Step 97.2: Type ENABLE PASSWORD-DICTIONARY and press the RETURN key

If you want to enable the disallowing of certain password, type ENABLE PASSWORD-DICTIONARY.

```
06500  ENABLE PASSWORD-DICTIONARY <RET>
06600
```

### 3.3.24 Dumping on Non-fatal System Errors

The monitor can dump its memory area to a disk file when BUGCHKs and BUGINFs occur. The dump-on-BUGCHK feature helps you debug the system of non-fatal, "continuable" errors by providing a dump file for examination.

To enable the dump-on-BUGCHK feature, you must enter the command ENABLE DUMP-ON-BUGCHK FACILITY in the configuration command file. At least one of the following commands is further required to enable dumping of all or specific BUGCHKs and BUGINFs that can be dumped:

```
ENABLE DUMP-ON-BUGCHK ALL BUGCHKs
ENABLE DUMP-ON-BUGCHK ALL BUGINFs
ENABLE DUMP-ON-BUGCHK BUG bugname
```

With the first two commands, each BUGCHK or BUGINF is dumped only once per loading of the system. The third command causes a dump to be taken each time that the specified BUGCHK or BUGINF occurs.

If the feature is disabled, the system produces only "crash" dumps associated with fatal errors, but not "continuable" dumps.

Dumps are taken only as often as the DUMP-ON-BUGCHECK timeout allows, which is 15 seconds by default. The following command overrides the timeout constraint and allows a dump to be taken as often as a specified bug occurs:

```
ENABLE DUMP-ON-BUGCHK BUG bugname IGNORE-DUMP-TIMEOUT
```

To shorten the output from a BUGCHK or BUGINF, you can use the command

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ENABLE SHORT-BUG-OUTPUT. This command enables the feature to output the error message on one line, instead of on several lines.

Step 98: Type ENABLE DUMP-ON-BUGCHK FACILITY and press the RETURN key.

To enable the dump-on-BUGCHK feature, type ENABLE DUMP-ON-BUGCHK FACILITY. To enable the dumping of all BUGCHKs, type ENABLE DUMP-ON-BUGCHK ALL-BUGCHKs. To allow a dump to be taken everytime the TTYSTP bug occurs, type ENABLE DUMP-ON-BUGCHK TTYSTP IGNORE-DUMP-TIMEOUT. To shorten the output of a BUGCHK or BUGINF to one line, type ENABLE SHORT-BUG-OUTPUT.

```
06600  ENABLE DUMP-ON-BUGCHK FACILITY <RET>
06700  ENABLE DUMP-ON-BUGCHK ALL-BUGCHKs <RET>
06800  ENABLE DUMP-ON-BUGCHK TTYSTP IGNORE-DUMP-TIMEOUT <RET>
06900  ENABLE SHORT-BUG-OUTPUT <RET>
07000
```

### 3.3.25 Disabling the Console Terminal for Operator Output

The ENABLE JOB0-CTY-OUTPUT command in effect by default. It allows the operator to receive messages at the console terminal about system resources, such as when disk space is low on the system structure or when swapping space is low.

If you do not want these messages to be displayed on the console terminal, then put the DISABLE JOB0-CTY-OUTPUT command in the configuration command file.

Step 98.1: Type DISABLE JOB0-CTY-OUTPUT and press the RETURN key.

If you do not want the operator notified at the console terminal about the status of system resources, then type DISABLE JOB0-CTY-OUTPUT.

```
07000  DISABLE JOB0-CTY-OUTPUT <RET>
07100
```

### 3.3.26 Enabling the Access Control Program

The TOPS-20 access control program (ACJ) helps you govern the access to many of the system's resources and services, reduce or prevent unauthorized access to the system, and investigate occurrences of unauthorized access. It can control scheduling classes, the bias control, batch background queue, logging in, use of physical resources (tape drives, terminals, structures), and enabling capabilities.

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The command to enable the ACJ program is `ENABLE SYSTEM-ACCESS-CONTROL-JOB`.

See the TOPS-20 System Manager's Guide for more information on the ACJ program.

Step 98.2: Type `ENABLE SYSTEM-ACCESS-CONTROL-JOB` and press the RETURN key.

To enable the access control program, type `ENABLE SYSTEM-ACCESS-CONTROL-JOB`.

```
07100  ENABLE SYSTEM-ACCESS-CONTROL-JOB <RET>
07200
```

### 3.3.27 Hangup on DETACH

When a user detaches from a DECSYSTEM-20, the terminal line is left open. This leaves a terminal line attached and in use by the physical terminal connected to the DECSYSTEM-20 (or virtual terminals). You can set a system-wide parameter to hang up the terminal line after the user detaches using the command `ENABLE HANGUP-ON-DETACH`.

You can also set a time limit to determine how long after a carrier off is detected that the job is logged out. This command to set the time limit is `ENABLE DETACH-CARRIER-OFF xx`, where `xx` is a number in minutes. The `DISABLE DETACH-CARRIER-OFF` command sets the detached limit to 0 and when a carrier off is detected, the job is immediately logged out.

Step 98.3: Type `ENABLE HANGUP-ON-DETACH` and `ENABLE DETACH-CARRIER-OFF` commands

To enable the hangup on DETACH feature and to set a time limit for how long after a carrier off is detected before a job is logged out, type the following commands in the command configuration file.

```
07200  ENABLE HANGUP-ON-DETACH <RET>
07300  ENABLE DETACH-CARRIER-OFF 3 <RET>
07400
```

### 3.3.28 Scheduling Low Priority to Batch Jobs

You must use the class scheduler to give batch jobs a high priority. If you are not using the class scheduler, you can give batch jobs a low priority by using the `BATCH-BACKGROUND` command. This command

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specifies that all batch jobs run on the lowest priority queue, also known as background queue. This means that after processing all interactive jobs, the scheduler selects and runs batch jobs waiting in the queue.

The `BATCH-BACKGROUND` command is intended for those who are not using the class scheduler on their system but want to give the batch jobs a low priority. You should not use this command when you enable the class scheduler.

Step 98.4: Type `BATCH-BACKGROUND` and press the RETURN key.

To schedule low priority to batch jobs, type `BATCH-BACKGROUND`.

```
07400  BATCH-BACKGROUND <RET>
07500
```

### Update Installations

Proceed to Appendix A, Section A.2.5, Step 43, to continue your update installation.

### 3.4 SAVING THE CONFIGURATION COMMAND FILE

Perform Steps 99 and 100 to save and read the configuration command file.

Step 99: Press the ESCape key. Type `EU` and press the RETURN key.

When you have finished creating the configuration command file, press the ESCape key to end insert mode. The system prints the EDIT prompt (\*). Then type `EU` and press the RETURN key to save the file. The system prints the file name and generation number, then the ENABLEd prompt (\$).

```
07500 $
*EU <RET>
[PS:<SYSTEM>7-CONFIG.CMD.1]
$
```

Step 100: Enter `TYPE PS:<SYSTEM>7-CONFIG.CMD` and press the RETURN key.

To be sure that the file is in the proper directory, use the `TYPE` command. The system prints the contents of the file on your terminal (see Figure 3-1). The file in Figure 3-1 is only an example.

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Error: If the system cannot find the file or prints the wrong file, give the following COPY command to place the file in PS:<SYSTEM>:

```
$COPY 7-CONFIG.CMD PS:<SYSTEM>7-CONFIG.CMD <RET>
```

(See the TOPS-20 EDIT Reference Manual if you want to change the file.)

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```
$TYPE PS:<SYSTEM>7-CONFIG.CMD <RET>
! Terminal Speeds
! Line 1 has input=9600 and output=9600
TERMINAL 1 SPEED 9600
! Lines 2 to 20 have input and output=2400
TERMINAL 2-20 SPEED 2400
! Lines 23 to 40 are shut off
TERMINAL 23-40 SPEED 0
! Line 21 and 22 are dialup lines
TERMINAL 21 REMOTE SPEED 300
TERMINAL 22 REMOTE AUTO
TERMINAL 21 IGNORE--SYSTEM-MESSAGES
TERMINAL 21 IGNORE--USER-MESSAGES
TERMINAL 22 NOBELL
DEFINE NEW: PS:<NEW>,SYS:
DEFINE OLD: PS:<OLD>,SYS:
DEFINE HLP: SYS:
DEFINE SERR: PS:<SYSTEM-ERROR>
DEFINE DMP: PS:<directory>
DEFINE POBOX: PS:
DEFINE EDITOR: SYS:TV.EXE
MAGTAPE 0 24 TU45
MAGTAPE 1 2001 TU77
MAGTAPE 2 2002 TU71
MAGTAPE 3 2003 TU70
MAGTAPE 4 1500 TU72
PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU
PRINTER 1 VFU SYS:NORMAL.VFU
PRINTER 0 LOWERCASE RAM SYS:LP96.RAM
PRINTER 1 RAM SYS:LP64.RAM
TIMEZONE 5
DISABLE DIRECTORY-PARAMETER-SETTING
DISABLE ACCOUNT-VALIDATION
ENABLE FULL-LATENCY-OPTIMIZATION
ENABLE WORKING-SET-PRELOADING
BIAS 6
CREATE 1 .20
CREATE 2 .40
CREATE 3 .15
BATCH-CLASS 4
CREATE 4 .25
ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED
ARCHIVE-TAPE-RECYCLE-PERIOD 1825
TAPE-RECYCLE-PERIOD 90
ENABLE TAPE-DRIVE-ALLOCATION
TAPE-RECOGNITION-ERRORS UNLOAD
```

Figure 3-1: The 7-CONFIG.CMD File

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```
CHANGE 9:00 WEEKDAYS
CHANGE 17:00 WEEKDAYS
CHANGE 0:00 SATURDAY
ALLOW RP06 1243
ALLOW RP20 3327
DAYLIGHT ON
ENABLE HANGUP-IF-LOGGED-IN
ENABLE HANGUP-IF-LOGGED-OUT
ENABLE SYSTEM-MESSAGE-LEVEL-0
ENABLE SYSTEM-MESSAGE-LEVEL-1
NODE DISNEY 8.164
LAT-STATE OFF
ENABLE OFFLINE-STRUCTURE 0:05
ENABLE LOGIN-STRUCTURE
DISABLE CLUSTER INFORMATION
DISABLE CLUSTER-SENDALLS
DISABLE FAST-LOGIN-OPTION
ENABLE MINIMUM-PASSWORD-LENGTH 6
ENABLE PASSWORD-EXPIRATION 45
ENABLE PASSWORD-DICTIONARY
ENABLE DUMP-ON-BUGCHK FACILITY
ENABLE DUMP-ON-BUGCHK ALL-BUGCHKs
ENABLE DUMP-ON-BUGCHK BUG TTYSTP IGNORE-DUMP-TIMEOUT
ENABLE SHORT-BUG-OUTPUT
DISABLE JOB0-CTY-OUTPUT
ENABLE SYSTEM-ACCESS-CONTROL-JOB
ENABLE HANGUP-ON-DETACH
ENABLE DETACH-CARRIER-OFF 3
BATCH-BACKGROUND
$
```

Figure 3-1: The 7-CONFIG.CMD File (Cont'd)

### 3.5 CHANGING THE OPERATOR'S PASSWORD AND USER GROUP

You should change the operator's password from the widely publicized "DEC-20" to a 39-alphanumeric-character phrase of your choosing. (The password can include a hyphen.) Be sure to remember the password or you will have to reinstall the system if you cannot think of the particular password that you typed.

Also, in order for the operator to run the User Environmental Test Package (UETP), he must belong to the correct user group. Steps 101 through 105 describe how to change the operator's password and user group.

Step 101: Type BUILD PS:<OPERATOR> and press the RETURN key.

Use the BUILD command to change the characteristics of the directory

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PS:<OPERATOR>. The system prints [Old], and then the subcommand prompt \$\$.

```
$BUILD PS:<OPERATOR> <RET>
[Old]
$$
```

Step 102: Type PASSWORD your-password and press the RETURN key.

To insert the operator's new password, use the subcommand PASSWORD. The system again prints the subcommand prompt.

```
$$PASSWORD your-password <RET>
$$
```

Step 103: Type USER-OF-GROUP 100 and press the RETURN key.

The operator must be a member of user group 100 in order to run UETP. The system again prints the subcommand prompt.

```
$$USER-OF-GROUP 100 <RET>
$$
```

Error: If you see a message similar to: %Group already exists, you can ignore this message. The operator is already a member of the correct user group. Continue with Step 104.

Step 104: Type IPCF and press the RETURN key.

The operator must have IPCF (InterProcess Communication Facility) capabilities in order to run UETP. The system again prints the subcommand prompt.

```
$$IPCF <RET>
$$
```

Step 105: Press the RETURN key.

To return to TOPS-20 command level, press the RETURN key.

```
$$ <RET>
$
```

### 3.6 CREATING THE DIRECTORY PS:<REMARKS>

The system uses the directory PS:<REMARKS> to store messages sent by

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users to the operator. Creating this directory avoids constant interruption to the operator from users issuing PLEASE requests. With this directory the operator can read the messages at a specified time each day. Create the directory by performing Steps 106 and 107. (See the TOPS-20 Operator's Guide for additional information on creating directories.)

Step 106: Type BUILD PS:<REMARKS> and press the RETURN key.

Use the BUILD command to create the directory PS:<REMARKS>.

```
$BUILD PS:<REMARKS> <RET>
[New]
$$
```

Step 107: Press the RETURN key.

Upon completion of the above step, the system prints [New] and \$\$ . Press the RETURN key to create a directory with default characteristics.

```
$$ <RET>
$
```

### 3.7 CREATING THE LPFORM.INI FILE

If you create the LPFORM.INI file, then each time LPTSPL receives a request for the line printer, the system does the following:

1. Prints up to five pages containing the name of the user who requested the line printer (BANNER).
2. Prints up to five pages containing the name of the file that is being printed (HEADER).
3. After all the information in that file is printed, it prints up to five pages containing the user's name again (TRAILER).

If this file is omitted, each time a request for the line printer is received, LPTSPL will use the system default, which is two pages each for the banner, header, and trailer.

Perform Steps 108 through 111 to create the LPFORM.INI file.

Step 108: Type CONNECT PS:<SUBSYS> and press the RETURN key.

The LPFORM.INI file must reside in the directory PS:<SUBSYS>. Use the

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CONNECT command to be sure you are using the correct directory.

```
$CONNECT PS:<SUBSYS> <RET>
$
```

Step 109: Type CREATE LPFORM.INI and press the RETURN key.

Use your system's text editing program to create the LPFORM.INI file. This example uses the EDIT program. To use EDIT, type CREATE LPFORM.INI to create the file. The system proceeds into edit mode and prints INPUT: PS:<SUBSYS>LPFORM.INI and the line number 00100.

```
$CREATE LPFORM.INI <RET>
INPUT: PS:<SUBSYS>LPFORM.INI.1
00100
```

Step 110: Enter the printer parameters.

Type the printer parameters that are appropriate for your system. Press the RETURN key after each parameter. The example shows parameters for both normal and narrow forms. Remember that the parameters in the example are for explanatory purposes only. You must determine the appropriate parameters for your system.

```
00100 NORMAL/BANNER:2/HEADER:2/TRAILER:2 <RET>
00200 NARROW/BANNER:2/HEADER:2/TRAILER:2/WIDTH:72 <RET>
00300
```

The parameters shown cause pages containing the user's name and the file name to be printed twice on both normal and narrow forms before the actual data is printed. Also, after all the data is printed, the system prints two pages containing the user's name on both normal and narrow forms. The parameter WIDTH:72 informs the system that a maximum of 72 characters can be printed horizontally on narrow forms. (See the TOPS-20 Operator's Guide for a complete description of all the LPFORM.INI parameters.)

Step 111: Press the ESCAPE key. Type EU and press the RETURN key.

To leave edit mode and save the file without line numbers, press the ESCAPE key. The system prints the EDIT prompt. Type EU and press the RETURN key to save the file. The system prints the file name and generation number, then the TOPS-20 command prompt.

```
00300 $
*EU <RET>

[PS:<SUBSYS>LPFORM.INI.1]
$
```

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### NOTE

Perform Steps 112 through Step 121 only if you are using an RP07 disk pack for your system structure. Otherwise, continue with Step 122 in Chapter 4.

### TCP/IP Installations

If you are installing TCP/IP-20 and are using an RP07 disk pack for your system structure, perform Steps 112 through 121. Otherwise, proceed to Appendix C, Section C.3, Step 2.

### 3.8 BUILDING A FRONT-END FILE STRUCTURE

Steps 112 through 121 describe how to build an RP04 or RP06 structure for the front-end file system when you are using an RP07 disk pack for the TOPS-20 file system.

Step 112: Type RUN CHECKD and press the RETURN key.

To run CHECKD to create a structure for your front-end file system, type RUN CHECKD. The system prints the prompt CHECKD>.

```
$RUN CHECKD <RET>
CHECKD>
```

Step 113: Type CREATE FESYS and press the RETURN key.

Use the CHECKD command CREATE to inform the system that you are creating a structure. The structure name can consist of 1 to 6 alphanumeric characters. (See the TOPS-20 System Manager's Guide for information on naming structures.) The example uses FESYS. After you enter the structure name, the system prints "Enter alias:."

```
CHECKD>CREATE FESYS <RET>
Enter alias:
```

Step 114: Type FESYS and press the RETURN key.

Now inform the system of the alias name of the structure. The example uses FESYS. The system then prints "How many units in this structure:."

```
Enter alias: FESYS <RET>
How many units in this structure:
```

## TAILORING THE SYSTEM

Step 115: Type 1 and press the RETURN key.

The front-end file system can only reside on a single structure. Type 1 to indicate 1 unit in the structure. The system prints "DECIMAL Channel, Controller, and Unit numbers for logical unit 0:."

```
How many units in this structure: 1 <RET>
DECIMAL Channel, Controller, and Unit numbers for
logical unit 0:
```

Step 116: Type 1,-1,0 and press the RETURN key.

The front-end file system must reside on either an RP04 or RP06 disk drive that is connected to both the KL10 and PDP11 front end. If you are not sure, type a question mark (?) and press the RETURN key. The system prints the information needed to make the decision. The example uses channel 1, controller -1 (which is the default), and unit 0. After you type this information, the system prints "Number of pages to allocate for swapping?."

```
DECIMAL Channel, Controller, and Unit numbers for logical unit 0:
1,-1,0 <RET>
Number of pages to allocate for swapping?
```

Step 117: Type the number of pages to allocate for swapping and press the RETURN key.

If you plan to use this structure as a secondary system structure, use a decimal number between 2000 and 40,000. Otherwise, type 0 and press the RETURN key. The system prints "Number of pages to allocate for the Front End File System?." The example assumes you will be using this structure as a secondary structure.

```
Number of pages to allocate for swapping? 7035 <RET>
Number of pages to allocate for the Front End File System?
```

Step 118: Type the number of pages to allocate for the front-end file system and press the RETURN key.

To allocate the number of pages to reserve for the front-end file system, use 950 pages. The system prints "Owner name?."

```
Number of pages to allocate for the Front End File System?
950 <RET>
Owner name?
```



## TAILORING THE SYSTEM

Step 119: Type the owner's name and press the RETURN key.

Enter the owner's name of the structure. The owner's name can be from 1 to 12 alphanumeric characters. The system prints "Is this a system structure for startup?." The example uses the name OPERATOR.

```
Owner name? OPERATOR <RET>
Is this a system structure for startup?
```

Step 120: Type NO and press the RETURN key.

To inform the system that this structure will not be used at system startup, type NO. The system prints the CHECKD prompt.

```
Is this a system structure for startup? NO <RET>
CHECKD>
```

Step 121: Type EXIT and press the RETURN key.

Type EXIT to end the CHECKD program. The system prints the TOPS-20 command prompt (\$).

```
CHECKD>EXIT <RET>
$
```

### NOTE

When performing the steps in Chapter 4, be sure you install the front-end file system on the structure you have just created.

### TCP/IP Installations

If you are installing TCP/IP-20, proceed to Appendix C, Section C.3, Step 2.

## CHAPTER 4

### CREATING THE FRONT-END FILE SYSTEM

The steps in this chapter restore the front-end file system when you reinitialize it or change the front-end hardware. They also restore the front-end software if the front-end file system on disk is destroyed.

The steps in this chapter copy the front-end software from the floppy disks to the front-end file space on the public structure. They involve the following front-end programs:

MOU	Adds a device to the list of front-end devices.
UFD	Creates a directory in the front-end file space on the public structure.
PIP	Copies files from the floppy disk to the public structure.
RED	Changes the definition of the front-end logical name SY0: from the floppy disk to the public structure.
SAV	Saves the front-end monitor.
INI	Initializes the front-end file system on the public structure.
DMO	Logically dismounts the floppy disks from the disk drives.

### TCP/IP Installations

If you are installing TCP/IP-20, you must complete Steps 1 through 23 in Appendix C before you can create the front-end file system.

#### 4.1 HALTING THE TOPS-20 MONITOR

You need to halt the TOPS-20 monitor (Steps 122 through 125) before

## CREATING THE FRONT-END FILE SYSTEM

you can start the front-end monitor.

Step 122: Type ^ECEASE NOW and press the RETURN key.

Before copying the front-end software from the floppy disks, stop the system to avoid damaging the file system.

```
$^ECEASE NOW <RET>
KL2102 will be shut down IMMEDIATELY
[Confirm] <RET>
```

[Timesharing is over]

```
OPERATOR - WAIT FOR THE MESSAGE "Shutdown complete"
BEFORE ENTERING COMMANDS TO PARSER
```

Shutdown complete

Step 123: Make sure that the correct floppy disks are mounted.

Be sure that System Floppy A is mounted in the left drive (drive 0) and that System Floppy B is mounted in the right drive (drive 1). (see Step 7 in Chapter 2 if you have trouble.)

Step 124: Type <CTRL/\>.

At the console terminal, type <CTRL/\> to return to the front-end Command Parser. When you are at Command Parser command level, the system prints the prompt PAR>.

```
<CTRL/\>
PAR>
```

Step 125: Type SHUTDOWN and press the RETURN key.

To stop the TOPS-20 monitor, type the SHUTDOWN command.

```
PAR>SHUTDOWN <RET>
**HALTED**
```

%DECSYSTEM-20 not running

Error: If you mistype SHUTDOWN and an error message is printed, reissue the command.

The system must print "%DECSYSTEM-20 not running." If it does not, type <CTRL/\> and give the ABORT command. Go back to Step 124.

## CREATING THE FRONT-END FILE SYSTEM

### 4.2 RESTARTING THE FRONT-END MONITOR

Once the TOPS-20 monitor is shutdown, you can restart the front-end monitor (Steps 126 and 127). This entire procedure is invalid if you did not stop the TOPS-20 monitor as described in Section 4.1.

Step 126: Set the switch register to 000003 (octal).

Set the front-end switch register to 000003 (switches 1 and 0 up, the rest down).

Step 127: Hold ENABLE and press the SWITCH REGISTER button.

Hold ENABLE and press the SWITCH REGISTER button to start the front-end monitor from drive 0. The system will print a few lines of information. After the system prints [DX1: mounted] proceed to Section 4.3.

```
RSX-20F VB16-00 12:00 17-Mar-88
```

```
[SY0: redirected to DX0:]
[DX0: mounted]
[DX1: mounted]
```

Error: If you left the switch register set to 000007, the system starts the KL Initialization routine. In this case, the printout looks like this:

```
RSX-20F VB16-00 12:00 17-Mar-88
```

```
[SY0: redirected to DX0:]
[DX0: mounted]
[DX1: mounted]
KLI -- VERSION VB16-00 RUNNING
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>
```

Set the switch register to 000003 and press the ENABLE and SWITCH REGISTER buttons again.

If you set the switch register to 000003, the system may print:

```
11-HALT
T04
```

or

\*\*This VOLUME DOES NOT CONTAIN A HARDWARE-BOOTABLE SYSTEM\*\*

#### CREATING THE FRONT-END FILE SYSTEM

Set the switch register correctly and press the ENABLE and SWITCH REGISTER buttons again.

#### 4.3 COPYING FILES FROM FLOPPY DISK TO RP04 OR RP06

Use the following procedures (Steps 128 through 161) to copy the files. Remember that you are typing commands to the front end and that you must wait for a prompt before typing the answer. There is no type-ahead feature except when you want to type <CTRL/\>. You can type <CTRL/U> to erase an entire line or press the DELETE key to erase a single character per keystroke.

Many of the steps in this chapter and in Chapter 5 assume that the disk pack is mounted on drive 0. To use a dual-port drive other than drive 0, make the following changes:

1. Where a step calls for DB0: to be typed, type the number of the actual drive used. For example, DB1:, DB2:, and so on. Messages printed by the system will reflect this change.
2. If the disk is mounted on a drive other than drive 0, pressing ENABLE and DISK in Step 168 will not work. Instead, set the front-end switch register switches 7 and 0 in the up position. Set switches 10, 9, and 8 to the binary number of the drive used. For example, for drive 1, set switch 8 up; for drive 2, set switch 9 up; for drive 3, set switches 9 and 8 up. After this has been completed, press the ENABLE and SWITCH REGISTER buttons.

#### Step 128: Type <CTRL/\>.

To start the front-end Command Parser, type <CTRL/\>. The system takes about 10 seconds to load the Command Parser from the floppy disks. You are at Command Parser command level when the system prints the prompt PAR%. The percent sign (%) after PAR indicates that the central processor is not running.

[DX1: mounted]

<CTRL/\>  
PAR%

#### Step 129: STOP.

The central processor (as opposed to the front-end processor) must be halted before you proceed to the next step. If the central processor is not halted, the front-end monitor will not be saved in the front-end file system in a usable state. When the central processor

#### CREATING THE FRONT-END FILE SYSTEM

is stopped, the system prints a percent sign (%) following the Command Parser prompt. If it prints an angle bracket (>) give the SHUTDOWN command and type <CTRL/\> before continuing.

#### Step 130: Type RUN INI and press the RETURN key.

To start the INITIALIZE program, type RUN INI. When the INITIALIZE program is ready for you to type commands (after a few seconds), it prints the prompt INI>.

PAR%RUN INI <RET>  
INI>

#### Step 131: Type DB0: and press the RETURN key. Wait 5 seconds and perform the next step.

To initialize the front-end file system on the public structure, type DB0:. In about 5 seconds, the INI program finishes. It does not reprint the prompt. Proceed directly to the next step.

INI>DB0: <RET>

Error: If you type the wrong device name or get an error message, start again at Step 128. If you still get an error message, press the front-end HALT switch and wait one minute. Go back to Step 127.

#### Step 132: Type <CTRL/\>.

To start the front-end Command Parser, type <CTRL/\>. When the Command Parser is ready for you to type commands (about 10 seconds), it prints the prompt PAR%.

<CTRL/\>  
PAR%

NOTE

Nothing happens until you type <CTRL/\>.

#### Step 133: Type RUN MOU and press the RETURN key.

To start the MOUNT program again, type RUN MOU. When you are at MOUNT command level, the system prints MOU>.

PAR%RUN MOU <RET>  
MOU>

#### CREATING THE FRONT-END FILE SYSTEM

Error: If you make a typing error, reissue the command.

Step 134: Type DB0: and press the RETURN key.

To allow the front end to use its reserved area on the dual-port disk (the one with the channel selector set to A/B), type DB0:. When the mount operation is complete, the system prints a message and the prompt MOU>.

```
MOU>DB0: <RET>
MOU -- MOUNT COMPLETE
MOU>
```

Error: If you mistype DB0:, the mount operation may fail. If this happens and the system reprints the prompt MOU>, reissue the command. Otherwise, go back to Step 132.

Step 135: Type <CTRL/Z> and <CTRL/\>.

To terminate the MOUNT program and start the front-end Command Parser, type <CTRL/Z> followed by <CTRL/\>. After about 10 seconds, when the system is at Command Parser command level, it prints the prompt PAR%.

```
MOU>^Z
<CTRL/\>
PAR%
```

Step 136: Type RUN UFD and press the RETURN key.

To run the UFD program, type RUN UFD. The system loads the program from the floppy disk and starts it. After a few seconds, UFD is ready for you to type commands and prints the prompt UFD>.

```
PAR%RUN UFD <RET>
UFD>
```

Error: If you make a typing error, reissue the command.

Step 137: Type DB0:[5,5] and press the RETURN key. Wait 10 seconds and perform the next step.

To create the directory (in the front-end reserved space on the public structure) that contains the front-end file system, type DB0:[5,5]. When the UFD program finishes, it does not reprint the prompt. Wait 10 seconds and then proceed directly to the next step.

```
UFD>DB0:[5,5] <RET>
```

#### CREATING THE FRONT-END FILE SYSTEM

Error: If the system prints:

```
UFD -- FAILED TO CREATE DIRECTORY
```

you probably did not give the correct command the last time you ran the MOU program. Go back to Step 129.

Error: If the system prints:

```
UFD -- DIRECTORY ALREADY EXISTS
```

and you have run the INI program on the disk, then the front-end file system has been corrupted and the entire disk pack will have to be reformatted and rebuilt from the beginning of the installation.

Step 138: Type <CTRL/\>.

To load the front-end Command Parser from the floppy disk, type <CTRL/\>. After 10 seconds, the Command Parser is at command level and the system prints the prompt PAR%.

```
<CTRL/\>
PAR%
```

#### NOTE

Nothing happens until you type <CTRL/\>.

Step 139: Type RUN PIP and press the RETURN key.

To load the PIP program from the floppy disk and start it, type RUN PIP. After 10 seconds, PIP is ready for you to type commands. The system prints the prompt PIP>.

```
PAR%RUN PIP <RET>
PIP>
```

Error: If you make a typing error, reissue the command.

Step 140: Type DB0:\*.;\*DX0:\*.;\*DX1:\*.;\* and press the RETURN key.

To copy the newest version of all the files from the floppy disks (both drive 0 and drive 1) to the front-end file system on the public structure, type DB0:\*.;\*DX0:\*.;\*DX1:\*.;\* (You can use <CTRL/U> and the DELETE key to help type this line and others in this chapter.) You will hear clicking as the system accesses the floppy disks. After about 10 minutes, the transfer is complete and the system prints the prompt PIP>.

CREATING THE FRONT-END FILE SYSTEM

PIP>DB0:\*.;\*DX0:\*.;\*DX1:\*.;\* <RET>  
PIP>

Error: If you make a typing error, reissue the command.

Step 141: Type <CTRL/Z> and <CTRL/\>.

To end PIP and start the front-end Command Parser, type <CTRL/Z> followed by <CTRL/\>. After 10 seconds, the system is ready to accept commands and prints the prompt PAR%.

PIP>^Z  
<CTRL/\>  
PAR%

Error: If you make a typing error, reissue the command.

Step 142: Type RUN RED and press the RETURN key.

To load and start the REDIRECT program from floppy disk, type RUN RED. When the REDIRECT program is ready to accept commands (about five seconds), the system prints the REDIRECT prompt RED>.

PAR%RUN RED <RET>  
RED>

Error: If you make a typing error, reissue the command.

Step 143: Type DB0:=SY0: and press the RETURN key. Wait 5 seconds and perform the next step.

To redirect the primary front-end file structure from the floppy disks to the front-end file system on the public structure, type DB0:=SY0:. After 5 seconds, the REDIRECT program is finished and does not reprint the prompt. Proceed directly to the next step.

RED>DB0:=SY0: <RET>

Error: If this operation fails or if you make a mistake and the system has printed the prompt RED>, reissue the command. If it still fails, perform Steps 126 through 128 and Steps 133 through 135, then continue at Step 142. (Even this may not work. You may have to perform all the steps again, beginning with Step 126.)

CREATING THE FRONT-END FILE SYSTEM

Step 144: Type <CTRL/\>.

To start the front-end Command Parser, type <CTRL/\>. After one second, the system loads and starts the Command Parser and prints the prompt PAR%.

<CTRL/\>  
PAR%

Step 145: Type RUN SAV and press the RETURN key.

To start the SAVE program, type RUN SAV. After one second, SAVE is ready to accept commands and the system prints the prompt SAV>.

PAR%RUN SAV <RET>  
SAV>

Error: If you make a typing error, reissue the command.

Step 146: Set the switch register to zero.

Before proceeding, set the switch register to zero (all switches down).

Step 147: Type SY0:/WB and press the RETURN key.

To save the system bootstrap and the front-end monitor in the front-end file system on the public structure, type SY0:/WB (WB stands for Write Bootstrap). After the bootstrap and the monitor are saved, the system prints a message and the front end restarts itself at the save entry point.

SAV>SY0:/WB <RET>  
[DB0: dismantled]  
[DX0: dismantled]  
[DX1: dismantled]

RSX-20F VB16-00 12:19 17-MAR-88

[SY0: redirected to DB0:]  
[DB0: mounted]

The last two messages inform you that the front end is using the files on the TOPS-20 file system instead of on the floppy disks.

Error: If you make a typing error, reissue the command.

Step 148: Store the floppy disks A and B.

#### CREATING THE FRONT-END FILE SYSTEM

Remove the floppy disks, insert them in their covers, and store them in a safe place.

#### NOTE

If you have some spare floppies available, it is a good idea to copy System Floppies A and B to the spare floppies for backup purposes. See the TOPS-20 System Manager's Guide for this procedure.

#### Step 149: Mount System Floppy C on drive 0.

Mount System Floppy C in the left drive (drive 0). (See Step 7 in Chapter 2 if you have trouble.)

#### Step 150: Type <CTRL/\>.

To start the front-end Command Parser again, type <CTRL/\>. After one second, the system loads and starts the Command Parser and prints the prompt PAR%.

```
<CTRL/\>
PAR%
```

#### Step 151: Type RUN MOU and press the RETURN key.

To start the MOUNT program, type RUN MOU. When the system is at MOUNT command level, the system prints the prompt MOU>.

```
PAR%RUN MOU <RET>
MOU>
```

Error: If you make a typing error, reissue the command.

#### Step 152: Type DX0: and press the RETURN key.

To allow the front end to use its reserved area, type DX0:. The MOUNT program mounts floppy drive 0, then prints the message MOUNT COMPLETE.

```
MOU>DX0: <RET>
MOU -- MOUNT COMPLETE
MOU>
```

#### Step 153: Type <CTRL/Z> and <CTRL/\>.

To terminate the MOUNT program and start the front-end Command Parser, type <CTRL/Z> followed by <CTRL/\>. After about one second, when the

#### CREATING THE FRONT-END FILE SYSTEM

system is at Command Parser command level, it prints the prompt PAR%.

```
MOU>^Z
<CTRL/\>
PAR%
```

#### Step 154: Type RUN PIP and press the RETURN key.

To run the PIP program, type RUN PIP. When PIP is at command level, it prints the prompt PIP>.

```
PAR%RUN PIP <RET>
PIP>
```

Error: If you make a typing error, retype the command.

#### Step 155: Type DB0:.\*;\*=DX0:.\*;\* and press the RETURN key.

Copy the contents of System Floppy C to the disk by typing DB0:.\*;\*=DX0:.\*;\*. This copies the files on System Floppy C to the disk. When the files are copied, PIP prints the prompt PIP>.

```
PIP>DB0:.*;*=DX0:.*;* <RET>
PIP>
```

#### Step 156: Type DB0:/LI and press the RETURN key.

To get a list of the files on the front-end file system, type DB0:/LI. The system prints the list of the files copied from floppies A, B, and C. Check it against the directory listing shown in the TOPS20.BWR file to be sure that you have all the files shown there.

The directory listing shown in Figure 4-1 is only a sample. Do not worry about the order of the files, generation numbers, or dates and times when comparing the files. The file sizes (indicated in the second column in 256-word blocks) should be the same. When the listing is finished, the system prints the prompt PIP>.

CREATING THE FRONT-END FILE SYSTEM

PIP>DB0:/LI <RET>

DIRECTORY DB0:[5,5]  
17-MAR-88 12:17

```
F11ACP.TSK;1600      77.      C 17-MAR-88 12:00
PARSER.TSK;1600     71.      C 17-MAR-88 12:01
KLI.TSK;1600        73.      C 17-MAR-88 12:01
MOU.TSK;1600         5.      C 17-MAR-88 12:01
BF16N1.A11;1        1.      17-MAR-88 12:01
BF64N1.A11;1        1.      17-MAR-88 12:02
CLOCK.CMD;1600      2.      17-MAR-88 12:02
CRAM.CMD;1600       1.      17-MAR-88 12:02
DEX.CMD;1600        5.      17-MAR-88 12:02
DRAM.CMD;1600       1.      17-MAR-88 12:02
EBUS.CMD;1600       1.      17-MAR-88 12:02
FMPAR.CMD;1600      1.      17-MAR-88 12:02
HALT.CMD;1600       1.      17-MAR-88 12:03
KPALV.CMD;1600      1.      17-MAR-88 12:03
KPALV1.CMD;1600     1.      17-MAR-88 12:03
LOOP.CMD;1600       1.      17-MAR-88 12:03
TIMEO.CMD;1600      1.      17-MAR-88 12:03
KLX.MCB;442         55.     17-MAR-88 12:03
MTBOOT.EXB;11315    40.     17-MAR-88 12:03
SBO.CMD;1           2.      17-MAR-88 12:04
SB1.CMD;1           2.      17-MAR-88 12:04
LHALT.CMD;1600      6.      17-MAR-88 12:04
T2OACP.TSK;1600     8.      C 17-MAR-88 12:04
BOO.TSK;1600        19.     C 17-MAR-88 12:04
COP.TSK;1600        8.      C 17-MAR-88 12:04
DMO.TSK;1600        5.      C 17-MAR-88 12:05
INI.TSK;1600        23.     C 17-MAR-88 12:05
PIP.TSK;1600        56.     C 17-MAR-88 12:05
RED.TSK;1600        6.      C 17-MAR-88 12:05
SAV.TSK;1600       23.     C 17-MAR-88 12:05
UFD.TSK;1600        9.      C 17-MAR-88 12:05
MIDNIT.TSK;1600     4.      C 17-MAR-88 12:06
LOGXFR.TSK;1600    10.     C 17-MAR-88 12:06
KLDISC.TSK;1600     5.      C 17-MAR-88 12:06
KLRING.TSK;1600     6.      C 17-MAR-88 12:06
SETSPD.TSK;1600     5.      C 17-MAR-88 12:06
TKTN.TSK;1600       6.      C 17-MAR-88 12:06
BOOT.EXB;11315     46.     C 17-MAR-88 12:07
RSX20F.SYS;1600    60.     C 17-MAR-88 12:11
RSX20F.MAP;1600   155.     17-MAR-88 12:11
ZAP.TSK;1600        38.     C 17-MAR-88 12:12
RP2DBT.EXB;11315   70.     17-MAR-88 12:12
RP2MBT.EXB;11315   64.     17-MAR-88 12:13
```

TOTAL OF 975. BLOCKS IN 42. FILES

CREATING THE FRONT-END FILE SYSTEM

PIP>

Figure 4-1: Directory Listing of Front-End Files

Step 157: Type <CTRL/Z> and <CTRL/\>.

To exit from the PIP program, type <CTRL/Z>. To restart the front-end command parser, type <CTRL/\>. When at command level, the front-end command parser prints the prompt PAR%.

```
PIP>^Z
<CTRL/\>
PAR%
```

Step 158: Type RUN DMO and press the RETURN key.

To start the DMO program, type RUN DMO. When at command level, the DMO program prints the prompt DMO>.

```
PAR%RUN DMO <RET>
DMO>
```

Step 159: Type DX0: and press the RETURN key.

To dismount the floppy drive, type DX0:. After a few seconds, when the drive is dismounted, DMO prints a message and the prompt DMO>.

```
DMO>DX0: <RET>
DMO -- DISMOUNT COMPLETE
DMO>
```

Step 160: Type <CTRL/Z> and <CTRL/\>.

To exit from the DMO program, type <CTRL/Z> followed by <CTRL/\>. When you return to command level, the front-end command parser prints the prompt PAR%.

```
DMO>^Z
<CTRL/\>
PAR%
```

Step 161: Store floppy C.

Remove System Floppy C from the drive, insert it into its protective cover, and store it with floppies A and B.

## CREATING THE FRONT-END FILE SYSTEM

### NOTE

If you have a spare floppy available, it is a good idea to copy System Floppy C to the spare floppy for backup purposes. See the TOPS-20 System Manager's Guide for this procedure.

### RP20 Disks

If you have an RP20 disk subsystem, perform the steps in Section 4.4. Otherwise, continue the installation procedures at Step 167 in Chapter 5.

#### 4.4 RENAMING THE DX20 MICROCODE FILES

You have already copied the RP20/DX20 microcode from System Floppy C to the front-end (Step 155). Now you must rename the following files in order for them to be used when you restart the system.

- o RP2DBT.EXB is a new front-end BOOT file with the new DX20 microcode loaded.
- o RP2MBT.EXB is a new front-end MTBOOT file with the new DX20 microcode loaded.

BOOT and MTBOOT are loaded with the RP20/DX20 microcode and will reload DX20s as necessary when the monitor is loaded.

### RP20 Disk Controller

It is necessary that the 8000-2 controller for the RP20 disk subsystem be in 370 mode. See the 8000 Controller Maintenance Reference Manual, Volume 2, page U210, for information on switch settings.

Step 162: Be sure that the central processor is stopped.

Check your output to be sure that the last time the system printed the prompt PAR (in Step 160) it was followed by a percent sign (%) to indicate that the central processor has stopped. If PAR is followed by an angle bracket (>), type SHUTDOWN and press the RETURN key.

Step 163: Type RUN PIP and press the RETURN key.

To run the PIP program, type RUN PIP. When PIP is at command level, it prints the prompt PIP>.

## CREATING THE FRONT-END FILE SYSTEM

PAR%RUN PIP <RET>

PIP>

Error: If you make a typing error, retype the command.

Step 164: Type DB0:[5,5]BOOT.EXB=DB0:[5,5]RP2DBT.EXB and press the RETURN key.

Rename the boot program for disks by typing DB0:[5,5]BOOT.EXB=DB0:[5,5]RP2DBT.EXB. When PIP completes the procedure, it prints PIP>.

PIP>DB0:[5,5]BOOT.EXB=DB0:[5,5]RP2DBT.EXB <RET>  
PIP>

Step 165: Type DB0:[5,5]MTBOOT.EXB=DB0:[5,5]RP2MBT.EXB and press the RETURN key.

Rename the boot program for magnetic tape drives by typing DB0:[5,5]MTBOOT.EXB=DB0:[5,5]RP2MBT.EXB. When PIP completes the procedure, it prints PIP>.

PIP>DB0:[5,5]MTBOOT.EXB=DB0:[5,5]RP2MBT.EXB <RET>  
PIP>

Step 166: Type <CTRL/Z> and <CTRL/\>.

To exit from the PIP program, type <CTRL/Z>. To restart the front-end command parser, type <CTRL/\>. When at command level, the front-end command parser prints the prompt PAR%.

PIP>^Z

<CTRL/\>  
PAR%



## STARTING THE SYSTEM

### CHAPTER 5

#### STARTING THE SYSTEM

At this point you have:

1. Initialized the TOPS-20 file system.
2. Loaded the TOPS-20 monitor and related programs into the directories PS:<SYSTEM> and PS:<SUBSYS>.
3. Loaded the files for the TOPS-20 User Environmental Test Package into the directory PS:<UETP.LIB>.
4. Created the system initialization files.
5. Loaded the front-end software into the TOPS-20 file system.

The only thing left to be done is to restart the system. Once this is done, the TOPS-20 file system is intact and the standard TOPS-20 bundled software is completely installed on your system. This means you can stop the system and reboot it from the file system on disk.

Whenever you have to restart the system, be sure that the central processor is stopped; otherwise you can damage the file system you just created.

Steps 167 through 172 describe how to restart the system.

Step 167: Be sure that the central processor is stopped.

Check your output to be sure that the last time the system printed the prompt PAR (in Step 160 or Step 166) it was followed by a percent sign (%) to indicate that the central processor has stopped. If the prompt is followed by an angle bracket (>), type SHUTDOWN and press the RETURN key.

Step 168: Hold ENABLE and press the DISK button.

To restart the system, hold ENABLE and press the DISK button. The system restarts after a few seconds and obtains all the software from the TOPS-20 file system.

If the TOPS-20 file system is on a drive other than drive 0, holding the ENABLE button and pressing the DISK button does not work. You must set the switch register to the appropriate disk drive. For example, if the TOPS-20 file system is on drive 1, set switches 8, 7, and 0 up; for drive 2, set switches 9, 7 and 0 up. (See the TOPS-20 Operator's Guide for more information on setting the switch register.)

Once you have set the switches to the appropriate disk drive, hold ENABLE and press the SWITCH REGISTER button rather than the DISK button. When you follow this procedure, the system prints the question, KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]? and waits for a reply. Reply by pressing the RETURN key.

```
RSX-20F VB16-00 12:19 17-MAR-88

[SY0: redirected to DB0:]
[DB0: mounted]
KLI -- VERSION VB16-00 RUNNING
KLI -- KL10 S/N: 2102., MODEL B, 60 HERTZ
KLI -- KL10 HARDWARE ENVIRONMENT:
      MOS MASTER OSCILLATOR
      EXTENDED ADDRESSING
      INTERNAL CHANNELS
      CACHE
```

#### NOTE

If you have a DECSYSTEM-20 Model 2065, you will see these additional messages:

```
KLI -- % NO FILE
KLI -- PAGE TABLE SELECTED: BOTH

KLI -- MICROCODE VERSION 2.1[442] LOADED
KLI -- % NO FILE - ALL CACHE BEING CONFIGURED
KLI -- ALL CACHES ENABLED
KLI -- % NO FILE - ALL MEMORY BEING CONFIGURED

LOGICAL MEMORY CONFIGURATION
  ADDRESS  SIZE  INT  TYPE  CONTROLLER
00000000  768K   4  MF20   10

KLI -- % NO FILE - LOADING BOOTSTRAP
KLI -- CONFIGURATION FILE WRITTEN
KLI -- BOOTSTRAP LOADED AND STARTED

BOOT V11.0(315)
[BOOT: LOADING] [OK]
```

**STARTING THE SYSTEM**

[PS MOUNTED]  
[IPALOD: LOADING CI20 MICROCODE VERSION 1.1(733)] [OK]

System restarting, wait...  
ENTER CURRENT DATE AND TIME:

**DX20 Microcode**

You will receive a message concerning the DX20 microcode only if you are installing the TOPS-20 software on a DECSYSTEM-20 with an RP20 tape or disk controller.

**CI20**

You will receive the message concerning the CI20 microcode only if you are installing TOPS-20 software on a DECSYSTEM-20 with CI20.

The line "System restarting, wait..." is printed on all the terminals currently connected to the system to inform users that the system will soon be ready to use.

Error: If the system prints:

\*\*\* THIS VOLUME DOES NOT CONTAIN A HARDWARE BOOTABLE SYSTEM \*\*\*

the disk pack on the dual-port drive does not contain the front-end software. Perhaps the wrong disk pack has been mounted. But if everything appears to be in order, try the steps in Chapters 2 through 4 again. If the error continues, contact DIGITAL Software Support.

If the system does nothing when you press the switches, you may have pressed ENABLE and SWITCH REGISTER by mistake. Try pressing ENABLE and DISK.

If the system prints JSYS error messages between the lines "[PS MOUNTED]" and "System restarting, wait...", you probably mistyped some information in the configuration command file. Use an editor program, such as EDIT, to check the file and correct any errors.

**Step 169:** Type the date and time and press the RETURN key.

After the prompt, type the date and time in the form dd-mmm-yy hhmm, with the time in 24-hour format. Then press the RETURN key. For example:

ENTER CURRENT DATE AND TIME: 17-MAR-88 1112 <RET>

**STARTING THE SYSTEM**

YOU HAVE ENTERED THURSDAY, 17-MAR-88 11:12AM,  
IS THIS CORRECT (Y,N)

**Step 170:** Type Y or N and press the RETURN key.

After the system prints the date and time, check to be sure that it is correct. If it is, type Y and press the RETURN key. If the date or time is incorrect, type N, press the RETURN key, and go back to Step 164.

YOU HAVE ENTERED THURSDAY, 17-MAR-88 11:12AM,  
IS THIS CORRECT (Y,N) Y <RET>  
WHY RELOAD?

**Step 171:** Type SC and press the RETURN key.

If you plan to install optional software, type SC and press the RETURN key. When you bring up the system for any other reason, type one of the abbreviations listed in Table 5-1.

**NOTE**

If you do not respond to the WHY RELOAD question within 60 seconds, the system assumes OTHER and continues the startup procedure.

WHY RELOAD? SC <RET>

PROBLEM WITH <SYSTEM>ACCOUNTS-TABLE.BIN  
CANNOT GET A JFN FOR <SYSTEM>ACCOUNTS-TABLE.BIN - ACCOUNT  
VALIDATION IS DISABLED

RUN CHECKD?

**Table 5-1: System Reload Abbreviations**

Abbreviation	Meaning
OP	OPR
PA	Parity
PO	Power Failure
ST	Static
HAR	Hardware
HA	Halt
HU	Hung

STARTING THE SYSTEM

Table 5-1: System Reload Abbreviations (Cont'd)

PM	Preventive Maintenance
CM	Corrective Maintenance
SA	Stand-alone
NE	New Monitor
SC	Scheduled
OT	Other

Step 172: Type N and press the RETURN key.

The CHECKD program examines the entire disk file system, reports any errors, and tries to correct them. You do not have to run this program unless the system crashes unexpectedly or if, for some other reason, you suspect that there may be disk errors. If you halt the system by giving a ^ECEASE command or by using some other controlled means, you do not have to run CHECKD before restarting.

If you do run CHECKD, be prepared for a long wait until the system prints something on your console terminal. For each inconsistency, CHECKD prints a message and the directory in which the error occurred. (See the TOPS-20 Operator's Guide for a list of CHECKD error messages.)

NOTE

If you do not respond to the RUN CHECKD question within 60 seconds, the system assumes NO and continues the startup procedure.

The system runs DDMP and SYSJOB after you type N. Figure 5-1 is an example of the CTY output generated at system startup.

CI20

If you have CI20 and is on, you may receive a series of messages about its activities - loading, starting, and opening circuits. These messages are for your information only.

Ethernet

You will receive the message concerning the Ethernet microcode only if you are installing TOPS-20 software on a DECSYSTEM-20 with an Ethernet.

STARTING THE SYSTEM

RUN CHECKD? N <RET>

RUNNING DDMP

SYSJOB 7(78) STARTED AT 17-MAR-88 1112  
[KNILDR: Loading microcode version 1(172) into Ethernet channel 0]

\*\*\*\*\*

17-MAR-88 11:12:39 - TGHA 4.2(31) IN OPERATION.

\*\*\*\*\*

```

RUN SYS:INFO
RUN SYS:MAPPER
RUN SYS:ORION
RUN SYS:QUASAR
RUN SYS:MOUNTR
RUN SYS:MAILER
RUN SYS:LPTSPL
RUN SYS:LPTSPL
RUN SYS:CDRIVE
RUN SYS:SPRINT
JOB 0 /LOG OPERATOR XX OPERATOR
ENA
^ESET LOGIN PSEUDO
^ESET LOGIN CONSOLE
^ESET OPERATOR
PTYCON
GET SYSTEM:7-PTYCON.ATO
/
JOB 1 /LOG OPERATOR XX OPERATOR
ENA
GET SYS:BATCON
/
SJ 0: @LOG OPERATOR OPERATOR
SJ 1: @LOG OPERATOR OPERATOR
SJ 0: Job 1 on TTY206 dd-mmm-yy hh:mm:ss, Last Login never
SJ 1: Job 1 on TTY206 dd-mmm-yy hh:mm:ss, Last Login never
SJ 0: @ENA
SJ 1: @ENA
SJ 1: $GET SYS:BATCON
SJ 0: $^ESET LOGIN PSEUDO
SJ 0: $^ESET LOGIN CONSOLE
SJ 0: $^ESET OPERATOR
SJ 0: $PTYCON
SJ 0: PTYCON> GET SYSTEM:7-PTYCON.ATO
SJ 0: PTYCON> SILENCE
    
```

Figure 5-1: Sample Console Terminal Output at System Startup

## STARTING THE SYSTEM

```
[From OPERATOR on node TOPS20 line 210 to all lines:  SYSTEM IN
OPERATION]
SJ 0: PTYCON> W ALL
SJ 0: OPR(0)      3          OPERATOR  OPR      TI      0:0:1
SJ 0: PTYCON> CONN OPR
SJ 0: [CONNECTED TO SUBJOB OPR(0)]
```

Figure 5-1: Sample Console Terminal Output at System Startup (Cont'd)

## CHAPTER 6

### INSTALLING THE TOPS-20 DISTRIBUTION TAPES

The steps in this section describe how to install the TOPS-20 Distribution tapes and/or any TOPS-20 Tools tapes.

To install any optional software products, follow the steps specified in the installation guide that accompanies each optional software product.

If you are installing DECnet-20, follow the steps in the DECnet-20 Network Generation and Procedures manual.

There are two TOPS-20 Distribution tapes. TOPS-20 Distribution Tape 1 contains one saveset:

- o Sources that allow you to rebuild certain programs, if required.

TOPS-20 Distribution Tape 2 contains three savesets. These savesets are:

- o Documentation regarding specific programs.
- o Language sources that allow you to rebuild certain language modules, such as MACRO, LINK.
- o GALAXY sources that allow you to rebuild a GALAXY system, if required.

The procedures in this chapter are OPTIONAL. You may find it helpful to restore the documentation files and the source files. The remaining savesets, language and GALAXY sources, are not required to run the product.

To restore the sources, you need at least 9300 free pages in the directory <SUBSYS>. To restore the documentation, you need at least 1200 free pages in the directory <OPERATOR>. If you decide to restore the language and/or GALAXY sources, restore them to directories of your own choosing. The directory for the language sources needs at

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

least 1900 free pages of disk space. The directory for the GALAXY sources needs at least 3000 free pages of disk space.

Perform Steps 173 through 198 at the console terminal (CTY) to install the Distribution tapes and/or any Tools tapes.

Step 173: Type <CTRL/C>.

Type <CTRL/C> to start a job.

<CTRL/C>  
Installation-test System, TOPS-20 Monitor 7.0(6763)  
@

Step 174: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the steps in the example to log in and enable your capabilities.

Installation-test System, TOPS-20 Monitor 7.0(6625)  
@LOGIN OPERATOR your-password <RET>  
Job 4 on TTY5 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss  
@ENABLE <RET>  
\$

Step 175: Type OPR and press the RETURN key.

Type OPR to run the OPR program.

\$OPR <RET>  
OPR>

Step 176: Type SHOW STATUS TAPE-DRIVE /ALL and press the RETURN key.

To find a tape drive that you can use for mounting the software tape, type the OPR command SHOW STATUS TAPE-DRIVE /ALL. The system responds with a list of tape drives and their status.

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

```
OPR>SHOW STATUS TAPE-DRIVE /ALL <RET>
OPR>
15:58:35          --Tape Drive Status--

Drive  State      Valid  Req#  Job#  User
-----  -----  -----  ----  ----  ----
MTA0:  Unloaded
      AVR: Yes
MTA1:  In Use      DEK    31    45    LARRUP
      AVR: Yes, Write: Yes, Unlabeled
MTA2:  Loaded
      AVR: Yes, Write: Yes, Unlabeled
MTA3:  Unloaded
      AVR: Yes
MTA4:  Unloaded
      AVR: No
MTA5:  Unloaded
      AVR: Yes
OPR>
```

Step 177: Type SET TAPE-DRIVE MTAn: UNAVAILABLE and press the RETURN key.

To mount the software tape, you should first make a free drive unavailable to timesharing users. The OPR command SET TAPE-DRIVE MTAn: UNAVAILABLE does this. The example uses drive number 0, but you can specify any drive that is not in use.

```
OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE <RET>
Enter text and terminate with ^Z
```

Step 178: Type INSTALLING OPTIONAL SOFTWARE and type <CTRL/Z>.

Type the text INSTALLING OPTIONAL SOFTWARE and then type <CTRL/Z>.

```
Enter text and terminate with ^Z
INSTALLING OPTIONAL SOFTWARE ^Z
OPR>
15:59:07          -- Tape Drive Set Unavailable --
                        MTA0: set unavailable for assignment by MOUNTR
SJ  0:
SJ  0: 15:59:07          -- Tape Drive Set Unavailable --
SJ  0:                        MTA0: set unavailable for assignment by MOUNTR
OPR>
```

Step 179: Type EXIT and press the RETURN key.

Type EXIT to leave the OPR program.

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

OPR>EXIT <RET>  
\$

Step 180: Type ASSIGN MTAn: and press the RETURN key.

Type ASSIGN MTAn: to assign a magnetic tape drive to your job. The example uses drive number 0, but you can use any drive with the status UNLOADED. The system prints the system prompt when the drive is assigned.

\$ASSIGN MTA0: <RET>  
\$

Error: If the device is assigned to another job, the system prints the message:

ALREADY ASSIGNED TO JOB n

Use the command INFORMATION AVAILABLE DEVICES to find an available tape drive. Reissue the ASSIGN command.

Step 181: Type DUMPER and press the RETURN key.

Type DUMPER to start the DUMPER program. The system prints the DUMPER prompt DUMPER>.

\$DUMPER <RET>  
DUMPER>

DUMPER ERRORS

If you get errors when using DUMPER, see the description of DUMPER in the TOPS-20 User Utilities Guide.

Step 182: Type TAPE MTAn: and press the RETURN key.

Type TAPE MTAn: to tell DUMPER which tape drive to use. The example uses MTA0:, but if you assigned another drive in Step 180, use that drive number instead. The system prints the DUMPER prompt DUMPER>.

DUMPER>TAPE MTA0: <RET>  
DUMPER>

Step 183: Mount the software tape.

Mount the Distribution tape (or Tools tape) on the drive that is assigned to your job. Remember to press the ON LINE button after

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

mounting the tape on a TU45 tape drive. (See Step 9 in Chapter 2 for information on mounting tapes.)

Step 184: Type REWIND and press the RETURN key.

To start the tape at the beginning, type REWIND. The system moves the tape to the beginning and prints the DUMPER prompt DUMPER>.

DUMPER>REWIND <RET>  
DUMPER>

NOTE

If you are restoring Tools tapes, you may need to build additional directories to hold the files. In this case, proceed to Step 191/192 for an example of building directories and then restoring files from tape. See the TOPS-20 System Manager's Guide for additional information on building directories.

Step 185: Type RESTORE PS:<\*>\*. \*.\* PS:<SUBSYS>\*. \*.\* and press the RETURN key.

To restore the source files for TOPS-20 to PS:<SUBSYS>, type the RESTORE command. The system prints the total number of files and pages restored, followed by the DUMPER prompt.

DUMPER>RESTORE PS:<\*>\*. \*.\* PS:<SUBSYS>\*. \*.\* <RET>  
Saveset "Source Files for TOPS-20 V7.0" 17-Mar-88 0957  
Loading files into PS:<SUBSYS>  
End of Tape.

Total files restored: 1072  
Total pages restored: 8983  
DUMPER>

Step 186: Type EXIT and press the RETURN key.

Type EXIT to leave DUMPER and return to TOPS-20 command level.

DUMPER>EXIT <RET>  
\$

Step 187: Type UNLOAD MTAn: and press the RETURN key.

Type UNLOAD MTAn: to rewind and unload the tape from the tape drive.

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

\$UNLOAD MTA0: <RET>  
\$

Step 188: Dismount the software tape and store it.

Remove Distribution tape 1 from the drive and store it in a safe place.

Step 189: Repeat Steps 183 and 184 to restore files from Distribution tape 2.

Repeat Steps 183 and 184 then proceed to Step 190 to restore Distribution tape 2. Otherwise, continue with Step 193.

Step 190: Type RESTORE PS:<\*>\*. \* PS:<OPERATOR>\*. \* and press the RETURN key.

To restore the documents on Distribution tape 2 to the directory PS:<OPERATOR>, type the RESTORE command. The system prints the total number of files and pages restored, followed by the DUMPER prompt. (If you want a list of the files, give the FILES command before the RESTORE command.) You can restore the files to any directory. PS:<OPERATOR> is not required.

```
DUMPER>RESTORE PS:<*>*. * PS:<OPERATOR>*. * <RET>
Saveset "Documentation Files for TOPS-20 V7.0" 17-Mar-88 0957
Loading files into PS:<OPERATOR>
End of Saveset.
```

```
Total files restored:    80
Total pages restored:   1167
DUMPER>
```

Error: If you do not see the message "Loading files into PS:<OPERATOR>," no files are being restored from tape. Rewind the tape and try again. Be sure you have the correct tape mounted and the tape drive is on line. If problems persist, contact your DIGITAL Field Service Representative.

You can list any of the files on the line printer by typing <CTRL/C> and giving the PRINT command. The files with file types .MEM, .BWR, .BD, .SD, .DOC, .TCO, and .PCO are the most useful to print.

Two files that you may want to print are [SYSTEM]BUGS.MEM and UOJSYS.MEM. The BUG.MEM file contains documentation on BUGCHK, BUGINF, and BUGHLT messages. The file UOJSYS.MEM contains documentation on UO to JSYS comparisons.

Then return to DUMPER by giving the CONTINUE command and pressing the

INSTALLING THE TOPS-20 DISTRIBUTION TAPES

RETURN key twice. In the example, the file SOURCE.DIR is printed.

```
DUMPER>^C
$PRINT SOURCE.DIR <RET>
$CONTINUE <RET>
<RET>
DUMPER>
```

Step 191: Restore the language sources (optional).

Step 192: Restore the GALAXY sources (optional).

If you do not want to restore the sources for either the language or GALAXY sources, continue at Step 193.

If you want to restore the source files for either the language or GALAXY sources, give the RESTORE command with the name of the directory where you want the sources stored. Normally, the directories in the definition of the system logical name SYS: do not contain source files, so you should use the BUILD command to create appropriate directories for the source files.

Use the following procedure to build two new directories and to restore the language sources, and then the GALAXY sources. You can use directory names of your own choosing in place of <LANGUAGE-SOURCES> and <GALAXY-SOURCES>.

```
DUMPER>EXIT <RET>
$BUILD PS:<LANGUAGE-SOURCES> <RET>
[New]
$$WORKING 1900 <RET>
$$PERMANENT 1900 <RET>
$$ <RET>
$BUILD PS:<GALAXY-SOURCES> <RET>
[New]
$$WORKING 2200 <RET>
$$PERMANENT 2200 <RET>
$$ <RET>
$DUMPER <RET>
DUMPER>TAPE MTA0: <RET>
DUMPER>RESTORE PS:<*>*. * PS:<LANGUAGE-SOURCES>*. * <RET>
Saveset "Language Sources for TOPS-20 V7.0" 17-Mar-88 1002
Loading files into PS:<LANGUAGE-SOURCES>
End of Saveset.
```

```
Total files restored:    144
Total pages restored:   1828
DUMPER>RESTORE PS:<*>*. * PS:<GALAXY-SOURCES>*. * <RET>
Saveset "GALAXY Sources for TOPS-20 V7.0" 17-Mar-88 1003
Loading files into PS:<GALAXY-SOURCES>
End of Tape.
```

## INSTALLING THE TOPS-20 DISTRIBUTION TAPES

Total files restored: 78  
Total pages restored: 2093  
DUMPER>

Step 193: Type EXIT and press the RETURN key.

Type EXIT to leave DUMPER and return to TOPS-20 command level.

```
DUMPER>EXIT <RET>  
$
```

Step 194: Type UNLOAD MTAn: and press the RETURN key.

Type UNLOAD MTAn: to rewind and unload the tape from the tape drive.

```
$UNLOAD MTA0: <RET>  
$
```

Step 195: Dismount the software tape and store it.

Remove the Distribution tape (or the Tools tape) from the drive and store it in a safe place.

Step 196: Return to Step 183 to restore files from other tapes (optional).

Go back to Step 183 if you want to restore other tapes; for example Tools tapes. Otherwise, continue with Step 197.

Step 197: Type DEASSIGN MTAn: and press the RETURN key.

Type DEASSIGN MTAn: to release the magnetic tape for use by other users. The system prints the TOPS-20 ENABLEd prompt.

```
$DEASSIGN MTA0: <RET>  
$
```

Step 198: Proceed to Step 199 in Chapter 7 to run UETP.

## CHAPTER 7

### RUNNING THE TOPS-20 UETP PACKAGE

This chapter describes how to run the User Environment Test Package (UETP). This program performs a cursory check of the system.

UETP starts a number of tests that can run either once or repeatedly. The source files are kept in the directory <UETP.LIB>, while the temporary data files and results of the tests are stored in the directory <UETP.RUN>. For more information on UETP, see the User Environment Test Package Reference Manual.

#### NOTE

If you performed the steps in Chapter 6 of this manual, you can skip Steps 199 and 200 and start at Step 201. You should perform all the steps in this chapter on the operator's console terminal (CTY). Otherwise, you must return to the CTY after completing the steps in this chapter to resume control of the system.

#### 7.1 RUNNING THE STANDARD TESTS

Perform Steps 199 through 209 to run the standard UETP tests.

Step 199: Type <CTRL/C>.

Type <CTRL/C> to start a job.

```
<CTRL/C>  
Installation-test System, TOPS-20 Monitor 7.0(6763)  
@
```

Step 200: Log in and enable WHEEL or OPERATOR privileges.



**RUNNING THE TOPS-20 UETP PACKAGE**

At the CTY, log in to the system and enable your capabilities. Follow the example to perform these procedures.

```
Installation-test System, TOPS-20 Monitor 7.0(6763)
@LOGIN OPERATOR your-password <RET>
Job n on TTYn dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$
```

**Step 201: Type TAKE PS:<UETP.LIB>SET-UP.CMD and press the RETURN key.**

To set up various subdirectories, type TAKE PS:<UETP.LIB>SET-UP.CMD. This command file contains all the commands necessary to create the subdirectories.

```
$TAKE PS:<UETP.LIB>SET-UP.CMD <RET>
[New]
[New]
.
.
.
End of <UETP.LIB>SET-UP.CMD.1
$
```

**Step 202: Type CONNECT PS:<UETP.RUN> and press the RETURN key.**

Type CONNECT PS:<UETP.RUN> to connect to the directory that has the standard tests.

```
$CONNECT PS:<UETP.RUN> <RET>
$
```

**Step 203: Type RUN UETP.EXE and press the RETURN key.**

To start the UETP program, type RUN UETP.EXE. The system prints the prompt UETP>.

```
$RUN UETP.EXE <RET>
[dd-mmm-yy hh:mm:ss User Environment Test Package ]

UETP>
```

**Step 204: Type TAKE VERIFY.CMD and press the RETURN key.**

Type TAKE VERIFY.CMD to load the standard verification tests. This command causes the standard tests to be loaded and the first test (VERIFY) to begin. The system prints several messages followed by status information. In the example, the field hh:mm:ss indicates the

**RUNNING THE TOPS-20 UETP PACKAGE**

time the message was generated.

```
UETP>TAKE VERIFY.CMD <RET>

UETP>ENABLE VERIFY/CYCLE:1 ! Verify that the correct software
[hh:mm:ss ENABLE COMPLETED] ! is installed

UETP>BEGIN
[hh:mm:ss BEGIN COMPLETED]

UETP>DEFAULT/CYCLE:00:15
[hh:mm:ss DEFAULT COMPLETED]

UETP>ENABLE RANCBL
[hh:mm:ss ENABLE COMPLETED]

UETP>ENABLE RANFOR
[hh:mm:ss ENABLE COMPLETED]

UETP>ENABLE MTA0
[hh:mm:ss ENABLE COMPLETED]
```

UETP>STATUS

[dd-mmm-yy hh:mm:ss]

Test name	Depth	Status	Cycle	Times run	Error count	Error limit	Start time
=====	=====	=====	=====	=====	=====	=====	=====
VERIFY	VER	Running	1	0	0	0	dd-mmm-yy hh:mm:ss
RANCBL	VER	Enabled	0:15	0	0	0	
RANFOR	VER	Enabled	0:15	0	0	0	
MTA0	VER	Enabled	0:15	0	0	0	

```
START VERIFY 9:43:33
END VERIFY 10:14:53
```

**NOTE**

If any messages appear between the START message and the END message, there are errors in the files you received. Do not proceed any further.

The last two messages signify the beginning and ending of the test. If the first test (VERIFY) finishes without error, go on to Step 205.

**NOTE**

In the following steps you should use a tape drive that is not presently available to timesharing users. If you have just completed the steps in Chapter 6, you

## RUNNING THE TOPS-20 UETP PACKAGE

can give the TOPS-20 ASSIGN command to assign the drive that you deassigned in Step 197. Otherwise, perform Steps 175 through 180 in Chapter 6 before continuing with Step 205.

### Step 205: Mount a magnetic tape on the drive you want to test.

The standard tests include a random I/O COBOL test, a random I/O FORTRAN test, and a magtape test for MTA0:. Test MTA0 requires that a blank magnetic tape be mounted on drive 0. If you want to test a tape drive other than drive 0, you must enable the test for the selected drive.

To enable the test for a specific drive, type ENABLE MTAn and press the RETURN key (n indicates the number of the drive; for example, MTA1, MTA2).

```
UETP>ENABLE MTAn <RET>
[hh:mm:ss ENABLE COMPLETED]
```

UETP>

Now mount a magnetic tape on the drive you want to test. Be sure that a write ring has been inserted in the tape and that the drive is on line before proceeding to the next step.

### Step 206: Type BEGIN and press the RETURN key.

To start the remaining tests, type BEGIN. The system then prints a series of messages.

```
UETP>BEGIN <RET>
[hh:mm:ss BEGIN COMPLETED]
```

UETP>

```
START RANCBL hh:mm:ss
START RANFOR hh:mm:ss
START MTA0 hh:mm:ss
END RANCBL hh:mm:ss
END RANFOR hh:mm:ss
END MTA0 hh:mm:ss
```

If messages other than those shown in the example appear, the tests generating the messages have failed.

### Step 207: STOP.

When all tests are completed, the system prints the following status

## RUNNING THE TOPS-20 UETP PACKAGE

information:

[All tests complete on processor # 2102]

[dd-mmm-yy hh:mm:ss]

Test name	Depth	Status	Cycle	Times	Error	Error	Start
			run	count	limit	time	
VERIFY VER	Ended	1	1	0	0	dd-mmm-yy hh:mm:ss	
RANCBL VER	Ended	0:15	1	0	0	dd-mmm-yy hh:mm:ss	
RANFOR VER	Ended	0:15	1	0	0	dd-mmm-yy hh:mm:ss	
MTA0 VER	Ended	0:15	1	0	0	dd-mmm-yy hh:mm:ss	

### Step 208: STOP.

At this point you can either type EXIT to terminate UETP, or begin the tests for optional software. The following step (Step 209) shows how to terminate UETP. If you want to test optional software, you should skip Step 209 and proceed to Step 210.

### Step 209: Type EXIT and press the RETURN key.

Type EXIT to end UETP. Then continue at Step 214.

```
UETP>EXIT <RET>
$
```

## 7.2 RUNNING OPTIONAL TESTS

The steps in this section describe how to enable tests for optional software products. Be sure to enable tests only for the optional software products you have installed.

Table 7-1 contains a list of optional software products for TOPS-20 and the UETP command needed to start the test for the product.

Table 7-1: UETP Commands for Optional Software Product Tests

Product	UETP Command
ALGOL-20	ENABLE ALGOL
APL-20	ENABLE APL
BASIC-PLUS-2	ENABLE BASIC
COBOL-68	ENABLE COBOL
COBOL-74	ENABLE CBL74
DBMS-20	ENABLE DBMS
FORTRAN	ENABLE FORTRA
SORT-20	ENABLE SORT

Step 210: Start tests for optional software products.

To start a test for an optional software product, do the following:

1. Type ENABLE product-name and press the RETURN key. (See Table 7-1 for the correct command for your specific product.)

```
UETP>ENABLE product-name <RET>
[hh:mm:ss ENABLE COMPLETED]
```

UETP>

2. Type an ENABLE command for each product you wish to test.
3. Type BEGIN and press the RETURN key.

```
UETP>BEGIN <RET>
[hh:mm:ss BEGIN COMPLETED]
```

UETP>

BEGIN starts the standard tests and all the optional software tests you enabled. The system starts all the tests immediately.

Step 211: Type STATUS and press the RETURN key.

Periodically give a STATUS command to find out which tests are running and how many times they have been run.

NOTE

If there is a number other than 0 (zero) in the column ERROR COUNT, print the ERRORS.LOG file, when the tests are finished, to find out what caused the error.

STATUS <RET>

[dd-mmm-yy hh:mm:ss]

Test name	Depth	Status	Cycle	Times run	Error count	Error limit	Start time
VERIFY VER		Ended		1	1	0	0 dd-mmm-yy hh:mm:ss
RANCBL VER		Running	0:15	0	0	0	0 dd-mmm-yy hh:mm:ss
RANFOR VER		Queued	0:15	0	0	0	0 dd-mmm-yy hh:mm:ss
MTA0 VER		Queued	0:15	0	0	0	0 dd-mmm-yy hh:mm:ss

In the example, the RANCBL.SUP test is running, the RANFOR.SUP and MTA0.SUP tests are in a wait state, and the VERIFY.SUP test has ended.

Step 212: Type STATUS and press the RETURN key.

The UETP program does not notify you when all the tests are completed. To find out when all the tests are completed, give a STATUS command. When all the tests are completed, your output from the STATUS command resembles the following:

STATUS <RET>

[dd-mmm-yy hh:mm:ss]

Test name	Depth	Status	Cycle	Times run	Error count	Error limit	Start time
VERIFY VER		Ended		1	1	0	0 dd-mmm-yy hh:mm:ss
RANCBL VER		Ended	0:15	1	0	0	0 dd-mmm-yy hh:mm:ss
RANFOR VER		Ended	0:15	1	0	0	0 dd-mmm-yy hh:mm:ss
MTA0 VER		Ended	0:15	1	0	0	0 dd-mmm-yy hh:mm:ss

Step 213: Type EXIT and press the RETURN key.

To exit from the UETP program, type EXIT. The system prints the TOPS-20 ENABLED prompt (\$).

EXIT <RET>

\$

### RUNNING THE TOPS-20 UETP PACKAGE

Error: If you try to exit while there are tests still running, the system prints the message "%You still have tests running. "ABORT ALL" before exiting. " Wait until all the tests are completed and then reissue the EXIT command.

#### 7.3 DELETING TEMPORARY DIRECTORIES

Perform Steps 214 through 219 to delete the temporary directories created by UETP and to return to a timesharing environment.

Step 214: Type TAKE <UETP.LIB>CLEAN-UP.CMD and press the RETURN key.

To delete the temporary directories, type TAKE <UETP.LIB>CLEAN-UP.CMD. The system prints the word [Old] for each directory it deletes.

```
$TAKE <UETP.LIB>CLEAN-UP.CMD <RET>
[Old]
[Old]
.
.
.
End of <UETP.LIB>CLEAN-UP.CMD.3
$
```

Step 215: Type DEASSIGN MTAn: and press the RETURN key.

Type DEASSIGN MTAn: to release the magnetic tape drive for use by other users. This is the tape drive you assigned prior to Step 205.

```
$DEASSIGN MTA0: <RET>
$
```

Step 216: Type OPR and press the RETURN key.

To return the CTY to the OPR program, type OPR.

```
$OPR <RET>
OPR>
```

Step 217: Type SET TAPE-DRIVE MTAn: AVAILABLE and press the RETURN key.

To return the tape drive you used to the pool of available resources, type SET TAPE-DRIVE MTAn: AVAILABLE.

```
OPR>SET TAPE-DRIVE MTA0: AVAILABLE <RET>
```

### RUNNING THE TOPS-20 UETP PACKAGE

```
OPR>
hh:mm:ss      -- Tape Drive Set Available --
              MTA0: set available for assignment by MOUNTR
SJ 0: OPR>
SJ 0: hh:mm:ss  -- Tape Drive Set Available --
SJ 0:          MTA0: set available for assignment by MOUNTR
OPR>
```

Step 218: Type EXIT and press the RETURN key.

Type EXIT to leave the OPR program.

```
OPR>EXIT <RET>
$
```

Step 219: Start timesharing.

APPENDIX A  
UPDATING THE DECSYSTEM-20 SOFTWARE

This appendix describes how to install Version 7.0 software on a DECSYSTEM-20 now running TOPS-20 Version 6.1 software and is organized as follows:

A.1 Installation Tools

Lists the tools you need to install the software.

A.2 Installing the TOPS-20 Version 7.0 Software

Describes how to prepare for installation, load the bundled software from magnetic tape, create a new configuration command file, shut down the Version 6.1 system, and bring up the Version 7.0 system.

A.3 Reverting to TOPS-20 Version 6.1

Describes how to run Version 6.1 software after running Version 7.0.

A.4 Making the Version 7.0 Monitor the Primary Monitor

Describes the procedure for making the Version 7.0 monitor your primary monitor by renaming the monitor and placing the Version 7.0 front-end software on disk.

A.5 Making the Version 7.0 Monitor the Permanent Monitor

Describes the procedure for making the Version 7.0 monitor your permanent monitor by placing the Version 7.0 software in the directories <SYSTEM> and <SUBSYS> and changing the configuration command file.

As you update the system, enter the commands that are underlined. Use the console terminal (CTY) when performing these procedures.

UPDATING THE DECSYSTEM-20 SOFTWARE

A.1 INSTALLATION TOOLS

To install the TOPS-20 Version 7.0 software, you need:

- o The TOPS-20 RSX-20F Version 16-00 System Floppy A.
- o The TOPS-20 RSX-20F Version 16-00 System Floppy B.
- o The TOPS-20 RSX-20F Version 16-00 System Floppy C.
- o The TOPS-20 Installation Tape Version 7.0.
- o A separate tape for each optional software product you have purchased.

See Chapter 1, Sections 1.2.1 and 1.2.2, for information about the floppies and Installation tape.

A.2 INSTALLING THE VERSION 7.0 SOFTWARE

The installation of TOPS-20 Version 7.0 software is divided into eight tasks:

1. Preparing for installation.
2. Creating the system directories.
3. Restoring the bundled software.
4. Renaming the Version 6.1 monitor.
5. Creating the new configuration command file.
6. Setting parameters for the directory <OPERATOR>.
7. Shutting down the DECSYSTEM-20.
8. Starting the new software.

These tasks are described in the following sections.

A.2.1 Preparing for Installation

Before you begin your installation, read the listing labeled TOPS20.BWR. This listing describes any last minute changes made to the installation procedure or to the TOPS-20 software. Then, to prepare the system for Version 7.0 software,

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- o Run CHECKD.
- o Obtain the number of free pages on the public structure.
- o Delete directories created by UETP.
- o Mount the Version 7.0 Installation tape.

To prepare for installation, perform Steps 1 through 17.

### Step 1: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the example to log in and enable your capabilities.

```
Installation-test System, TOPS-20 Monitor 6.1(15054)
@LOGIN OPERATOR your-password <RET>
Job 3 on TTY9 23-May-87 16:56:38
@ENABLE <RET>
$
```

#### NOTE

If you are using the OPR program at the CTY, give the EXIT command to OPR to return to TOPS-20 command level.

### Step 2: Run CHECKD.

You must run CHECKD before installing the new software. This is done to verify that the directories on the public structure (PS:) are intact. Follow the example to run CHECKD.

```
$CHECKD <RET>
CHECKD>CHECK DIRECTORY PS: <RET>

[WORKING ON STRUCTURE - PS:]

CHECKD>EXIT <RET>
$
```

Depending on what CHECKD finds, you may have a long wait while CHECKD works on checking PS:. The output you receive while running CHECKD may or may not resemble the output in the example. See the CHECKD Specification for more information.

### Step 3: Type INFORMATION DISK-USAGE and press the RETURN key.

You must have enough disk space on your public structure (PS:) before

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you can proceed. To find out how many free pages there are on PS:, type INFORMATION DISK-USAGE. The system prints the number of pages assigned to you and the number of free pages on PS:.

```
$INFORMATION DISK-USAGE <RET>
PS:<OPERATOR>
1942 Pages assigned, 1925 in use, 1 deleted
5000 Working pages, 5000 Permanent pages allowed
27180 Pages free on PS:, 189196 pages used.
$
```

#### NOTE

The number of free pages on PS: must be at least 6000. If you do not have at least this number of pages free, you must dump some files to tape or delete and expunge some files.

### Step 4: Type TAKE PS:<UETP.LIB>CLEAN-UP.CMD and press the RETURN key.

Before installing the new software, you must delete the various directories created by UETP. Type the TAKE command to do so.

```
$TAKE PS:<UETP.LIB>CLEAN-UP.CMD <RET>
[Old]
[Old]
:
:
:
End of <UETP.LIB>CLEAN-UP.CMD
$
```

### Step 5: Type CONNECT PS:<SYSTEM> and press the RETURN key.

You must be connected to another directory in order to perform the following steps.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

### Step 6: Type BUILD PS:<UETP.LIB> and press the RETURN key.

Before you can load the new version of the UETP program onto PS:, you must delete the old version of the PS:<UETP.LIB> directory.

```
$BUILD PS:<UETP.LIB> <RET>
[Old]
$$
```

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NOTE

If you find that the UETP directories do not exist on your system, ignore any error messages you receive while deleting them in the following steps.

Step 7: Type KILL and press the RETURN key.

Use the KILL command to delete the old PS:<UETP.LIB> directory.

```
$$KILL <RET>
[Confirm]
```

Step 8: Press the RETURN key twice.

To confirm you are deleting PS:<UETP.LIB>, press the RETURN key twice.

```
[Confirm]<RET>
$$<RET>
$
```

Step 9: Delete the directories PS:<UETP.RUN> and PS:<UETP>.

Follow the example to delete PS:<UETP.RUN> and PS:<UETP>.

```
$BUILD PS:<UETP.RUN> <RET>
[Old]
$$KILL <RET>
[Confirm]<RET>
$$<RET>
$BUILD PS:<UETP> <RET>
[Old]
$$KILL <RET>
[Confirm]<RET>
$$<RET>
$
```

NOTE

If you have tape drive allocation enabled, perform Steps 10 through 14. Otherwise, continue at Step 15.

Step 10: Type OPR and press the RETURN key.

Type OPR to run the OPR program.

```
$OPR <RET>
OPR>
```

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Step 11: Type SHOW STATUS TAPE-DRIVE /ALL and press the RETURN key.

To find out what drives on the system are available to mount the Installation tape, type SHOW STATUS TAPE-DRIVE /ALL. The system prints the status of all tape drives on the system. Use any tape drive that has the status of "UNLOADED" for mounting the Installation tape.

```
OPR>SHOW STATUS TAPE-DRIVE /ALL <RET>
OPR>
17:00:09          --Tape Drive Status--
DRIVE  STATE  VOLID  REQ#  JOB#  USER
-----  -
MTA0:  Available
MTA1:  Unloaded
        AVR: Yes
MTA2:  Unloaded
        AVR: Yes
MTA3:  Unloaded
        AVR: Yes
MTA7:  Unavailable
OPR>
```

Step 12: Type SET TAPE-DRIVE MTAn UNAVAILABLE and press the RETURN key.

To mount the TOPS-20 Installation tape, you should first make an available tape drive unavailable to timesharing users. To do this, type SET TAPE-DRIVE MTAn UNAVAILABLE. The example uses MTA0: as the tape drive, but you can specify any tape drive that is not in use at the moment.

```
OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE <RET>
Enter text and terminate with ^Z
```

Step 13: Type INSTALLING VERSION 7.0 SOFTWARE and press <CTRL/Z>.

After the system prints "Enter text and terminate with ^Z," type the text INSTALLING VERSION 7.0 SOFTWARE and then type <CTRL/Z>. The system prints the OPR prompt and several messages.

```
Enter text and terminate with ^Z
INSTALLING VERSION 7.0 SOFTWARE ^Z
OPR>
17:01:41          -- Tape Drive Set Unavailable --
                    MTA0: set unavailable for assignment by MOUNTR
SJ  0: PTYCON>
SJ  0: **** OPR(6) 17:01:41 ****
SJ  0:
SJ  0: 17:01:41          -- Tape Drive Set Unavailable --
```

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```
SJ 0:          MTA0: set unavailable for assignment by MOUNTR
SJ 0: OPR>
OPR>
```

Step 14: Type EXIT and press the RETURN key.

To return to TOPS-20 command level and continue the installation procedures, type EXIT. The system prints the ENABLED prompt (\$).

```
OPR>EXIT <RET>
$
```

Step 15: Type ASSIGN MTA0: and press the RETURN key.

To assign tape drive 0 to your job, type ASSIGN MTA0:. The system prints the ENABLED prompt (\$).

```
$ASSIGN MTA0: <RET>
$
```

Step 16: Mount the Version 7.0 Installation tape on MTA0:.

Mount the Version 7.0 Installation tape on the tape drive. Be sure the drive is on line.

Step 17: Type REWIND MTA0: and press the RETURN key.

To position the tape at its beginning, type the REWIND command.

```
$REWIND MTA0: <RET>
$
```

### A.2.2 Creating System Directories

You must create directories to store system files and files for testing the system. You create these directories by running the DLUSER program (Steps 18 through 21).

Step 18: Type SKIP MTA0: 2 FILES and press the RETURN key.

Type SKIP MTA0: 2 FILES to position the tape at the DLUSER program.

```
$SKIP MTA0: 2 FILES <RET>
$
```

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Step 19: Type RUN MTA0: and press the RETURN key.

To run the DLUSER program from magnetic tape, type RUN MTA0:. After the DLUSER program starts, the system prints the DLUSER prompt.

```
$RUN MTA0: <RET>
DLUSER>
```

Error: If you make a typing mistake, rewind the tape, skip two files, and reissue the above command. The following example shows how to do this when the Installation tape is on MTA0:.

```
$REWIND MTA0: <RET>
$SKIP MTA0: 2 FILES <RET>
$RUN MTA0: <RET>
DLUSER>
```

Step 20: Type LOAD MTA0: and press the RETURN key.

To load the parameters for the directories <UETP> and <SYSTEM-ERROR> into the file system from the TOPS-20 Installation tape, type LOAD MTA0:. After a few seconds, the system prints DONE. and gives the DLUSER prompt.

```
DLUSER>LOAD MTA0: <RET>

DONE.
DLUSER>
```

Step 21: Type EXIT and press the RETURN key.

Type EXIT to leave the DLUSER program. The system prints the TOPS-20 ENABLED prompt (\$).

```
DLUSER>EXIT <RET>
$
```

### NOTE

You may want to check the directories before restoring the Version 7.0 software. To do so, type the command INFORMATION DISK-USAGE PS:<\*>. Be sure that the old versions of the files are cleared from the directories that you will be using for Version 7.0 files.

### A.2.3 Restoring TOPS-20 Bundled Software from Tape

The DUMPER program places files from the magnetic tape into the



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TOPS-20 file system. (The DUMPER program is the fifth file on the Installation tape.) Once you have DUMPER running, restore the files to the directories PS:<NEW-SYSTEM>, PS:<NEW-SUBSYS>, and PS:<UETP.LIB>.

Perform Steps 22 through 34 to run DUMPER, to restore the bundled software, and to dismount the Installation tape.

Step 22: Type RUN MTA0: and press the RETURN key.

To run the DUMPER program, type RUN MTA0:. After the DUMPER program starts, the system prints the DUMPER prompt.

```
$RUN MTA0: <RET>
DUMPER>
```

Error: If you receive any errors, rewind the tape, skip four files and reissue the command above. The following example shows how to do this for MTA0:. If errors still persist, contact DIGITAL Software Support.

```
$REWIND MTA0: <RET>
$SKIP MTA0: 4 FILES <RET>
$RUN MTA0: <RET>
DUMPER>
```

Step 23: Type TAPE MTA0: and press the RETURN key. Then type ACCOUNT SYSTEM-DEFAULT and press the RETURN key.

To tell the DUMPER program which tape drive you are using, type TAPE MTA0:. Then type ACCOUNT SYSTEM-DEFAULT to tell DUMPER to use the system-default account.

```
DUMPER>TAPE MTA0: <RET>
DUMPER>ACCOUNT SYSTEM-DEFAULT <RET>
DUMPER>
```

Step 24: Type FILES and press the RETURN key, then type SUPERSEDE ALWAYS and press the RETURN key. (Optional).

To have the files being restored into the individual directories typed on your terminal, type FILES. The system prints the DUMPER prompt. To make sure you always have the most recent version of the files, type SUPERCEDE ALWAYS.

```
DUMPER>FILES <RET>
DUMPER>SUPERSEDE ALWAYS <RET>
DUMPER>
```

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Step 25: Type RESTORE PS:<\*>\*. \*.\* PS:<NEW-SYSTEM>\*. \*.\*-1 and press the RETURN key.

To copy the TOPS-20 monitor and its related programs from the Installation tape to your public structure, type the RESTORE command. This DUMPER command restores all the files in the first saveset to the directory PS:<NEW-SYSTEM>. Then the system prints the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<NEW-SYSTEM>*. *.*-1 <RET>
Saveset "SYSTEM Files for TOPS-20 V7.0" 17-Mar-88 1441
Loading files into PS:<NEW-SYSTEM>
End of Saveset.
```

```
Total files restored:    n
Total pages restored:    n
DUMPER>
```

### NOTE

You may receive an error message from DUMPER about it deleting existing files. This happens when you do not delete the previous version of software and write over the files. This is an informational message and you should continue with your installation.

Step 26: Type RESTORE PS:<\*>\*. \*.\* PS:<NEW-SUBSYS>\*. \*.\*-1 and press the RETURN key.

To restore the system program files to the directory PS:<NEW-SUBSYS>, type the RESTORE command. The system prints the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<NEW-SUBSYS>*. *.*-1 <RET>
Saveset "SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1442
Loading files into PS:<NEW-SUBSYS>
End of Saveset.
```

```
Total files restored:    n
Total pages restored:    n
DUMPER>
```

Step 27: Type RESTORE PS:<\*>\*. \*.\* PS:<NEW-SUBSYS>\*. \*.\*-1 and press the RETURN key.

To restore the GALAXY files into the directory PS:<NEW-SUBSYS>, type the RESTORE command. When all the files are restored, the system prints the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<NEW-SUBSYS>*. *.*-1 <RET>
```

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```
Saveset "GALAXY SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1443
Loading files into PS:<NEW-SUBSYS>
End of Saveset.
```

```
Total files restored:  n
Total pages restored:  n
DUMPER>
```

Step 28: Type RESTORE PS:<\*>\*. \*.\* PS:<UETP.LIB>\*. \*.-1 and press the RETURN key.

To restore the files for the User Environment Test Package (UETP), type the RESTORE command. When all the files are restored, the system prints the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<UETP.LIB>*. *.-1 <RET>
Saveset "UETP Files for TOPS-20 V7.0" 17-Mar-88 1444
Loading files into PS:<UETP.LIB>
End of Tape.
```

```
Total files restored:  n
Total pages restored:  n
DUMPER>
```

Step 29: Type EXIT and press the RETURN key.

Type EXIT to end DUMPER and to return to TOPS-20 command level.

```
DUMPER>EXIT <RET>
$
```

Step 30: Type UNLOAD MTA0: and press the RETURN key.

To unload the Installation tape from the tape drive, type UNLOAD MTA0:. The system rewinds and unloads the tape from the drive.

```
$UNLOAD MTA0: <RET>
$
```

You can now remove the tape from the tape drive.

Step 31: Type DEASSIGN MTA0: and press the RETURN key.

To remove the device MTA0: from your job, type DEASSIGN MTA0:. The system prints the ENABLED prompt (\$).

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```
$DEASSIGN MTA0: <RET>
$
```

### NOTE

If you performed Step 12, which removed a tape drive from the system's usage, perform Steps 32 through 34. Otherwise, continue at Step 35.

Step 32: Type OPR and press the RETURN key.

To return to OPR command level, type OPR.

```
$OPR <RET>
OPR>
```

Step 33: Type SET TAPE-DRIVE MTAn: AVAILABLE and press the RETURN key.

To return the tape drive you removed from system usage in Step 12, type SET TAPE-DRIVE MTAN: AVAILABLE. The example uses MTA0:.

```
OPR>SET TAPE-DRIVE MTA0: AVAILABLE <RET>
OPR>
17:23:53 -- Tape Drive Set Available --
MTA0: set available for assignment by MOUNTR
SJ 0: PTYCON>
SJ 0: **** OPR(6) 17:23:53 ****
SJ 0:
SJ 0: 17:23:53 -- Tape Drive Set Available --
SJ 0: MTA0: set available for assignment by MOUNTR
SJ 0: OPR>
OPR>
```

Step 34: Type EXIT and press the RETURN key.

To return to TOPS-20 command level and continue the installation procedures, type EXIT. The system prints the ENABLED prompt (\$).

```
OPR>EXIT <RET>
$
```

### A.2.4 Renaming the Version 6.1 Monitor

In case you ever need to revert to the Version 6.1 monitor, you must rename it before copying the Version 7.0 monitor into <SYSTEM>MONITR.EXE. Perform Steps 35 through 38 to rename the Version

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6.1 monitor and to copy the Version 7.0 monitor and certain network files to <SYSTEM>.

Step 35: Type CONNECT PS:<SYSTEM> and press the RETURN key.

You must be connected to the appropriate directory to perform these procedures.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

Step 36: Type RENAME MONITR.EXE.\* 6-1-MONITR.EXE.\* and press the RETURN key.

To rename and save the Version 6.1 monitor, type the RENAME command. When the rename is successfully completed, the system prints an [OK] message.

```
$RENAME MONITR.EXE.* 6-1-MONITR.EXE.* <RET>
MONITR.EXE.n => 6-1-MONITR.EXE.n [OK]
$
```

### TCP/IP Installations

If you are performing a TCP/IP installation, you must choose a TOPS-20 monitor at this time. After you restore the TCP/IP Distribution tape, you will be able to choose a TCP/IP monitor.

Step 37: Type COPY PS:<NEW-SYSTEM>montyp.EXE.\* MONITR.EXE.-1 and press the RETURN key.

To copy the Version 7.0 monitor into PS:<SYSTEM>, type the COPY command. "Montyp" designates the type of monitor you have selected for your system; for example, 2060-MONBIG. (See Chapter 3 Section 3.1 for information about choosing a monitor for your system.) When the copy is successfully completed, the system prints an [OK] message.

```
$COPY PS:<NEW-SYSTEM>montyp.EXE.* MONITR.EXE.-1 <RET>
<NEW-SYSTEM>montyp.EXE.n => MONITR.EXE.n [OK]
$
```

Step 38: Type COPY PS:<NEW-SYSTEM>IPALOD.EXE.\* IPALOD.EXE.-1 and press the RETURN key.

The file IPALOD.EXE must be in the directory <SYSTEM> in order for the CI20 microcode to be loaded properly in Step 57 of this appendix. To do this, type the COPY command. When the copy is successfully

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completed, the system prints an [OK] message.

```
$COPY PS:<NEW-SYSTEM>IPALOD.EXE.* IPALOD.EXE.-1 <RET>
<NEW-SYSTEM>IPALOD.EXE.n => IPALOD.EXE.n [OK]
$
```

Step 39: Type COPY PS:<NEW-SYSTEM>KNILDR.EXE.\* KNILDR.EXE.-1 and press the RETURN key.

The file KNILDR.EXE must be in the directory <SYSTEM> in order for the Ethernet microcode to be loaded properly in Step 57 of this appendix. To do this, type the COPY command. When the copy is successfully completed, the system prints an [OK] message.

```
$COPY PS:<NEW-SYSTEM>KNILDR.EXE.* KNILDR.EXE.-1 <RET>
<NEW-SYSTEM>KNILDR.EXE.n => KNILDR.EXE.n [OK]
$
```

### A.2.5 Creating the Configuration Command File

You must create the configuration command file to declare system parameters. Perform Steps 40 through 43 to create the file <NEW-SYSTEM>7-CONFIG.CMD.

#### NOTE

This section describes how to create the new configuration command file. The steps illustrate the use of the EDIT editor program. You can use any editor of your choice, as long as you accomplish the goal of each step.

Step 40: Type EDIT 6-1-CONFIG.CMD PS:<NEW-SYSTEM>7-CONFIG.CMD and press the RETURN key.

To edit 6-1-CONFIG.CMD and have the changes placed in PS:<NEW-SYSTEM>7-CONFIG.CMD, type the EDIT command. The system prints "Edit: <SYSTEM>6-1-CONFIG.CMD" and the EDIT prompt.

```
$EDIT 6-1-CONFIG.CMD PS:<NEW-SYSTEM>7-CONFIG.CMD <RET>
Edit: PS:<SYSTEM>6-1-CONFIG.CMD.n
*
```

Step 41: Type P^:\* and press the RETURN key.

To print the contents of 6-1-CONFIG.CMD, type P^:\*. The system prints the entire 6-1-CONFIG.CMD file and then the EDIT prompt.

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```
EDIT: PS:<SYSTEM>6-1-CONFIG.CMD.n
*P^:* <RET>
.
.
.
*
```

Step 42: Read Chapter 3 of this guide.

Read Chapter 3 of this guide, Tailoring the System, and make any changes to the system parameters that are necessary. New parameters added for Verison 7 include:

```
ENABLE OFFLINE-STRUCTURES mm:ss (default)
DISABLE OFFLINE-STRUCTURES
ENABLE LOGIN-STRUCTURE
DISABLE LOGIN-STRUCTURE (default)
ENABLE CLUSTER-INFORMATION (default)
DISABLE CLUSTER-INFORMATION
ENABLE CLUSTER-SENDALLS (default)
DISABLE CLUSTER-SENDALLS
ENABLE DUMP-ON-BUGCHK FACILITY
DISABLE DUMP-ON-BUGCHK (default)
ENABLE MINIMUM-PASSWORD-LENGTH
DISABLE MINIMUM-PASSWORD-LENGTH (default)
TERMINAL IGNORE-SYSTEM-MESSAGES
TERMINAL IGNORE-USER-MESSAGES
TERMINAL REMOTE SPEED NOBELL (default)
ENABLE FAST-LOGIN-OPTION (default)
DISABLE FAST-LOGIN-OPTION
ENABLE PASSWORD-EXPIRATION n
DISABLE PASSWORD-EXPIRATION (default)
ENABLE PASSWORD-DICTIONARY
DISABLE PASSWORD-DICTIONARY (default)
ENABLE DUMP-ON-BUGCHK bugname IGNORE-DUMP-TIMEOUT
DISABLE DUMP-ON-BUGCHK bugname IGNORE-DUMP-TIMEOUT (default)
ENABLE SHORT-BUG-OUTPUT
DISABLE SHORT-BUG-OUTPUT (default)
ENABLE JOB0-CTY-OUTPUT
DISABLE JOB0-CTY-OUTPUT (default)
ENABLE SYSTEM-ACCESS-CONTROL-JOB
ENABLE DETACH-CARRIER-OFF n
DISABLE DETACH-CARRIER-OFF n (default)
ENABLE HANGUP-ON-DETACH
DISABLE HANGUP-ON-DETACH (default)
```

Also make sure the definitions for SYSTEM: and SYS: are the following:

```
DEFINE SYS: PS:<NEW-SUBSYS>,PS:<SUBSYS>
DEFINE SYSTEM: PS:<NEW-SYSTEM>,PS:<SYSTEM>
```

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Other information to be added includes parameters for MSCP-served disk drives, daylight savings time, remote line conditions, and system level information.

After you make your changes to the configuration command file by reading Chapter 3, return to this appendix to continue your update installation at Step 43.

NOTE

When you are making a change to existing lines of the 6-1-CONFIG.CMD file, use the EDIT command "R line-number." Any changes made to the system parameters are made in <NEW-SYSTEM>7-CONFIG.CMD. The file <SYSTEM>6-1-CONFIG.CMD remains the same.

Step 43: Press the ESCape key. Type EU and press the RETURN key.

After you make all the necessary changes to the system parameters, press the ESCape key. Then type EU and press the RETURN key. This command ends the EDIT program and saves the file. The system prints the name of the output file.

```
06700 $
*EU <RET>

[PS:<NEW-SYSTEM>7-CONFIG.CMD.1]
$
```

NOTE

Before bringing up the system under Version 7.0, you should check the 7-PTYCON.ATO file against the 6-1-PTYCON.ATO file. You do not have to compare these files if you have not changed the Version 6.1 file. However, if you have made your own changes to the 6-1-PTYCON.ATO file and you wish those changes to exist under Version 7.0, you must add the changes to the 7-PTYCON.ATO file.

**A.2.6 Setting Parameters for <OPERATOR>**

You must be certain that the operator is a member of user group 100 and has IPCF (InterProcess Communication Facility) capabilities. Do so by giving the commands in Steps 44 through 47.

Step 44: Type BUILD PS:<OPERATOR> and press the RETURN key.

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Type BUILD PS:<OPERATOR>. The system prints [Old], then the subcommand prompt (\$\$).

```
$BUILD PS:<OPERATOR> <RET>
[Old]
$$
```

Step 45: Type USER 100 and press the RETURN key.

At the subcommand prompt, type USER 100 to make the operator a member of user group 100.

```
$$USER 100 <RET>
$$
```

Step 46: Type IPCF and press the RETURN key.

Type IPCF to give the operator IPCF capabilities.

```
$$IPCF <RET>
$$
```

Step 47: Press the RETURN key.

To exit from subcommand level, press the RETURN key.

```
$$<RET>
$
```

### TCP/IP Installations

If you are installing TCP/IP-20, proceed to Appendix C, Section C.3, Step 2.

### A.2.7 Shutting Down the DECSYSTEM-20

To shut down the Version 6.1 software on the DECSYSTEM-20, perform Steps 48 through 50.

Step 48: Type ^ECEASE +1 and press the RETURN key.

To bring the system down in one minute, type ^ECEASE +1. The system prints several messages. The last message is "Shutdown complete."

```
$^ECEASE +1 <RET>
```

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```
[System TOPS20 going down in one minute!!]
$
[System down]
```

```
SJ 0: PTYCON> Killed Job n, User name, Account name, TTY n,
SJ 0: dd-mmm-yy hh:mm:ss, Used h:mm:ss in h:mm:ss
```

Shutdown complete

### NOTE

Do not proceed to Step 49 until the system prints "Shutdown complete."

Step 49: Type <CTRL/\>.

At the console terminal, type <CTRL/\> to return to the front-end Command Parser. When you are at Command Parser command level, the system prints the prompt PAR>.

```
<CTRL/\>
PAR>
```

Step 50: Type SHUTDOWN and press the RETURN key.

To stop the TOPS-20 monitor, type SHUTDOWN.

```
PAR>SHUTDOWN <RET>
**HALTED**
```

```
%DECSYSTEM-20 NOT RUNNING
```

### A.2.8 Starting the New Software

To start the Version 7.0 software, perform Steps 51 through 62.

Step 51: Type <CTRL/\>.

Type <CTRL/\> to return to the front-end Command Parser. Because the system is not running, you will see the prompt PAR%. If you see the prompt PAR> instead, go back to Step 50.

```
<CTRL/\>
PAR%
```

Step 52: Type RUN PIP and press the RETURN key.

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To load the PIP program and start it, type RUN PIP. After 1 second, PIP is ready for you to type commands. The system prints the prompt PIP>.

PAR%RUN PIP <RET>

PIP>

Step 53: Type KL.CFG;\*/DE and press the RETURN key.

You must delete any existing front-end configuration file from your front-end file system before bringing up the Version 7.0 front-end monitor.

PIP>KL.CFG;\*/DE <RET>  
PIP>

NOTE

If the system prints PIP -- NO SUCH FILE(S), then you did not have a front-end configuration file in your front-end file system. Proceed to Step 54.

Step 54: Type <CTRL/Z> and <CTRL/\>.

To end PIP and return to the front-end Command Parser, type <CTRL/Z> followed by <CTRL/\>.

PIP>^Z

<CTRL/\>  
PAR%

Step 55: Mount the Version 7.0 System Floppy A in floppy drive 0 and the Version 7.0 System Floppy B in floppy drive 1.

To run the Version 7.0 front-end software, mount System Floppy A in drive 0 and System Floppy B in drive 1.

Step 56: Set the switch register to 000007 (octal).

Set the switch register to 000007 (octal) by placing switches 0, 1, and 2 up.

Step 57: Press the ENABLE and SWITCH-REGISTER buttons simultaneously.

To bring up the Version 7.0 front-end file system, press the ENABLE and SWITCH-REGISTER buttons simultaneously. The system prints a

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series of messages.

RSX-20F VB16-00 12:19 17-MAR-88

[SY0: redirected to DX0:]  
[DX0: mounted]  
[DX1: mounted]  
KLI -- VERSION VB16-00 RUNNING  
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?  
KLI>

Step 58: Type NO and press the RETURN key.

To tell the front-end monitor that you want it to take default answers to dialog questions, type NO. The front end prints messages as the system is reloaded, and the bootstrap program gives the BOOT> prompt.

KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?

KLI>NO <RET>  
KLI -- KL10 S/N:2102., MODEL B, 60 HERTZ  
KLI -- KL10 HARDWARE ENVIRONMENT:  
MOS MASTER OSCILLATOR  
EXTENDED ADDRESSING  
INTERNAL CHANNELS  
CACHE

KLI -- MICROCODE VERSION 2.1[442] LOADED  
KLI -- ALL CACHES ENABLED

LOGICAL MEMORY CONFIGURATION.  
ADDRESS SIZE INT TYPE CONTROLLER  
00000000 768K 4 MF20 10

KLI -- CONFIGURATION FILE WRITTEN  
KLI -- BOOTSTRAP LOADED AND STARTED

BOOT V11.0(315)  
BOOT>

Step 59: Press the RETURN key.

To tell BOOT to restart the system, press the RETURN key. The system prints several messages before prompting for the date and time.

BOOT><RET>  
[BOOT:LOADING] [OK]

[PS MOUNTED]

[IPALOD: LOADING CI20 MICROCODE 1.1(733)] [OK]

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System restarting, wait...  
ENTER CURRENT DATE AND TIME:

NOTE

If the system structure name is not PS:, the BOOT program asks for the name.

CI20

You will receive the message concerning the CI20 microcode only if you are installing the TOPS-20 software on a DECSYSTEM-20 with CI20.

Step 60: Type the date and time, then press the RETURN key.

After the prompt, type the date and time in the format dd-mmm-yy hhmm. The time must be in 24-hour format.

ENTER CURRENT DATE AND TIME: 23-MAY-88 1750 <RET>

YOU HAVE ENTERED MONDAY, 23-MAY-1987 5:50 PM,  
IS THIS CORRECT (Y,N)

Step 61: Type Y or N and press the RETURN key.

If you have entered the correct date and time, type Y. Otherwise, type N. If you type N, the system asks for the date and time again.

IS THIS CORRECT (Y,N) Y <RET>  
WHY RELOAD?

CI20

If your system configuration does not include CI20, ignore the following message when you start the monitor:

BUGCHK "NOLODF" AT dd-mmm-yy hh:mm  
COULD NOT FIND CI-20 MICROCODE LOAD PROGRAM

Ethernet

If your system configuration does not include an Ethernet, ignore the following message when you start the monitor:

BUGCHK "KNICFF" AT dd-mmm-yy hh:mm:ss  
PHYKNI - CANNOT RELOAD THE KLNI

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Step 62: Type NEW and press the RETURN key.

When the system asks why you are reloading, type NEW.

NOTE

If you do not respond to the WHY RELOAD question within 60 seconds, the system assumes OTHER and continues the startup procedure.

WHY RELOAD? NEW <RET>  
RUN CHECKD?

Step 63: Type YES and press the RETURN key.

When the system asks you to run CHECKD, type YES.

NOTE

If you do not respond to the RUN CHECKD question within 60 seconds, the system assumes NO and continues the startup procedure.

RUN CHECKD? YES <RET>  
[CHECKING FILE CONSISTENCY]  
Checking system structure.

[WORKING ON STRUCTURE - PS:]

%PS:<OPERATOR>PTYCON.LOG.1 IS A "NEW" FILE

LOCAL COUNT OF FILE PAGES: 58009  
LOCAL COUNT OF OVERHEAD PAGES: 7873  
LOCAL COUNT OF USED PAGES: 65882

SYSTEM COUNT BEFORE CHECKD: 65943  
SYSTEM COUNT AFTER CHECKD: 65943

THERE ARE 59 LOST PAGES

Check of system structure completed.  
ADDRESSES ARE IN FILE PS:<OPERATOR>PS-LOST-PAGES.BIN.1

RUNNING DDMP

CI20

If you have CI20 and it is on, you may receive a series of messages about its activities - loading,

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starting, and opening circuits. These messages are for your information only.

The CHECKD program examines the entire disk file system, reports any errors, and tries to correct the errors. (Your system output will probably be different from the example. See the CHECKD Specification for additional information.) When the system finishes running CHECKD, it then runs the DDMP program. The DDMP program is a background task that moves pages from the disk swapping area to the disk file system. When DDMP finishes, the system runs SYSJOB.

RUNNING DDMP

SYSJOB 7(78) STARTED AT 23-MAY-88 17:54:12  
 [KNILDR: LOADING MICROCODE VERSION 1(172) INTO ETHERNET CHANNEL  
 0]

\*\*\*\*\*  
 23-MAY-88 17:54:12 - TGHA V4.2(31) IN OPERATION.  
 \*\*\*\*\*

```

RUN SYS:INFO
RUN SYS:MAPPER
RUN SYS:ORION
RUN SYS:QUASAR
RUN SYS:MOUNTR
RUN SYS:MAILER
RUN SYS:LPTSPL
RUN SYS:LPTSPL
RUN SYS:LPTSPL
RUN SYS:CDRIVE
RUN SYS:SPRINT
JOB 0 /LOG OPERATOR XX OPERATOR
ENA
^ESET LOGIN PSEUDO
^ESET LOGIN CONSOLE
^ESET OPERATOR
PTYCON
GET SYSTEM:7-PTYCON.ATO
/
JOB 1 /LOG OPERATOR XX OPERATOR
ENA
GET SYS:BATCON
/
    
```

```

SJ 0: @LOG OPERATOR OPERATOR
SJ 1: @LOG OPERATOR OPERATOR
SJ 0: JOB 1 ON TTY160 23-MAY-88 17:54:31, LAST LOGIN
23-MAY-87 16:54:56
SJ 1: JOB 2 ON TTY161 23-MAY-88 17:54:32, LAST LOGIN
23-MAY-87 17:54:31
SJ 0: @ENA
SJ 1: @ENA
    
```

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```

SJ 1: $GET SYS:BATCON
SJ 0: $^ESET LOGIN PSEUDO
SJ 0: $^ESET LOGIN CONSOLE
SJ 0: $^ESET OPERATOR
SJ 0: $PTYCON
SJ 0: PTYCON> GET SYSTEM:7-PTYCON.ATO
SJ 0: PTYCON> SILENCE
    
```

```

[From OPERATOR on node TOPS20 line 162 to all lines: SYSTEM IN
OPERATION]
SJ 0:PTYCON W ALL
SJ 0: OPR(0) 3 OPERATOR OPR TI 0:0:1
SJ 0: PTYCON> CONN OPR
SJ 0: [CONNECTED TO SUBJOB OPR(0)]
    
```

Ethernet

You will receive the message concerning the Ethernet microcode only if you are installing the TOPS-20 software on a DECSYSTEM-20 with an Ethernet.

NOTE

SYSJOB no longer starts SETNOD and MCBs. These are started by DECnet-20. See the DECnet-20/PSI-20 System Manager's Guide and the DECnet-20 Network Generation and Installation Procedures manual for more information.

Step 64: STOP.

If you want to revert to Version 6.1, follow the steps in Section A.3.

If you want to make Version 7.0 your primary monitor, follow the steps in Section A.4.

If you want to make Version 7.0 your permanent monitor, follow the steps in Section A.5.

If you have an RP20 disk subsystem, follow the steps in Section A.4. These steps make Version 7.0 your primary monitor and load the front-end files and DX20 microcode onto disk.

**A.3 REVERTING TO VERSION 6.1**

If you must revert to running the TOPS-20 Version 6.1 software, follow the steps in this section. If you want the UETP files when you revert



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to Version 6.1, you must restore the UETP files from either the Version 6.1 Installation tape or the latest backup tape. Perform Steps 1 through 7 to revert to TOPS-20 Version 6.1.

Step 1: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the example to log in and enable your capabilities.

```
Installation-test System, TOPS-20 Monitor 7(20753)
@LOGIN OPERATOR your-password <RET>
Job 5 on TTY8 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$
```

Step 2: Type CONNECT PS:<SYSTEM> and press the RETURN key.

You must be connected to the appropriate directory to perform these procedures.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

NOTE

Before reverting to Version 6.1, examine the 6-1-CONFIG.CMD file. Be sure it contains a definition of the logical name SYSTEM:, and that this definition does not include the directory PS:<NEW-SYSTEM>. If the SYSTEM: definition includes the directory PS:<NEW-SYSTEM> and you revert to Version 6.1, the Version 6.1 monitor attempts to operate programs that do not function properly in a Version 6.1 system. If the 6-1-CONFIG.CMD file does not contain a definition of logical name SYSTEM:, insert the following command into the file:

```
DEFINE SYSTEM: PS:<SYSTEM>
DEFINE SYS: PS:<SUBSYS>
```

Step 3: Type RENAME 6-1-MONITR.EXE.\* MONITR.EXE.\* and press the RETURN key.

In Section A.2.4 you renamed the Version 6.1 monitor to PS:<SYSTEM>6-1-MONITR.EXE. If you are reverting to Version 6.1, you must put this monitor back into PS:<SYSTEM>MONITR.EXE. Type the RENAME command to do so. When the rename has been successfully executed, the system prints an [OK] message.

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```
$RENAME 6-1-MONITR.EXE.* MONITR.EXE.* <RET>
6-1-MONITR.EXE.n => MONITR.EXE.n [OK]
$
```

Step 4: Type ^ECEASE +00:01 and press the RETURN key.

To bring the system down in one minute, type ^ECEASE +00:01. After the system prints "[Confirm]," press the RETURN key. The system prints a list of messages. The last message is "Shutdown complete."

```
^ECEASE +00:01 <RET>
TOPS20 Shut down scheduled for dd-mmm-yy hh:mm:ss
[Confirm]<RET>
```

```
[System TOPS20 going down in one minute!!]
$
[Timesharing is over]
```

```
OPERATOR - WAIT FOR THE MESSAGE "Shutdown complete"
BEFORE ENTERING COMMANDS TO PARSER
```

Shutdown complete

NOTE

Do not proceed to Step 5 until the system prints "Shutdown complete."

Step 5: Type <CTRL/\>.

At the console terminal, type <CTRL/\> to return to the front-end Command Parser. When you are at Command Parser command level, the system prints the prompt PAR>.

```
<CTRL/\>
PAR>
```

Step 6: Type SHUTDOWN and press the RETURN key.

To stop the TOPS-20 monitor, type SHUTDOWN.

```
PAR>SHUTDOWN <RET>
**HALTED**
```

%DECSYSTEM-20 not running

Step 7: Reload the Version 6.1 monitor using the Version 6.1 floppies or the Version 6.1 disk.

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To reload the Version 6.1 monitor using the Version 6.1 floppies, mount System Floppy A in floppy drive 0, press the ENABLE and FLOPPY buttons simultaneously, and answer the usual start-up questions.

To reload the Version 6.1 monitor using the Version 6.1 disk, press the ENABLE and DISK buttons simultaneously, and answer the usual start-up questions.

#### NOTE

You can reload the Version 6.1 monitor from disk only if the Version 6.1 front-end software is still on the disk.

#### A.4 MAKING THE VERSION 7.0 MONITOR THE PRIMARY MONITOR

In case you are presently using the Version 6.1 monitor, you must rename it (Step 4 below) before copying the Version 7.0 monitor into <SYSTEM>MONITR.EXE. You then shut down the system and load the front-end software onto disk.

##### Step 1: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the example to log in and enable your capabilities.

```
Installation-test System, TOPS-20 Monitor 7(20758)
@LOGIN OPERATOR your-password <RET>
Job 5 on TTY8 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$
```

##### Step 2: Type CONNECT PS:<SYSTEM> and press the RETURN key.

You must be connected to the appropriate directory to perform these procedures.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

##### Step 3: STOP.

Proceed to Step 4 if you have reverted to a Version 6.1 system, and your present monitor is a Version 6.1 monitor. You must rename this monitor (Step 4) in case you ever need to revert to Version 6.1 again.

Skip to Step 5 if your present monitor is a Version 7.0 monitor. You

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do not need to rename your present monitor (Step 4). This action was already performed in Section A.2.4, Step 36.

##### Step 4: Type RENAME MONITR.EXE.\* 6-1-MONITR.EXE.\* and press the RETURN key.

To rename and save the Version 6.1 monitor, type the RENAME command. When the Version 6.1 monitor is successfully renamed, the system prints an [OK] message.

```
$RENAME MONITR.EXE.* 6-1-MONITR.EXE.* <RET>
MONITR.EXE.n => 6-1-MONITR.EXE.n [OK]
$
```

##### Step 5: Type COPY PS:<NEW-SYSTEM>montyp.EXE.\* MONITR.EXE.-1 and press the RETURN key.

To copy the Version 7.0 monitor into PS:<SYSTEM>, type the COPY command. (Montyp designates the type of monitor you have selected for your system.) When the copy is successfully completed, the system prints an [OK] message.

```
$COPY PS:<NEW-SYSTEM>montyp.EXE.* MONITR.EXE.-1 <RET>
<NEW-SYSTEM>montyp.EXE.n => MONITR.EXE.n [OK]
$
```

##### Step 6: Type ^ECEASE +00:01 and press the RETURN key.

To shut down the system in one minute, type ^ECEASE +00:01. After the system prints "[Confirm]," press the RETURN key. The system prints several messages. The last message is "Shutdown complete."

```
$^ECEASE +00:01 <RET>
TOPS20 Shut down scheduled for dd-mmm-yy hh:mm:ss
[Confirm]<RET>

[System going down in one minute!!]
$
[Timesharing is over]

OPERATOR - WAIT FOR THE MESSAGE "Shutdown complete"
BEFORE ENTERING COMMANDS TO PARSER

Shutdown complete
```

#### NOTE

Do not proceed to Step 7 until the system prints "Shutdown complete."

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### Step 7: Put the Version 7.0 front-end software on disk.

Start at Step 123, in Chapter 4 of this guide, to put the Version 7.0 front-end software on disk.

#### NOTE

When the Version 7.0 front-end software is put on disk, the Version 6.1 front end is destroyed. In order to use the Version 6.1 front-end software again, you must reinstall it using the Version 6.1 floppies.

### A.5 MAKING THE VERSION 7.0 MONITOR THE PERMANENT MONITOR

The steps in this section should be performed when you feel comfortable with the Version 7.0 software.

#### Step 1: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the example to log in and enable your capabilities.

```
Installation-test System, TOPS-20 Monitor 7(20753)
@LOGIN OPERATOR your-password <RET>
Job 5 on TTY8 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$
```

#### Step 2: Type COPY PS:<NEW-SYSTEM>\*.\*.\* PS:<SYSTEM>\*.\*.-1 and press the RETURN key.

To copy the directory <NEW-SYSTEM> to <SYSTEM>, type the COPY command. The system prints an [OK] message for each file copied.

```
$COPY PS:<NEW-SYSTEM>*.*.* PS:<SYSTEM>*.*.-1 <RET>
.
.
.
$
```

#### Step 3: Type COPY PS:<NEW-SUBSYS>\*.\*.\* PS:<SUBSYS>\*.\*.-1 and press the RETURN key.

To copy the directory <NEW-SUBSYS> to <SUBSYS>, type the COPY command. The system prints an [OK] message for each file copied.

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```
$COPY PS:<NEW-SUBSYS>*.*.* PS:<SUBSYS>*.*.-1 <RET>
.
.
.
$
```

#### Step 4: Type CONNECT PS:<SYSTEM> and press the RETURN key.

Connect to the directory PS:<SYSTEM> by typing the CONNECT command.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

#### NOTE

Use an editor program to change the configuration command file. You can use any editor of your choice as long as you accomplish the goal of each step. Steps 5 through 10 illustrate the use of the EDIT editor program to change the configuration command file.

#### Step 5: Type EDIT 7-CONFIG.CMD and press the RETURN key.

To edit the 7-CONFIG.CMD file, type the EDIT command.

```
$EDIT 7-CONFIG.CMD <RET>
Edit: PS:<SYSTEM>7-CONFIG.CMD
*
```

#### Step 6: Type P^:\* and press the RETURN key.

To print the entire configuration command file, type P^:\*

```
*P^:* <RET>
.
.
.
*
```

#### Step 7: Type R line-number and press the RETURN key.

The parameters

```
DEFINE SYS: PS:<NEW-SUBSYS>,PS:<SUBSYS>
DEFINE SYSTEM: PS:<NEW-SYSTEM>,PS:<SYSTEM>
```

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must be replaced by

```
DEFINE SYS: PS:<SUBSYS>
DEFINE SYSTEM: PS:<SYSTEM>
```

To do this, use the EDIT command REPLACE, or R, followed by the number of the line you want to replace.

For example, type R and the line number where DEFINE SYS: PS:<NEW-SUBSYS>, PS:<SUBSYS> is located; then press the RETURN key. In response, the system prints the line number you entered in the R command and waits for you to type the replacement line. In the example, the parameter is located at line 500.

```
*R 500 <RET>
00500
```

Step 8: Type DEFINE SYSTEM: PS:<SYSTEM> and press the RETURN key.

To define SYSTEM: as PS:<SYSTEM>, type DEFINE SYSTEM: PS:<SYSTEM> and press the RETURN key. Also, use the EDIT command DELETE, or D, followed by the number of the line you want to delete, to delete any line giving another definition of SYSTEM:.

```
00500 DEFINE SYSTEM: PS:<SYSTEM> <RET>
1 Lines (00500/1) deleted
*
```

Step 9: Repeat Steps 7 and 8 for the SYSTEM: definition.

Repeat Steps 7 and 8 to replace

```
DEFINE SYS: PS:<NEW-SUBSYS>, PS:<SUBSYS>
```

with the definition

```
DEFINE SYS: PS:<SUBSYS>
```

Step 10: Type EU and press the RETURN key.

When you finish making the necessary changes to the configuration command file, type EU and press the RETURN key. This ends the EDIT program and saves the file. The system prints the file name and the TOPS-20 command prompt.

```
*EU <RET>
[PS:<SYSTEM>7-CONFIG.CMD.n]
$
```

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Step 11: Type CONNECT and press the RETURN key.

Connect back to your log-in directory by typing CONNECT.

```
$CONNECT <RET>
$
```

Step 12: Type DELETE PS:<NEW-SYSTEM>\*.\* and press the RETURN key.

To delete the files in the directory PS:<NEW-SYSTEM>, type the DELETE command. The system prints an [OK] message for each file it deletes.

```
$DELETE PS:<NEW-SYSTEM>*.* <RET>
.
.
.
$
```

Step 13: Type DELETE PS:<NEW-SUBSYS>\*.\* and press the RETURN key.

To delete the files in the directory PS:<NEW-SUBSYS>, type the DELETE command. The system prints an [OK] message for each file it deletes.

```
$DELETE PS:<NEW-SUBSYS>*.* <RET>
.
.
.
$
```

Step 14: Type ^ECEASE ±00:01 and press the RETURN key.

To shut down the system in one minute, type ^ECEASE +00:01. After the system prints "[Confirm]," press the RETURN key. The system prints a list of messages. The last message is "Shutdown complete."

```
$^ECEASE ±00:01 <RET>
TOPS20 Shut down scheduled for dd-mmm-yy hh:mm:ss
[Confirm]<RET>
[System TOPS20 going down in one minute!!]
$
[Timesharing is over]
```

```
OPERATOR - WAIT FOR THE MESSAGE "Shutdown complete"
BEFORE ENTERING COMMANDS TO PARSER
```

Shutdown complete

## UPDATING THE DECSYSTEM-20 SOFTWARE

### NOTE

Do not proceed to Step 15 until the system prints "Shutdown complete."

#### Step 15: Type <CTRL/\>.

At the console terminal, type <CTRL/\> to return to the front-end Command Parser. When you are at Command Parser command level, the system prints the prompt PAR>.

```
<CTRL/\>  
PAR>
```

#### Step 16: Type SHUTDOWN and press the RETURN key.

To stop the TOPS-20 monitor, type SHUTDOWN.

```
PAR>SHUTDOWN <RET>  
**HALTED**
```

```
%DECSYSTEM-20 not running
```

#### Step 17: Read Chapter 5 of this guide.

To run the Version 7.0 software from disk, follow the steps in Chapter 5 of this guide.

### NOTES

1. If you ever need to revert to Version 6.1, you must reinstall Version 6.1 using the Version 6.1 floppies and tapes.
2. If you are installing any unbundled software, perform the steps specified in the appropriate installation guide that accompanies each optional software product.

#### Step 18: Start timesharing.

## APPENDIX B

### POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20

This appendix contains the console terminal output for a new installation of the TOPS-20 software on a DECSYSTEM-20 Model 2060. Step numbers are in the left column. The action for each step is underlined. No error recovery procedures are included in this appendix. If you need help, see the appropriate step in Chapters 2 through 7.

Step	Operation
1	Read the listing labeled TOPS20.BWR.
2	Ask your DIGITAL Field Service Representative if the disk packs are formatted.
3	Power up the system.
4	Label the disk packs.
5	Mount the disk packs.
6	Check the CONTROLLER SELECT switches on the disk drive.
7	Mount System Floppy A in drive 0.
8	Mount System Floppy B in drive 1.
9	Mount the Installation tape on MTA0:.
10	Place the front-end HALT switch in the ENABLE position.
11	Set the switch register to 000007 (octal).
12	Hold ENABLE and press the SWITCH REGISTER button.

```
RSX-20F VB16-00 12:00 17-MAR-88
```

```
[SY0: redirected to DX0:]  
[DX0: mounted]  
[DX1: mounted]
```

B-1

POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20

13 KLI -- VERSION VB16-00 RUNNING  
 KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?  
 KLI>YES <RET>  
 KL1 -- KL10 S/N: 2102., MODEL B, 60 HERTZ  
 KL1 -- KL10 HARDWARE ENVIRONMENT:  
       MOS MASTER OSCILLATOR  
       EXTENDED ADDRESSING  
       INTERNAL CHANNELS  
       CACHE

14 KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?  
 KLI>YES KLX <RET>  
 KLI -- MICROCODE VERSION 2.1[442] LOADED

16 KLI -- RECONFIGURE CACHE [FILE,ALL,YES,NO]?  
 KLI>ALL <RET>  
 KLI -- ALL CACHES ENABLED

17 KLI -- CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?  
 KLI>ALL <RET>

LOGICAL MEMORY CONFIGURATION

ADDRESS	SIZE	INT	TYPE	CONTROLLER
00000000	76K	4	MB20	10

18 KLI -- LOAD KL BOOTSTRAP [FILE,YES,NO,FILENAME]?  
 KLI>MTBOOT <RET>  
 KLI -- WRITE CONFIGURATION FILE [YES,NO]?  
 19 KLI>NO <RET>  
 KLI -- BOOTSTRAP LOADED AND STARTED

BOOT V11.0(315)

20 MTBOOT>/L <RET>  
 [BOOT: LOADING] [OK]

21 MTBOOT>/G143 <RET>

[FOR ADDITIONAL INFORMATION TYPE "?" TO ANY OF THE FOLLOWING QUESTIONS.]

22 DO YOU WANT TO REPLACE THE FILE SYSTEM ON THE SYSTEM STRUCTURE? YES <RET>

23 DO YOU WANT TO DEFINE THE SYSTEM STRUCTURE? YES <RET>

24 HOW MANY PACKS ARE IN THIS STRUCTURE: 1 <RET>

26 ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED: 1,-1,0 <RET>

28 DO YOU WANT THE DEFAULT SWAPPING SPACE? YES <RET>

31 DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM? YES <RET>

POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20

33 DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA? YES <RET>

34 DO YOU WANT TO ENABLE PASSWORD ENCRYPTION FOR THE SYSTEM STRUCTURE? YES <RET>

35 WHAT IS THE NAME OF THIS STRUCTURE? PS: <RET>  
 [STRUCTURE "PS" SUCCESSFULLY DEFINED]  
 [PS MOUNTED]  
 %%NO SETSPD.

System restarting, wait...  
 37 ENTER CURRENT DATE AND TIME: 17-MAR-88 1630 <RET>

38 YOU HAVE ENTERED WEDNESDAY, 17-MARCH-1988 4:30PM,  
 IS THIS CORRECT (Y,N) Y <RET>

39 WHY RELOAD? NEW <RET>

PROBLEM WITH <SYSTEM>ACCOUNTS-TABLE.BIN  
 CANNOT FIND ERROR MESSAGE FILE - ACCOUNT VALIDATION IS  
 DISABLED

RUNNING DDMP

NO SYSJOB

40 <CTRL/C>  
 NO EXEC

41 MX>GET FILE MTA0: <RET>  
 42 MX>GET FILE MTA0: <RET>  
 43 MX>START <RET>

TOPS-20 Command processor 7.0(273)

44 @ENABLE <RET>  
 45 \$RUN MTA0: <RET>  
 46 DLUSER>LOAD MTA0: <RET>

DONE.

47 DLUSER>EXIT <RET>  
 48 \$RUN MTA0: <RET>  
 49 DUMPER>TAPE MTA0: <RET>  
 50 DUMPER>RESTORE PS:<\*>\*.\*\* PS:<SYSTEM>\*.\*\* <RET>  
 Saveset "SYSTEM Files for TOPS-20 V7.0" 17-Mar-88 1441  
 Loading files into PS:<SYSTEM>  
 End of Saveset.

Total files restored: 26  
 Total pages restored: 1765

```

51  DUMPER>RESTORE PS:<*>*. *.* PS:<SUBSYS>*. *.* <RET>
    Saveset "SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1442
    Loading files into PS:<SUBSYS>
    End of Saveset.

    Total files restored:    177
    Total pages restored:   4534
52  DUMPER>RESTORE PS:<*>*. *.* PS:<SUBSYS>*. *.* <RET>
    Saveset "GALAXY SUBSYS Files for TOPS-20 V7.0" 17-Mar-88 1443
    Loading files into PS:<SUBSYS>
    End of Saveset.

    Total files restored:    24
    Total pages restored:   585
53  DUMPER>RESTORE PS:<*>*. *.* PS:<UETP.LIB>*. *.* <RET>
    Saveset "UETP Files for TOPS-20 V7.0" 17-Mar-88 1444
    Loading files into PS:<UETP.LIB>
    End of Tape.

    Total files restored:    55
    Total pages restored:   482
54  DUMPER>EXIT <RET>
55  $UNLOAD MTAO: <RET>

56  $INFORMATION DISK-USAGE PS:<*> <RET>

PS:<ROOT-DIRECTORY>
-881 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<ACCOUNTS>
17 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<NEW-SUBSYS>
0 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<NEW-SYSTEM>
0 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<OPERATOR>
0 Pages assigned
250 Working pages, 250 Permanent pages allowed

PS:<SPOOL>

```

```

0 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<SUBSYS>
5119 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<SYSTEM>
1765 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<SYSTEM-ERROR>
1 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<UETP>
6 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<UETP.LIB>
482 Pages assigned
+INF Working pages, +INF Permanent pages allowed

PS:<UETP.RUN>
0 Pages assigned
+INF Working pages, +INF Permanent pages allowed

Total of 6509 Pages assigned, in 12 directories.
52134 Pages free on PS:, 23866 pages used.
57 $RUN PS:<SUBSYS>MAKDMP.EXE <RET>
58 MAKDMP>CREATE PS:<SYSTEM>DUMP.EXE.1 2048 <RET>
   [Dump file: <SYSTEM>DUMP.EXE.1 created]
59 MAKDMP>EXIT <RET>
60 $CONNECT PS:<SYSTEM> <RET>

61 $COPY montyp.EXE.* MONITR.EXE.* <RET>
   montyp.EXE.n => MONITR.EXE.n [OK]
62 $TERMINAL NO RAISE <RET>
63 $COPY TTY: MONNAM.TXT <RET>
   TTY: = MONNAM.TXT.1

Installation-test System ^Z

64 $COPY TTY: TAPNAM.TXT <RET>
   TTY: = TAPNAM.TXT.1

Instal-tst ^Z
$

```

NOTE

Steps 65 through 99 illustrate how to create the configuration command file with the EDIT editor

program. You can use any editor of your choice, as long as you accomplish the goal of each step.

As you create the configuration command file, use the definitions and values that are appropriate for your system. The file shown is only an example.

```

65 $CREATE 7-CONFIG.COMD <RET>
Input: PS:<SYSTEM>7-CONFIG.COMD.1
66 00100 ! Terminal Speeds <RET>
00200 ! Line 1 has input=9600 and output=9600 <RET>
00300 TERMINAL 1 SPEED 9600 <RET>
00400 ! Lines 2 to 20 have input and output=2400 <RET>
00500 TERMINAL 2-20 SPEED 2400 <RET>
00600 ! Lines 23 to 40 are shut off <RET>
00700 TERMINAL 23-40 SPEED 0 <RET>
67 00800 ! Lines 21 and 22 are dialup lines <RET>
00900 TERMINAL 21 REMOTE SPEED 9600 <RET>
01000 TERMINAL 22 REMOTE AUTO <RET>
01100 TERMINAL 21 IGNORE-SYSTEM-MESSAGES <RET>
01200 TERMINAL 21 IGNORE-USER-MESSAGES <RET>
01300 TERMINAL 22 NOBELL<RET>
68 01100 DEFINE NEW: PS:<NEW>,SYS: <RET>
01400 DEFINE OLD: PS:<OLD>,SYS: <RET>
01500 DEFINE HLP: SYS: <RET>
01600 DEFINE SERR: PS:<SYSTEM-ERROR> <RET>
01700 DEFINE DMP: PS:<directory> <RET>
01800 DEFINE POBOX: PS: <RET>
69 02000 DEFINE EDITOR: SYS:TV.EXE <RET>
70 02100 MAGTAPE 0 24 TU45 <RET>
02200 MAGTAPE 1 2001 TU77 <RET>
02300 MAGTAPE 2 2002 TU71 <RET>
02400 MAGTAPE 3 2003 TU70 <RET>
02500 MAGTAPE 4 1500 TU72 <RET>
71 02600 PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU <RET>
02700 PRINTER 1 VFU SYS:NORMAL.VFU <RET>
72 02800 PRINTER 0 LOWERCASE RAM SYS:LP96.RAM <RET>
02900 PRINTER 1 RAM SYS:LP64.RAM <RET>
73 03000 TIMEZONE 5 <RET>
74 03100 DISABLE DIRECTORY-PARAMETER-SETTING <RET>
75 03200 DISABLE ACCOUNT-VALIDATION <RET>

```

CAUTION - STEP 76

Before you can use this performance feature, you must obtain from your DIGITAL Field Service Representative the following information about your hardware:

1. If you have a KL10-E processor, it must be at revision level 3 or later.

2. If you have board M7772, it must be at version level E and CS revision level F; or you may have board M7786.

If your hardware does not meet these requirements, take the system default: DISABLE FULL-LATENCY-OPTIMIZATION.

```

76 03300 ENABLE FULL-LATENCY-OPTIMIZATION <RET>
77 03400 ENABLE WORKING-SET-PRELOADING <RET>
78 03500 BIAS 6 <RET>
79 03600 CREATE 1 .20 <RET>
03700 CREATE 2 .40 <RET>
03800 CREATE 3 .15 <RET>
80 03900 BATCH-CLASS 4 <RET>
04000 CREATE 4 .25 <RET>

```

CAUTION - STEP 81

Do not enter the command in Step 81 into the configuration command file until you have entered the commands in Steps 79 and 80. If you enable class scheduling before creating classes, class scheduling will not function properly.

```

81 04100 ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED <RET>
82 04200 ARCHIVE-TAPE-RECYCLE-PERIOD 1825 <RET>
83 04300 TAPE-RECYCLE-PERIOD 90 <RET>
84 04400 ENABLE TAPE-DRIVE-ALLOCATION <RET>
85 04500 TAPE-RECOGNITION-ERRORS UNLOAD <RET>
86 04600 CHANGE 9:00 WEEKDAYS <RET>
04700 CHANGE 17:00 WEEKDAYS <RET>
04800 CHANGE 0:00 SATURDAY <RET>
87 04900 ALLOW RP06 1243 <RET>
05000 ALLOW RP20 3327 <RET>
88 05100 DAYLIGHT ON <RET>
89 05200 ENABLE HANGUP-IF-LOGGED-IN <RET>
05300 ENABLE HANGUP-IF-LOGGED-OUT <RET>
90 05400 ENABLE SYSTEM-MESSAGE-LEVEL-0 <RET>
05500 ENABLE SYSTEM-MESSAGE-LEVEL-1 <RET>
91 05600 NODE DISNEY 8.164 <RET>
92 05700 LAT-STATE OFF <RET>
93 05800 ENABLE OFFLINE-STRUCTURE 0:05 <RET>
94 05900 ENABLE LOGIN-STRUCTURE <RET>
94.1 06000 DISABLE FAST-LOGIN-OPTION <RET>
95 06100 DISABLE CLUSTER-INFORMATION <RET>
96 06200 DISABLE CLUSTER-SENDALLS <RET>
97 06300 ENABLE MINIMUM-PASSWORD-LENGTH 6 <RET>
97.1 06400 ENABLE PASSWORD-EXPIRATION 45 <RET>
97.2 06500 ENABLE PASSWORD-DICTIONARY <RET>
98 06600 ENABLE DUMP-ON-BUGCHK FACILITY <RET>
06700 ENABLE DUMP-ON-BUGCHK ALL-BUGCHK <RET>

```



```

06800 ENABLE DUMP-ON-BUGCHK TTYSTP IGNORE-DUMP-TIMEOUT <RET>
06900 ENABLE SHORT-BUG-OUTPUT <RET>
98.1 07000 DISABLE JOB0-CTY-OUTPUT <RET>
98.2 07100 ENABLE SYSTEM-ACCESS-CONTROL-JOB <RET>
98.3 07200 ENABLE HANGUP-ON-DETACH <RET>
07300 ENABLE DETACH-CARRIER-OFF 3 <RET>
98.4 07400 BATCH-BACKGROUND <RET>
99 07500 $
*EU <RET>

[PS:<SYSTEM>7-CONFIG.CMD.1]

100 $TYPE <SYSTEM>7-CONFIG.CMD <RET>
! Terminal Speeds
! Line 1 has input=9600 and output=9600
TERMINAL 1 SPEED 9600
! Lines 2 to 20 have input and output=2400
TERMINAL 2-20 SPEED 2400
! Lines 23 to 40 are shut off
TERMINAL 23-40 SPEED 0
! Line 21 and 22 are dialup lines
TERMINAL 21 REMOTE SPEED 300
TERMINAL 22 REMOTE AUTO
TERMINAL 21 IGNORE-SYSTEM-MESSAGES
TERMINAL 21 IGNORE-USER-MESSAGES
TERMINAL 22 NOBELL
DEFINE NEW: PS:<NEW>,SYS:
DEFINE OLD: PS:<OLD>,SYS:
DEFINE HLP: SYS:
DEFINE SERR: PS:<SYSTEM-ERROR>
DEFINE DMP: PS:<directory>
DEFINE POBOX: PS:
DEFINE EDITOR: SYS:TV.EXE
MAGTAPE 0 24 TU45
MAGTAPE 1 2001 TU77
MAGTAPE 2 2002 TU71
MAGTAPE 3 2003 TU70
MAGTAPE 4 1500 TU72
PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU
PRINTER 1 VFU SYS:NORMAL.VFU
PRINTER 0 LOWERCASE RAM SYS:LP96.RAM
PRINTER 1 RAM SYS:LP64.RAM
TIMEZONE 5
DISABLE DIRECTORY-PARAMETER-SETTING
DISABLE ACCOUNT-VALIDATION
ENABLE FULL-LATENCY-OPTIMIZATION
ENABLE WORKING-SET-PRELOADING
BIAS 6
CREATE 1 .20
CREATE 2 .40
CREATE 3 .15
BATCH-CLASS 4

```

```

CREATE 4 .25
ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED
ARCHIVE-TAPE-RECYCLE-PERIOD 1825
TAPE-RECYCLE-PERIOD 90
ENABLE TAPE-DRIVE-ALLOCATION
TAPE-RECOGNITION-ERRORS UNLOAD
CHANGE 9:00 WEEKDAYS
CHANGE 17:00 WEEKDAYS
CHANGE 0:00 SATURDAY
ALLOW RP06 1243
ALLOW RP20 3327
DAYLIGHT ON
ENABLE HANGUP-IF-LOGGED-IN
ENABLE HANGUP-IF-LOGGED-OUT
ENABLE SYSTEM-MESSAGE-LEVEL-0
ENABLE SYSTEM-MESSAGE-LEVEL-1
NODE DISNEY 8.164
LAT-STATE OFF
ENABLE OFFLINE-STRUCTURE 0:05
ENABLE LOGIN-STRUCTURE
DISABLE CLUSTER INFORMATION
DISABLE CLUSTER-SENDALLS
DISABLE FAST-LOGIN-OPTION
ENABLE MINIMUM-PASSWORD-LENGTH 6
ENABLE PASSWORD-EXPIRATION 45
ENABLE PASSWORD-DICTIONARY
ENABLE DUMP-ON-BUGCHK FACILITY
ENABLE DUMP-ON-BUGCHK ALL-BUGCHKs
ENABLE DUMP-ON-BUGCHK BUG TTYSTP IGNORE-DUMP-TIMEOUT
ENABLE SHORT-BUG-OUTPUT
DISABLE JOB0-CTY-OUTPUT
ENABLE SYSTEM-ACCESS-CONTROL-JOB
ENABLE HANGUP-ON-DETACH
ENABLE DETACH-CARRIER-OFF 3
BATCH-BACKGROUND
$
101 $BUILD PS:<OPERATOR> <RET>
[Old]
102 $$PASSWORD your-password <RET>
103 $$USER-OF-GROUP 100 <RET>
104 $$IPCF <RET>
105 $$<RET>

106 $BUILD PS:<REMARKS> <RET>
[New]
107 $$<RET>
108 $CONNECT PS:<SUBSYS> <RET>
109 $CREATE LPPFORM.INI <RET>
input: PS:<SUBSYS>LPPFORM.INI.1
110 00100 NORMAL/BANNER:2/HEADER:2/TRAILER:2 <RET>
00200 NARROW/BANNER:2/HEADER:2/TRAILER:2/WIDTH:72 <RET>

```

```

111 00300 $
      *EU <RET>

      [PS:<SUBSYS>LPFORM.INI.1]
      $

      NOTE

      Perform Steps 112 through 121 only if you are using an
      RP07 disk pack for your system structure. Otherwise,
      continue at Step 122.

      TCP/IP Installations

      If you are installing TCP/IP-20 and are using an RP07
      disk pack as the system structure, perform Steps 112
      through 121. Otherwise, proceed to Appendix C,
      Section C.3, Step 2.

112 $RUN CHECKD <RET>
113 CHECKD>CREATE FESYS <RET>
114 Enter alias: FESYS <RET>
115 How many units in this structure: 1 <RET>
116 DECIMAL Channel, Controller, and Unit numbers for logical
      unit 0: 1,-1,0 <RET>
117 Number of pages to allocate for swapping? 7035 <RET>
118 Number of pages to allocate for the Front End File System?
      950 <RET>
119 Owner name? OPERATOR <RET>
120 Is this a system structure for startup? NO <RET>
121 CHECKD>EXIT <RET>
      $

```

## TCP/IP Installations

If you are installing TCP/IP-20, proceed to Appendix C, Section C.3, Step 2. Do not create the front-end file system until you complete Steps 1 through 23 in Appendix C.

```

122 $^ECEASE NOW <RET>
      KL2102 Will be shut down IMMEDIATELY
      [Confirm] <RET>

      [Timesharing is over]

      OPERATOR - WAIT FOR THE MESSAGE "Shutdown complete"
      BEFORE ENTERING COMMANDS TO PARSER

```

Shutdown complete

123 Make sure that the correct floppy disks are mounted.

```

124 <CTRL/\>
125 PAR>SHUTDOWN <RET>
      **HALTED**

      %DECSYSTEM-20 not running

126 Set the switch register to 000003 (octal).

127 Hold ENABLE and press the SWITCH REGISTER button.

      RSX-20F VB16-00 12:00 17-MAR-88

      [SY0: redirected to DX0:]
      [DX0: mounted]
      [DX1: mounted]

128 <CTRL/\>
129 PAR%RUN INI <RET>

131 INI>DB0: <RET>
132 <CTRL/\>
133 PAR%RUN MOU <RET>
134 MOU>DB0: <RET>
      MOU -- MOUNT COMPLETE
135 MOU>^Z

      <CTRL/\>
136 PAR%RUN UFD <RET>

137 UFD>DB0:[5,5] <RET> !Wait 10 seconds before proceeding
138 <CTRL/\>
139 PAR%RUN PIP <RET>

140 PIP>DB0:*. *;*=DX0:*. *;*,DX1:*. *;* <RET>
141 PIP>^Z

      <CTRL/\>
142 PAR%RUN RED <RET>
143 RED>DB0:=SY0: <RET> !Wait 5 seconds before proceeding
144 <CTRL/\>
145 PAR%RUN SAV <RET>
      SAV>

146 Set the switch register to zero (0).

147 SAV>SY0:/WB <RET>
      [DB0: dismounted]
      [DX0: dismounted]
      [DX1: dismounted]

      RSX-20F VB16-00 12:19 17-MAR-88

      [SY0: redirected to DB0:]

```

```
[DB0: mounted]
148 Store the floppy disks A and B.
149 Mount System Floppy C on drive 0.
150 <CTRL/\>
151 PAR%RUN MOU <RET>
152 MOU>DX0: <RET>
MOU -- MOUNT COMPLETE
153 MOU>^Z
154 <CTRL/\>
PAR%RUN PIP <RET>
155 PIP>DB0:*. *;*=DX0:*. *; * <RET>
156 PIP>DB0:/LI <RET>
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MIDNIT.TSK;1600 4. C 17-MAR-88 12:06
LOGXFR.TSK;1600 10. C 17-MAR-88 12:06
KLDISC.TSK;1600 5. C 17-MAR-88 12:06
KLRING.TSK;1600 6. C 17-MAR-88 12:06
SETSPD.TSK;1600 5. C 17-MAR-88 12:06
TKTN.TSK;1600 6. C 17-MAR-88 12:06
BOOT.EXB;11315 46. C 17-MAR-88 12:07
RSX20F.SYS;1600 60. C 17-MAR-88 12:11
RSX20F.MAP;1600 155. 17-MAR-88 12:11
ZAP.TSK;1600 38. C 17-MAR-88 12:12
RP2DBT.EXB;11315 70. 17-MAR-88 12:12
RP2MBT.EXB;11315 64. 17-MAR-88 12:13
TOTAL OF 975. BLOCKS IN 42. FILES
157 PIP>^Z
158 <CTRL/\>
159 PAR%RUN DMO <RET>
DMO>DX0: <RET>
DMO -- DISMOUNT COMPLETE
160 DMO>^Z
161 <CTRL/\>
PAR%
Store floppy C.
RP20 Disks
If you have an RP20 disk subsystem, perform Steps 162
through 166. Otherwise, continue at Step 167.
RP20 Disk Controller
It is necessary that the 8000-2 controller for the
RP20 disk subsystem be in 370 mode. See the 8000
Controller Maintenance Reference Manual, Volume 2,
page U210, for information on switch settings.
162 Be sure that the central processor is stopped.
163 PAR%RUN PIP <RET>
164 PIP>DB0:[5,5]BOOT.EXB=DB0:[5,5]RP2DBT.EXB <RET>
165 PIP>DB0:[5,5]MTBOOT.EXB=DB0:[5,5]RP2MBT.EXB <RET>
166 PIP>^Z
<CTRL/\>
PAR%
```

167 Be sure that the central processor is stopped.  
 168 Hold ENABLE and press the DISK button.  
 RSX-20F VB16-00 12:19 17-MAR-88  
 [SY0: redirected to DB0:]  
 [DB0: mounted]  
 KLI -- VERSION VB16-00 RUNNING  
 KLI -- KL10 S/N: 2102., MODEL B, 60 HERTZ  
 KLI -- KL10 HARDWARE ENVIRONMENT:  
     MOS MASTER OSCILLATOR  
     EXTENDED ADDRESSING  
     INTERNAL CHANNELS  
     CACHE  
  
 KLI -- MICROCODE VERSION 2.1[442] LOADED  
 KLI -- % NO FILE - ALL CACHE BEING CONFIGURED  
 KLI -- ALL CACHES ENABLED  
 KLI -- % NO FILE - ALL MEMORY BEING CONFIGURED  
  
 LOGICAL MEMORY CONFIGURATION.  
     ADDRESS SIZE INT TYPE CONTROLLER  
     00000000 768K 4 MF20 10  
  
 KLI -- % NO FILE - LOADING BOOTSTRAP  
 KLI -- CONFIGURATION FILE WRITTEN  
 KLI -- BOOTSTRAP LOADED AND STARTED  
  
 BOOT V11.0(315)  
 [BOOT: LOADING] [OK]  
  
 [PS MOUNTED]  
  
 [IPALOD: LOADING CI20 MICROCODE 1.1(733)] [OK]  
  
 System restarting, wait...  
 169 ENTER CURRENT DATE AND TIME: 17-MAR-88 1112 <RET>  
  
 YOU HAVE ENTERED WEDNESDAY, 17-MAR-88 11:12AM,  
 170 IS THIS CORRECT (Y,N) Y <RET>  
 171 WHY RELOAD? SC <RET>

NOTE

If you do not respond to the WHY RELOAD question within 60 seconds, the system assumes OTHER and continues the startup procedure.

PROBLEM WITH <SYSTEM>ACCOUNTS-TABLE.BIN

CANNOT GET A JFN FOR <SYSTEM> ACCOUNTS TABLE.BIN - ACCOUNT VALIDATION IS DISABLED  
 172 RUN CHECKD? N <RET>]  
  
 NOTE  
  
 If you do not respond to the RUN CHECKD question within 60 seconds, the system assumes NO and continues the startup procedure.  
  
 RUNNING DDMP  
  
 SYSJOB 7(78) STARTED AT 17-MAR-88 1112  
 [KNILDR: LOADING MICROCODE VERSION 1(171) INTO ETHERNET CHANNEL 0]  
  
 \*\*\*\*\*  
 17-MAR-88 11:12:39 - TGHA 4.2(31) IN OPERATION.  
 \*\*\*\*\*  
 RUN SYS:INFO  
 RUN SYS:MAPPER  
 RUN SYS:ORION  
 RUN SYS:QUASAR  
 RUN SYS:MOUNTR  
 RUN SYS:MAILER  
 RUN SYS:LPTSPL  
 RUN SYS:LPTSPL  
 RUN SYS:CDRIVE  
 RUN SYS:SPRINT  
 JOB 0 /LOG OPERATOR XX OPERATOR  
 ENA  
 ^ESET LOGIN PSEUDO  
 ^ESET LOGIN CONSOLE  
 ^ESET OPERATOR  
 PTYCON  
 GET SYSTEM:7-PTYCON.ATO  
 /  
 JOB 1 /LOG OPERATOR XX OPERATOR  
 ENA  
 GET SYS:BATCON  
 /  
 SJ 0: @LOG OPERATOR OPERATOR  
 SJ 1: @LOG OPERATOR OPERATOR  
  
 SJ 0: Job 1 on TTY206 dd-mmm-yy hh:mm:ss, Last Login never  
 SJ 1: Job 1 on TTY206 dd-mmm-yy hh:mm:ss, Last Login never  
 SJ 0: @ENA  
 SJ 1: @ENA

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```

SJ 1: $GET SYS:BATCON
SJ 0: $^ESET LOGIN PSEUDO
SJ 0: $^ESET LOGIN CONSOLE
SJ 0: $^ESET OPERATOR
SJ 0: $PTYCON
SJ 0: PTYCON> GET SYSTEM:7-PTYCON.ATO
SJ 0: PTYCON> SILENCE

[From OPERATOR on node TOPS20 line 210 to all lines
: SYSTEM IN OPERATION]
SJ 0: PTYCON> W ALL
SJ 0: OPR(0) 3 OPERATOR OPR TI 0:0:1
SJ 0: PTYCON> CONN OPR
SJ 0: [CONNECTED TO SUBJOB OPR(0)]
173 <CTRL/C>
174 Installation-test System, TOPS-20 Monitor 7.0(6763)
@LOGIN OPERATOR your-password <RET>
Job 4 on TTY5 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy
hh:mm:ss
@ENABLE <RET>
$OPR <RET>
175 OPR>SHOW STATUS TAPE-DRIVE /ALL <RET>
176 OPR>
15:58:35 --Tape Drive Status--

Drive State Valid Req# Job# User
----
MTA0: Unloaded
AVR: Yes
MTA1: In Use DEK 31 45 LARRUP
AVR: Yes, Write: Yes, Unlabeled
MTA2: Loaded
AVR: Yes, Write: Yes, Unlabeled
MTA3: Unloaded
AVR: Yes
177 OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE <RET>
Enter text and terminate with ^Z
178 INSTALLING OPTIONAL SOFTWARE ^Z
OPR>
15:59:07 -- Tape Drive Set Unavailable --
MTA0: set unavailable for assignment by MOUNTR
SJ 0:
SJ 0: 15:59:07 -- Tape Drive Set Unavailable --
SJ 0: MTA0: set unavailable for assignment by MOUNTR
179 OPR>EXIT <RET>
180 $ASSIGN MTA0: <RET>
181 $DUMPER <RET>
182 DUMPER>TAPE MTA0: <RET>
DUMPER>

183 Mount Distribution tape 1.

```

POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20

```

184 DUMPER>REWIND <RET>
185 DUMPER>RESTORE PS:<*>*.** PS:<SUBSYS>*.** <RET>
Saveset "SOURCE Files for TOPS-20 V7.0" 17-Mar-88 0957
Loading files into PS:<SUBSYS>
End of Saveset.

Total files restored: 1072
Total pages restored: 8983
DUMPER>
186 DUMPER>EXIT <RET>
187 $UNLOAD MTA0: <RET>
$

188 Dismount the software tape and store it.
189 Repeat Steps 183 and 184 for Distribution tape 2.
190 DUMPER>RESTORE PS:<*>*.** PS:<OPERATOR>*.** <RET>
Saveset "DOCUMENTATION Files for TOPS-20 V7.0" 17-Mar-88
0957
Loading files into PS:<OPERATOR>
End of Saveset.

Total files restored: 80
Total pages restored: 1167

191 Restore the language sources (optional).
192 Restore the GALAXY sources (optional).
193 DUMPER>EXIT <RET>
194 $UNLOAD MTA0: <RET>
$

195 Dismount the software tape and store it.
196 Return to Step 183 to restore files from other tapes
(optional).

197 $DEASSIGN MTA0: <RET>
$

NOTE

If you performed Steps 173 through 197, you can skip
Steps 199 and 200 and start at Step 201.

199 <CTRL/C>
200 Installation-test System, TOPS-20 Monitor 7.0(6763)
@LOGIN OPERATOR your-password <RET>
Job n on TTYn dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy
hh:mm:ss

```

```

201  @ENABLE <RET>
      $TAKE PS:<UETP.LIB>SET-UP.CMD <RET>
      [New]
      [New]
      .
      .
      .
      End of <UETP.LIB>SET-UP.CMD.1
202  $CONNECT PS:<UETP.RUN> <RET>
203  $RUN UETP.EXE <RET>
      [dd-mmm-yy hh:mm:ss          User Environment Test Package ]

204  UETP>TAKE VERIFY.CMD <RET>

      UETP>ENABLE VERIFY/CYCLE:1      !Verify that the correct
      [hh:mm:ss ENABLE COMPLETED]    !software is installed

      UETP>BEGIN
      [hh:mm:ss BEGIN COMPLETED]

      UETP>DEFAULT/CYCLE:00:15
      [hh:mm:ss DEFAULT COMPLETED]

      UETP>ENABLE RANCBL
      [hh:mm:ss ENABLE COMPLETED]

      UETP>ENABLE RANFOR
      [hh:mm:ss ENABLE COMPLETED]

      UETP>ENABLE MTA0
      [hh:mm:ss ENABLE COMPLETED]

      UETP>STATUS

      [dd-mmm-yy hh:mm:ss]

      Test Depth Status Cycle Times Error Error Start
      name run count limit time
      =====
      VERIFY VER Running 1 0 0 0 dd-mmm-yy hh:mm:ss
      RANCBL VER Enabled 0:15 0 0 0
      RANFOR VER Enabled 0:15 0 0 0
      MTA0 VER Enabled 0:15 0 0 0

      START VERIFY 9:43:33
      END VERIFY 10:14:53
    
```

NOTE

If any messages appear between the START message and the END message, there are errors in the files you received. Do not proceed any further.

```

205  Mount a magnetic tape on the drive you want to test.

      UETP>ENABLE MTAn <RET>
      [hh:mm:ss ENABLE COMPLETED]

206  UETP>BEGIN <RET>
      [hh:mm:ss BEGIN COMPLETED]

      UETP>

      START RANCBL hh:mm:ss
      START RANFOR hh:mm:ss
      START MTA0 hh:mm:ss
      END RANCBL hh:mm:ss
      END RANFOR hh:mm:ss
      END MTA0 hh:mm:ss

207  [All tests complete on processor # 2102]

      [dd-mmm-yy hh:mm:ss]

      Test Depth Status Cycle Times Error Error Start
      name run count limit time
      =====
      VERIFY VER Ended 1 1 0 0 dd-mmm-yy hh:mm:ss
      RANCBL VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss
      RANFOR VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss
      MTA0 VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss

208  Proceed to Step 213 to EXIT from UETP. If you want to test
      optional software, proceed to Step 210.

210  UETP>ENABLE product-name <RET>
      [hh:mm:ss ENABLE COMPLETED]

      UETP>ENABLE product-name <RET>
      [hh:mm:ss ENABLE COMPLETED]

      .
      .
      .
      UETP>BEGIN <RET>
      [hh:mm:ss BEGIN COMPLETED]

      UETP>

211  STATUS <RET>

      [dd-mmm-yy hh:mm:ss]

      Test Depth Status Cycle Times Error Error Start
      name run count limit time
    
```

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```

=====
VERIFY VER Ended 1 1 0 0 dd-mmm-yy hh:mm:ss
RANCBL VER Running 0:15 0 0 0 dd-mmm-yy hh:mm:ss
RANFOR VER Queued 0:15 0 0 0 dd-mmm-yy hh:mm:ss
MTA0 VER Queued 0:15 0 0 0 dd-mmm-yy hh:mm:ss

```

NOTE

If there is a number other than 0 under the heading ERROR COUNT, print the ERRORS.LOG file, when the tests are completed, to find out what caused the error.

APPENDIX C  
INSTALLING TCP/IP-20

```

212  STATUS <RET>
      [dd-mmm-yy hh:mm:ss]

Test Depth Status Cycle Times Error Error Start
name  name  run  count limit time
=====
VERIFY VER Ended 1 1 0 0 dd-mmm-yy hh:mm:ss
RANCBL VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss
RANFOR VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss
MTA0 VER Ended 0:15 1 0 0 dd-mmm-yy hh:mm:ss

213  EXIT <RET>

214  $TAKE <UETP.LIB>CLEAN-UP.CMD <RET>
      [Old]
      [Old]
      .
      .
      End of <UETP.LIB>CLEAN-UP.CMD.3
215  $DEASSIGN MTA0: <RET>
216  $OPR <RET>
      OPR>
217  OPR>SET TAPE-DRIVE MTA0: AVAILABLE <RET>
      OPR>
      hh:mm:ss -- Tape Drive Set Available --
              MTA0: set available for assignment by MOUNTR
      SJ 0: OPR>
      SJ 0: hh:mm:ss -- Tape Drive Set Available --
      SJ 0: MTA0: set available for assignment by MOUNTR
      OPR>
218  OPR>EXIT <RET>
      $

219  Start timesharing.

```

Perform the steps in this appendix ONLY if you are using the TCP/IP (Transmission Control Protocol/Internet Protocol) network software supported by DIGITAL. Most of the configuration information required to utilize the TCP/IP software is available from the ARPANET Network Information Center (NIC) and the ARPANET Network Operations Center (NOC). Sites that are not connected to the ARPANET networks must develop their own configuration information. Follow this appendix to do the following:

1. Install the monitor and associated software.
2. Customize the data files.
3. Utilize the customized data files.

C.1 TCP/IP INSTALLATION TOOLS

You need software packages QT023 and QT090 to install TOPS-20 and TCP/IP software on a DECSYSTEM-20. These packages contain

- o The TOPS-20 RSX-20F Version 16-00 System Floppy A.
- o The TOPS-20 RSX-20F Version 16-00 System Floppy B.
- o The TOPS-20 RSX-20F Version 16-00 System Floppy C.
- o The TOPS-20 Version 7.0 Installation Tape.
- o The TOPS-20 Version 7.0 Distribution Tape 1.
- o The TOPS-20 Version 7.0 Distribution Tape 2.
- o The TCP/IP-20 Version 4.0 Distribution tape.

See Chapter 1 of this guide for information about the floppy disks and

the TOPS-20 Installation and Distribution tapes.

The TCP/IP-20 Version 4.0 Distribution tape contains four DUMPER savesets recorded at 1600 bpi in DUMPER format.

- o Saveset 1 contains documents about the TCP/IP software.
- o Savesets 2 through 5 contain the TCP/IP monitors, data and source files, utilities and tools, and keys.

**C.2 RESTORING THE TOPS-20 BUNDLED SOFTWARE FROM TAPE**

Perform Step 1 to restore the TOPS-20 software.

Step 1: Create the TOPS-20 file system and the configuration command file.

You will be restoring a non-TCP/IP monitor as you create the file system and the configuration command file. Near the end of the TCP/IP installation, you will choose a TCP/IP monitor.

If you are doing a **new installation**, read chapters 1 through 3 to restore the Version 7.0 files from tape and create the configuration command file.

If you are doing an **update installation**, read Appendix A, Sections A.1 through A.2.6, Steps 1 through 47, to restore the Version 7.0 files and edit the configuration command file.

**C.3 RESTORING THE TCP/IP DISTRIBUTION TAPE**

To restore the TCP/IP-20 Version 4.0 Distribution tape, you need the following disk space:

- o 125 pages in the directory <OPERATOR>.
- o 2800 pages in the directory <SYSTEM> or <NEW-SYSTEM>.
- o 175 pages in the directory <SUBSYS> or <NEW-SUBSYS>.
- o 2700 pages in the directory <TCPIP-SOURCES>, a directory you must create.
- o 600 pages in the directory <TCPIP-KEYS>, a directory you must create.

Use the command INFORMATION DIRECTORY dev:<directory> to determine how

many free pages there are in each directory. If necessary, move some files to other directories or delete and expunge some files.

Follow Steps 2 through 14 to restore the TCP/IP Distribution tape.

Step 2: Type BUILD PS:<TCPIP-SOURCES> and press the RETURN key.

In order to restore the fourth saveset on the TCP/IP Distribution tape, you must BUILD the directory PS:<TCPIP-SOURCES>. Follow the example to do so.

```
$BUILD PS:<TCPIP-SOURCES> <RET>
[New]
$$WORKING 2700 <RET>
$$$PERMANENT 2700 <RET>
$$<RET>
$
```

In order to restore the fifth saveset on the TCP/IP Distribution tape, you must BUILD the directory PS:<TCPIP-KEYS>. Follow the example to do so.

```
$BUILD PS:<TCPIP-KEYS> <RET>
[New]
$$WORKING 600 <RET>
$$$PERMANENT 600 <RET>
$$<RET>
$
```

Step 3: Type DUMPER and press the RETURN key.

Type DUMPER to start the DUMPER program.

```
$DUMPER <RET>
DUMPER>
```

Step 4: Type TAPE MTAn: and press the RETURN key.

To tell DUMPER which tape drive you are using, type TAPE MTAn:. The example uses MTA0: as the tape drive.

```
DUMPER>TAPE MTA0: <RET>
DUMPER>
```

Step 5: Mount the TCP/IP Distribution tape.

Mount the TCP/IP Distribution tape on the tape drive. Be sure to put



the drive online.

Step 6: Type REWIND and press the RETURN key.

To be sure that the tape is at its beginning, type REWIND.

```
DUMPER>REWIND <RET>
DUMPER>
```

Step 7: Type SUPERSEDE ALWAYS and press the RETURN key.

Type the command SUPERSEDE ALWAYS to tell DUMPER to supersede a disk file with a magnetic tape file of the same file name and type.

```
DUMPER>SUPERSEDE ALWAYS <RET>
DUMPER>
```

## NOTE

Give the DUMPER command FILES just before the RESTORE command if you want the system to print the file specification of each file it restores. To stop printing each file specifications, give the NO FILES command after the current RESTORE command finishes.

Step 8: Type RESTORE PS:<\*>\*. \*.\* PS:<OPERATOR>\*. \*.\* and press the RETURN key.

Type the RESTORE command to restore the documentation files to the directory <OPERATOR>.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<OPERATOR>*. *.* <RET>
Saveset "Documentation Files for TCP/IP-20 V4.0" 18-Mar-88 0910
Loading files into PS:<OPERATOR>
End of Saveset.
```

```
Total files restored: 6
Total pages restored: 106
DUMPER>
```

Step 9: Type RESTORE PS:<\*>\*. \*.\* PS:<SYSTEM>\*. \*.\* and press the RETURN key.

Type the RESTORE command to restore the monitor, data, and system files to the directory <SYSTEM>. If you are doing an update installation, restore the files to <NEW-SYSTEM>.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<SYSTEM>*. *.* <RET>
Saveset "System Files for TCP/IP-20 V4.0" 18-Mar-88 0910
Loading files into PS:<SYSTEM>
End of Saveset.
```

```
Total files restored: 11
Total pages restored: 2717
DUMPER>
```

Step 10: Type RESTORE PS:<\*>\*. \*.\* PS:<SUBSYS>\*. \*.\* and press the RETURN key.

Restore the system files to the directory <SUBSYS>. If you are doing an update installation, restore the files to <NEW-SUBSYS>.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<SUBSYS>*. *.* <RET>
Saveset "Unsupported SUBSYS Utilities for TCP/IP-20 V4.0"
18-Mar-88 0911
Loading files into PS:<SUBSYS>
End of Saveset.
```

```
Total files restored: 10
Total pages restored: 162
DUMPER>
```

Step 11: Type RESTORE PS:<\*>\*. \*.\* PS:<TCPIP-SOURCES>\*. \*.\* and press the RETURN key.

Restore the utilities and tools files to the directory <TCPIP-SOURCES>.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<TCPIP-SOURCES>*. *.* <RET>
Saveset "Source Files for TCP/IP-20 V4.0" 18-Mar-88 0911
Loading files into PS:<TCPIP-SOURCES>
End of Saveset.
```

```
Total files restored: 55
Total pages restored: 2637
DUMPER>
```

Step 12: Type RESTORE PS:<\*>\*. \*.\* PS:<TCPIP-KEYS>\*. \*.\* and press the RETURN key.

Restore the keys files to the directory <TCPIP-KEYS>.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<TCPIP-KEYS>*. *.* <RET>
```

```
Saveset "Source Files for TCP/IP-20 V4.0" 18-Mar-88 0911
Loading files into PS:<TCPIP-KEYS>
End of Saveset.
```

```
Total files restored: 25
Total pages restored: 541
DUMPER>
```

Step 13: Type EXIT and press the RETURN key.

Type EXIT to end the DUMPER program.

```
DUMPER>EXIT <RET>
$
```

Step 14: Type UNLOAD MTAN: and press the RETURN key.

To unload the tape from the tape drive, type UNLOAD MTAN:.

```
$UNLOAD MTA0: <RET>
$
```

Step 15: Dismount the TCP/IP Distribution tape.

You can now remove the tape from the tape drive.

#### C.4 CUSTOMIZING A DATA FILE

Follow Steps 16 through 19 to customize the file INTERNET.ADDRESS (formerly SITE-ADDRESS.TXT).

Step 16: Type CONNECT PS:<SYSTEM> and press the RETURN key.

To provide the TCP/IP software with the data it needs to run, you must add or change three system files that reside in <SYSTEM>. You must be connected to the appropriate directory to do so.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

#### NOTE

The following steps create a file with the EDIT editor program. You can use any editor you wish, as long as you accomplish the goal of each step.

Step 17: Type CREATE INTERNET.ADDRESS and press the RETURN key.

The INTERNET.ADDRESS file should contain the addresses of your TOPS-20 system for each defined interface. TOPS-20 supports three interfaces:

- o AN20
- o KLNI (the Ethernet or NI, Network Interconnect)
- o KLIPA (the CI, Computer Interconnect)

Use the CREATE command to create the file INTERNET.ADDRESS.

```
$CREATE INTERNET.ADDRESS <RET>
Input: PS:<SYSTEM>INTERNET.ADDRESS.1
00100
```

Step 18: Enter the internet addresses for your site.

You must be sure that your INTERNET.ADDRESS file contains the correct network and host numbers. Contact the NIC or the NOC for assistance in determining your network addresses.

Here is an example of what you should place in your INTERNET.ADDRESS file:

```
AN20#0,10 0 0 79,NCP,PACKET-SIZE:1004
IPNI#0,192 5 6 1,PACKET-SIZE:1500,DEFAULT,PREFERRED
IPCI#0,192 5 5 4,PACKET-SIZE:632
IPNIA#0,16,34 0 2,PACKET-SIZE:1500,LOGICAL-HOST-MASK:225.225.225.0
```

The PACKET-SIZE keyword specifies the maximum size packet (in bytes) that can be transmitted over the interface.

The DEFAULT keyword specifies which internet address to use when communicating with a target host that is not on a directly connected network.

The PREFERRED keyword specifies which interface is preferred when a target host is on more than one directly connected network.

Obtain the correct network and host numbers from the NIC. Use the packet-size in the example. You should not have to change any parameters in the example, except the network address, as all of the parameters are set for optimum network accessibility.

Use the line starting with AN20#0 if you are connecting to the ARPANET or MILNET.

Use the line with IPNI#0 if you are connecting to the Ethernet (NI).

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Use the line with IPCI#0 if you are connecting to the CI.

Use the line with IPNIA#0 to allow multiple addresses on the same Ethernet.

Enter the internet addresses that are appropriate for your site into the file.

```
00100 AN20#0, 10 0 0 79,NCP,PACKET-SIZE:1004,DEFAULT,PREFERRED <RET>
00200 IPNIA#0,192 5 6 1,PACKET-SIZE:1500 <RET>
00300 IPCI#0,192 5 5 4,PACKET-SIZE:632 <RET>
00400
```

**Step 19:** Press the ESCAPE key. Type EU and press the RETURN key.

To save your INTERNET.ADDRESS file, press the ESCAPE key. Then type EU and press the RETURN key.

```
00400 $
*EU <RET>
[PS:<SYSTEM>INTERNET.ADDRESS.1]
$
```

### C.5 CHOOSING A MONITOR

At this time, you are running a TOPS-20 monitor, either 2060-MONBIG.EXE or 2060-MONMAX.EXE. You should now select a TCP/IP monitor that most closely meets your system's requirements.

The three TCP/IP monitors you can choose from are in <SYSTEM> (for new installations) or in <NEW-SYSTEM> (for update installations).

**AN-MONBIG.EXE** A big TCP/IP timesharing monitor without DECnet support. This monitor supports:

```
100 jobs
128 lines
10 LAT lines
30 pseudo-terminals
40 NVTs (Network Virtual Terminals)
4MEG of memory
8 magnetic tape drives
2 line printers
1 card reader
120 million words of disk storage (six RP04,
three RP06, one RP07, three RP20 spindles,
two RA60, or one RA81) per structure
```

10000 pages for swapping space

**AN-MONDCN.EXE** A large TCP/IP timesharing monitor with DECnet support. This monitor supports:

```
80 jobs
128 lines
40 LAT lines
50 pseudo-terminals
40 NVTs
4MEG of memory
8 magnetic tape drives
2 line printers
1 card reader
120 million words of disk storage (six RP04,
three RP06, one RP07, three RP20 spindles,
two RA60, or one RA81) per structure
15000 pages for swapping space
```

**AN-MONMAX.EXE** The largest TCP/IP timesharing monitor without DECnet support. This monitor supports:

```
128 jobs
128 lines
10 LAT lines
50 pseudo-terminals
40 NVTs
4MEG of memory
8 magnetic tape drives
2 line printers
1 card reader
120 million words of disk storage (six RP04,
three RP06, one RP07, three RP20 spindles,
two RA60, or one RA81) per structure
15000 pages for swapping space
```

In Steps 20 and 21, you choose the TCP/IP monitor most appropriate for your needs and copy it to the file PS:<SYSTEM>MONITR.EXE.

**Step 20:** Type CONNECT PS:<SYSTEM> and press the RETURN key.

Connect to the directory PS:<SYSTEM> by typing the CONNECT command.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

**Step 21A:** Type COPY montyp.EXE.\* MONITR.EXE.\* and press the RETURN key (new installation).

**Step 21B:** Type COPY PS:<NEW-SYSTEM>montyp.EXE.\* MONITR.EXE.\* and

press the RETURN key (update installation).

Use the COPY command for either a new installation or an update installation to copy the monitor that you have selected to the file MONITR.EXE. "Montyp" designates the type of monitor you have selected for your system. When the copy is successfully completed, the system prints an OK message.

The different monitors are AN-MONBIG.EXE, AN-MONDCN.EXE, and AN-MONMAX.EXE.

```
$COPY montyp.EXE.* MONITR.EXE.* <RET>      !New installation
montyp.EXE.1 => MONITR.EXE.1 [Superseding] [OK]
$
```

### C.6 CHANGING THE SYSTEM NAME

Whenever a user types <CTRL/C> before logging in or gives the INFORMATION VERSION command, the system prints a message similar to:

```
TOPS-20 BIG SYSTEM, TOPS-20 Monitor n.n(nnnn)
```

where n.n(nnnn) is the version and edit number of the operating system. You can change the system name "TOPS-20 BIG SYSTEM" by entering the name you want into the file PS:<SYSTEM>MONNAM.TXT. If the name contains lowercase letters, give the command TERMINAL NO RAISE before entering the name.

The text of the system name can contain up to 105 characters. For practical purposes, it should not exceed 32 characters to fit on a single 72-character line of terminal output. Steps 22 through 24 show how to change the system name to "TCP/IP Installation System" and how to change the new system name to the abbreviated name "TCP/IP-Sys."

Step 22: Type TERMINAL NO RAISE and press the RETURN key (optional).

If you want lowercase letters in the system name, type the TERMINAL command. Make sure that the CAPS LOCKED button on the terminal is not depressed.

```
$TERMINAL NO RAISE <RET>
$
```

Step 23: Type COPY TTY: MONNAM.TXT and press the RETURN key. Then enter the system name and type <CTRL/Z>.

Change the system name by entering the name you want into the file PS:<SYSTEM>MONNAM.TXT. The system name should not exceed 32 characters.

Use the COPY command to give the system a new system name. After you enter the command, the system waits for you to type the new name of your system. After you enter the new system name, type <CTRL/Z>. In the example, the new system name is TCP/IP Installation System.

```
$COPY TTY: MONNAM.TXT <RET>
TTY: = MONNAM.TXT.1
```

```
TCP/IP Installation System ^Z
$
```

You can change this file at any time, but the system reads the system name only when the monitor is started (whenever you boot the system).

Step 24: Type COPY TTY: TAPNAM.TXT and press the RETURN key. Enter the abbreviated system name and type <CTRL/Z>.

You should also change the system name that will be written on the volume header label of any tape initialized by users of the system. Do this by entering the name you want into the file PS:<SYSTEM>TAPNAM.TXT. This system name must contain ten or fewer characters, so you will probably have to abbreviate the name given in the previous step. The example shows how to change the system name (that appears on tape labels written by the system) to "TCP/IP-Sys."

Give the system an abbreviated name with the COPY command. After you enter the command, the system waits for you to type the abbreviated system name. After you enter the abbreviated system name, type <CTRL/Z>. In the example, the abbreviated system name is TCP/IP-Sys.

```
$COPY TTY: TAPNAM.TXT <RET>
TTY: = TAPNAM.TXT.1
```

```
TCP/IP-Sys ^Z
$
```

### C.7 COMPLETING YOUR TCP/IP INSTALLATION

Complete your installation by performing Steps 25 through 31.

Step 25: Shut down your system and bring it back up again.

Shutting down your system and bringing it back up again will use the TOPS-20 Version 7.0 and TCP/IP-20 Version 4.0 software and the INTERNET.ADDRESS file you created.

As you bring up the system, the system output will differ from that shown in Chapters 4 and 5 or Appendix A, Sections A.2.7 and A.2.8.

Your system output will contain messages about the loading of host names and different internet networks coming online.

If you are performing a new installation, proceed to Chapter 4, Creating the Front-End File system, and Chapter 5, Starting the System, to complete the software installation and to shut your system down and bring it back up again.

If you are performing an update installation, proceed to Appendix A, Updating the DECSYSTEM-20 Software, Sections A.2.7 and A.2.8, Steps 48 through 63, to complete the software installation and to shut your system down and bring it back up again.

Step 26: Log in and enable your capabilities. Then type CONNECT PS:<SYSTEM> and press the RETURN key.

Follow the example to log in, enable your capabilities, and connect to the appropriate directory.

```
TCP/IP Installation System, TOPS-20 Monitor 7.0(6763)
@LOGIN OPERATOR your-password <RET>
Job 5 on TTY8 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$CONNECT PS:<SYSTEM> <RET>
$
```

Step 27: Type TDIRECTORY HOSTS.TXT and press the RETURN key.

The file named HOSTS.TXT is in your SYSTEM: area. (SYSTEM: is usually defined as PS:<NEW-SYSTEM>,PS:<SYSTEM>.) As an ARPANET customer, you will have access to a new copy of this file approximately every two weeks, when it is updated by the ARPA Network Information Center (NIC). Use each new copy when you retrieve it to be sure you are using the most recent copy.

Type TDIRECTORY HOSTS.TXT to obtain information about the file HOSTS.TXT.

```
$TDIRECTORY HOSTS.TXT <RET>
```

```
PS:<SYSTEM>
```

```
Write
```

```
HOSTS.TXT 27-MAR-87 18:11:54
$
```

When your system has access to the ARPANET networks, obtain a new HOSTS.TXT file with the following command sequence.

NOTE

You must have your TCP/IP monitor up and running before you can issue the following command sequence.

```
@ENABLE <RET>
$IHOST <RET>
```

```
IHOST - TOPS-20AN TCP/IP Host Utility Program - Version 7.0(42)
```

```
Interface 0, net 10.0.0.0 [ARPANET], adr 10.0.0.79 [DEC-TOPS20]
Interface 1, net 192.5.6.0 [DEC-MRRAD], adr 192.5.6.1 [DEC-TOPS20]
Interface 2, net 192.5.5.0 [DEC-MRNET], adr 192.5.5.4 [DEC-TOPS20]
```

```
IHOST>RETRIEVE HOST SRI-NIC 101 HOSTS.TXT <RET>
```

```
[ Opening TCP connection ] [OK]
[ Receiving TCP data ..... ] [OK]
[ Closing TCP connection ] [OK]
```

```
IHOST>EXIT <RET>
$
```

The RETRIEVE command gets the HOST table from SRI-NIC on port 101 and places the table into the file HOSTS.TXT. (Recognition input can be of help with this command.)

Step 28: Enter TYPE INTERNET.GATEWAYS and press the RETURN key.

The INTERNET.GATEWAYS file should be in your SYSTEM: area. It defines which gateways to the ARPANET your TOPS-20 host can talk to. DIGITAL provides a file in the correct INTERNET.GATEWAYS format with the TCP/IP software. This file contains the gateway addresses for your TOPS-20 host to communicate with the ARPA MILNET gateways. Your TOPS-20 host will be able to talk to only the MILNET gateways specified by the NIC and the NOC for your site. Contact your ARPANET liaison if you have questions.

Enter the TYPE command to display the file INTERNET.GATEWAYS on your terminal.

```
$TYPE INTERNET.GATEWAYS <RET>
;created by...
Created 25 JUN 1985 1858-PST
;GW/PRIME Internet
PRIME 10.0.0.94., 192.5.2.6.
```

\$

Step 29: Determine which gateway addresses to place in your file.

The addresses in the INTERNET.GATEWAYS file must be in the form:

network-name gateway-address, alternate-gateway-address

Each address has the format

n.n.n.n

where n specifies a decimal octet (that is, an 8-bit decimal number) of the internet address.

An internet address consists of four decimal octets (that is, a total of 32 bits). For example, the internet address for host DEC-MARLBORO is 10.1.0.79.

With the help of the ARPANET NIC and NOC, or your ARPANET liaison, determine which gateway addresses to place in your file.

Step 30: Place the correct addresses into INTERNET.GATEWAYS.

You must edit the INTERNET.GATEWAYS file you receive from DIGITAL to contain the gateway addresses for your site. Therefore, use an editing program to place the correct addresses into the file and save the customized file in your SYSTEM: area. Step 31: Shut down the system and then read Chapter 5 of this guide.

Shut down your system in an orderly fashion and then read Chapter 5 of this guide to reboot the system from disk. By rebooting the system, you load the HOST.TXT and INTERNET.GATEWAYS files. Once you reboot you can begin timesharing.

### C.8 ACCESSING THE LIMITED DOMAIN RESOLVER

A TOPS-20 TCP/IP node now has the capacity to have access to a host that supports DNS name server software. This enables better maintenance of the HOST.TXT file for addressing nodes in the network and for system administration.

The more nodes that are added to the INTERNET, the larger the host file HOSTS.TXT becomes. The increasing size of the data base and frequency of updates to it created the need for a distributed manner to maintain it, with local caching to improve performance.

All of the nodes in the network make up the domain name space tree.

Each node and leaf of the tree name a set of information. A query operation requests specific types of information. A query names the domain name of interest and describes the type of resource information desired.

Name servers are server programs that hold information about the domain tree's structure and set information. A particular name server has complete information about a subset of the domain space, and pointers to other name servers that have information about other parts of the domain tree.

Resolvers are program that extract information from name servers in response to user requests. Resolvers must be able to access at least one name server and use that name server's information to answer a query directly, or pursue the query using referrals to other name servers.

The TOPS-20 DNS is a 'stub' resolver with a local cache and does not pursue any query using referrals to other name servers.

The TOPS-20 implementation of the client-resolver interface only supports INTERNET host name to host address and INTERNET host address to host name translation, and certain other information.

The host names that are listed in SYSTEM:INTERNET.NAMESERVERS must run DNS server software, which performs the recursive DNS resolver functions for the non-recursive TOPS-20 'stub resolver'. The following steps describe how to activate the TOPS-20 Domain Resolver and Domain Name Service.

Step 31: Find a host in your area that is running DNS name server software

Find a host that the TOPS-20 system can use for the primary name server. Preferably, the host should be on the same Ethernet as the TOPS-20 system.

Step 32: Find another host running DNS name server software

Find another host in your area that is running the DNS name server software that can be used as a backup name server in case the primary is not reachable.

Step 33: Restore the new versions of IPHOST.EXE and SYSDPY.EXE to PS:<NEW-SUBSYS>

Mount the Software Update tape and repeat Steps 3, 4, 6, 7, and 10 to restore the new versions of IPHOST.EXE and SYSDPY.EXE to PS:<NEW-SUBSYS>.

Step 34: Type CONNECT PS:<SYSTEM> and press the RETURN key.

Connect to the PS:<SYSTEM> area to add the file SYSTEM:INTERNET.NAMESERVERS.

```
$CONNECT PS:<SYSTEM> <RET>
$
```

Step 35: Type CREATE INTERNET.NAMESERVERS and press the RETURN key.

The INTERNET.NAMESERVERS file should contain the address of the addresses of the primary DNS name server host and the back DNS name server host.

Use the CREATE command to create the file INTERNET.ADDRESS.

```
$CREATE INTERNET.NAMESERVERS <RET>
Input: PS:<SYSTEM>INTERNET.NAMESERVERS.1
00100
```

Step 36: Enter the DNS name server addresses for your site.

You must be sure that your INTERNET.NAMESERVER file contains the correct network and host numbers. Contact the local site's IP administration for assistance in determining the network addresses of the DNS name server host.

The first line should be the primary DNS name server host's IP address. The second line should be the backup DNS name server host's IP address. Up to eight host names can be entered. A timeout parameter is specified for each name server host.

Here is an example of what you should place in your INTERNET.NAMESERVERS file:

```
16.34.0.9,TIMEOUT:10
16.1.0.1,TIMEOUT:10
```

Normally a rather short timeout is used, on the order of 5 to 10 seconds. Longer timeouts may cause user frustration when a host name is not found because it was spelled incorrectly. Shorter timeouts may not allow the name server enough time to satisfy the request.

Enter the internet primary and backup DNS name server host addresses that are appropriate for your site into the file.

```
00100 16.34.0.9,TIMEOUT:10<RET>
00200 16.1.0.1,TIMEOUT:10<RET>
00300
```

Step 37: Press the ESCAPE key. Type EU and press the RETURN key.

To save your INTERNET.NAMESERVERS file, press the ESCAPE key. Then type EU and press the RETURN key.

```
00300 $
*EU <RET>
```

```
[PS:<SYSTEM>INTERNET.NAMESERVERS.1]
$
```

Step 38: Run the IPHOST program and perform a LOAD NAMESERVER command

You must have your TCP/IP monitor up and running before you can issue the following command sequence.

```
@ENABLE <RET>
$IHOST <RET>
```

IPHOST - TOPS-20AN TCP/IP Host Utility Program - Version 7(50)

```
Interface 0, net 16.0.0.0 [internet], adr 16.34.0.2 [DEC-TOPS20]
Interface 1, net 192.5.5.0 [dec-mrrad], adr 192.5.5.1 [DEC-TOPS20]
Interface 2, net 192.5.5.0 [dec-mrnet], adr 192.5.5.4 [DEC-TOPS20]
```

```
IPHOST>LOAD NAMESERVERS <RET>
```

```
IPHOST>EXIT <RET>
$
```

Step 39: Type SYSDPY AND and press the RETURN Key

Run the SYSDPY program and select the AND display. Check to insure that the name servers address and timeout fields are correct. The "Success" and "Failures" columns show the result of the DNS queries issued to each name server host.

```
$SYSDPY AND <RET>
```

Host Name	Host Address	Timeout	Success	Failure
bldg19.tops.com	16.34.0.9	10	5362	5652
decwrl.dec.com	16.1.0.1	10	681	4033

Step 40: Remove the hosts from SYSTEM:HOST.TXT

If the DNS software works properly, remove all hosts from SYSTEM:HOSTS.TXT, except the following:

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- o Entries for this system's IP interfaces and networks
- o Entries for the name server hosts
- o Any other host that local applications need to access, even if all name server hosts are inaccessible.

Reducing the size of HOSTS.TXT files allows the system to boot quicker, and speeds up searching for host name to address translation.

## APPENDIX D

### GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

This appendix describes how to generate a TOPS-20 batch and spooling (GALAXY) system specifically tailored for your installation. To do this you must have already installed a standard Release 6 GALAXY system. The standard GALAXY system is satisfactory for most sites. The procedures shown in Chapters 1 through 7 of this guide, or in Appendix A or B, describe how to install Release 7.0 TOPS-20 software, including a standard Release 6 GALAXY system. After performing those procedures, you can use the steps in this appendix if you need to generate a GALAXY system having different parameters from the standard one.

#### NOTE

While the steps in generating a tailored Release 6 GALAXY system can be used with timesharing users logged in, the critical phase of stopping the standard Release 6 system and starting up your tailored one (Steps 28 through 50) should, for safety reasons, be performed on a stand-alone system. The queues need not be empty, however, as long as a Release 6 (as opposed to Release 5 or earlier) GALAXY system is already running.

The following paragraphs summarize the procedure for generating and starting up a new GALAXY system.

1. Run the DUMPER program to restore the GALAXY source files to disk. In addition to the source code, the files include a special batch control file called GALAXY.CTL.
2. Run the GALGEN program to create a file containing the new GALAXY system parameters. The name of the parameter file is GALCNF.MAC.
3. Submit the control file GALAXY.CTL to your currently running batch system. The batch job that is created by GALAXY.CTL reads the parameter file created by GALGEN and generates a new set of GALAXY files of type .EXE in a temporary area.



## GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

The batch job creates a log file that should be saved for reference.

4. Stop all the components of the currently running GALAXY system (QUASAR, LPTSPL, and so on).
5. Copy all the old GALAXY files from their current area (usually SYS:) to some other area.
6. Copy all the new GALAXY files from the temporary area to SYS:.
7. Start up the components of the new GALAXY system.
8. Delete the .EXE files of the old GALAXY system when the new batch system is operating correctly. If you want to be cautious, you can save the old .EXE files on tape or in a backup directory (see Step 36 in this appendix). You can also delete the GALAXY source files (and the unrelated files restored along with them from the Distribution tape). However, if your installation can spare the disk space, it is more convenient to leave the sources on disk. Then, if any code patches must be made to the batch system, you have the sources readily available. Otherwise, you have to restore the sources from the software tape if patching is required.

### NOTE

The procedures described below assume that you have a Release 6 GALAXY system currently running. These procedures can be carried out during normal timesharing.

### D.1 RESTORING THE GALAXY SOURCE FILES

To restore the GALAXY source files, you must build a directory, mount the Distribution tape, and run the DUMPER program. Perform Steps 1 through 22 to restore the GALAXY files.

### NOTE

The steps in this appendix assume that you are using the console terminal (CTY).

#### Step 1: Log in and enable WHEEL or OPERATOR privileges.

You must be enabled and have privileges to perform these procedures. Follow the example to log in and enable your capabilities.

Installation-test System, TOPS-20 Monitor 7.0(nnnn)

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## GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

```
@LOGIN OPERATOR your-password <RET>
Job 5 on TTY8 dd-mmm-yy hh:mm:ss, Last Login dd-mmm-yy hh:mm:ss
@ENABLE <RET>
$
```

### NOTE

If you have tape drive allocation enabled, perform Steps 2 through 6. Otherwise, continue at Step 7.

### NOTE

If you have already restored ALL of the savesets on the Distribution tape (as described in Chapter 6), you need not restore the GALAXY saveset again. Proceed to Step 16.

#### Step 2: Type OPR and press the RETURN key.

Type OPR to run the OPR program to set a tape drive unavailable.

```
$OPR <RET>
OPR>
```

#### Step 3: Type SHOW STATUS TAPE-DRIVE /ALL and press the RETURN key.

To find out what drives on the system are available, type SHOW STATUS TAPE-DRIVE /ALL. The system prints the status of all tape drives on the system. Use any tape drive that has the status of "UNLOADED."

```
OPR>SHOW STATUS TAPE-DRIVE /ALL <RET>
OPR>
15:00:09          --Tape Drive Status--
DRIVE  STATE  VOLID   REQ#   JOB#  USER
-----  -----  -----  ----  ----  ----
MTA0:  Available
MTA1:  Unloaded
      AVR: Yes
MTA2:  Unloaded
      AVR: Yes
MTA3:  Unloaded
      AVR: Yes
MTA5:  Unloaded
      AVR: Yes
MTA6:  Unavailable
OPR>
```

#### Step 4: Type SET TAPE-DRIVE MTAn: UNAVAILABLE and press the RETURN key.

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## GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

To allow the use of a tape drive without the intervention of the MOUNTR program, type SET TAPE-DRIVE MTA0: UNAVAILABLE. The example uses MTA0: as the tape drive, but you can specify any tape drive that has the status UNLOADED.

```
OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE <RET>
Enter text and terminate with ^Z
```

Step 5: Type USING GALGEN PROCEDURE and press <CTRL/Z>.

After the system prints "Enter text and terminate with ^Z," type the text USING GALGEN PROCEDURE and then press <CTRL/Z>. The system prints the OPR prompt and several messages.

```
Enter text and terminate with ^Z
USING GALGEN PROCEDURE ^Z
OPR>
SJ 0: PTYCON>
SJ 0: **** OPR(6) 15:01:41 ****
SJ 0:
SJ 0: 15:01:41 -- Tape Drive Set Unavailable --
SJ 0: MTA0: set unavailable for assignment by MOUNTR
SJ 0: OPR>

15:01:41 -- Tape Drive Set Unavailable --
MTA0: set unavailable for assignment by MOUNTR
OPR>
```

Step 6: Type EXIT and press the RETURN key.

To return to TOPS-20 command level, type EXIT.

```
OPR>EXIT <RET>
$
```

Step 7: Type ASSIGN MTA0: and press the RETURN key.

To assign tape drive 0 to your job, type ASSIGN MTA0:.

```
$ASSIGN MTA0: <RET>
$
```

### NOTE

The examples in this guide use MTA0: as the tape drive. However, you can assign and use any tape drive that has the status UNLOADED; MTA0: is not required. Be sure to use the name of the tape drive you assign in Step 7 whenever MTA0: appears in this appendix.

## GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

Step 8: Type BUILD PS:<BUILD> and press the RETURN key.

Create a directory to hold the GALAXY source files. Although you can give it any name, a reasonable name for this directory is PS:<BUILD>, because it is also known as the build area. To do so, type BUILD PS:<BUILD>. The system displays either [New] if the directory does not already exist or [Old] if the directory exists. The subcommand prompt (\$\$) follows.

```
$BUILD PS:<BUILD> <RET>
[New]
$$
```

Step 9: Assign storage space.

Assign sufficient storage space to the directory to allow copying of the entire fourth saveset (not just the GALAXY sources). Follow the example to assign storage space and to end the BUILD procedure.

```
$$WORKING 5000 <RET>
$$PERMANENT 5000 <RET>
$$<RET>
$
```

Step 10: Mount the Distribution tape on MTA0:.

To restore the GALAXY files from tape, mount the Distribution tape on the tape drive you assigned in Step 7. (If you need help, see Chapter 2, Section 2.2, Step 9, of this guide.) Be sure the drive is on line.

Step 11: Type DUMPER and press the RETURN key.

You need to run the DUMPER program to restore the GALAXY source files from tape. To run this program, type DUMPER. The system prints the DUMPER prompt.

```
$DUMPER <RET>
DUMPER>
```

Step 12: Type TAPE MTA0: and press the RETURN key. Then type ACCOUNT SYSTEM-DEFAULT and press the RETURN key.

To tell the DUMPER program which tape drive you are using, type TAPE MTA0:. Then type ACCOUNT SYSTEM-DEFAULT to tell DUMPER to use the system-default account.

```
DUMPER>TAPE MTA0: <RET>
DUMPER>ACCOUNT SYSTEM-DEFAULT <RET>
DUMPER>
```

GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

Step 13: Type SKIP 3 and press the RETURN key.

To skip over the first three savesets on the Distribution tape, give the command SKIP 3. The DUMPER program prints a message identifying each saveset it skips, and then gives the DUMPER prompt. Be prepared for a 5 to 10 minute wait while DUMPER positions the tape.

```
DUMPER>SKIP 3 <RET>
.
.
DUMPER>
```

Step 14: Type RESTORE PS:<\*>\*. \*.\* PS:<BUILD>\*. \*.\* and press the RETURN key.

To restore all the files from the fourth saveset (including the GALAXY source files), type the RESTORE command. The system prints a message identifying the saveset and the number of files and pages restored, followed by the DUMPER prompt.

```
DUMPER>RESTORE PS:<*>*. *.* PS:<BUILD>*. *.* <RET>
Saveset "GALAXY sources for TOPS-20 V7.0" 18-Mar-88 1400
Loading files into PS:<BUILD>
End of Tape.
```

```
Total files restored: n
Total pages restored: n
DUMPER>
```

Error: If DUMPER does not print a message identifying the saveset as "GALAXY sources for TOPS-20 V7.0," the tape is not positioned at the correct saveset. Give the REWIND command to DUMPER and begin again at Step 13.

If the message "Loading files into PS:<BUILD>" does not appear, no files are being restored from tape. Be sure that the correct tape is mounted on the tape drive you have assigned to your job. Then exit from DUMPER and begin again at Step 8. If errors persist, the tape may be bad. Contact your DIGITAL Field Service Representative for assistance.

Step 15: End the DUMPER program.

Once the fourth saveset has been restored from tape, end the DUMPER program. To do so, follow the example to rewind the tape and exit from DUMPER. The system prints the TOPS-20 ENABLEd prompt (\$).

```
DUMPER>REWIND <RET>
```

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```
DUMPER>EXIT <RET>
$
```

Step 16: Type INFORMATION DISK-USAGE PS:<BUILD> and press the RETURN key.

To verify that you have restored all the files from the fourth saveset of the Distribution tape, type INFORMATION DISK-USAGE PS:<BUILD>. The system prints information about the amount of disk space used by the directory.

```
$INFORMATION DISK-USAGE PS:<BUILD> <RET>
PS:<BUILD>
2597 Pages assigned
3000 Working, 3000 Permanent pages allowed
34540 Pages free on PS:, 41460 pages used.
$
```

NOTE

If you restored the GALAXY saveset to another directory, use that directory name in Step 16.

Step 17: STOP.

If the number of pages assigned does not approximately match the number shown in Step 16, you may not have restored all the files necessary for creating a GALAXY system. Check to be sure you have the correct tape mounted, then begin again at Step 11.

NOTE

If you previously restored the GALAXY saveset (as described in Chapter 6), and have the appropriate number of pages assigned, proceed to Step 23. Otherwise, restore the GALAXY saveset again, starting at Step 2.

Step 18: Type UNLOAD MTA0: and press the RETURN key.

To unload the tape from the tape drive, type UNLOAD MTA0:. The system rewinds the tape onto the source reel.

```
$UNLOAD MTA0: <RET>
$
```

You can now remove the Distribution tape from the tape drive.

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Step 19: Type DEASSIGN MTA0: and press the RETURN key.

Once you unload the tape from the drive, return the tape drive to the pool of available resources. To do so, type DEASSIGN MTA0:

```
$DEASSIGN MTA0: <RET>
$
```

### NOTE

If you performed Step 4, which removed a tape drive from the system's usage, perform Steps 20 through 22. Otherwise, continue at Step 23.

Step 20: Type OPR and press the RETURN key.

Run the OPR program to set the tape drive available to users.

```
$OPR <RET>
OPR>
```

Step 21: Type SET TAPE-DRIVE MTA0: AVAILABLE and press the RETURN key.

To return the tape drive you removed from system usage in Step 4, type SET TAPE-DRIVE MTA0: AVAILABLE.

```
OPR>SET TAPE-DRIVE MTA0: AVAILABLE <RET>
OPR>
15:13:53 -- Tape Drive Set Available --
          MTA0: set available for assignment by MOUNTR
SJ 0: PTYCON>
SJ 0: **** OPR(6) 15:13:53 ****
SJ 0:
SJ 0: 15:13:53 -- Tape Drive Set Available --
SJ 0:          MTA0: set available for assignment by MOUNTR
SJ 0: OPR>
OPR>
```

Step 22: Type EXIT and press the RETURN key.

To return to TOPS-20 command level and continue with this procedure, type EXIT. The system prints the ENABLED prompt (\$).

```
OPR>EXIT <RET>
$
```

## GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

### D.2 RUNNING THE GALGEN PROGRAM

Run the GALGEN program to create the GALAXY configuration file. Be sure you run GALGEN Version 5, which is the latest version.

Step 23: Type GALGEN and press the RETURN key.

You must run the GALGEN program to create the GALAXY configuration file PS:<BUILD>GALCNF.MAC, which will contain the parameters describing the tailored GALAXY system you are building. Type GALGEN and press the RETURN key. The GALGEN program responds by giving its name and version number, and then printing several paragraphs of information.

```
$GALGEN <RET>
```

```
GALGEN Version 6(7626)
```

```
[Starting GALAXY Generation Procedure for TOPS-20 System]
```

```
[Writing GALAXY Configuration File PS:<BUILD>GALCNF.MAC.1]
```

In the following dialog, all questions are of the form:

text of question (list or range of answers) [default answer]

The line starts with the actual text of the question. Following the question is a description of the possible answers enclosed in parentheses. This description might be a range of numbers, a list of keywords, or a textual description. Following this description is the default answer, enclosed in square brackets. The default will be assumed if you only press the RETURN key.

You have the choice of carrying on a LONG dialog in which an explanation of each question is provided automatically, or a SHORT dialog in which it is assumed that you are familiar with the GALAXY generation procedure. In either case, you can always obtain the help text by typing a question mark (?) in response to any question.

Answer the following question with either LONG (for a long dialog) or SHORT (for a short one). Simply pressing the RETURN key implies SHORT.

```
Dialog Length (SHORT, LONG) [SHORT]
```

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Step 24: STOP.

You have the option of a long dialog, in which GALGEN explains the choices it offers you, or a short one, in which only the choices themselves are displayed. If you are an experienced user of GALGEN, you may want the short dialog, which is faster; in this case, press the RETURN key and skip to Step 26. Otherwise, continue at Step 25.

Step 25: Type LONG and press the RETURN key.

To request the long dialog with GALGEN, type LONG and press the RETURN key. GALGEN responds with some information and then the first question about GALGEN parameters.

Dialog Length (SHORT, LONG) [SHORT] LONG <RET>

Administrative Controls and Parameters  
-----

The questions in this section determine absolute GALAXY parameters, which cannot be overridden by user or operator commands.

The system logs all operator interactions in a disk file in the spooling area. Your answer to the following question specifies the name to be used for this file.

Operator log filename(3-20 Characters) [OPERATOR-SYSTEM]

Step 26: Answer the questions in the GALGEN display.

GALGEN presents a series of questions, one at a time, for you to answer. If you asked for a long dialog in Step 25, an explanation of each question is included. Otherwise, you see only the questions, the range of choices, and the default answer. The default answer is the one that appears in brackets ([]). This value (the default) is used if you answer the question by pressing the RETURN key.

Following is a sample of the dialog you would see if you typed LONG in Step 25. Press the RETURN key when you want the default answer shown in brackets and are ready to see the next question in the GALGEN dialog. Otherwise, type your answer and then press the RETURN key to see the next question.

In the sample dialog, the default answer is taken for all questions

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except the last question in the dialog.

NOTE

You must supply the correct values for your own system.

Operator log filename(3-20 Characters) [OPERATOR-SYSTEM] <RET>

Users can specify a priority for their batch and spooling requests with the /PRIORITY switch. The allowable values on this parameter range between 1 (representing lowest priority) and 63 (representing the highest). The following two questions relate to this switch. The first question requests the maximum priority which may be specified by a non-privileged user.

Maximum priority non-privileged users may specify(1-63) [20] <RET>

You may specify the value to be used if the user does not specify a /PRIORITY switch. This value must be between 1 and the maximum that you specified in the previous question.

Default for /PRIORITY on batch and spooling requests(1-63) [10] <RET>

This value is to control the number of objects (printers, batch streams, etc.) that can be controlled by a single command in OPR. This value should be at least the maximum number of objects of a single type you may have. The value must be at least 1.

Maximum number of objects that can be controlled with one command (1-100) [6] <RET>

Specify the highest number that a batch stream can be on the system. The value must be greater than zero and less than or equal to 10000.

Highest number a batch stream can be on the system (1-10000) [100] <RET>

The priority of a process and the permissible range of queues it may run in is determined by the scheduler priority control word.

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A system process gets a higher priority than all user jobs and gets as much time as is necessary for execution.

Do you wish QUASAR to run as a system process?(YES,NO) [YES]  
<RET>  
Do you wish ORION to run as a system process?(YES,NO) [YES]  
<RET>  
Do you wish NEBULA to run as a system process?(YES,NO) [YES]  
<RET>  
Do you wish BATCON to run as a system process?(YES,NO) [YES]  
<RET>  
Do you wish LPTSPL to run as a system process?(YES,NO) [YES]  
<RET>

The following parameter determines whether CLUSTER GALAXY should be ENABLED or DISABLED at GALAXY startup. The default is YES.

Do you want to ENABLE CLUSTER GALAXY at GALAXY start up?(YES,NO) [YES] <RET>

The following parameters allow a user with SEMI-OPR privilege to be able to control certain devices.

Do you want SEMI-OPR to be able to control the printers?(YES,NO) [YES] <RET>  
Do you want SEMI-OPR to be able to control the plotters?(YES,NO) [YES] <RET>  
Do you want SEMI-OPR to be able to control the card readers?(YES,NO) [YES] <RET>  
Do you want SEMI-OPR to be able to control the card punch?(YES,NO) [YES] <RET>  
Do you want SEMI-OPR to be able to control the paper tape punch?(YES,NO) [YES] <RET>  
Do you want SEMI-OPR to be able to control the tape drives?(YES,NO) [YES] <RET>

### Applications -----

The following section establishes parameters for applications supported by GALAXY (for example, NCP). These applications will be accessible through OPR, the operator interface.

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You can enable applications through your answers to the following questions.

Will you be running applications?(YES,NO) [YES] <RET>

Each application must be associated with an application table name (for example, NCPTAB).

Application name or carriage return to exit(1-20 characters) NCP  
<RET>  
Table name for NCP(1-6 characters) NCPTAB <RET>  
Is there an internal ORION application for this application?(YES,NO) [NO] <RET>  
Application name or carriage return to exit(1-20 characters) LCP  
<RET>  
Table name for NCP(1-6 characters) LCPTAB <RET>  
Is there an internal ORION application for this application?(YES,NO) [NO] YES <RET>  
Application module name(1-6 Characters) LCPORN <RET>  
Application name or carriage return to exit(1-20 characters)  
<RET>

### NOTE

If you are running applications supported by GALAXY, see the appropriate documentation to determine the application table names. If you are running DECnet-20, see the DECnet-20/PSI-20 System Manager's Guide and the DECnet-20 Network Generation and Procedures manual.

### Batch Job Defaults -----

The questions in this section are used to define default values for the various options that a user can specify when submitting a batch job.

The batch user can specify a maximum runtime for his batch job using the /TIME switch. If he does not specify this switch, the following default will be used:

Default batch job runtime limit(5-9999 seconds) [300] <RET>

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Every batch job has maximum limits for each type of spooled output. These limits can be set by the batch user with appropriate switches to the SUBMIT command. If the user doesn't specify these switches, the following defaults will be used:

Line printer output limit(0-9999 pages) [200] <RET>
Card punch output limit(0-9999 cards) [1000] RET>
Paper tape punch output limit(0-5000 feet) [200] <RET>
Plotter output limit(0-5000 minutes) [30] <RET>

The user can specify whether or not the batch log file should be printed after the job terminates by using the /OUTPUT switch to the SUBMIT command. The action is specified by: LOG to always print the log file, NOLOG to never print the log file, and ERROR to print the log file only if the job ended with an unhandled error. If the user doesn't specify this switch, the following value will be used.

Default for batch SUBMIT/OUTPUT (LOG,NOLOG,ERROR) [LOG] <RET>

Line Printer Defaults and Parameters
-----

The questions in this section are used to set default values for the line printer spooler.

Job banner pages printed at the beginning of each print request. The user's name and any /NOTE value is printed on them.

Number of job banner pages (0-5) [2] <RET>

Job trailer pages are printed at the end of each print request. The user's name and any spooler checkpoint information is printed on them.

Number of job trailer pages(0-5) [2] <RET>

File header pages are printed before each file or copy in each print request. The file name is printed in BOLD letters on each header page.

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Number of file header pages(0-5) [2] <RET>

The user can specify a special form for a print request with the /FORMS switch. If this switch is not specified, the following default will be used.

Name for standard output forms(4-6 Characters) [NORMAL] <RET>

The number of characters that uniquely identify a form is compared with the current form name to determine if a forms change is required for a specific user request.

Number of characters which uniquely identifies form(2-6) [4] <RET>

Cluster LPTSPL requires a directory that must be shared between all the systems in the cluster that send print requests to a Cluster LPTSPL. The default logical name is LPTXFR.

Cluster LPTSPL shared directory logical name (2-40 characters) [LPTXFR] <RET>

Cluster printers require the LISSPL server to be running on the node where the actual physical printer is located. LISSPL has server forks that pick up the print request from remote nodes. The default number of server forks is 2.

Number of LISSPL server forks (1-4) [2] <RET>

Tape Label Action
-----

The system administrator can allow non-privileged users to bypass label processing.

Allow bypassing for non-privileged users?(YES,NO) [NO] <RET>

NEBULA (Cluster GALAXY message router) options

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-----

The NEBULA ACK/ACK RESPONSE message option ensures that NEBULA actually has DECnet communication with nodes that believes it has communication with by sending an ACK message every 5 minutes to each node. If an ACK RESPONSE message is not received from a node after 5 minutes, then NEBULA assumes that it no longer has communication with that node. This covers the case where the NI of a remote node is reloaded. In this case, the local NEBULA is not interrupted so it assumes that it still has communication with the remote node when in fact it does not.

Do you want NEBULA ACK/RESPONSE ACK messages enabled?(YES,NO) [NO]

Miscellaneous Defaults and Parameters

-----

The questions in this section refer to general GALAXY parameters.

The following section establishes default bias and disk page to spooler unit conversion factors.

Do you want the standard limit computation(YES,NO) [YES] <RET>

The default action to be taken when output exceeds the specified limit for an output spooler may be to ABORT the job and ignore all remaining output, ASK the operator what to do, or PROCEED to finish processing the job.

Default output-limit-exceeded action(ABORT,ASK,PROCEED) [ASK] ABORT <RET>

[End of Galgen Dialog]  
\$

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D.3 ASSEMBLING THE NEW GALAXY SYSTEM

In the last step you completed the GALGEN program, which produced the GALAXY parameter file, GALCNF.MAC. This file contains your choice of options for a tailored batch and spooling system. To create this batch and spooling system you must submit the GALAXY control file, GALAXY.CTL, to your present batch system. GALAXY.CTL reads GALCNF.MAC and generates the files and programs for a tailored GALAXY system. Perform Step 27 to assemble the new GALAXY system.

Step 27: Type SUBMIT PS:<BUILD>GALAXY.CTL/TIME:0:30:00/RESTARTABLE and press the RETURN key.

To start the assembly process, submit the .CTL file to the batch queue. After doing so, the system prints a message giving the job name, the request I.D., and the time limit of the batch job.

```
$SUBMIT PS:<BUILD>GALAXY.CTL.1/TIME:0:30:00/RESTARTABLE <RET>
[Batch job GALAXY queued, Request #170, limit 0:30:00]
$
SJ 0:
SJ 0: 15:20:48      Batch-Stream 0      -- Started --
SJ 0:
SJ 0: 15:20:48      Batch-Stream 1      -- Started --
SJ 0:
SJ 0: 15:20:48      Batch-Stream 2      -- Started --
SJ 0: OPR>
SJ 0: 15:20:49      Batch-Stream 0      -- Begin --
SJ 0:              Job GALAXY Req #170 for OPERATOR
$
```

While the GALAXY system assembly proceeds (this may take an hour), the system prints messages for each successful assembly it completes. The messages are similar to the following example.

```
SJ 0: OPR>
SJ 0: 15:39:07      Batch-Stream 2 JOB #7 -- Message from Batch
User --
SJ 0:              Job PLEASE Req #6 FOR OPERATOR
SJ 0:              PLEASE PLEASE Assembly Successful$
SJ 0: OPR>
SJ 0: 15:39:15      Batch-Stream 2      -- End --
SJ 0:              Job PLEASE Req #6 for OPERATOR
SJ 0: OPR>
SJ 0: 15:39:16      Batch-Stream 2      -- Begin --
SJ 0:              Job CDRIVE Req #8 for OPERATOR
```

NOTE

If assembly is unsuccessful, examine the appropriate .LOG file to see if you can find the problem. If you



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can, correct it (which might involve editing the control file), delete the .LOG file, and resubmit the specified .CTL file. If you are unable to determine what caused the failure, consult your systems programmer or software specialist.

Once the assembly completes, you can run the new batch system. However, before you proceed to the next step, it is advisable to check the .LOG files to be sure that no problems arose during batch system generation. It is conceivable that a %type (warning) error occurred. Such an error might not cause processing of GALAXY.CTL to be unsuccessful, but could create problems later when you attempt to use the new batch system. Therefore, it is important that you correct any problems now, before you stop running the current batch system.

#### D.4 SHUTTING DOWN THE OLD GALAXY SYSTEM

Once you have checked the .LOG files to be sure that no errors occurred during the build procedure, you are ready to stop all old GALAXY programs and start the new ones. Perform Steps 28 through 41 to do so.

##### NOTE

During the following steps, Steps 28 through 53, it is important NOT to have timesharing users logged in to the system, as their jobs could initiate batch or spooling requests during the critical period of changeover. However, it is acceptable for requests to be present in the queues at the time of Step 30 as long as the old GALAXY system is a Release 5 system.

##### Step 28: Type OPR and press the RETURN key.

To return to the OPR program so you can stop the old GALAXY objects, type OPR. The system prints the OPR prompt.

```
$OPR <RET>
OPR>
```

##### Step 29: Type SHOW STATUS and press the RETURN key.

To determine which GALAXY objects are in use, give the SHOW STATUS command. The system responds with a list of GALAXY objects.

```
OPR>SHOW STATUS <RET>
OPR>
16:32:03      -- System Device Status --
```

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Batch-Stream Status:

```
Strm      Status
-----
0      Idle
1      Idle
2      Idle
```

Printer Status:

```
Unit      Status
-----
0      Idle
```

OPR>

##### Step 30: Type a SHUTDOWN command for each GALAXY object.

To be sure that each GALAXY object shuts down, type a SHUTDOWN command for each GALAXY object shown in Step 29.

```
OPR>SHUTDOWN PRINTER 0 <RET>
OPR>
16:32:26      Printer 0      -- Shutdown --
SJ 0: OPR>
SJ 0: 16:32:26      Printer 0      -- Shutdown --
OPR>SHUTDOWN BATCH-STREAM 0:2 <RET>
OPR>
16:32:37      Batch-Stream 0      -- Shutdown --

16:32:37      Batch-Stream 1      -- Shutdown --

16:32:37      Batch-Stream 2      -- Shutdown --
SJ 0: OPR>
SJ 0: 16:32:37      Batch-Stream 0      -- Shutdown --
SJ 0:
SJ 0: 16:32:37      Batch-Stream 1      -- Shutdown --
SJ 0:
SJ 0: 16:32:37      Batch-Stream 2      -- Shutdown --
OPR>
```

Error: If you see a message similar to "--THERE ARE NO DEVICES STARTED--," you can ignore this message and go on to the next SHUTDOWN command. The message means only that your site was not using the specified device.

##### Step 31: Type SHOW STATUS and press the RETURN key.

To verify that all parts of the GALAXY system are shut down, give the SHOW STATUS command.

```
OPR>SHOW STATUS <RET>
```

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```
OPR>
16:32:47      -- There are no devices started --
OPR>
```

Step 32: Type EXIT and press the RETURN key.

To return to TOPS-20 command level so you can stop the GALAXY components, type EXIT. The system prints the ENABLED prompt (\$).

```
OPR>EXIT <RET>
$
```

Step 33: Type ^ESPEAK and press the RETURN key.

To stop the GALAXY components you must enter the ^ESPEAK command. The system prints [Please type SYSJOB commands - end with ^Z].

```
$^ESPEAK <RET>
[Please type SYSJOB commands - end with ^Z]
```

Step 34: Stop each GALAXY component.

You should stop all the components referenced in SYSJOB.RUN. You should also stop BATCON, which normally runs as a separate job under SYSJOB. Follow the example to stop the GALAXY components.

```
[Please type SYSJOB commands - end with ^Z]
KILL QUASAR <RET>
KILL ORION <RET>
KILL MOUNTR <RET>
KILL CDRIVE <RET>
KILL SPRINT <RET>
KILL SPROUT <RET>
KILL LPTSPL <RET>
KILL BATCON <RET>
CCJOB 1 <RET>
STATUS <RET>
```

Step 35: Type <CTRL/Z>.

To return to TOPS-20 command level, type <CTRL/Z>. The system prints several messages and then the TOPS-20 ENABLED prompt (\$).

```
^Z
$KILL QUASAR
KILL ORION
KILL MOUNTR
KILL CDRIVE
```

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```
KILL SPRINT
KILL SPROUT
KILL LPTSPL
KILL BATCON
CCJOB 1
STATUS
SYSJOB status at 31-May-87 1639
 0 INFO DISMS at 1013 31-May-87 1639
 1 MAPPER DISMS at 266 31-May-87 1639
 5 MAILER DISMS at 1225 31-May-87 1639
 7 LPTSPL DISMS at 415322 31-May-87 1639
0: Job 1, TTY 160, PTYCON
1: Job 2, TTY 161, EXEC
$
```

Step 36: Type BUILD PS:<OLD-GALAXY> and press the RETURN key.

You should create a directory to store your old GALAXY system before copying your new one into SYS:. To do so, type BUILD PS:<OLD-GALAXY>. The system prints [New] and the subcommand prompt (\$\$).

```
$BUILD PS:<OLD-GALAXY> <RET>
[New]
$$
```

Step 37: Press the RETURN key.

To create a directory with default characteristics, press the RETURN key. You return to TOPS-20 command level.

```
[New]
$$<RET>
$
```

Step 38: Type COPY SYS:QUASAR.EXE PS:<OLD-GALAXY>\* and press the RETURN key.

To copy your old QUASAR program into the back-up directory that you just created, type the COPY command. The system prints an [OK] message when the copy completes.

```
$COPY SYS:QUASAR.EXE PS:<OLD-GALAXY>* <RET>
PS:<SUBSYS>QUASAR.EXE.1 => PS:<OLD-GALAXY>QUASAR.EXE.1 [OK]
$
```

Step 39: Copy the other files of your GALAXY system into PS:<OLD-GALAXY>.

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Repeat Step 38 as many times as necessary to copy all the files of your present GALAXY system into PS:<OLD-GALAXY>. You must copy all of the following files, if they exist:

```
BATCON.EXE
CDRIVE.EXE
GLXLIB.EXE
LPTSPL.EXE
MOUNTR.EXE
OPR.EXE
ORION.EXE
PLEASE.EXE
QUASAR.EXE
SPRINT.EXE
SPROUT.EXE
```

#### D.5 STARTING UP THE NEW GALAXY SYSTEM

Now you are ready to replace the old GALAXY system on SYS: with your new tailored system (Steps 40 through 48).

##### NOTE

If you restored the GALAXY source files to a directory other than PS:<BUILD>, use that directory name in Steps 40 and 41.

Step 40: Type COPY PS:<BUILD>QUASAR.EXE PS:<SUBSYS>QUASAR.EXE and press the RETURN key.

To copy the QUASAR.EXE component of the new GALAXY system into the system area, type the COPY command. The system prints an [OK] message when the copy completes.

```
$COPY PS:<BUILD>QUASAR.EXE PS:<SUBSYS>QUASAR.EXE <RET>
PS:<GALAXY>QUASAR.EXE.1 => PS:<SUBSYS>QUASAR.EXE.1 [OK]
$
```

Step 41: Copy the other components of the GALAXY system into the system area.

Repeat Step 40 as many times as it is necessary to copy all the files of your new GALAXY system into PS:<SUBSYS>. You must copy all the files listed in Step 39.

Step 42: Type ^ESPEAK and press the RETURN key.

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To start the new GALAXY system you must enter the ^ESPEAK command. The system prints [Please type SYSJOB commands - end with ^Z].

```
^ESPEAK <RET>
[Please type SYSJOB commands - end with ^Z]
```

Step 43: Start each component in the new GALAXY system.

To be sure that all of the components of the GALAXY system start, you must type a RUN command for each component referenced in SYSJOB.RUN. Follow the example to start the GALAXY components.

##### NOTE

The monitor must have DECnet installed to run the NEBULA and LISSPL components. Also, if a node in the network is a target of cluster printing, LISSPL must be running on that node.

```
[Please type SYSJOB commands - end with ^Z]
RUN SYS:QUASAR <RET>
RUN SYS:ORION <RET>
RUN SYS:MOUNTR <RET>
RUN SYS:CDRIVE <RET>
RUN SYS:SPRINT <RET>
RUN SYS:LPTSPL <RET>
JOB 1 / <RET>
RUN SYS:BATCON <RET>
RUN SYS:NEBULA <RET>
RUN SYS:LISSPL <RET>
/ <RET>
STATUS <RET>
```

Step 44: Type <CTRL/Z>.

To return to TOPS-20 command level, type <CTRL/Z>.

```
^Z
$RUN SYS:QUASAR
RUN SYS:ORION
RUN SYS:MOUNTR
RUN SYS:CDRIVE
RUN SYS:SPRINT
RUN SYS:LPTSPL
JOB 1 /
RUN SYS:BATCON
RUN SYS:NEBULA
RUN SYS:LISSPL
/
```

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```
STATUS
SYSJOB status at 31-May-87 1653
 0 INFO DISMS at 415322 31-May-87 1653
 1 MAPPER DISMS at 415322 31-May-87 1653
 5 MAILER DISMS at 415322 31-May-87 1653
 7 LPTSPL DISMS at 415322 31-May-87 1653
$
```

Step 45: Type OPR and press the RETURN key.

You must return to OPR command level to start the components of your new GALAXY system.

```
$OPR <RET>
OPR>
```

Step 46: Type TAKE SYSTEM:SYSTEM.CMD and press the RETURN key.

To start all the components of the new GALAXY system, type TAKE SYSTEM:SYSTEM.CMD.

```
OPR>TAKE SYSTEM:SYSTEM.CMD <RET>
OPR>
16:54:37 Batch-Stream 0 -- Set Accepted --
16:54:37 Batch-Stream 1 -- Set Accepted --
16:54:37 Batch-Stream 2 -- Set Accepted --
16:54:37 Batch-Stream 0 -- Startup Scheduled --
16:54:37 Batch-Stream 1 -- Startup Scheduled --
16:54:37 Batch-Stream 2 -- Startup Scheduled --
16:54:37 Printer 0 -- Set Accepted --
16:54:37 Printer 0 -- Startup Scheduled --
OPR>
```

Step 47: Type SHOW STATUS and press the RETURN key.

To verify that each component of your GALAXY system is running properly, you should now type a SHOW STATUS command.

```
OPR>SHOW STATUS <RET>
OPR>
16:54:57 -- System Device Status --
```

GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

```
Batch-Stream Status:
Strm Status
----
 0 Idle
 1 Idle
 2 Idle
```

```
Printer Status:
Unit Status
----
 0 Idle
```

OPR>

Step 48: Type EXIT and press the RETURN key.

To end the OPR program, type EXIT.

```
OPR>EXIT <RET>
$
```

D.6 MAKING YOUR NEW GALAXY SYSTEM PERMANENT

Once your new system is successfully running, you may want to delete all the files from PS:<BUILD>, PS:<GALAXY>, and PS:<OLD-GALAXY> to make more disk space available.

Step 49: Type DELETE PS:<BUILD>\*.\*,PS:<OLD-GALAXY>\*. and press the RETURN key.

Type the DELETE command to remove the old GALAXY files from disk in order to make more disk space available. The system prints a message for each file it deletes.

```
$DELETE PS:<BUILD>*.*,PS:<OLD-GALAXY>*. <RET>
.
.
.
$
```

NOTE

If your GALAXY files are in a directory other than PS:<BUILD>, use that directory name in place of PS:<BUILD> in Step 49.

Step 50: Type OPR and press the RETURN key.

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To return to OPR level to supervise your new GALAXY system, type OPR.

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