TOPS–20
KS/KL Model A
Installation Guide

AA–P346A–TM

February 1983

This manual describes the procedures for installing TOPS–20, Version 4.1 software on a new DECSYSTEM 2020 or DECSYSTEM–20, Model A and for updating the TOPS–20 software on an existing DECSYSTEM 2020 or DECSYSTEM–20, Model A.

This manual completely supersedes the *TOPS–20 Software Installation Guide*, manual numbered AA–4195G–TM. Please read it in its entirety.

OPERATING SYSTEM: TOPS–20, V4.1

SOFTWARE: RSX–20F, VB14–45G
KLINIT, VB12–12
MICROCODE 117 (for 2020)
MICROCODE 231 (for 2040/2050)
GALAXY, V4.2

Software and manuals should be ordered by title and order number. In the United States, send orders to the nearest distribution center. Outside the United States, orders should be directed to the nearest DIGITAL Field Sales Office or representative.

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PREFACE

This manual is for the person who is responsible for:

1. Installing the TOPS-20 software on a new DECSYSTEM-20 or DECSYSTEM-2020

2. Updating the TOPS-20 software on an existing DECSYSTEM-20 or DECSYSTEM-2020.

To use this manual effectively, you should first read Getting Started With TOPS-20, and then become familiar with the information in the TOPS-20 Operator's Guide. You should also be familiar with the TOPS-20 User's Guide. These manuals are available as stand-alone documents and are also included in the TOPS-20 Notebook Set.

You do not have to know assembly language programming or have previous experience installing a TOPS-20 software system, although both are helpful.

How to Use This Manual

Chapters 1 through 8 contain step-by-step instructions, including error recovery procedures, describing how to install Release 4.1 TOPS-20 software on a new DECSYSTEM-20 and/or DECSYSTEM-2020. (Appendixes A and B show how to install Release 4.1 TOPS-20 software on a DECSYSTEM-20 or DECSYSTEM-2020 that is running a previous version of TOPS-20.) Even though most of the installation procedures within this manual pertain to both systems, there are certain steps and error recovery procedures that pertain only to the DECSYSTEM-2020. These procedures are shaded in gray, as in Chapters 2, 5, and 6.

To install the TOPS-20 software on a DECSYSTEM-20 or DECSYSTEM-2020, follow the directions in Chapters 1 through 8, doing exactly as instructed. If you are experienced in installing the TOPS-20 software, you may follow the example in Appendix C or D, depending on the type of system you are installing.

To update the TOPS-20 software on both the DECSYSTEM-20 and DECSYSTEM-2020, carefully perform the instructions in either Appendix A or Appendix B, depending on whether you are installing the TOPS-20 software on a DECSYSTEM-20 or DECSYSTEM-2020. The commands you must type are printed in RED. If you type accurately, all you have to do is perform the indicated function and verify that the terminal output resembles the sample output. 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 the instructions after the word "Error" or "ERROR", then choose the recovery procedure that corrects your problem.

NOTE

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

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.

If a step pertains only to a certain type of system, it is noted as such. For example, if a step pertains only to the DECSYSTEM-20, beside the step heading it says, (For DECSYSTEM-20 Only). If the step pertains only to a DECSYSTEM-2020, it is shaded in gray.

Symbols Used In This Manual

(CTRL) Indicates where you type a control backslash. This is done by holding down the CTRL key while typing a backslash. The backslash key is located near the key labeled LINEFEED or LF.

(ESC) Indicates where you press the key labeled ESC, ESCAPE, PREFIX, ALT, or ALTMODE.

(RET) Indicates where you press the RETURN key.

The error recovery procedures that pertain to the DECSYSTEM-20 have the word error printed as Error.

The error recovery procedures that pertain to the DECSYSTEM-2020 have the word error printed as ERROR and are shaded.

NOTE

If you see:

Error:
ERROR:

together for an error recovery procedure, it means this error recovery procedure is the same for both systems.

Reference Documentation

The following manuals are valuable as references for users of this manual. Their order numbers are also shown. These manuals are included in the TOPS-20 Software Notebook Set.

Manual Title	Order No.
TOPS-20 Commands Reference Manual	AA-5115B-TM
TOPS-20 EDIT Reference Manual	AA-5415A-TM
TOPS-20 Monitor Calls Reference Manual	AA-4166D-TM
TOPS-20 Operator's Guide	AA-4176D-TM
TOPS-20 OPR Command Language Reference Manual	AA-H600A-TM
TOPS-20 System Manager's Guide	AA-4169F-TM
TOPS-20 User Utilities Guide	AA-D850A-TM
TOPS-20 User's Guide	AA-4179C-TM

CHAPTER 1

INTRODUCTION

Installing the TOPS-20 software on either the DECSYSTEM-20 or DECSYSTEM-2020 is not a hard task if you follow the procedures outlined in the following chapters. This chapter explains some of the procedures to follow. It also describes the tools you need to install the software.

1.1 SUMMARY OF CONTENTS

Chapter 2 describes powering up either the DECSYSTEM-20 or DECSYSTEM-2020, and obtaining either the DECSYSTEM-20 front-end monitor from floppy disk or the DECSYSTEM-2020 preboot monitor from magnetic tape. This chapter also describes loading the TOPS-20 bundled software from magnetic tape.

Chapter 3 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, and file archiving and migration.

Chapter 4 describes how to create the front-end file system for the DECSYSTEM-20 and copy files into it from the floppy disk. Upon your completion of this chapter, the installation is complete.

Chapter 5 describes how to build the microprocessor file system for the DECSYSTEM-2020. After you have completed the steps in this chapter, the installation is complete.

Chapter 6 describes how to boot either system from disk.

Chapter 7 describes how to install the TOPS-20 distribution and update tapes.

Chapter 8 describes how to run the User Environment Test Package (UETP program). This program performs a cursory check of the system.

Appendix A contains step-by-step instructions and pointers to various chapters within the manual, describing how to update a Release 4 TOPS-20 software system to a Release 4.1 TOPS-20 software system on the DECSYSTEM-20.

Appendix B contains step-by-step instructions and pointers to various chapters within the manual, describing how to update a Release 4 TOPS-20 software system to a Release 4.1 TOPS-20 software system on the DECSYSTEM-2020.

Appendix C 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 A. This appendix does not have error recovery procedures. The steps are keyed to the steps within the body of this manual that describe how to install the TOPS-20 software on a DECSYSTEM-20.

Appendix D is a pocket installation guide for installing the TOPS-20 software on a DECSYSTEM-2020. This appendix does not have error recovery procedures. The steps are keyed to the steps within the body of this manual that describe how to install the TOPS-20 software on a DECSYSTEM-2020.

Appendix E contains the steps for tailoring your system for the ARPA network.

Appendix F contains instructions for running KSFORM, the stand-alone disk formatting program (used with the DECSYSTEM-2020 only).

Appendix G contains the steps for generating a batch and spooling (GALAXY) system tailored for your particular site.

The TOPS-20 System Manager's Guide contains helpful hints on how to manage the TOPS-20 and the TOPS-20 DECSYSTEM-2020 timesharing systems. A system manager should read this manual before making timesharing generally available to users.

NOTE

The TOPS20.BWR file is contained in the system saveset on the installation tape. This file describes changes in the software made too late for inclusion in this manual.

1.2 PREPARING FOR INSTALLATION

A DIGITAL Field Service Representative will install your DECSYSTEM-20 or your DECSYSTEM-2020 hardware and inform you when the system runs diagnostics correctly. Before he leaves, obtain the following information:

1. The serial number of the machine. You need this information if you are installing the software on a DECSYSTEM-2020. It will be used in Chapter 5.

   Serial Number

   ---

2. The channel, unit, and controller number of each disk drive, and whether it is dual-ported. The controller number for RP04 and RP06 disks is -1. (The DECSYSTEM-2020 does not support dual-ported disk drives.) The unit number is located on the display panel on the drive. The DECSYSTEM-20 dual-ported disk drives are connected to both the CPU and the front-end processor. It is an error if two dual-ported drives with the same unit number are connected to the front-end processor. The procedures in this manual assume that the unit on which you are installing the front-end software is Unit 0.

Disk Drives

Type	Channel #	Unit #	Controller #	Dual-Ported ?

3. The UBA number to which the disk drives are attached. You need this information if you are installing the TOPS-20 software on a DECSYSTEM-2020.

UBA #

---

4. A list of line numbers and line speeds. Use these numbers in Section 3.3.1 when you set the default terminal speeds. Also, find out which lines are remote so that you can define the remote lines as described in Section 3.3.2.

Lines

Line #	Auto Speed	Remote?	Line #	Auto Speed	Remote?

NOTE

The word Auto over the word Speed declares that the line is specified as an autobaud line in Section 3.3.2. Autobaud detection pertains only to the DECSYSTEM-20.

5. The serial number of each magnetic tape drive. Use these numbers in Section 3.3.4 to define magnetic tape logical unit numbers. The number appearing on the thumbwheel does **not** necessarily correspond to the logical unit number of the drive.

Magnetic Tapes

Serial #	Type	Serial #	Type	Serial #	Type

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 as follows:

2003

In the above 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.

6. The unit number and type of each line printer. Use this information in Section 3.3.5 to initialize the line printer.

Line Printers

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

7. The base address of the RH11 disk controller. You need this information if you are installing the TOPS-20 software on a DECSYSTEM-2020.

RHBASE #

1.3 INSTALLATION TOOLS

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

1. The RSX-20F Disk-Boot System, System Floppy A. The files on this floppy are used to boot the central processor from an RP04 or RP06 disk pack. These files are listed below, together with their sizes (in 256-word blocks), an indication (C) of whether they are written on a contiguous area of the floppy disk, and creation dates:

```
F11ACP.TSK;1     77      C  14-MAY-82 05:50
TKTN.TSK;1       6.      C  14-MAY-82 05:50
MOU.TSK;1        5.      C  14-MAY-82 05:51
KLA.MCB;231      36.        14-MAY-82 05:59
BOOT.EXB;1       36.        14-MAY-82 06:01
MTBOOT.EXB;1     36.        14-MAY-82 06:01
BF16N1.A11;1     1          14-MAY-82 05:51
PARSER.CMD;1     10.        14-MAY-82 05:51

TOTAL OF 207. BLOCKS IN 8. FILES
```

2. The RSX-20F Auxiliary Diskette, System Floppy B. The files on this floppy are used to boot for various functions in installing and maintaining the software on a DECSYSTEM-20. Floppy B contains the following files:

```
PARSER.TSK;1      71.    C  19-NOV-82 14:19
KLDISC.TSK;1      5.     C  18-MAY-82 12:06
KLRING.TSK;1      6.     C  18-MAY-82 12:06
LOGXFR.TSK;1      10.    C  18-MAY-82 12:06
MIDNIT.TSK;1      4.     C  18-MAY-82 12:06
SETSPD.TSK;1      5.     C  18-MAY-82 12:06
KLI.TSK;1         72.    C  18-MAY-82 12:06
T20ACP.TSK;1      8.     C  18-MAY-82 12:06
BOO.TSK;1         19.    C  18-MAY-82 12:07
COP.TSK;1         8.     C  18-MAY-82 12:07
DMO.TSK;1         5.     C  18-MAY-82 12:07
INI.TSK;1         23.    C  18-MAY-82 12:07
PIP.TSK;1         56.    C  18-MAY-82 12:07
RED.TSK;1         6.     C  18-MAY-82 12:07
SAV.TSK;1         23.    C  18-MAY-82 12:07
UFD.TSK;1         9.     C  18-MAY-82 12:07
ZAP.TSK;1         38.    C  18-MAY-82 12:07
RSX20F.SYS;1445   58.    C  19-NOV-82 14:19

        TOTAL OF 426. BLOCKS IN 18. FILES
```

3. The RSX-20F Auxiliary Diskette, System Floppy C. This floppy contains only one file; RSX20F.MAP;1

4. The TOPS-20 Installation tape V4.1 and the TOPS-20 Distribution tape. The Installation tape you use depends on the type of system you are installing. The following is a list of systems and the tapes you should use to install the TOPS-20 software.

   - If you are installing the TOPS-20 software on a (MODEL A) DECSYSTEM-20 number 2040 or 2050, you should be using software package QT010, which contains the Installation tape labeled TOPS-20 V4.1 KL-A INSTL 16MT9, ORDER NO. AP-4171H-BM, and the Distribution tape labeled TOPS-20 V4.1 KL-A DIST 16MT9, ORDER NO. AP-4172H-BM.

   - If you are installing the TOPS-20 software on a DECSYSTEM-2020, you should be using software package QT022, which contains the Installation tape labeled TOPS-20 V4.1 2020 INSTL 16MT9, ORDER NO. BB-D867E-BM, and the Distribution tape labeled TOPS-20 V4.1 2020 DIST 16MT9, ORDER NO. BB-D868E-BM. The TOPS-20 software for the DECSYSTEM-2020 is completely on magnetic tape; there are no floppy disks or floppy disk drives for the DECSYSTEM-2020.

   - If you are installing TOPS-20 DECnet-20 V2.1 software on a DECSYSTEM-20, you should be using software package QTD01. This package includes the DECnet-20 Distribution tape labeled TOPS-20 DECnet-20 DIST.MT V2.1, ORDER NO. BB-H240C-BM.

   - If you are installing TOPS-20 DECnet-20 V2.1 software on a DECSYSTEM-2020, you should be using software package QTD20. This package includes the DECnet-20 Distribution tape, labeled TOPS-20 DECnet-20 DIST.MT V2.1, ORDER NO. BB-H241C-BM.

The TOPS-20 Installation tape V4.1 for all DECSYSTEM-20s contains the TOPS-20 monitor and related programs. The files on this tape are:

The TOPS-20 monitor (SAVE format)

The TOPS-20 command processor (SAVE format)

The DLUSER program (SAVE format)

DLUSER data (ASCII file)

The DUMPER program (SAVE format)

Three DUMPER savesets recorded at 1600 bpi in DUMPER format for the following directories:

PS:<SYSTEM>
PS:<SUBSYS>
PS:<UETP.LIB>

The TOPS-20 Distribution tape for all DECSYSTEM-20s contains the TOPS-20 bundled software. There are five DUMPER save sets recorded at 1600 bpi in DUMPER format. The contents of the savesets are:

Saveset 1 contains documents about the software

Saveset 2 contains files for the directory PS:<SYSTEM> (same as the files on the Installation tape)

Saveset 3 contains files for the directory PS:<SUBSYS> (same as the files on the Installation tape)

Savesets 4 and 5 contain source files needed to build the software in the directories PS:<SYSTEM> and PS:<SUBSYS>, except for the monitor and the TOPS-20 command processor

The TOPS-20 Installation tape V4.1 for the DECSYSTEM-2020 contains the TOPS-20 monitor and related programs. The files on this tape are:

KS10 microcode

The bootstrap routines

The TOPS-20 monitor (SAVE format)

The TOPS-20 command processor (SAVE format)

The DLUSER program (SAVE format)

DLUSER data (ASCII file)

The DUMPER program (SAVE format)

Three DUMPER savesets recorded at 1600 bpi in DUMPER format. These savesets contain the following directories:

PS:<SYSTEM>
PS:<SUBSYS>
PS:<UETP.LIB>

The microprocessor file system initialization program

The TOPS-20 Distribution tape for the DECSYSTEM-2020 contains the TOPS-20 bundled software. There are five DUMPER savesets recorded at 1600 bpi in DUMPER format. The contents of each saveset are:

Saveset 1 contains documents about the software

Saveset 2 contains files for the directory PS:<SYSTEM> (same as the files on the Installation tape)

Saveset 3 contains files for the directory PS:<SUBSYS> (same as the files on the Installation tape)

Savesets 4 and 5 contain the files needed to build the software in the directories PS:<SYSTEM> and PS:<SUBSYS>, except for the monitor and the TOPS-20 command processor

5. A separate tape for each unbundled product you have purchased.

NOTE

The term "bundled software" refers to the contents of the Installation and Distribution tapes considered together, or to the contents of the Distribution tape alone. The term "unbundled software" refers to the optional software, which can be purchased separately.

6. Formatted disk packs. If you must format disk packs on a DECSYSTEM-20, ask your DIGITAL Field Service Representative to format the disk packs. If you have a DECSYSTEM-2020, you should instead use KSFORM, a stand-alone disk formatting program, to format your packs. KSFORM is included on a separate tape in the 2020 software packages. Instructions for using KSFORM are found in Appendix F of this manual.

1.4 THE TOPS-20 MONITOR AND THE TOPS-20AN MONITOR

Four monitors are distributed with the TOPS-20 software for the DECSYSTEM-20 Model A 2040 and 2050. They are:

MONSML.EXE

MONMED.EXE

MONBCH.EXE

MONBIG.EXE

Two monitors are distributed with the TOPS-20 software for the DECSYSTEM-2020. They are:

2020-MONSML.EXE

2020-MONMED.EXE

2020-ARPA-MONSML.EXE

2020-ARPA-MONMED.EXE

All the monitors mentioned above are described in Chapter 3. The installation will proceed more smoothly if you take time to decide now which monitor you want to use.

1.5 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 refer to Appendix G of this manual for instructions on how to build your own specialized GALAXY system.

CHAPTER 2

CREATING THE TOPS-20 FILE SYSTEM

This chapter describes how to create a new TOPS-20 file system for both the DECSYSTEM-20 and the DECSYSTEM-2020. If you are installing the software on a DECSYSTEM-20, perform Steps 1 through 19 and Steps 36 through 69 in this chapter. If you are installing the software on a DECSYSTEM-2020, perform Steps 20 through 69.

STOP: These Procedures Install A New System

> Follow the procedures in this chapter if you are installing Release 4.1 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 or B, depending on the type of system you have, to update from Release 4 to Release 4.1 TOPS-20 software on an existing system.

2.1 CHECKING THE TOPS-20 SOFTWARE PACKAGE FOR THE DECSYSTEM-20

The TOPS-20 software package contains the following items. Check to be sure that you have all of them.

1. RSX20F Disk-boot System
   System Floppy A

   Throughout the rest of this text, this floppy is referred to as the System Floppy A.

2. RSX20F Auxiliary Diskette
   System Floppy B

   Throughout the rest of this text, this floppy is referred to as the System Floppy B.

3. RSX-20F Auxiliary Diskette
   System Floppy C.

   Throughout the rest of this text, the floppy is referred to as System Floppy C.

4. TOPS-20 Installation Tape V4.1

   Throughout the rest of this text, this tape is referred to as the Installation tape.

5. TOPS-20 Distribution Tape V4.1

   Throughout the rest of this text, this tape is referred to as the Distribution tape.

6. A separate tape for each unbundled software product purchased. Chapter 7 lists the unbundled software products, describes the format of the tapes, and tells how to install them.

Refer to Chapter 1, Section 1.3 for the contents of these floppy disks and magnetic tapes.

2.1.1 Preparing the DECSYSTEM-20 for Installation

Prepare the system for installation by powering it up and mounting the disk packs.

➡ **Step 1: Read all the instructions in this manual before proceeding with your installation.**

➡ **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. (If you have a DECSYSTEM-2020, you may format the disk packs yourself. See Appendix F for details.) The packs must be formatted before you proceed further. You may use either RP04 or RP06 packs.

➡ **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, i.e., 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.

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

➡ Step 4: Label the Disk Packs.

This manual contains the procedures for creating the public structure for your system. This structure is called PS: and contains the files needed to run the system. All packs that will make up your public structure must be of the same type. The public structure cannot include RP20 disks. 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 40. Identify each pack by writing these numbers with a felt-tip pen on the upper surface of the pack. Also label the pack cover with a gummed label. The format of the label may be:

```
TOPS-20 Disk Pack
Structure ID:  "PS"
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 Disk Packs.

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 may dismount the disk packs so that the drives can be cleaned and maintained. However, during system operation, the pack that contains the front-end files must be on dual-ported drive 0 as it was during installation.

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:

1. If another disk is already mounted on the drive and spinning, press the START/STOP button and wait until the drive stops.

2. Press the bar on the drive door (RM03 drive only), push the door back, and slide the pack cover down over the pack.

3. 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.

4. Lift the pack out of the drive and place it on the protective bottom cover. Be sure that the cover clicks closed.

5. 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.

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.

6. 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.

7. Lift off the cover vertically.

8. Close the door to the drive.

9. 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.)

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

➡ **Step 6: Check the CONTROLLER SELECT Switches.**

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.

NOTE

Be sure that all drives that are not part of PS: are off line and are not spinning.

➡ 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 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:.

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 the one you want to use.

NOTE

Be sure to mount the correct Installation tape. Refer to Chapter 1, Section 1.3 for the correct Installation tape for your system.

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 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 of the tape.

To mount a reel of tape on a TU70, TU71, or 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.

2.1.2 Loading and Starting the TOPS-20 Monitor on a DECSYSTEM-20

To create the TOPS-20 file system, load the TOPS-20 monitor into the system and start the file system initialization routine. Steps 10 through 19 load and start the TOPS-20 monitor, by performing the following operations:

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.

➡ **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 (Figure 2-1). 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 (Figure 2-1). Set them to 000007 (octal) by setting (up) switches 2, 1, and 0, and leaving the rest down. (Refer to Part 4, Chapter 1 of 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 VB14-45G 6:11 23-OCT-79

[SY0: REDIRECTED TO DX0:]
[DX0: MOUNTED]
[DX1: MOUNTED]
KLI -- VERSION VB12-12 RUNNING
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>
```

Item	Identifies
RSX-20F	The name of the front-end monitor.
VB14-45G	The version of the front-end monitor.
6:11 23-OCT-79	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	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.

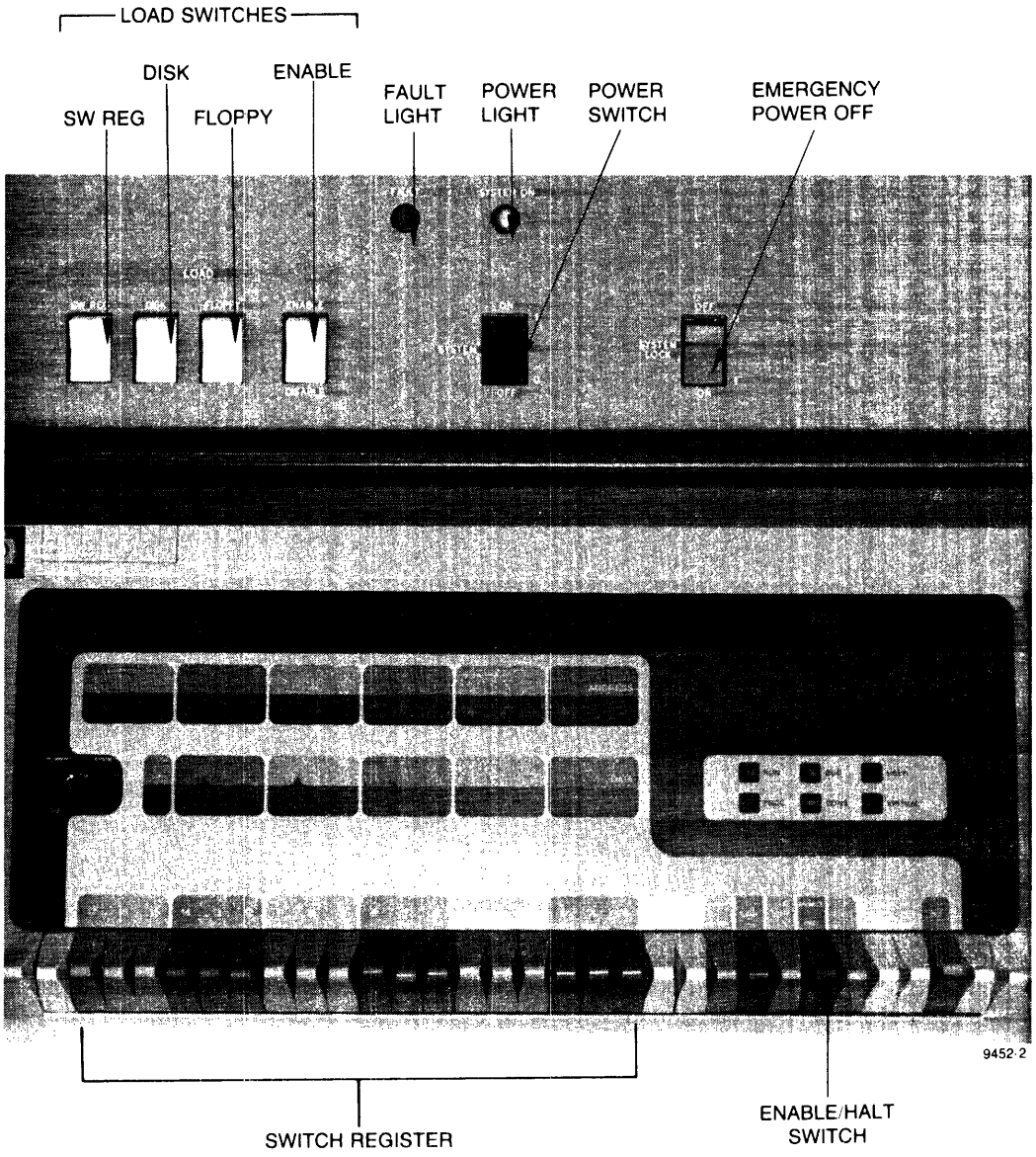


Figure 2-1 DECSYSTEM-20 and Front-End Control Panels

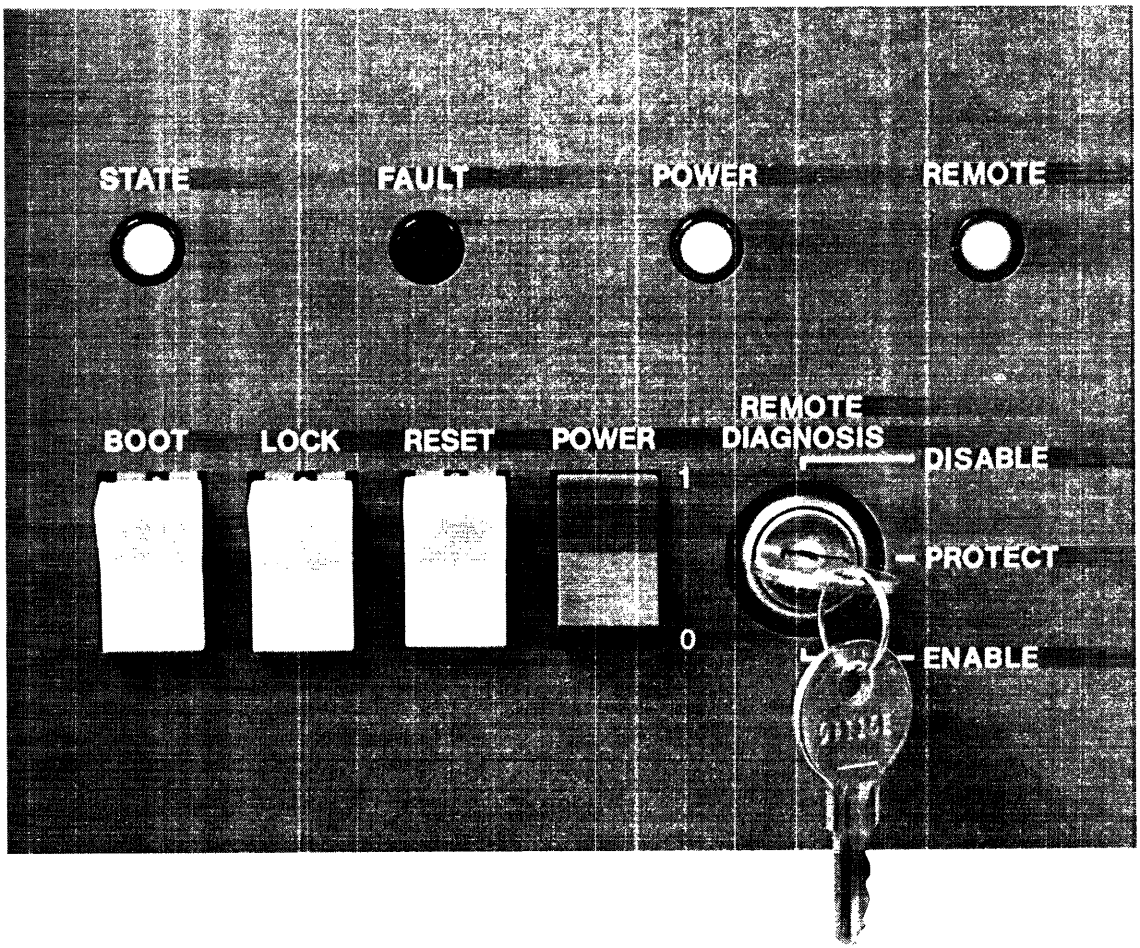


Figure 2-2 DECSYSTEM-2020 Control Panel

➡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 Model A 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)
KL1 -- KL10 S/N: 2102., 60 HERTZ
KL1 -- KL10 HARDWARE ENVIRONMENT:
       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.

➡Step 14: Type YES and Press the RETURN Key.

To load the central processor microcode, type YES 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 231 LOADED followed by KLI -- RECONFIGURE CACHE [FILE,ALL,YES,NO]? if you are installing the TOPS-20 software on a 2050. If you are installing the TOPS-20 software on a 2040, the system prints KLI--MICROCODE VERSION 231 LOADED followed by KLI--CONFIGURE KL MEMORY [FILE,ALL,REVERSE,FORCE,YES,NO]?

```
KLI -- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?
KLI>YES (RET)
KLI -- MICROCODE VERSION 231 LOADED
```

➡Step 15: STOP.

Go to Step 16 if the system prints:

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

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>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 be different, depending on the type of hardware you have. Refer to Table 2-1, below, for the sample output that pertains to your system. (Refer to 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]?:

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

Table 2-1
Logical Memory Configurations

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

```
LOGICAL MEMORY CONFIGURATION.
                    CONTROLLER

ADDRESS   SIZE  RQ0 RQ1 RQ2 RQ3   CONTYPE INT
00000000  128K  00  01  00  01     MA20    4
00000000  128K  03  02  03  02     MA20    4
```

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.

➡ Step 18: Type MTBOOT and Press the RETURN Key.

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

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

The system asks whether it should write the front-end file KL.CFG, which describes your current configuration and the means 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 means 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 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 6), 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

MTBOOT>
```

The front end loads the central processor memory with the bootstrap program from the floppy mounted on drive 1, and then starts the bootstrap program. When at bootstrap command level (about 45 seconds), the system prints MTBOOT>. **Continue at Step 36.**

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.

2.2 CHECKING THE TOPS-20 SOFTWARE PACKAGE FOR THE DECSYSTEM-2020

The TOPS-20 software package contains the following items. Check to be sure you have them:

- TOPS-20 Installation Tape
- TOPS-20 Distribution Tape

2.2.1 Preparing the DECSYSTEM-2020 for Installation

Prepare the system for installation by powering it up, and mounting the disk packs and Installation tap

➡ Step 21: Power Up the System.

Turn on the power by pressing the POWER button (Figure 2-2). (The power is off if the light under the word POWER is off.) 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, i.e., the white switch containing the ON/OFF light, on the front of the tape drive. If you have trouble with the disk drives or the magnetic tape drives, call your DIGITAL Field Service Representative for assistance.
3. Check the line printer. If power is off for a LP20A or LP20B (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 power is off for an LP20C or LP20D, open the front panels and reset the power switch. (The POWER switch is located on the right side as you face the printer.) Press the RESET button, then press the ON-LINE button.
4. Turn on the CTY. Be sure it is on line and has paper.

➡ Step 22: Type a CTRL/C on the CTY.

Type a CTRL/C on the console terminal. The system may or may not print the KS10> prompt. Go to the next step.

```
CTRL/C
  ↓
  ^C
KS10>
```

➡ Step 23: Type a CTRL/\ on the CTY.

To stop the system from trying to load the microcode from disk, type a CTRL/\ on the CTY. The system may or may not print ENABLED before it prints the KS10> prompt. (The commands that you type continue at Step 29.)

```
CTRL/\
  ↓
ENABLED
KS10>
```

Step 24: 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-2020. If they are not, ask him to format them. Or you can format them yourself, using the stand-alone 2020 disk formatting program available on a separate tape in your software package. The procedures for running the disk formatting program are described in Appendix F of this manual.

Step 25: Label the Disk Packs.

This manual contains the procedures for creating the public structure for your system. This structure is called PS: and contains the files needed to run the system. It can consist of one or two RP04 or RP06 disk packs, or one to four RM03 disk packs. The disk packs that make up your public structure must be of the same type. Identify each pack by writing the logical unit number of the pack with a felt-tip pen on the upper surface of the pack, and on an external label on the pack cover. The format of the label may be:

```
TOPS-20 DISK PACK
Structure Name:  "PS:"
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 26: Mount the Disk Packs.

Mount the disk packs on the drives. The procedures in this manual assume that a disk pack is on drive 0. After the installation is complete, you may dismount the disk pack so that the drive can be cleaned and maintained.

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:

To mount a pack on an RP04 or RP06 disk drive, perform the following steps:

1. If another disk pack is already mounted on the drive and spinning, press the rocker switch labeled START/STOP to the STOP position and wait until the disk pack stops spinning. Push the door back and slide the pack cover down over the pack.

2. Turn the cover 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.

3. Lift the pack out of the drive and place it on the protective bottom cover. Be sure that the cover clicks closed.

4. 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.

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.

5. Turn the handle clockwise about two full turns. Try lifting the pack cover off. If there is any resistance, turn the handle clockwise until you feel a resistance like that of power steering on a car. When the resistance increases noticeably, **stop turning** or damage will result.

6. Lift the cover off vertically.

7. Close the door on the drive.

8. Start the drive by pressing the START/STOP rocker switch to the START position. The disk is ready to be used when the READY and the DOOR LOCKED lights come on.

9. Be sure that the drive is not write protected.

NOTE

Do not leave a disk pack or magnetic tape on top of a disk drive. The vibration from the drive can cause these items to fall to the floor, causing expensive damage.

To mount a disk pack on an RM03 disk drive, perform the following steps:

1. If another disk pack is already mounted on the drive and spinning, press the START/STOP button and wait until the disk pack stops spinning.

2. Press the bar on the drive door and lift the door up.

3. Slide the pack cover down over the pack and turn the 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.

4. Lift the pack out of the drive. Pick up the bottom cover and fit it onto the bottom of the pack. Turn the knob on the bottom cover clockwise until it tightens.

5. Pick up the pack that you want to mount and remove the protective bottom cover by turning the knob on the bottom cover counterclockwise until there is no resistance. 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.

6. Turn the handle clockwise about two full turns. Try lifting the pack cover off. If there is any resistance, continue turning the handle clockwise until you feel a resistance like that of power steering on a car. When the resistance increases noticeably, **stop turning** or damage will result.

7. Lift the cover off vertically.

8. Close the door on the drive.

9. Start the drive by pressing the START/STOP button. The disk is ready to be used when the READY light comes on.

10. Be sure that the drive is not write protected.

➡ **Step 27: Check the CONTROLLER SELECT Switches.**

Be sure that the CONTROLLER SELECT switch on 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 on an RP06 disk drive, do the following:

1. Set the switch to the desired position. (The CONTROLLER SELECT switch is located on the disk display unit.)

2. Cycle down the drive by pushing the START/STOP rocker switch to the STOP position. When the drive has completely cycled down, press the rocker switch to the START position.

3. Wait for the READY and DOOR LOCKED lights to come on.

To change the CONTROLLER SELECT switch on an RM03 disk drive, do the following:

1. Open the front panel of the disk drive and locate the CONTROLLER SELECT switch (on the right hand side of the drive, just below knee level).

2. Set the CONTROLLER SELECT switch to the desired position.

3. Cycle down the drive by pressing the START/STOP button. When the drive is completely cycled down, press the START/STOP button again to start it.

4. Wait for the READY light to come on.

Step 28: Mount the Installation Tape on MTA0:.

Remove the write ring (if present) from the magnetic tape labeled TOPS-20 Installation tape and mount the tape on drive 0. Your DIGITAL Field Service Representative will tell you which drive is drive 0. If you cannot determine which drive is drive 0, make sure that all drives are off line except the one you want to use.

NOTE

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

To mount a reel of tape on a TU45:

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 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. Press the ON LINE button if it is not already on.

To mount a reel of tape on a TU77 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 FPT (FILE PROTECT) 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 of the tape.

To mount a reel of tape on a TU70, TU71, or TU72 tape drive:

1. Place the reel of tape on the right-hand-side hub with the tape label 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.

2.2.2 Loading and Starting the TOPS-20 Monitor on a DECSYSTEM-2020

To create the TOPS-20 file system, load the TOPS-20 resident monitor from the TOPS-20 Installation tape into the system. Steps 29 through 36 load and start the TOPS-20 monitor, by performing the following operations:

1. Load the microcode and bootstrap routine from the Installation tape.

2. Load the secondary bootstrap routine from the Installation tape.

3. Load the resident TOPS-20 monitor from the Installation tape.

NOTE

If you are using tape drive 0, you may skip Steps 29 through 34, and start at Step 35.

➡ Step 29: Type MS and Press the RETURN Key.

To inform the system you are selecting magnetic tape to bootstrap the system, type MS and press the RETURN key. The system prints the question >>UBA?.

```
KS10>MS (RET)
>>UBA?
```

ERROR: If you mistype the command, the system responds with the error message ?IL (meaning illegal command) and the KS10> prompt. Try giving the command again. If the error persists, contact your DIGITAL Field Service Representative.

➡ Step 30: Type 3 and Press the RETURN Key.

To inform the system which Unibus Adapter the TOPS-20 Installation tape is on, type 3 (3 is the default) and press the RETURN key. The system prints the question >>RHBASE?

```
>>UBA? 3 (RET)
>>RHBASE?
```

ERROR: If the system prints the message ?BN, it means that the number you typed in was not a legal octal number. Type a CTRL/C and return to Step 29.

Step 31: Type 772440 and Press the RETURN Key.

To inform the system of the RH11 base address, type 772440 (772440 is the default) and press the RETURN key. The system prints the question >>TCU?

```
>>RHBASE? 772440 (RET)
>>TCU?
```

ERROR: If the system prints the message ?BN, it means that the number you typed in was not a legal octal number. Type a CTRL/C and return to Step 29.

Step 32: Type 0 (zero) and Press the RETURN Key.

To inform the system which tape control unit on the RH11 you are using, type 0 (0 is the default) and press the RETURN key. The system prints the question >>DENS?

```
>>TCU?0 (RET)
>>DENS?
```

ERROR: If the system prints the message ?BN, it means that the number you typed was not a legal octal number. Type a CTRL/C and return to Step 29.

Step 33: Type 1600 and Press the RETURN Key.

To inform the system of the density of the tape, type 1600 (1600 is the default) and press the RETURN key. The system prints the question >>SLV?.

```
>>DENS? 1600 (RET)
>>SLV?
```

ERROR: If the system prints the message ?BN, it means that the number you typed was not a legal octal number. Type a CTRL/C and return to Step 29.

Step 34: Type 0 (zero) and Press the RETURN Key.

To inform the system what slave tape unit you are using, type 0 (0 is the default) and press the RETURN key. The system prints the prompt KS10>.

```
>>SLV?0 (RET)

KS10>
```

ERROR: If the system prints the message ?BN, it means that the number you typed was not a legal octal number. Type a CTRL/C and return to Step 29.

➡ Step 35: Type MT and Press the RETURN Key.

To have the microprocessor initiate the bootstrap procedure immediately from the TOPS-20 Installation tape, type MT and press the RETURN key. The system prints KS10>USR MOD and the prompt MTBOOT>.

```
KS10>MT(RET)
KS10>USR MOD

MTBOOT>
```

NOTE

The remaining steps in this chapter pertain to both systems.

➡ Step 36: Type /L and Press the RETURN Key.

To load the TOPS-20 monitor from magnetic tape into memory, type /L and press the RETURN key. The system rewinds the tape on drive 0, loads the resident monitor, skips a line, and prints the MTBOOT> prompt:

```
MTBOOT>/L(RET)
CHN:2 DX20:0 MICROCODE VERSION 1(0) LOADED, VERIFIED, AND STARTED


MTBOOT>
```

NOTE

The message concerning the DX20 microcode is printed only if you are installing the TOPS-20 software on a DECSYSTEM-20 with a DX20 tape controller.

Error:
ERROR: If you have made a typing error and press the return key, the system prints the MTBOOT> prompt 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 the message:

```
?BAD FIL FMT, or
?BAD EXE DIR
```

Make sure that you have mounted the correct TOPS-20 Installation tape on drive 0 and that all other tape drives are off line. Then 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 the MTBOOT> prompt, you probably mistyped the name MTBOOT. The system prints the message:

```
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.

The system will use the magtape 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, refer to Step 148 in Chapter 6 of this manual (for the DECSYSTEM-2020, Step 151 and the Note preceding it) or to the TOPS-20 Operator's Guide for the correct procedure.

Step 37: 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 PUBLIC STRUCTURE?
```

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

If the system does not print the MTBOOT> prompt, check your typescript. Go back to Step 12 for a DECSYSTEM-20, or Step 35 for a DECSYSTEM-2020.

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 for a DECSYSTEM-20, or Step 35 for a DECSYSTEM-2020.

2.3 INITIALIZING THE TOPS-20 FILE SYSTEM

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

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

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

➡ **Step 38: Type YES and Press the RETURN Key.**

To create the public 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 PUBLIC STRUCTURE? YES(RET)

DO YOU WANT TO DEFINE THE PUBLIC STRUCTURE?
```

➡ **Step 39: Type YES and Press the RETURN Key.**

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

```
DO YOU WANT TO DEFINE THE PUBLIC STRUCTURE? YES(RET)

HOW MANY PACKS ARE IN THIS STRUCTURE:
```

➡ Step 40: Type the Number of Packs and Press the RETURN Key.

Count the number of disk packs you plan to have in your public structure. Type the answer and press the RETURN key. The following example uses 1:

```
HOW MANY PACKS ARE IN THIS STRUCTURE: 1(RET)

ON WHICH "CHANNEL,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.

ERROR: If you type the wrong number of disk packs, type CTRL/\; the system prints KS10>. Go back to Step 35 and start again.

➡ Step 41: 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:

```
ON WHICH "CHANNEL,UNIT" IS LOGICAL PACK # 0 MOUNTED: ?
[ENTER A PAIR OF NUMBERS SEPARATED BY A COMMA THAT SPECIFY THE
 CHANNEL, CONTROLLER, AND UNIT UPON WHICH THE APPROPRIATE PACK IS
 MOUNTED. THE FOLLOWING IS A LIST OF VALID CHANNEL, CONTROLLER,
 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
]

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

NOTE

The "CHANNEL" number for the DECSYSTEM-2020 is always 0. The following is an example of the DECSYSTEM-2020 output.

```
0,0 ;TYPE=RP06
0,1 ;TYPE=RP06,OFFLINE
]
```

NOTE

The controller number is always -1 on all TOPS-20 systems because RP20 disks CANNOT be used in the public structure.

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 public 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 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.

ERROR: If you followed the procedure in Step 26, drive 0 will be listed as on line. All drives that are not to be part of your public structure 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 procedure in Step 27 for changing it to A. After you've changed the controller select switch to the correct position, type CTRL/\. The system prints the KS10> prompt. Return to Step 35 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 35 and start again.

➡ **Step 42: Type the Channel No., Controller No., Unit No., and Press the RETURN Key.**

Type the channel number, the controller number, and unit number of the dual-port 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. Since the RP20 cannot be used in the public structure, the controller number should always be -1.

```
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 ERROR: messages and repeats the question. You can simply repeat the current step.

Error: 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.

ERROR: If your answer is valid but is not the one you wanted, type CTRL/\. The system prints the prompt KS10>. Go back to Step 35 and start again.

➡ Step 43: 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 for either the 2020, 2040, or 2050. The default swapping space for the 2020, 2040, or 2050 is 5035 pages.

If you are planning on using a monitor other than MONSML for the 2020, 2040, 2050, refer to 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 5035 PAGES] (for a 2020, 2040, or 2050)

DO YOU WANT THE DEFAULT SWAPPING SPACE?
```

➡ Step 44: Type YES or NO and Press the RETURN Key.

If you want to accept the default swapping space size, type YES, press the RETURN key, and proceed to Step 46.

```
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, Chapter 5.

After you determine the size of swapping space you need, proceed to Step 45.

```
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.

ERROR: If you type the wrong answer, type CTRL/\. The system prints the prompt KS10>. Return to Step 35 and start again.

➡ Step 45: 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.

```
HOW MANY PAGES FOR SWAPPING? 5035(RET)

DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM?
```

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

? INVALID NUMBER OF SWAPPING PAGES FOR THIS TYPE OF DISK

and returns to the question in Step 44. 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 press the RETURN key to halt the central processor. Go back to Step 12 and start again.

➡ Step 46: 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 may 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 installing the TOPS-20 software on a DECSYSTEM-2020 and are using RM03 disk packs for your public structure, do not reserve any space for the front-end file system. However, if you are installing the TOPS-20 software on a DECSYSTEM-2020 and are using RP06 disk packs that may later be used as the public structure on a DECSYSTEM-20, you must reserve space for the front-end file system in this step.

➡ Step 47: Type YES and Press the RETURN Key.

Type YES, press the RETURN key, and proceed to Step 48.

```
DO YOU WANT THE DEFAULT SIZE FRONT END FILE SYSTEM? YES(RET)

DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA?
```

➡ Step 48: Type ? (Do Not Press the RETURN Key).

To find out how many pages are assigned as the default boot file space, type a question mark. 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 49: 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)

[STRUCTURE "PS" SUCCESSFULLY DEFINED]
```

➡ **Step 50: STOP.**

The system now recognizes the structure you just defined and prints

```
[PS MOUNTED]

%%NO SETSPD
```

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?
```

Type YES and press the RETURN key. Continue with the next step.

%%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 may be printed at any time before the system requests the date and time.

Error: 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 for a DECSYSTEM-20 or Step 35 for a DECSYSTEM-2020.

2.4 STARTING THE MONITOR

Now that the file system is initialized, you can start the system by performing the following steps.

Step 51: 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 following format:

```
day-month-year hhmm
```

Press the RETURN key. Type the time in AM/PM format or 24-hour format. For example, two o'clock PM on the last day of July may be entered as 31-JULY-1977 2 PM:

```
ENTER CURRENT DATE AND TIME: 2-MAR-80 1630(RET)
```

The system responds by retyping the date and time.

```
YOU HAVE ENTERED SUNDAY, 2-MARCH-1980 4:30PM,
 IS THIS CORRECT (Y,N)
```

Step 52: 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 SUNDAY, 2-MARCH-1980 4:30PM,
 IS THIS CORRECT (Y,N) Y(RET)
WHY RELOAD?
```

Step 53: Type INSTALLATION and Press the RETURN Key.

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

```
WHY RELOAD? INSTALLATION(RET)
<SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED
RUNNING DDMP

NO SYSJOB
```

The system prints the message <SYSTEM> ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED because the ACTGEN program has not been run. (Refer to Chapter 6 of the TOPS-20 System Manager's Guide for more information.) The system prints NO SYSJOB because the SYSJOB program is not stored on disk. This program is not needed yet, so ignore this message.

Error: If you type an incorrect string, do not worry about the incorrect entry; continue with the next step.

Step 54: Type CTRL/C to Tell the System That You Want to Start a Job.

```
<SYSTEM>ACCOUNT.TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED

RUNNING DDMP

NO SYSJOB

(CTRL/C)
NO EXEC
MX>
```

Step 55: Type G Then MTA0: and 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.

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

To skip over the end of the monitor save file, 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, e.g., MTA1:, MTA2:.

Error: If you get an error message in the form:

```
ERROR:      INTERRUPT AT location
```

where location is an octal number, this message may be ignored, so continue with the next step.

Step 56: Again Type G, Then MTA0:, and 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: ERROR: If you get another 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 for a DECSYSTEM-20 or Step 35 for a DECSYSTEM-2020. If the errors continue, call DIGITAL Software Support.

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

➡ Step 57: 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 5.1(1354)
@
```

Error: ERROR: If the system prints INTERRUPT AT 1, you did only one G command in the miniexec. Repeat the command in this step. If you still get the error, go back to Step 12 for a DECSYSTEM-20 or Step 35 for a DECSYSTEM-2020. If the errors continue, contact DIGITAL Software Support.

If you receive the error message INTERRUPT AT 601772, follow the error recovery procedures listed below.

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)
```

Proceed to Step 58.

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

ERROR: If many error messages are repeatedly printed, the tape could be bad. Type CTRL/\ and wait for the system to print the prompt KS10>. Return to Step 35 and start again. If the errors persist, ask for another tape.

2.5 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.

➡ Step 58: Give the Command: ENABLE (CAPABILITIES).

To be able to load files into privileged areas and create user names and directories, give the ENABLE command to obtain the required capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key. The system prints a $ prompt instead of @:

```
@ENABLE (CAPABILITIES)<RET>
$
```

➡ Step 59: Give the Command: RUN (PROGRAM) MTA0:.

To run the DLUSER program from the magnetic tape, type RUN and press the ESC key. The system prints (PROGRAM). Type MTA0: and press the RETURN key. After you issue this command, the system prints the prompt DLUSER>:

```
$RUN (PROGRAM) MTA0:<RET>
DLUSER>
```

Error: / ERROR: If you receive an error message, rewind the tape, skip two files, and reissue this command. If you are installing the TOPS-20 software on a DECSYSTEM-2020, when you type the SKIP command, skip four files. The following example shows how to do this on a DECSYSTEM-20 for MTA0:

```
$REWIND (DEVICE) MTA0:<RET>

$SKIP (DEVICE) MTA0: 2 FILES<RET>

$RUN (PROGRAM) MTA0:<RET>
DLUSER>
```

➡ Step 60: Give the DLUSER Command: LOAD (FROM FILE) MTA0:.

To load the directory structure from the tape into the file system, type LOAD and press the ESC key. The system prints (FROM FILE). Type MTA0: and press the RETURN key. After a few seconds, the system prints DONE. and the DLUSER prompt:

```
DLUSER>LOAD (FROM FILE) MTA0:<RET>

DONE.
DLUSER>
```

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

If you mistyped the command and pressed the RETURN key, follow the error recovery procedure in Step 59.

If you get a group of JSYS error messages, you probably did not give the ENABLE command in step 58. Type two CTRL/Cs, type ENABLE, give the commands in the following example, and reissue the command in this step:

```
        (ESC)
          ↓
$REWIND (DEVICE) MTA0:(RET)
?DEVICE MTA0: OPEN ON JFN 3
%CLOSE JFN? YES(RET)
 3 MTA0: [OK]

        (ESC)
          ↓
$SKIP (DEVICE) MTA0: 2 FILES(RET)  (4 FILES for DECSYSTEM-2020)

        (ESC)
          ↓
$RUN (PROGRAM) MTA0:(RET)
DLUSER>
```

➡ Step 61: Type EXIT and Press the RETURN Key.

Type EXIT and press the RETURN key to end the DLUSER program. The system prints $:

```
DLUSER>EXIT(RET)
$
```

2.6 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 DECSYSTEM-20 tape, and the seventh file on the DECSYSTEM-2020 tape.

➡ Step 62: Give the Command: RUN (PROGRAM) MTA0:.

The DUMPER program is on the tape mounted on drive 0. Type RUN and press the ESC key. The system prints (PROGRAM). Since the tape is already positioned at the DUMPER program, type MTA0: and press the RETURN key. After the DUMPER program starts, the system prints the DUMPER prompt:

```
        (ESC)
          ↓
$ RUN (PROGRAM) MTA0:(RET)

DUMPER>
```

Error: If you get errors, the magnetic tape was either not recorded
ERROR: properly or not positioned properly. Rewind the tape, skip four files, and try again. If you are installing the TOPS-20 software on a DECSYSTEM-2020, when you give the SKIP command, skip six files. The following lines show how to do this on a DECSYSTEM-20 for MTA0:. If the errors persist, contact DIGITAL Software Support.

```
$REWIND (DEVICE) MTA0:RET
$SKIP (DEVICE) MTA0: 4 FILESRET
$RUN (PROGRAM) MTA0:RET

DUMPER>
```

Step 63: Give the DUMPER Command: TAPE (DEVICE) MTA0:.

Tell DUMPER which tape drive to use by giving the DUMPER command TAPE. Type TAPE and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key. The system prints the DUMPER prompt:

```
DUMPER>TAPE (DEVICE) MTA0:RET
DUMPER>
```

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

2.7 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.

(Refer to Chapter 7 of the TOPS-20 User Utilities Guide for an explanation of any messages that DUMPER may print on your terminal.)

Step 64: Give the DUMPER Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SYSTEM>*.*.*.

To copy the TOPS-20 monitor and its related programs from magnetic tape to disk, give the DUMPER RESTORE command. Type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<SYS and press the ESC key. The system prints TEM>*.*.*. Press the RETURN key.

This DUMPER command restores all the files in the first save set to the directory PS:<SYSTEM>. When all the files are restored, the system prints END OF SAVESET and the DUMPER prompt:

```
DUMPER>RESTORE(ESC) (TAPE FILES) PS:(ESC)<*>*.*.* (TO) PS:<SYS(ESC)TEM>*.*.*(RET)

DUMPER TAPE # 1, "SYSTEM FILES FOR TOPS-20 V4.1", WEDNESDAY 18-JUL-79 2150
LOADING FILES(S) INTO PS:<SYSTEM>

END OF SAVESET
DUMPER>
```

The system prints a header containing the date and time that the tape was written.

Error:
ERROR:

If you do 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 FILE(S) INTO PS:<SYSTEM>. To correct this error, type CTRL/E, give the following commands, and begin again at Step 64.

```
(CTRL/E)
INTERRUPTING...
DUMPER>REWIND(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO?  YES(RET)
DUMPER>
```

Error:
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, give the following commands, and reissue the RESTORE command in this step. Be sure to delete and expunge the files in the incorrect directory.

```
(CTRL/E)
INTERRUPTING...
DUMPER>SKIP 0(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO? YES(RET)
DUMPER>
```

CAUTION

The saveset you have just restored contains the TOPS20.BWR and TOPS20.DOC files. These files describe changes in the software made too late for inclusion in this manual. Read these files before continuing with your installation.

To print the contents of the TOPS20.BWR and TOPS20.DOC files on your terminal, perform the following steps:

Step 64A: Type CTRL/C and Press the RETURN Key.

To exit from the DUMPER program and to return to command level, type CTRL/C and press the RETURN Key.

```
           (CTRL/C)
              |
DUMPER>^C(RET)
$
```

STEP 64B: Give the TYPE Command: TYPE (FILE) PS:<SYSTEM>TOPS20.BWR and Press the RETURN Key.

To print the contents of the TOPS-20 BEWARE file, type TY and press the ESCAPE Key. The system prints PE (FILE). Type PS:<SYSTEM>TOPS20.BWR and press the RETURN Key. The system will print the entire contents of the BEWARE file.

```
  (ESC)
    |
$TYPE (FILE) PS:<SYSTEM>TOPS20.BWR(RET)
```

STEP 64C: Give the TYPE Command: TYPE (FILE) PS:<SYSTEM>TOPS20.DOC and Press the RETURN Key.

To print the contents of the TOPS-20 DOCUMENTATION file, type TY and press the ESCAPE Key. The system prints PE (FILE), TYPE PS:<SYSTEM>TOPS20.DOC and press the RETURN Key. The system will print the entire contents of the DOCUMENTATION File.

```
  (ESC)
    |
$TYPE (FILE) PS:<SYSTEM>TOPS20.DOC(RET)
```

STOP

Please read these files in their entirety before continuing with your installation.

Step 64D: Type CONTINUE and Press the RETURN Key.

To return to the DUMPER program to proceed with your installation, type CONTINUE and press the RETURN Key twice. The system returns the DUMPER prompt.

```
$CONTINUE(RET)(RET)
DUMPER>
```

➡ Step 65: Give the DUMPER Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SUBSYS>*.*.*.

Restore the system program files to the directory <SUBSYS>. Type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<SUB and press the ESC key. The system prints SYS>*.*.*. Press the RETURN key. When all the files are restored, the system prints END OF SAVESET and the DUMPER prompt:

```
DUMPER>RESTORE(ESC) (TAPE FILES) PS:(ESC)<*>*.*.* (TO) PS:<SUB(ESC)SYS> *.*.*(RET)

DUMPER TAPE # 1, "SYSTEM FILES FOR TOPS-20 V4.1" ,WEDNESDAY, 18-JUL-79
2153 LOADING FILE(S) INTO PS:<SUBSYS>

END OF SAVESET
DUMPER>
```

Error:
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 FILE(S) INTO PS:<SUBSYS>. To correct this error, type CTRL/E, give the following commands, and begin again at Step 64.

```
(CTRL/I)
INTERRUPTING...
DUMPER>REWIND(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO? YES(RET)
DUMPER>
```

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

```
(CTRL/I)
INTERRUPTING...
DUMPER>SKIP 0(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO? YES(RET)
DUMPER>
```

Step 66: Give the DUMPER Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<UETP.LIB>*.*.*.

To restore the files into the directory <UETP.LIB>, type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<UETP.L and press the ESC key. The system prints IB>*.*.*. Press the RETURN key. When all the files are restored, the system prints END OF SAVESET and the DUMPER prompt:

```
             ESC               ESC                        ESC
              |                 |                          |
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<UETP.LIB>*.*.*(RET)

DUMPER TAPE # 1, "UETP FOR RELEASE 4.1" ,MONDAY, 23-NOV-82 2013
LOADING FILE(S) INTO PS:<UETP.LIB>

END OF SAVESET
DUMPER>
```

Error: 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 FILE(S) INTO PS:<UETP.LIB>. To correct this error, type CTRL/E, give the following commands, and begin again at Step 64.

```
CTRL/E
 |
INTERRUPTING...
DUMPER>REWIND(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO? YES (RET)
DUMPER>
```

Error: ERROR: If you forget to type PS:<UETP.LIB>, the system restores the files to the wrong directory. Type CTRL/E to stop DUMPER, give the SKIP 0 command, and reissue the RESTORE command. Be sure to delete and expunge the files in the incorrect directory.

```
CTRL/E
 |
INTERRUPTING...
DUMPER>SKIP 0(RET)

%DO YOU REALLY WANT TO ABORT YOUR INTERRUPTED COMMAND?
YES OR NO? YES(RET)
DUMPER>
```

Step 67: Type EXIT and Press the RETURN Key.

Type EXIT and press the RETURN key to end DUMPER. The system prints the TOPS-20 enabled prompt:

```
DUMPER>EXIT(RET)
$
```

Step 68: Give the Command: UNLOAD (DEVICE) MTA0:.

To remove the TOPS-20 Installation tape from the tape drive, type UNLOAD and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key. The system rewinds the tape onto the source reel.

```
$UNLOAD (DEVICE) MTA0:
$
```

You may now remove the TOPS-20 Installation tape from the tape drive.

Error: If the system prints:
ERROR:

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

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

Step 69: Give the Command: INFORMATION (ABOUT) DISK-USAGE (OF DIRECTORY) PS:<*> and Press the RETURN Key.

If you give the command INFORMATION (ABOUT) DISK-USAGE (OF DIRECTORY) PS:<*>, the system will print the size of every directory on the public structure, PS:. The example below was obtained using a DECSYSTEM-20, Model 2040. Values for a DECSYSTEM-2020 are shown in brackets ([ ]). 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.

```
$INFORMATION (ABOUT) DISK-USAGE (OF DIRECTORY) PS:<*>

      PS:<ROOT-DIRECTORY>
      54 Pages assigned   [58 Pages for a DECSYSTEM-2020]
      +INF Working pages, +INF Permanent pages allowed

      PS:<ACCOUNTS>
      6 Pages assigned   [4 Pages for a DECSYSTEM-2020]
      +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>
2513 Pages assigned   [2416 Pages for a DECSYSTEM-2020]
+INF Working pages, +INF Permanent pages allowed

PS:<SYSTEM>
2640 Pages assigned   [2680 Pages for a DECSYSTEM-2020]
+INF Working pages, +INF Permanent pages allowed

PS:<UETP>
0 Pages assigned
100000 Working pages, 100000 Permanent pages allowed

PS:<UETP.LIB>
1732 Pages assigned
4000 Working pages, 4000 Permanent pages allowed

PS:<UETP.RUN>
0 Pages assigned
500 Working pages, 500 Permanent pages allowed

Total of 6947 Pages assigned, in 11 directories.
        [6890 Pages for a DECSYSTEM-2020]
60187 PAGES FREE ON PS:
$
```

Error:
ERROR: If the "Pages assigned" for each directory shown do not approximately match the value shown in this manual or the value derived from the directory listing shipped with your Installation tape, some files may not have been copied correctly. Mount the tape again on MTA0:, skip four files (six files for a DECSYSTEM-2020), and begin again at Step 62.

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. You must:

1. Select a monitor that is correct for your system.

2. Change the system name.

3. Set terminal speeds; define remote lines, system logical names, magnetic tape drive parameters, line printer parameters, time zone, file archiving and migration recycle periods, and accounting shift parameters; and enable or disable directory parameter setting, account validation, class scheduling, working set swapping, latency optimization, and tape drive allocation. All these parameters are located in the system parameter file PS:<SYSTEM>4-1-CONFIG.CMD.

4. Change the operator's password and user group.

5. Create the directory PS:<REMARKS>.

6. Create the PS:<SYSTEM>LPFORM.INI file.

If you are tailoring a DECSYSTEM-2020 perform all the steps in this chapter with the exception of Step 86.

3.1 SELECTING A TOPS-20 MONITOR

At this time you are running the TOPS-20 monitor MONSML.EXE if you have a 2020, 2040, or 2050. 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 does not run correctly.

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 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 to run the PTYCON program which in turn usually runs 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.

All monitors are stored in the directory PS:<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. Be sure the monitor you select is for your type of system (i.e., 2020, 2040, or 2050)

If you are installing the TOPS-20 software on a DECSYSTEM-20 Model A 2040 or 2050, copy one of the following monitors to MONITR.EXE:

MONSML.EXE — A small timesharing monitor. This monitor supports up to:

40	jobs
64	lines
20	pseudo-terminals
256K	of memory
8	magnetic tape drives
2	line printers
1	card reader
80	million words of disk storage (four RP04 or two RP06,or two RP20 spindles) per structure
5035	pages for swapping space

MONMED.EXE — A medium-size timesharing monitor. This monitor supports up to:

60	jobs
128	lines
30	pseudo-terminals
256K	of memory
8	magnetic tape drives
2	line printers
1	card reader
80	million words of disk storage (four RP04, two RP06, or two RP20 spindles) per structure
7030	pages for swapping space

MONBCH.EXE — A batch-oriented monitor for a medium size configuration. This monitor allows a five-stream batch system and at least one timesharing job. The Batch monitor supports up to:

14	jobs
8	lines
12	pseudo-terminals
256K	of memory
8	magnetic tape drives
2	line printers
1	card reader
80	million words of disk storage (four RP04 or two RP06 disk drives) per structure
7030	pages for swapping space

MONBIG.EXE — A large timesharing monitor. This monitor supports up to:

100	jobs
128	lines
30	pseudo-terminals
512K	of memory
8	magnetic tape drives
2	line printers
1	card reader
80	million words of disk storage (four RP04, or two RP06) per structure
7000	pages for swapping space

If you are installing the TOPS-20 software on a DECSYSTEM-2020, copy one of the following monitors to MONITR.EXE:

2020-MONSML.EXE — A small timesharing monitor. This monitor supports up to:

20	jobs
32	lines
20	pseudo-terminals
256K	of memory
8	magnetic tape drives
1	line printer
1	card reader
80	million words of disk storage (four RM03, or two RP06) per structure
5035	pages for swapping space

2020-MONMED.EXE A medium-size timesharing monitor. This monitor supports up to:

60	jobs
32	lines
30	pseudo-terminals
512K	of memory
8	magnetic tape drives
1	line printer
1	card reader
80	million words of disk storage (four RM03, or two RP06) per structure
6500	pages for swapping space

If you are installing the TOPS-20 software on a DECSYSTEM-2020 that is part of the ARPA network, copy one of the following monitors to MONITR.EXE:

2020-ARPA-MONSML.EXE A small timesharing monitor. This monitor supports up to:

30	jobs
32	lines
32	pseudo-terminals
15	NVT's
256K	of memory
8	magnetic tape drives
1	line printer
1	card reader
80	million words of disk storage (four RM03, or two RP06) per structure
5035	pages for swapping space

2020-ARPA-MONMED.EXE A medium size timesharing monitor. This monitor supports up to:

60	jobs
32	lines
30	pseudo-terminals
30	NVT's
512K	of memory
8	magnetic tape drives
1	line printer
1	card reader
80	million words of disk storage (four RM03, or two RP06) per structure
6500	pages for swapping space.

Step 70: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM>.

Connect to the PS:<SYSTEM> directory by typing CONNECT and pressing the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key:

```
$CONNECT (TO DIRECTORY) PS:<SYSTEM>
$
```

Step 71: Give the Command: COPY (FROM) montyp.EXE (TO) MONITR.EXE.

Copy the monitor that you have selected to the file MONITR.EXE. Type COPY and press the ESC key. The system prints (FROM). Type the name of the monitor that you have selected and press the ESC key. The system prints the generation number and (TO). Type MONITR.EXE and press the RETURN key.

```
$COPY (FROM) montyp.EXE.1 (TO) MONITR.EXE
 montyp.EXE.1 => MONITR.EXE.1 [OK]
```

The different monitors are:

TOPS-20 2040/2050	TOPS-20 2020	TOPS-20 2020 ARPANET
MONSML.EXE	2020-MONSML.EXE	2020-ARPA-MONSML.EXE
MONMED.EXE	2020-MONMED.EXE	2020-ARPA-MONMED.EXE
MONBCH.EXE		
MONBIG.EXE		

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 (ABOUT) VERSION command, the system prints a message similar to:

```
TOPS-20 SMALL SYSTEM, TOPS-20 MONITOR 4.1(5443)
```

You can change the system name "TOPS-20 SMALL SYSTEM" by entering the name you want into the file PS:<SYSTEM>MONNAM.TXT. If the name contains lowercase letters, give the command TERMINAL (MODE IS) 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. The following two steps show how to change the system name to "Installation-test System."

Step 72: Give the Command: TERMINAL (MODE IS) NO RAISE.

If you want lowercase letters in the system name, type TERMINAL and press the ESC key. The system prints (MODE IS). Type NO RAISE and press the RETURN key. Make sure the CAPS LOCKED button on the terminal is not depressed. The system prints $.

```
          (ESC)
$TERMINAL (MODE IS) NO RAISE(RET)
$
```

Step 73: Give the Command: COPY (FROM) TTY: (TO) MONNAM.TXT type-system-name-here ^Z.

Type COPY and press the ESC key. The system prints (FROM). Type TTY: and press the ESC key. The system prints (TO). Type MONNAM.TXT and press the RETURN key. The system is now waiting for you to type the new name of your system. After you enter the new system name, press the RETURN key; then type a CTRL/Z. The system prints ^Z, followed by the $ prompt. In the example below, we use Installation-test System as the new system name.

```
      (ESC)          (ESC)
$copy (FROM) tty: (TO) monnam.txt(RET)
 TTY: => MONNAM.TXT.1

Installation-test System  (RET)
(CTRL/Z)
^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 74: Give the Command: COPY (FROM) TTY: (TO) TAPNAM.TXT type-short-system-name-here ^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 be of ten or fewer characters, so you will probably have to abbreviate the name given in the previous step. The following step shows how to change the system name appearing on tape labels written by the system to "Instal-tst".

```
      (ESC)          (ESC)
$COPY (FROM) TTY: (TO) TAPNAM.TXT(RET)
TTY:=> TAPNAM.TXT.1

Instal-tst(RET)

(CTRL/Z)
^Z
$
```

3.3 CREATING SYSTEM DEFAULTS IN 4-1-CONFIG.CMD

You must create the file PS:<SYSTEM>4-1-CONFIG.CMD to define system parameters for:

- 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

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

The formats of the commands are described in Sections 3.3.1 through 3.3.13. You may include comment lines if they are preceded by exclamation points.

Step 75: Give the Command: CREATE (FILE) 4-1-CONFIG.CMD.

Use EDIT to create the 4-1-CONFIG.CMD file. (Refer to the TOPS-20 EDIT User's Guide for more information on how to use EDIT.) To create the file 4-1-CONFIG.CMD, type CREATE and press the ESC key. The system prints (FILE). Type 4-1-CONFIG.CMD and press the RETURN key. The system prints Input: 4-1-CONFIG.CMD.1 and line number 00100:

```
$CREATE (FILE) 4-1-CONFIG.CMD
Input:  4-1-CONFIG.CMD.1
00100
```

Do not confuse the CREATE command, which creates a file, with the CTRL/E CREATE command, which creates a directory.

3.3.1 Setting Terminal Speeds

Whenever the system starts, the SETSPD program reads the TERMINAL commands from PS:<SYSTEM>4-1-CONFIG.CMD and sets the terminal lines to the specified speeds.

Users can change the speeds of their terminals by giving the TERMINAL (MODE IS) 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 4-1-CONFIG.CMD.

However, if the line is defined as REMOTE, the speed is changed back after the line is disconnected.

The operator can change the speed of the line by giving the CTRL/E SET command.

To set the default speed for a particular line, enter a command in the following format into 4-1-CONFIG.CMD:

```
TERMINAL line SPEED input output
```

Item	Identifies
line	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. (Refer to Section 1.1.)
input	The input (to the system) speed of the terminal(s).
output	The output speed of the terminal(s). If you do not specify an output speed along with an input speed, the system assumes that the output speed is the same as the input speed. The terminal input and output speeds must be the same on a DECSYSTEM-2020.

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 on a DECSYSTEM-20 and a DZ11 on a DECSYSTEM-2020) 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, and the console terminal line number is always one greater than the highest line number. Refer to Table 3-1, below, for line numbers for the DECSYSTEM-20, and to Table 3-2 for line numbers for the DECSYSTEM-2020.

Table 3-1
Terminal Line Numbers
DECSYSTEM-20

Number of Lines (Decimal)	Timesharing Line Numbers (Octal)	Console Line Number (Octal)
8	1 to 10	11
16	1 to 20	21
32	1 to 40	41
64	1 to 100	101
96	1 to 140	141

Table 3-2
Terminal Line Numbers
DECSYSTEM-2020

Number of Lines (Decimal)	Timesharing Line Numbers (Octal)	Console Line Number (Octal)
8	2 to 11	12
16	2 to 21	22
32	2 to 41	42

➡ **Step 76: Type the TERMINAL SPEED Commands.**

Type your required TERMINAL SPEED commands. You can include comment lines by preceding each of them with an exclamation point. The file entered below is 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>
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 do not exist<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. On the DECSYSTEM-20 you may declare a line to be autobaud. If a dial-up line is declared an autobaud line, at system startup the line will be automatically set to 300 baud.

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 above, 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. On a DECSYSTEM-2020 the input and output speed must be the same. The command format is:

```
TERMINAL line REMOTE SPEED input output

                or

TERMINAL line REMOTE AUTO (for DECSYSTEM-20 only)
```

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 4-1-CONFIG.CMD.

➡ **Step 77: Define REMOTE Lines.**

If you have remote lines, obtain the line numbers from your DIGITAL Field Service Representative and enter the proper commands in 4-1-CONFIG.CMD. The lines entered below 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 300(RET)
01000  TERMINAL 22 REMOTE AUTO(RET)  (for DECSYSTEM-20 only)
```

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 4-1-CONFIG.CMD. The TOPS-20 User's Guide describes logical names.

➡ **Step 78: Type System Logical Name Definitions.**

Enter any system logical name definitions into 4-1-CONFIG.CMD. The lines entered below are examples. You must determine the correct definitions for your own system.

```
01100   DEFINE NEW: PS:<NEW>,SYS:(RET)
01200   DEFINE OLD: PS:<OLD>,SYS:(RET)
01300   DEFINE HLP: SYS:(RET)
01400
```

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 TV, the new editor especially suited to display terminals, enter the command, DEFINE EDITOR: SYS:TV.EXE into the 4-1-CONFIG.CMD file. If you do not put this command into the 4-1-CONFIG.CMD file, the default editor used for the CREATE and EDIT commands will be the EDIT program, as in previous releases of TOPS-20. By defining 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 79: Type DEFINE EDITOR: SYS:TV.EXE and Press the RETURN Key.**

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

```
01400   DEFINE EDITOR: SYS:TV.EXE (RET)
01500
```

NOTE

If you want your system's default editor to be the EDIT program, as in previous releases of TOPS-20, do **not** put any DEFINE EDITOR: command into the 4-1-CONFIG.CMD 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 4-1-CONFIG.CMD. The commands in 4-1-CONFIG.CMD 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. Use the last four digits of the number. Enter a MAGTAPE command in the following format into the 4-1-CONFIG.CMD file:

```
MAGTAPE unit serial slave
```

Item	Identifies
unit	The logical unit number that you wish to assign to the drive. The unit number can be 0, 1, 2, 3, 4, 5, 6, or 7.
serial	The last four digits of the serial number. (Leading 0s may be omitted.)
slave	The type of tape drive, e.g., TU70, TU71, TU72, TU45.

NOTE

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

➡ **Step 80: Define Magnetic Tape Drive Logical Unit Numbers.**

Enter the definitions of the magnetic tape drive logical unit numbers into 4-1-CONFIG.CMD. The commands entered below are only examples. You must determine the correct definitions for your system.

```
01400    MAGTAPE 0 24      TU45(RET)
01500    MAGTAPE 1 2001    TU77(RET)
01600    MAGTAPE 2 2002    TU71(RET)
01700    MAGTAPE 3 2003    TU70(RET)
01800    MAGTAPE 4 1500    TU72(RET)
01900
```

3.3.5 Defining Line Printer Parameters

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

Table 3-3
DECSYSTEM-20 Line Printers

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

Table 3-4
DECSYSTEM-2020 Line Printers

Model	VFU	Lowercase	Identification
LP20A LP20B	PROGRAMMABLE PROGRAMMABLE	NO YES	Four buttons on the right top panel, with the top button being POWER ON ALARM/CLEAR
LP20C LP20D	PROGRAMMABLE PROGRAMMABLE	NO YES	Four buttons on the right top panel, with the top button being POWER ON ALARM/CLEAR

Sections 3.3.5.1 and 3.3.5.2 describe how to install the line printer.

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 4-1-CONFIG.CMD 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
```

Item	Identifies
n	The unit number of the printer.
LOWERCASE	Specifies that 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	The type of file specified by the command.
dev:<dir>name.typ	The location of the VFU file.

You do not need VFU commands for LP20F and LP20H line printers.

Examples of typical VFU commands in the 4-1-CONFIG.CMD file are:

```
For an LP20A and LP20C
PRINTER 0 VFU SYS:NORMAL.VFU

For an LP20B and LP20D
PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU
```

Step 81: Type the VFU Command.

If you have one or more line printers with programmable VFUs, enter the appropriate PRINTER commands in 4-1-CONFIG.CMD:

```
01900  PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU(RET)
02000  PRINTER 1 VFU SYS:NORMAL.VFU(RET)
02100
```

3.3.5.2 **Specifying the RAM File** - You must identify a file that will load the translation RAM (random-access memory). This RAM file controls the way 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
```

Item	Identifies
n	The line printer unit number.
LOWERCASE	Specifies that 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	The type of file specified by the command.
dev:<dir>name.typ	The file that contains the translation RAM.

Examples of typical RAM commands in the 4-1-CONFIG.CMD file are:

```
For an LP20A, LP20F or LP20C
PRINTER 0 RAM SYS:LP64.RAM

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

Step 82: Type the RAM Command.

Enter the RAM command into 4-1-CONFIG.CMD:

```
02100  PRINTER 0 LOWERCASE RAM SYS:LP96.RAM(RET)
02200  PRINTER 1 RAM SYS:LP64.RAM(RET)
02300
```

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 4-1-CONFIG.CMD:

```
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 4-1-CONFIG.CMD, the time zone will default to zone 0, signifying Greenwich mean time.

➡ **Step 83: Type the TIMEZONE Command.**

Enter the TIMEZONE command into 4-1-CONFIG.CMD:

```
02300    TIMEZONE 5(RET)
02400
```

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 4-1-CONFIG.CMD file, because the system default is: 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 4-1-CONFIG.CMD file. When this command is given, it prevents the user from changing any of his directory parameters unless he has WHEEL or OPERATOR capabilities. The following step is an example of disallowing users from changing their directory parameters.

➡ **Step 84: Type DISABLE DIRECTORY-PARAMETER-SETTING and Press the RETURN key.**

To prevent users from changing their directory parameters, type DISABLE DIRECTORY-PARAMETER-SETTING and press the RETURN key.

```
02400    DISABLE DIRECTORY-PARAMETER-SETTING(RET)
02500
```

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 4-1-CONFIG.CMD file, because the system default is: ENABLE ACCOUNT-VALIDATION. However, if you decide not to validate accounts, you must enter the command: DISABLE ACCOUNT-VALIDATION into the 4-1-CONFIG.CMD file. The following step is an example of not using the account validation facility.

➡ **Step 85: Type DISABLE ACCOUNT-VALIDATION and Press the RETURN Key.**

If you are not validating accounts, type DISABLE ACCOUNT-VALIDATION and press the RETURN key.

```
02500   DISABLE ACCOUNT-VALIDATION(RET)
02600
```

3.3.9 Performance Improvements

Sections 3.3.9.1 and 3.3.9.2 discuss full latency optimization and working set swapping, respectively.

3.3.9.1 **Full Latency Optimization (FOR DECSYSTEM-20 ONLY)** - When the command, ENABLE FULL-LATENCY-OPTIMIZATION is entered into the 4-1-CONFIG.CMD file, the number of revolutions needed to read pages off the disk is minimized.

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-C processor, it must be at revision level 11.
2. If you have a KL10-E processor, it must be at revision level 3.
3. 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 the above requirements, take the system default, which is, DISABLE FULL-LATENCY-OPTIMIZATION.

➡ **Step 86: Type ENABLE FULL-LATENCY-OPTIMIZATION and Press the RETURN Key (for DECSYSTEM-20 only).**

If your hardware meets the above requirements, type ENABLE FULL-LATENCY-OPTIMIZATION and press the RETURN key.

```
02600   ENABLE FULL-LATENCY-OPTIMIZATION(RET)
02700
```

3.3.9.2 **Working Set Swapping** - If the command, ENABLE WORKING-SET-PRELOADING, is entered in the 4-1-CONFIG.CMD 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. If your system instead runs many interactive jobs or if you are unsure which description better fits your system, take the system default, which is:

DISABLE WORKING-SET-PRELOADING

➡ **Step 87: Type ENABLE WORKING-SET-PRELOADING and Press the RETURN Key.**

```
02700    ENABLE WORKING-SET-PRELOADING(RET)
02800
```

3.3.10 Scheduler Controls

Sections 3.3.10.1 and 3.3.10.2 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 4-1-CONFIG.CMD file, where n is any integer between 1 and 20. The smaller the value of n, the larger the percentage of CPU time given to interactive jobs. If you do not give this command, a default value of 11 will be taken, calling for equal division of time between interactive and batch jobs.

➡ **Step 88: Type the BIAS n Command.**

The example below 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.

```
02800    BIAS 6(RET)
02900
```

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 account number or according to a policy program written for your site.

NOTE

If you do not want to use class scheduling, you do not have to enter any command into the 4-1-CONFIG.CMD file, because the system default is: DISABLF 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. (Refer to Chapter 6 of 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 4-1-CONFIG.CMD file, specifying the percentage of CPU time that is to be given to jobs in each class.

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 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. The following commands are an example of dividing up 75% of the system's CPU time among three classes of jobs. You must supply the correct class numbers and percentages for your own system.

➡ **Step 89: Enter CREATE Commands for Scheduler Classes.**

Enter CREATE commands for your system's classes into 4-1-CONFIG.CMD.

```
02900   CREATE 1 .20(RET)
03000   CREATE 2 .40(RET)
03100   CREATE 3 .15(RET)
03200
```

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 following commands are an example of creating a class for batch jobs and assigning 25% of CPU time to this class.

➡ **Step 90: Enter the BATCH-CLASS n Command and Assign a Percentage to this Class.**

```
03200   BATCH-CLASS 4(RET)
03300   CREATE 4 .25(RET)
03400
```

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

Step 91: Type ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED and Press the RETURN Key.

Now you actually enable class scheduling by giving the following command.

```
03400   ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED(RET)
03500
```

CAUTION

Do not enter the above command into the 4-1-CONFIG.CMD file until you have entered the commands shown in this section that create scheduler classes. 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 describe tape recycle periods for use with the new file archiving and migration features.

3.3.11.1 **Archive Tape Recycle Period** - TOPS-20 allows off-line storage of selected files on magnetic tape for long periods of time. You can specify the amount of time files are to be saved by inserting a command into the 4-1-CONFIG.CMD 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 (5 years x 365 days/year = 1825 days). If you do not insert an ARCHIVE-TAPE-RECYCLE- PERIOD command in the 4-1-CONFIG.CMD file, a default value of 3650 (ten years) will be taken.

Step 92: Type the ARCHIVE-TAPE-RECYCLE-PERIOD n Command.

The example below 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.

```
3500  ARCHIVE-TAPE-RECYCLE-PERIOD 1825(RET)

3600
```

3.3.11.2 **Migration Tape Recycle Period** - Old or little-used files can be automatically stored on magnetic tape for short periods of time. You can specify the amount of time the files are to be saved by inserting a command into the 4-1-CONFIG.CMD file stating, in days, the recycle period of the tapes. For example, to save migrated files on tape for three months, you would enter the command, TAPE-RECYCLE-PERIOD 90 (3 months x 30 days/month = 90 days). If you do not insert a TAPE-RECYCLE- PERIOD command in the 4-1-CONFIG.CMD file, a default value of 180 (six months) will be taken.

➡ **Step 93: Type the TAPE-RECYCLE-PERIOD n Command.**

The example below 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.

```
3600  TAPE-RECYCLE-PERIOD 90(RET)

3700
```

3.3.12 Tape Drive Allocation

Sections 3.3.12.1 and 3.3.12.2 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 automatic assignment of tape drives to users who wish to read or write magnetic tapes. 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 4-1-CONFIG.CMD file. If you do not give this command, your tape drives will behave as in previous releases of TOPS-20; that is, they must be assigned using the TOPS-20 ASSIGN command, and will treat labeled tapes as unlabeled tapes.

➡ **Step 94: Type the ENABLE TAPE-DRIVE-ALLOCATION Command.**

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

```
3700  ENABLE TAPE-DRIVE-ALLOCATION(RET)

3800
```

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 by specifying the wrong label type or density. If you want the system to unload the tape so that it cannot be accidentally erased, you must insert the command, TAPE-RECOGNITION-ERRORS UNLOAD, into the 4-1-CONFIG.CMD 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 95: Type the TAPE-RECOGNITION-ERRORS UNLOAD Command.**

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

```
3800  TAPE-RECOGNITION-ERRORS UNLOAD(RET)

3900
```

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 4-1-CONFIG.CMD 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 keywords WEEKDAYS, WEEKENDS, and ALL, and times in either 24-hour or AM/PM format. (Refer to Chapter 6 of the TOPS-20 System Manager's Guide for detailed information about accounting shift changes.) The example below allows special rates for evenings and weekends. You must provide the correct days and times for your own system.

➡ Step 96: Enter CHANGE Commands for Accounting Shift Changes.

```
3900    CHANGE  9:00 WEEKDAYS(RET)

4000    CHANGE 17:00 WEEKDAYS(RET)

4100    CHANGE  0:00 SATURDAY(RET)

4200
```

NOTE

You do not have to enter CHANGE commands into the 4-1-CONFIG.CMD file. If you do not enter any CHANGE commands, the accounting shift change feature of system accounting is not used.

➡ Step 97: Press the ESC Key, Type EU and Press the RETURN Key.

Press the ESC key to end insert mode. Type EU and press the RETURN key to save the file. The system prints the filename and $:

```
          (ESC)
          ↓
04200 $
*EU(RET)

[4-1-CONFIG.CMD.1]
$
```

➡ Step 98: Give the Command: TYPE (FILE) <SYSTEM>4-1-CONFIG.CMD.

To be sure that the file is in the proper directory, type TYPE and press the ESC key. The system prints (FILE). Type PS:<SYSTEM>4-1-CONFIG.CMD and press the RETURN key. The system prints the contents of the file on your terminal.

```
$TYPE (FILE) PS:<SYSTEM>4-1-CONFIG.CMD
        ! Terminal Speeds
        ! Line 1 has input=9600 and output=9600
        TERMINAL 1 SPEED 9600 ! Burke's line
        ! 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
        DEFINE NEW: PS:<NEW>,SYS:
        DEFINE OLD: PS:<OLD>,SYS:
        DEFINE HLP: SYS:
        MAGTAPE 0 24 TU45
        MAGTAPE 1 2001 TU77
        MAGTAPE 2 2002 TU71
        MAGTAPE 3 2003 TU70
        MAGTAPE 4 150000 TU72
        PRINTER 0 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
        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
        $
```

Remember, the file shown above is just an example.

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

```
$COPY (FROM) 4-1-CONFIG.CMD (TO) PS:<SYSTEM>4-1-CONFIG.CMD
```

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

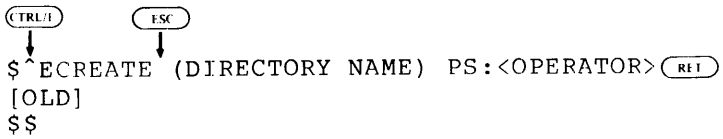
3.4 CHANGING THE OPERATOR'S PASSWORD AND USER GROUP

You may wish to 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 phrase that you typed.

Also, in order for the operator to run the User Environmental Test Package, he must belong to the correct user group. This section describes how to change the operator's password and user group.

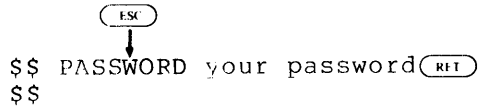
➡ **Step 99: Give the Command: ^ECREATE (DIRECTORY NAME) PS:<OPERATOR> and Press the RETURN Key.**

Type CTRL/E CREATE, and press the ESC key. The system prints (DIRECTORY NAME). Type PS:<OPERATOR> and press the RETURN key. The system prints [OLD], and then the subcommand prompt $$.



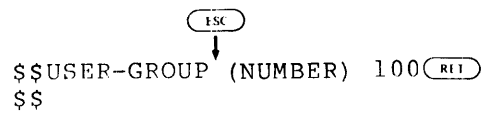
➡ **Step 100: Give the Command: PASSWORD Your Password and Press the RETURN Key.**

To insert the operator's new password, type PASS and press the ESC key. The system prints WORD. Type the new password and press the RETURN key. The system prints the subcommand prompt.



➡ **Step 101: Give the Subcommand: USER-GROUP (NUMBER) 100 and Press the RETURN Key.**

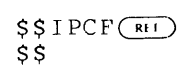
The operator must be a member of user group 100 in order for him to run the User Environmental Test Package. Type USER-GROUP and press the ESC key. The system prints (NUMBER). Type 100 and press the RETURN key.



Error: ERROR: If you see a message similar to: %Group already exists, you may ignore this message. The operator is already a member of the correct user group. Go to Step 102.

➡ **Step 101A: Give the Subcommand: IPCF and Press the RETURN Key.**

To execute all privileged IPCF functions, type the subcommand IPCF and press the RETURN Key.



Step 102: Press the RETURN Key.

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

```
$$(RET)
$
```

3.5 CREATING PS:<REMARKS> DIRECTORY

The directory PS:<REMARKS> is used to receive messages sent by 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.

Step 103: Give the Command ^ECREATE (DIRECTORY NAME) PS:<REMARKS> and Press the RETURN Key.

Type CTRL/E CREATE, and press the ESC key. The system prints (NAME). Type PS:<REMARKS> and press the RETURN key.

```
(CTRL/E)  (ESC)
  ↓         ↓
$^E CREATE (DIRECTORY NAME)  PS:<REMARKS>(RET)
[NEW]
$$
```

Step 104: Press the RETURN Key.

Upon completion of the above step the system prints [NEW] and $$. Press the RETURN key and proceed to the next step.

```
$$ (RET)
$
```

3.6 CREATING THE LPFORM.INI FILE

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

1. Prints the name of the user who requested the line printer. (BANNER)

2. Prints the name of the file that is being printed. (HEADER)

3. After all the information in that file is printed, it prints 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.

Step 105: Give the Command: CONNECT (TO DIRECTORY) PS:<SUBSYS> and Press the RETURN Key.

The LPFORM.INI file must reside in the directory PS:<SUBSYS>. Type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<SUBSYS> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<SUBSYS>
$
```

Step 106: Give the Command: CREATE (FILE) LPFORM.INI and Press the RETURN Key.

Use your system's text editing program to create the LPFORM.INI file. (The example below uses the default editing program, EDIT.) Type CREATE and press the ESC key. The system prints (FILE). Type LPFORM.INI and press the RETURN key. The system proceeds into Input mode and prints 00100. The parameters in the example below are used only for explanatory purposes. You must decide the parameters to be used on your system.

```
$CREATE (FILE) LPFORM.INI
 INPUT: LPFORM.INI.1
00100   NORMAL/BANNER:2/HEADER:2/TRAILER:2
00200   NARROW/BANNER:2/HEADER:2/TRAILER:2/WIDTH:72
00300
```

The above example causes the user's name and the filename 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 the user's name twice again 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.

Step 107: Press the ESC Key. Type EU and Press the RETURN Key.

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

```
00300
*EU
[LPFORM.INI.1]
$
```

NOTE

Perform the Steps in Chapter 4 next if you have a DECSYSTEM-20. Perform the Steps in Chapter 5 next if you have a DECSYSTEM-2020. If your system is going to be part of the ARPA network, you should perform the steps in Appendix E before going on to Chapter 4 or Chapter 5.

CHAPTER 4

CREATING THE FRONT-END FILE SYSTEM

(For DECSYSTEM-20 Only)

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.

These steps 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 PS:.

4.1 HALTING THE TOPS-20 MONITOR

Step 108: Make Sure 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). (Refer to Step 7 in Chapter 2.)

Step 109: 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 vprints the prompt PAR>:

PAR>

Step 110: Type SHUTDOWN and Press the RETURN Key.

To stop the TOPS-20 monitor, type SHUTDOWN and press the RETURN key. The system prints a list of messages.

```
PAR>SHUTDOWN(RET)
**HALTED**

%DECSYSTEM-20 NOT RUNNING
```

Error: If you mistype SHUTDOWN an error message is printed, after which you can 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 108.

4.2 RESTARTING THE FRONT-END MONITOR

This entire procedure is invalid if you did not stop the TOPS-20 monitor in Section 4.1.

Step 111: Set the Switch Register to 000003 (Octal).

Set the front-end switch register to 000003 (switches 1 and 0 up, the rest down).

Step 112: 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 VB14-45G 6:11 23-OCT-82

[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. The printout would look like this:

```
RSX-20F VB14-45G 6:11 23-OCT-82

[SY0: REDIRECTED TO DX0:]
[DX0: MOUNTED]
[DX1: MOUNTED]
KLI -- VERSION VB12-12 RUNNING
KLI -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>
```

Set the switch register correctly and press the ENABLE and SWITCH REGISTER buttons again.

If you set the switch register incorrectly, the system may print:

```
11-HALT
T04
```

or

This VOLUME DOES NOT CONTAIN A HARDWARE-BOOTABLE 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 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 a CTRL/\. You can type a 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 8 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:, etc. 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 148 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 113: 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 % after PAR indicates that the central processor is not running:

```
[DX1: MOUNTED]
(CTRL/)
↓
PAR%
```

➡ **Step 114: 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 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 115: Type MCR INI and Press the RETURN Key.

To start the INITIALIZE program, type MCR INI and press the RETURN key. When the INITIALIZE program is ready for you to type commands (after a few seconds), it prints the prompt INI>:

```
PAR%MCR INI(RET)

INI>
```

Step 116: 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: and press the RETURN key. In about 2 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 113. If you still get an error message, press the front-end HALT switch and wait one minute. Go back to Step 112.

Step 117: 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 118: Type MCR MOU and Press the RETURN Key.

To start the MOUNT program again, type MCR MOU and press the RETURN key. When you are at MOUNT command level, the system prints MOU>:

```
PAR%MCR MOU(RET)
MOU>
```

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

Step 119: 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: and press the RETURN key. 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 117.

Step 120: 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%:

```
        (CTRL/Z)
           ↓
MOU>^Z

(CTRL/\)
   ↓
PAR%
```

Step 121: Type MCR UFD and Press the RETURN Key.

To run the UFD program, type MCR UFD and press the RETURN key. 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%MCR UFD(RET)

UFD>
```

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

Step 122: Type DB0:[5,5] Press 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] and press the RETURN key. 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)
```

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 114.

Error: If the system prints:

```
UFD -- DIRECTORY ALREADY EXISTS
```

you should delete all files in the directory before going on. Perform the steps below:

```
UFD -- DIRECTORY ALREADY EXISTS
CTRL
↓
PAR%MCR PIP RET
PIP>DB0:*.*;*/DE RET
```

Now skip to Step 125.

➡ Step 123: 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 124: Type MCR PIP and Press the RETURN Key.

To load the PIP program from the floppy disk and start it, type MCR PIP and press the RETURN key. After 10 seconds, PIP is ready for you to type commands. The system prints the prompt PIP>:

```
PAR%MCR PIP(RET)

PIP>
```

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

➡ Step 125: Type DB0:/NV=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:/NV=DX0:*.*,DX1:*.* and press the RETURN key. (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 ten minutes, the transfer is complete and the system prints the prompt PIP>:

```
PIP> DB0:/NV=DX0:*.*,DX1:*.*(RET)
PIP>
```

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

Step 126: Type DB0:/LI and Press the RETURN Key.

To get a list of the files on the front-end file system, type DB0:/LI and press the RETURN key. The system prints the list of the files copied from floppies A and B. Check it against the directory listing shown in the TOPS-20.BWR file to be sure that you have all the files shown there. The TOPS-20.BWR file is located on the TOPS-20 Installation tape. If you are installing a TOPS-20 system with RP20 disks, note that the file RSX20F.MAP, which is on System Floppy C, is not yet in the front end file system.

The directory listing shown here 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>:

```
PIP>DB0:/LI(RET)

DIRECTORY DB0:[5,5]
24-NOV-82 16:36

F11ACP.TSK;1          77.  C  24-NOV-82 16:30
KLDISC.TSK;1          5.   C  24-NOV-82 16:30
KLRING.TSK;1          6.   C  24-NOV-82 16:30
KLXFER.TSK;1          5    C  24-NOV-82 16:30
TKTN.TSK;1            6.   C  24-NOV-82 16:31
MIDNIT.TSK;1          4.   C  24-NOV-82 16:31
SETSPD.TSK;1          4.   C  24-NOV-82 16:31
KLE.TSK;1             28.  C  24-NOV-82 16:31
KLI.TSK;1             66.  C  24-NOV-82 16:31
MOU.TSK;1             5.   C  24-NOV-82 16:32
KLA.MCB;231           36.     24-NOV-82 16:32
KLX.MCB;231           42.     24-NOV-82 16:32
BOOT.EXB;1            60.     24-NOV-82 16:32
MTBOOT.EXB;1          60.     24-NOV-82 16:33
KL.CFG;1              1.      24-NOV-82 16:33
BF16N1.A11;1          1.      24-NOV-82 16:33
PARSER.TSK;1          48.  C  24-NOV-82 16:33
T20ACP.TSK;1          8.   C  24-NOV-82 16:34
BOO.TSK;1             19.  C  24-NOV-82 16:34
COP.TSK;1             8.   C  24-NOV-82 16:34
DMO.TSK;1             5.   C  24-NOV-82 16:34
INI.TSK;1             23.  C  24-NOV-82 16:34
PIP.TSK;1             56.  C  24-NOV-82 16:35
RED.TSK;1             6.   C  24-NOV-82 16:35
SAV.TSK;1             13.  C  24-NOV-82 16:35
UFD.TSK;1             9.   C  24-NOV-82 16:35
ZAP.TSK;1             38.  C  24-NOV-82 16:35
RSX20F.SYS;1          57.  C  24-NOV-82 16:36

    TOTAL OF 696. BLOCKS IN 28. FILES
```

As long as a floppy disk is mounted, you can give the /LI command to the PIP program to list the names of the files that it contains. If you are installing a system that does not have RP20 disks, the list above includes the file RSX20F.MAP;1, which is 142 blocks long.

Step 127: 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%:

```
(CTRL/Z)
   ↓
PIP>

(CTRL)
   ↓
PAR%
```

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

Step 128: Type MCR RED and Press the RETURN Key.

To load and start the REDIRECT program from floppy disk, type MCR RED and press the RETURN key. After the REDIRECT program is ready to accept commands (about five seconds), the system prints the REDIRECT prompt RED>:

```
PAR%MCR RED(RET)
RED>
```

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

Step 129: 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: and press the RETURN key. 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 you make a mistake and the system has printed the prompt RED>, reissue the command. If it still fails, perform Steps 111 through 113 and 118 through 120, then continue at Step 128. (Even this may not work. You may have to perform all the steps again, beginning with Step 111.)

Step 130: 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 131: Type MCR SAV and Press the RETURN Key.

To start the SAVE program, type MCR SAV and press the RETURN key. After one second, the SAVE program is ready to accept commands and the system prints the prompt SAV>:

```
PAR%MCR SAV(RET)
SAV>
```

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

Step 132: Set the Switch Register to Zero.

Before proceeding, set the switch register to zero (all switches down).

Step 133: 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 and press the RETURN key (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: DISMOUNTED]
[DX0: DISMOUNTED]
[DX1: DISMOUNTED]

RSX-20F VB14-45G 6:28 24-NOV-82

[SY0: REDIRECTED TO DB0:]
[DB0: MOUNTED]
```

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

The last two messages inform you that the front end is using the files on the TOPS-20 file system instead of the floppy disks.

Step 134: Store the Floppy Disks A and B.

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. Refer to the TOPS-20 System Manager's Guide for this procedure.

Step 134A: Mount System Floppy C on Drive 0

Mount System Floppy C in the left drive (drive 0). (Refer to Step 7 in Chapter 2 if you have trouble.)

Step 134B: 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 134C: Type MCR MOU and Press the RETURN Key.

To start the MOUNT program, type MCR MOU and press the RETURN key. When the system is at MOUNT command level, the system prints the prompt MOU>:

```
PAR%MCR MOU(RET)
MOU>
```

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

Step 134D: Type DX0: and Press the RETURN Key.

The MOUNT program mounts floppy drive 0, then prints the message MOUNT COMPLETE:

```
MOU>DX0:(RET)
MOU -- MOUNT COMPLETE
```

Step 134E: 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 system is at Command Parser command level, it prints the prompt PAR%:

```
     (CTRL/Z)
        ↓
MOU>^Z

(CTRL)
  ↓
PAR%
```

Step 134F: Type MCR PIP and Press the RETURN Key.

To run the PIP program, type MCR PIP and press the RETURN key. When PIP is at command level, it prints the prompt PIP>:

```
PAR%MCR PIP(RET)

PIP>
```

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

➡ Step 134G: Type DB0:/NV=DX0:*.* and Press the RETURN Key.

Copy the contents of System Floppy C to the disk by typing DB0:/NV=DX0:*.*. This copies RSX20F.MAP to the disk. When the file is copied, PIP prints the prompt PIP>:

```
PIP>DB0:/NV=DX0:*.*(RET)
PIP>
```

➡ Step 134H: Type DB0:/LI and Press the RETURN Key.

To get a list of the files on the front-end file system, type DB0:/LI and press the RETURN key. 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 TOPS20.BWR file is located on the TOPS-20 Installation tape.

The directory listing shown here 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>:

```
PIP>DB0:/LI(RET)

DIRECTORY DB0:[5,5]
24-NOV-82 16:36

F11ACP.TSK;1          77. C  24-NOV-82 16:30
TKTN.TSK;1            6.  C  24-NOV-82 16:31
KLDISC.TSK;1          5.  C  24-NOV-82 16:30
KLRING.TSK;1          6.  C  24-NOV-82 16:30
KLXFER.TSK;1          5   C  24-NOV-82 16:30
MIDNIT.TSK;1          4.  C  24-NOV-82 16:31
SETSPD.TSK;1          4.  C  24-NOV-82 16:31
KLE.TSK;1             28. C  24-NOV-82 16:31
KLI.TSK;1             66. C  24-NOV-82 16:31
MOU.TSK;1             5.  C  24-NOV-82 16:32
KLA.MCB;231           36.    24-NOV-82 16:32
BOOT.EXB;1            60.    24-NOV-82 16:32
MTBOOT.EXB;1          60.    24-NOV-82 16:33
BF16N1.A11;1          1.     24-NOV-82 16:33
PARSER.TSK;1          48. C  24-NOV-82 16:33
T20ACP.TSK;1          8.  C  24-NOV-82 16:34
BOO.TSK;1             19. C  24-NOV-82 16:34
COP.TSK;1             8.  C  24-NOV-82 16:34
DMO.TSK;1             5.  C  24-NOV-82 16:34
INI.TSK;1             23. C  24-NOV-82 16:34
PIP.TSK;1             56. C  24-NOV-82 16:35
RED.TSK;1             6.  C  24-NOV-82 16:35
SAV.TSK;1             13. C  24-NOV-82 16:35
UFD.TSK;1             9.  C  24-NOV-82 16:35
ZAP.TSK;1             38. C  24-NOV-82 16:35
RSX20F.SYS;1          57. C  24-NOV-82 16:36
RSX20F.MAP;1          142.   24-NOV-82 16:36

    TOTAL OF 838. BLOCKS IN 28. FILES


PIP>
```

Step 134I: Type CTRL/Z and CTRL/

To exit from the PIP program, type a CRTL/Z. To restart the front-end command parser, type a CTRL/\. When at command level, the front-end command parser prints the prompt PAR%:

```
      (CTRL/Z)
         ↓
PIP>^Z

(CTRL)
  ↓
 PAR%
```

Step 134J: Type MCR DMO and Press the RETURN Key.

To start the DMO program, type MCR DMO and press the RETURN key. When at command level, the DMO program prints the prompt DMO>:

```
PAR%MCR DMO(RET)
DMO>
```

Step 134K: Type DX0: and Press the RETURN Key.

To dismount the floppy drive, type DX0: and press the RETURN key. After a few seconds, when the drive is dismounted, DMO prints the prompt DMO>:

```
DMO>DX0:(RET)
DMO -- DISMOUNT COMPLETE
DMO>
```

Step 134L: Type a CTRL/Z and CTRL/

To exit from the DMO program, type a CTRL/Z followed by a CTRL/\. When you return to command level, the front-end command parser prints the prompt PAR%:

```
      (CTRL/Z)
         ↓
DMO>^Z

PAR%
```

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. Refer to the TOPS-20 System Manager's Guide for this procedure.

CHAPTER 5

CREATING THE MICROPROCESSOR FILE SYSTEM

(For DECSYSTEM-2020 Only)

The steps in this chapter describe how to build the microprocessor file system. After completing these steps, you may boot the system from disk.

Step 135: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM> and Press the RETURN Key.

You must connect to the directory where the microprocessor initialization program is located. Type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<SYSTEM>
$
```

Step 136: Give the Command: RUN (PROGRAM) SMFILE and Press the RETURN Key.

To start the microprocessor file system program, type RUN and press the ESC key. The system prints (PROGRAM). Type SMFILE and press the RETURN key. The system prints a few lines of information and the SMFILE> prompt.

```
$RUN (PROGRAM) SMFILE
DECSYSTEM-2020 DIAGNOSTICS FE-FILE PROGRAM
VERSION 0.3, TOPS-20, KS10, CPU#=4097
[FOR HELP TYPE "HELP"]
SMFILE>
```

Step 137: Give the Command: WRITE SETUP PS:<ROOT-DIRECTORY>BOOTSTRAP.BIN and Press the RETURN Key.

To inform the system where to write the bootstrap program, type WRITE SETUP PS:<ROOT-DIRECTORY>BOOTSTRAP.BIN and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>WRITE SETUP PS:<ROOT-DIRECTORY>BOOTSTRAP.BIN
SMFILE>
```

Step 138: Give the Command: WRITE RESET and Press the RETURN Key.

To initialize the pointer words in the home block, type WRITE RESET and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>WRITE RESET(RET)
SMFILE>
```

Step 139: Give the Command: READ KS10.ULD and Press the RETURN Key.

To have the system read the microcode, type READ KS10.ULD and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>READ KS10.ULD(RET)
SMFILE>
```

Step 140: Give the Command: SERIAL nnnnn.

To inform the system of the serial number of the KS10, type SERIAL and then the serial number of the KS10 (Refer to Chapter 1, Section 1.1), and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>SERIAL nnnnn(RET)
SMFILE>
```

Step 141: Give the Command: WRITE CRAM and Press the RETURN Key.

To have the system write the microcode into the microprocessor file system, type WRITE CRAM and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>WRITE CRAM(RET)
SMFILE>
```

Step 142: Give the Command: WRITE BOOT SMBOOT.EXE and Press the RETURN Key.

To have the system write the monitor pre-boot program onto the microprocessor file system, type WRITE BOOT SMBOOT.EXE and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>WRITE BOOT SMBOOT.EXE(RET)
SMFILE>
```

Step 143: Give the Command: WRITE DONE and Press the RETURN Key.

To inform the system that you are finished building the microprocessor file system and ask the system to update the home blocks, type WRITE DONE and press the RETURN key. The system prints [HOME BLOCKS SET] and repeats the SMFILE> prompt.

```
SMFILE>WRITE DONE(RET)

[HOME BLOCKS SET]
SMFILE>
```

Step 144: Give the Command: OUTPUT CRAM PS:<SYSTEM>KS10.RAM and Press the RETURN Key.

To have the microcode saved on tape when you are creating a system backup tape, type OUTPUT CRAM PS:<SYSTEM>KS10.RAM and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>OUTPUT CRAM PS:<SYSTEM>KS10.RAM(RET)
SMFILE>
```

Step 145: Give the Command: OUTPUT MTBOOT SMMTBT.EXE PS:<SYSTEM>MTBOOT.RDI and Press the RETURN Key.

To have the magtape bootstrap program saved on tape when you are creating a system backup tape, type OUTPUT MTBOOT SMMTBT.EXE PS:<SYSTEM>MTBOOT.RDI and press the RETURN key. The system prints the SMFILE> prompt.

```
SMFILE>OUTPUT MTBOOT SMMTBT.EXE PS:<SYSTEM>MTBOOT.RDI(RET)
SMFILE>
```

Step 146: Give the Command: EXIT and Press the RETURN Key.

To return to the TOPS-20 command level, type EXIT and press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
SMFILE>EXIT(RET)
$
```

CHAPTER 6

RESTARTING THE SYSTEM

At this point you have:

1. Initialized the TOPS-20 file system.
2. Loaded the TOPS-20 monitor and related programs into directories PS:<SYSTEM> and PS:<SUBSYS>.
3. Loaded the files for the TOPS-20 User Environmental Test Package into directory PS:<UETP.LIB>.
4. Created the system initialization files.

   and either

5. Loaded the front-end software for the DECSYSTEM-20 into the TOPS-20 file system

   or

6. Created the microprocessor file system for the DECSYSTEM-2020.

Now 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.

To restart the DECSYSTEM-20, follow the procedures in Steps 147 and 148, and 152 through 155. To restart the DECSYSTEM-2020, follow the procedures in Steps 149 through 155.

Step 147: Make Sure the Central Processor has Stopped (for DECSYSTEM-20 Only).

Check your output to be sure that the last time the system printed the prompt PAR (in Step 131), it was followed by a % to indicate that the central processor is stopped. If the prompt is followed by a >, type SHUTDOWN and press the RETURN key.

Step 148: Hold ENABLE and Press the DISK Button.(for DECSYSTEM-20 only)

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. Continue at Step 152.

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. (Refer to Part 4, Chapter 1, of 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, then go to Step 152.

```
RSX-20F VB14-45G 6:11 23-OCT-82

[SY0: REDIRECTED TO DB0:]
[DB0: MOUNTED]
KLI -- VERSION VB12-12 RUNNING
KLI -- KL10 S/N: 2102., 60 HERTZ
KLI -- KL10 HARDWARE ENVIRONMENT:
        INTERNAL CHANNELS
        CACHE

KLI -- MICROCODE VERSION 231 LOADED
KLI -- ALL CACHES ENABLED

LOGICAL MEMORY CONFIGURATION.
 ADDRESS   SIZE   INT  TYPE CONTROLLER
 00000000  1024K   4   MA20  4

KLI -- CONFIGURATION FILE WRITTEN
KLI -- BOOTSTRAP LOADED AND STARTED


[PS MOUNTED]

System restarting, wait...
ENTER CURRENT DATE AND TIME:
```

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 have mistyped some information in the PS:<SYSTEM>4-1-CONFIG.CMD file. Use EDIT to check the file and correct any errors.

Step 149: Type CTRL/\ (DECSYSTEM-2020 Only).

To get the KS10 command parser, type a CTRL/\. The system may or may not print ENABLED before it prints the KS10> prompt.

```
(CTRL)
↓
ENABLED

KS10>
```

Step 150: Type SH and Press the RETURN Key (DECSYSTEM-2020 Only).

To shut down the system, type SH and press the RETURN key. The system prints **HALTED**, and a message similar to the one below.

```
KS10>SH(RET)
KS10>USR MOD
**HALTED**
%HLTD/000001  PC/000000,,010610
```

NOTE

If your public structure is on a drive other than disk drive 0, pressing the BOOT button (Step 151) will not work. You must give the DS command and specify the unit where your public structure is mounted. The following example shows how to select disk drive 2.

```
(CTRL)
KS10>DS(RET)
>>UBA?1(RET)
>>RHBASE?776700(RET)
>>UNIT?2(RET)
KS10>BT(RET)
BOOT>(RET)
```

Step 151: Press the BOOT Button (DECSYSTEM-2020 Only).

To restart the system, press the BOOT button on the DECSYSTEM-2020 control panel. The system restarts after a few seconds and obtains all the software from the TOPS-20 file system. After the system obtains all the software, it prints ENTER CURRENT DATE AND TIME.

```
BT SW

[PS MOUNTED]
ENTER CURRENT DATE AND TIME:
```

Step 152: Type the Date and Time and Press the RETURN Key.

After the prompt, type the date and time in the form:

```
day-month-year hhmm
```

Then press the RETURN key:

```
ENTER CURRENT DATE AND TIME: 24-OCT-79 1112(RET)

YOU HAVE ENTERED WEDNESDAY, 24-OCT-79 11:12AM,
 IS THIS CORRECT (Y,N)
```

Step 153: 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 the last step:

```
YOU HAVE ENTERED WEDNESDAY, 24-OCT-79 11:12AM,
 IS THIS CORRECT (Y,N) Y(RET)
WHY RELOAD?
```

Step 154: Type TS and Press the RETURN Key.

If you plan to install the unbundled software, type TS and press the RETURN key. When you bring up the system for any other reason, type one of the abbreviations listed in Table 6-1, below:

```
WHY RELOAD? TS(RET)
<SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED
RUN CHECKD?
```

Table 6-1
System Reload Abbreviations

Abbreviation	Meaning
SA	Stand-alone
TS	Timesharing
PM	Preventive maintenance
CM	Corrective maintenance
CR	Crash (include a reason)

Step 155: 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 CTRL/E CEASE command or by using some other controlled means, you do not have to run CHECKD before restarting.

Type N and press the RETURN key. The system prints RUNNING DDMP.

If you do run CHECKD, it takes about four minutes per disk drive. 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. (Refer to the TOPS-20 Operator's Guide for a list of CHECKD error messages.)

```
RUN CHECKD? N(RET)

RUNNING DDMP


SYSJOB 4(10) STARTED AT 24-OCT-79 1112
RUN SYS:ORION
RUN SYS:QUASAR

*****
24-OCT-79 11:12:09 - TGHA V2 IS RUNNING FOR THE FIRST TIME.
*****
RUN SYS:MOUNTR
RUN SYS:INFO
RUN SYS:MAILER
RUN SYS:MAPPER
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:PTYCON.ATO
/
JOB 1 /LOG OPERATOR XX OPERATOR
ENA
RUN SYS:BATCON
/
SJ  0: @LOG OPERATOR OPERATOR
SJ  1: @LOG OPERATOR OPERATOR
SJ  0:  JOB 1 ON TTY206 24-OCT-79 11:12:22
SJ  0: @ENA
SJ  0: $^ESET LOGIN PSEUDO
SJ  0: $^ESET LOGIN CONSOLE
SJ  0: $^ESET OPERATOR
SJ  0: $PTYCON
SJ  1:  JOB 2 ON TTY207 24-OCT-79 11:12:23
SJ  1: @ENA
SJ  0: PTYCON> GET SYSTEM:PTYCON.ATO
SJ  0: PTYCON> SILENCE
SJ  1: $RUN SYS:BATCON

[From OPERATOR on line 210: SYSTEM IN OPERATION]
SJ  0: PTYCON.LOG.1
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)]
```

CHAPTER 7

INSTALLING THE TOPS-20 DISTRIBUTION AND UPDATE TAPES

The steps in this section describe how to install the TOPS-20 distribution tape or any TOPS-20 update tape.

To install any unbundled software products follow the steps in the appropriate installation guide that accompanies each unbundled software product.

The TOPS-20 distribution tape contains five savesets. These savesets are: documentation regarding specific programs; system files that allow you to rebuild the directory PS:<SYSTEM>; SUBSYS files that allows you to rebuild the directory PS:<SUBSYS>; sources that allow you to rebuild certain programs, if required; language sources that allow you to rebuild certain language modules, such as MACRO, LINK; GALAXY sources that allow you to rebuild a GALAXY system, if required.

If you are installing the TOPS-20 DECnet-20 V2 unbundled software on a DECSYSTEM-2040/2050, follow the steps in Chapters 9 and 10 of the TOPS-20 DECnet-20 Programmer's Guide and Operations Manual.

If you are installing the TOPS-20 DECnet-20 V2.1 unbundled software on a DECSYSTEM-2020, follow the steps in Chapter 10 of the TOPS-20 DECnet-20 Programmer's Guide and Operations Manual.

If you are installing the IBM communications unbundled software, follow the steps in Chapter 3 of the IBM Emulation/Termination Manual.

NOTE

The remaining steps in this manual assume that you are using the operator's console terminal (CTY), as in previous steps. Although it is possible to perform the remaining steps at another terminal, you must then return to the CTY after completing Chapter 8 to resume control of the system.

Step 156: Type CTRL/C.

Type CTRL/C to start a job at your terminal:

```
(CTRL/C)
Installation-test System, TOPS-20 Monitor 4.1(5443)
@
```

➡ Step 157: Type SYSTAT OPERATOR and Press the RETURN Key.

To look at the operator jobs on the system, type SYSTAT OPERATOR HEADER and press the RETURN key. The system prints a list of the current operator jobs. Determine which operator job is running PTYCON. Use that job number in the next step.

```
@SYSTAT OPERATOR HEADER(RET)

  Job   Line  Program    User
  ---   ----  -------    ----

   0    det   sysjob     operator
   1    206   ptycon     operator
   2    207   batcon     operator
   3    210   opr        operator
@
```

➡ Step 158: Give the Command: ATTACH (USER) OPERATOR (JOB#) 1.

Attach the operator job running PTYCON. Type ATTACH and press the ESC key. The system prints (USER). Type OPERATOR and press the ESC key. The system prints (JOB #). Type 1 and press the RETURN key. The system prints a message similar to [PSEUDO-TERMINAL, CONFIRM]. Press the RETURN key.

```
        (ESC)                (ESC)
@ATTACH (USER) OPERATOR (JOB #) 1(RET)
 [PSEUDO-TERMINAL, CONFIRM]  (RET)
PASSWORD:
```

➡ Step 159: Type Your Password and Press the RETURN Key Twice.

Type the operator's password and press the RETURN Key twice. The system prints the prompt for the OPR program.

```
PASSWORD:  your password (RET)(RET)
OPR>
```

➡ Step 160: Give the Command: SHOW STATUS TAPE-DRIVE /ALL and Press the RETURN Key.

To find a tape drive that you can use for mounting the unbundled software tape, give the OPR program command, SHOW STATUS TAPE-DRIVE /ALL and press the RETURN key. The system responds with a list of tape drives and their status.

```
OPR> SHOW STATUS TAPE-DRIVE /ALL (RET)
OPR>
 9:35:49           --Tape Drive Status--
        DRIVE  STATE      VOLID   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>
```

NOTE

If tape drive allocation has not been enabled at your site, the state of all tape drives will be Unavailable. Skip to Step 163 in this case.

➡ **Step 161: Give the Command: SET TAPE-DRIVE MTA0: UNAVAILABLE.**

To mount the TOPS-20 Unbundled Software tape, you should first make a free drive unavailable to timesharing users. The OPR program command, SET TAPE-DRIVE MTA0: UNAVAILABLE accomplishes this. The example uses drive number 0, but you can specify any drive that is not in use at the moment.

```
OPR> SET TAPE-DRIVE MTA0:  UNAVAILABLE(RET)
Enter text and terminate with ^Z
```

➡ **Step 162: Enter INSTALLING UNBUNDLED SOFTWARE and Type CTRL/Z.**

```
Enter text and terminate with ^Z
```

(CTRL/Z)

```
 INSTALLING UNBUNDLED SOFTWARE ^Z
OPR>
```

➡ **Step 163: Give the PUSH Command and Press the RETURN Key.**

To use the unbundled software tape, you should first be at TOPS-20 command level. Giving the PUSH command to the OPR program puts you at TOPS-20 command level.

```
OPR> PUSH(RET)

 TOPS-20 Command processor 5.1(1354)

@
```

NOTE

If you are using the console terminal, as recommended above, your PUSH command to OPR puts you at TOPS-20 command level with enabled capabilities. You will then see the TOPS-20 enabled prompt ($) instead of the standard prompt (@). In this case perform Step 164, then skip Step 165 and continue with Step 166.

Step 164: Give the Command: ASSIGN (DEVICE) MTA0:.

Give the ASSIGN command to assign a magnetic tape drive to your job. The example uses drive number 0, but you can use any free drive of your choice. Type ASSIGN and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key. The system prints an @ when the drive is assigned:

```
@ASSIGN (DEVICE) MTA0:
@
```

Error: ERROR: If the device is assigned to another job, the system prints the message:

?ALREADY ASSIGNED TO JOB n

Use the command INFORMATION (ABOUT) AVAILABLE DEVICES to find an available tape drive. Reissue the ASSIGN command.

Step 165: Give the Command: ENABLE (CAPABILITIES).

Because you will be restoring files to restricted areas, you must enable your capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key. The system prints a $ prompt:

```
@ENABLE (CAPABILITIES)
$
```

Step 166: Type DUMPER and Press the RETURN Key.

To start DUMPER, type DUMPER and press the RETURN key. The system prints the DUMPER prompt:

```
$DUMPER
DUMPER>
```

DUMPER ERRORS

If you get errors using DUMPER, refer to the description of DUMPER in the TOPS-20 User Utilities Guide.

➡ Step 167: Give the Command: TAPE (DEVICE) MTA0:.

Tell DUMPER which tape drive to use. The example uses MTA0:, but if you have assigned another drive in Step 164, use that drive number. Type TAPE and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key. The system prints the DUMPER prompt:

```
                ESC
                 ↓
DUMPER>TAPE (DEVICE) MTA0:RET
DUMPER>
```

➡ Step 168: Mount the Distribution Tape or the Update Tape.

Mount the distribution tape or update tape on the drive that is assigned to your job. Remember to press the ON LINE button after mounting the tape.

➡ Step 169: Type REWIND and Press the RETURN Key.

To start the tape at the beginning, type REWIND and press the RETURN key. The system moves the tape to the beginning and prints the DUMPER prompt:

```
DUMPER>REWINDRET
DUMPER>
```

➡ Step 170: Give the Command: RESTORE (TAPE FILES) PS:<>*.*.* (TO) PS:<OPERATOR>.

To restore the documents to directory PS:<OPERATOR>, type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS:. Press the ESC key. The system prints <*>*.*.* (TO). Type PS:<OPERATOR> and press the RETURN key. The system prints a header containing the date and time that the tape was made, 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.

```
                ESC                ESC
                 ↓                  ↓
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<OPERATOR>RET

DUMPER TAPE # 1, <DOCUMENTS>, WEDNESDAY, 8-AUG-79 1741
LOADING FILE(S) INTO PS:<OPERATOR>

END OF SAVESET
DUMPER>
```

Error: ERROR: If you do not see the message, LOADING FILE(S) 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 that 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. Return to DUMPER by giving the CONTINUE command and pressing the RETURN key twice. In the example, the user prints the file SOURCE.DIR:

```
          (CTRL/C)
            ↓
DUMPER>^C
$PRINT (FILES) SOURCE.DIR(RET)
$CONTINUE(RET)(RET)

DUMPER>
```

➡ **Step 171: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SUBSYS>.**

To restore the binary files to PS:<SUBSYS>, type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS:. Press the ESC key. The system prints <*>*.*.* (TO). Type PS:<SUBSYS> and press the RETURN key. The system prints the header, followed by the DUMPER prompt:

```
                  (ESC)                    (ESC)
                    ↓                        ↓
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SUBSYS>(RET)

DUMPER TAPE # 1, <BINARY>, WEDNESDAY, 8-AUG-79 1743
LOADING FILE(S) INTO PS:<SUBSYS>

END OF SAVESET
DUMPER>
```

➡ **Step 172: Sources.**

If you want to restore the source files for either the language or GALAXY sources, give the same RESTORE command as in the last step, but replace <SUBSYS> 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 CTRL/E CREATE command to create a directory for the source files.

➡ **Step 173: Dismount the Tape and Store It.**

Remove the tape from the drive and store it in a safe place.

➡ **Step 174: Go to Step 168 to Restore Other Software Products.**

Go back to Step 168 if you want to install other unbundled software products.

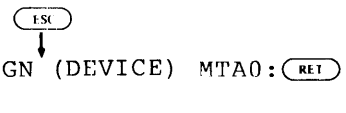
➡ **Step 175: Give the DUMPER Command: EXIT.**

Type EXIT and press the RETURN key to end DUMPER. Return to TOPS-20 command level:

```
DUMPER>EXIT(RET)
$
```

Step 176: Give the Command: DEASSIGN (DEVICE) MTA0:.

Give the DEASSIGN command to release the magnetic tape for use by other users. Type DEASSIGN and press the ESC key. The system prints (DEVICE). Type MTA0: (or the number of the magnetic tape drive that you are using) and press the RETURN key. The system prints the TOPS-20 prompt:



Step 177: Proceed to Step 181 in Chapter 8.

CHAPTER 8

RUNNING THE TOPS-20 UETP PACKAGE

This chapter describes how to run the User Environment Test Package. This program performs a cursory check of the system.

This program 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 test are stored in the directory <UETP.RUN>. For more information on UETP, refer to the User Environment Test Package Reference Manual.

NOTE

If you performed the steps in Chapter 7 of this manual, you may skip Steps 178 through 180 and start at Step 181. 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 this chapter to resume control of the system.

➡ **Step 178: Type CTRL/C.**

Type a CTRL/C to start a job.

```
(CTRL/C)
↓
Installation-test System, TOPS-20 Monitor 4.1(5443)
@
```

➡ **Step 179: Give the Command: LOGIN (USER) OPERATOR (PASSWORD) Your Password (ACCOUNT) OPERATOR and Press the RETURN Key.**

From this terminal, log into the system as OPERATOR, using your password and the account OPERATOR. Type LOGIN and press the ESC key. The system prints (USER). Type OPERATOR and press the ESC key. The system prints (PASSWORD). Type your password and press the ESC key. The system prints (ACCOUNT). Type OPERATOR and press the RETURN key.

```
(ESC)          (ESC)                    (ESC)
↓              ↓                        ↓
@LOGIN (USER) OPERATOR (PASSWORD) your password (ACCOUNT) OPERATOR(RET)
 JOB 6 ON TTY1 8-SEP-79 13:51
@
```

Step 180: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.

To enable your capabilities, type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key.

```
@ENABLE (CAPABILITIES) RET
$
```

Step 181: Give the Command: TAKE (COMMANDS FROM) PS:<UETP.LIB> SET-UP.CMD and Press the RETURN Key.

To set up various subdirectories, type TAKE and press the ESC key. The system prints (COMMANDS FROM). Type PS:<UETP.LIB>SET-UP.CMD and press the RETURN key. This command file contains all the commands necessary to create the subdirectories.

```
$TAKE (COMMANDS FROM) PS:<UETP.LIB>SET-UP.CMD RET

[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
[NEW]
 END OF <UETP.LIB>SET-UP.CMD.3
```

STEP 182: Give the Command: CONNECT (TO DIRECTORY) PS:<UETP.RUN> and Press the RETURN Key.

To connect to the directory that has the standard tests, type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<UETP.RUN> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<UETP.RUN> RET
$
```

Step 183: Give the Command: RUN (PROGRAM) UETP.EXE and Press the RETURN Key.

To start the UETP program, type RUN and press the ESC key. The system prints (PROGRAM). Type UETP.EXE and press the RETURN key. The system prints the prompt UETP>.

```
$RUN (PROGRAM) UETP.EXE RET
[ 1-Nov-79 9:41:45          USER ENVIRONMENT TEST PACKAGE ]

UETP>
```

➡ **Step 184: Load the Standard Verification Tests.**

Type:

```
TAKE (COMMANDS FROM) VERIFY.CMD(RET)
```

This command causes the standard tests to be loaded and the first test (VERIFY) to begin. The following messages are typed out:

```
UETP>ENABLE VERIFY/CYCLE:1      ! Verify that the correct software
[hh:mm:ss  ENABLE COMPLETED]

UETP>BEGIN                      ! is installed
[hh:mm:ss  BEGIN COMPLETED]

UETP>DEFAULT/CYCLE:00:15
[hh:mm:ss  DEFAULT COMPLETED]

UETP>ENABLE RANCBL              ! Random I/O COBOL test
[hh:mm:ss  ENABLE COMPLETED]

UETP>ENABLE RANFOR              ! Random I/O FORTRAN test
[hh:mm:ss  ENABLE COMPLETED]

UETP>ENABLE MTA0                ! Random test for MTA0
[hh:mm:ss  ENABLE COMPLETED]
```

The field hh:mm:ss contains the time the message was generated.

Following these messages, the system prints the following status information:

```
[ 1-Nov-79  9:42:47]

Test    Depth  Status   Cycle  Times  Error  Error  Start
name                           run    count  limit  time
====    =====  ======   =====  =====  =====  =====  =====

VERIFY  VER    Queued       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
```

The next two messages you see are

```
START VERIFY    9:43:33
END   VERIFY   10:14:53
```

The messages signify the beginning and ending of the test.

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.

If the first test (VERIFY) finishes without error, go on to Step 185.

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 7 of this manual, you may give the TOPS-20 ASSIGN command to assign the drive that you gave up in Step 176. Otherwise, perform Steps 160 through 164 in Chapter 7 before continuing with Step 185 below.

➡ **Step 185: Mount a Magnetic Tape on the Drive You Want to Test.**

Test MTA0 requires that a blank magnetic tape be mounted on drive 0. Be sure that a write ring has been inserted in the tape and that the drive is on line before you issue the BEGIN command.

NOTE

The standard tests include a random I/O COBOL test, a random I/O FORTRAN test, and a magtape test for MTA0:. If you want to test a tape drive other than drive 0, you must enable the test for the selected drive. Type ENABLE and press the ESC key. The system prints (TEST). Type MTAn (n = the number of the drive, e.g., MTA1, MTA2) and press the RETURN key.

UETP>ENABLE (TEST) MTAn RET

➡ **Step 186: Begin the Remaining Tests.**

Type:

BEGIN RET

The system prints the following messages:

```
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 above appear, the tests generating the messages have failed.

When all tests are completed, the following status information appears:

```
[All tests complete on processor # 2102]


[ 1-Nov-79 10:26:01]

Test    Depth  Status   Cycle  Times  Error  Error  Start
name                           run    count  limit  time
======  =====  =======  =====  =====  =====  =====  =====
VERIFY  VER    Ended        1      1      0      0  1-Nov-79  9:42:33
RANCBL  VER    Ended     0:15      1      0      0  1-Nov-79 10:15:46
RANFOR  VER    Ended     0:15      1      0      0  1-Nov-79 10:15:46
MTA0    VER    Ended     0:15      1      0      0  1-Nov-79 10:15:46
```

NOTE

At this point you can either type an EXIT command to terminate UETP, or begin the tests for unbundled software. The following step (Step 187) shows how to terminate UETP. If you want to test unbundled software, you should skip Step 187 and proceed to Step 188.

➡ **Step 187: Type EXIT(RET) .**

```
UETP>EXIT(RET)
$
```

8.1 TESTING UNBUNDLED SOFTWARE

The steps in this section describe how to enable tests for unbundled software products. Be sure to enable tests only for the unbundled software products you have installed.

➡ **Step 188: If You Have Installed BASIC-PLUS-2, Give the Command: ENABLE (TEST) BASIC and Press the RETURN Key.**

If you have installed BASIC-PLUS-2, type ENABLE and press the ESC key. The system prints (TEST). Type BASIC and press the RETURN key.

```
                (ESC)
                  ↓
UETP>ENABLE (TEST) BASIC(RET)
 10:43:07 [ENABLE COMPLETED]
UETP>
```

Step 189: If You Have Installed ALGOL, Give the Command: ENABLE (TEST) ALGOL and Press the RETURN Key.

If you have installed ALGOL-20, type ENABLE and press the ESC key. The system prints (TEST). Type ALGOL and press the RETURN key.

```
UETP>ENABLE (TEST) ALGOL<RET>
 10:43:07 [ENABLE COMPLETED]
UETP>
```

Step 190: If You Have Installed DBMS-20, Give the Command: ENABLE (TEST) DBMS and Press the RETURN Key.

If you have installed DBMS-20, type ENABLE and press the ESC key. The system prints (TEST). Type DBMS and press the RETURN key.

```
UETP>ENABLE (TEST) DBMS<RET>
 10:43:07 [ENABLE COMPLETED]
UETP>
```

Step 191: If You Have Installed APL-20, Give the Command: ENABLE (TEST) APL and Press the RETURN Key.

If you have installed APL-20, type ENABLE and press the ESC key. The system prints (TEST). Type APL and press the RETURN key.

```
UETP>ENABLE (TEST)APL<RET>
 10:43:07 [ENABLE COMPLETED]
UETP>
```

Step 191A: If you have Installed FORTRAN, Give the Command: ENABLE (TEST) FORTRA and Press the RETURN Key.

```
UETP>ENABLE (TEST) FORTRA<RET>
 10:43:07 [ENABLE COMPLETED]
UETP>
```

Step 191B: If you have Installed COBOL-68, Give the Command: ENABLE (TEST) COBOL and Press the RETURN Key.

```
UETP>ENABLE (TEST) COBOL<RET>
 10:43:07 [ENABLE COMPLETED]
UETP>
```

➡ **Step 191C: If you have Installed COBOL-74, Give the Command: ENABLE (TEST) CBL74 and Press the RETURN Key.**

```
          (ESC)
            ↓
UETP>ENABLE (TEST) CBL74(RET)
 10:43:07 [ENABLE COMPLETED]
UETP>
```

➡ **Step 191D: If you have Installed SORT-20, Give the Command: ENABLE (TEST) SORT and Press the RETURN Key.**

```
          (ESC)
            ↓
UETP>ENABLE (TEST) SORT(RET)
 10:43:07 [ENABLE COMPLETED]
UETP>
```

➡ **Step 192: Give the Command: BEGIN and Press the RETURN Key.**

To begin the standard tests and all the unbundled software tests you enabled, type BEGIN and press the ESC key. The system prints (UETP RUN AFTER). Press the RETURN key. The system starts all the tests immediately.

```
UETP>BEGIN(RET)
10:45:17 [BEGIN COMPLETED]

UETP>
```

NOTE

Periodically give a STATUS command to find out which tests are running and how many times they have been run. The following is an example of the STATUS command:

```
UETP>STATUS(RET)

[1-Nov-79 11:02:05]

Test    Depth  Status   Cycle  Times  Error  Error  Start
name                           run    count  limit  time
======  =====  =======  =====  =====  =====  =====  =====
VERIFY  VER    Ended        1      1      0      0  1-Nov-79 10:42:20
RANCBL  VER    Running   0:15      0      0      0  1-Nov-79 10:59:27
RANFOR  VER    Queued    0:15      0      0      0  1-Nov-79 10:59:27
MTA0    VER    Queued    0:15      0      0      0  1-Nov-79 10:59:27

UETP>
```

From the above example you can see that 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.

If under the heading ERROR COUNT there is a number other than 0, be sure to print the ERRORS.LOG file, when the tests are completed, to find out what caused the error.

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)

[ 1-Nov-79 11:40:45]

Test    Depth  Status   Cycle  Times  Error  Error  Start
name                           run    count  limit  time
======  =====  =======  =====  =====  =====  =====  =====
VERIFY  VER    Ended        1      1      0      0  1-Nov-79 10:42:20
RANCBL  VER    Ended     0:15      1      0      0  1-Nov-79 10:59:27
RANFOR  VER    Ended     0:15      1      0      0  1-Nov-79 10:59:27
MTA0    VER    Ended     0:15      1      0      0  1-Nov-79 10:59:27
```

Step 193: Give the Command: EXIT and Press the RETURN Key.

To exit from the UETP program, type EXIT and press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
UETP>EXIT(RET)
$
```

Error: If you try to exit while there are tests still running, the
ERROR: 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.

Step 194: Give the Command: TAKE (COMMANDS FROM) PS:<UETP.LIB> CLEAN-UP.CMD and Press the RETURN Key.

To delete the temporary directories, type TAKE and press the ESC key. The system prints (COMMANDS FROM). Type PS:<UETP.LIB>CLEAN-UP.CMD and press the RETURN key. The system prints the word [OLD] for each directory it has deleted.

```
        (ESC)
          ↓
$TAKE (COMMANDS FROM) <UETP.LIB>CLEAN-UP.CMD(RET)
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
 End of <UETP.LIB>CLEAN-UP.CMD.3
```

NOTE

If you did not perform the steps in Chapter 7 before proceeding to the steps in this chapter, you cannot return to the OPR program (Step 195). Instead, perform Steps 158 and 159 in Chapter 7 at this time. Then you may skip Step 195 and continue with Step 196, below.

Step 195: Type POP.

To return the CTY to the OPR program, type POP. The system prints the OPR prompt.

```
$ POP(RET)
OPR>
```

Step 196: Give the command: SET TAPE-DRIVE MTA0: AVAILABLE and Press the RETURN Key.

To return the tape drive you were using to the pool of available resources, type SET TAPE-DRIVE MTA0: AVAILABLE and press the RETURN Key.

```
OPR>SET TAPE-DRIVE MTA0: AVAILABLE(RET)
OPR>
```

APPENDIX A

UPDATING THE DECSYSTEM-20 TO TOPS-20 RELEASE 4.1 SOFTWARE

This appendix describes how to install Release 4.1 software on a DECSYSTEM-20 now running TOPS-20 Release 4 software.

As you update the system, enter the commands printed in red. The system's replies are printed in black.

The updating procedures are divided into four sections. They are:

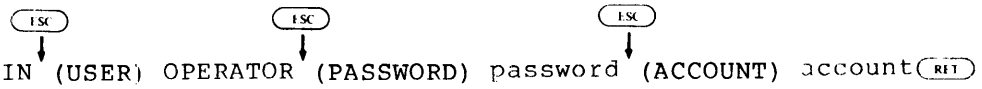
- INSTALLING THE RELEASE 4.1 SOFTWARE (Section A.1)
- REVERTING TO RELEASE 4 (Section A.2)
- MAKING THE RELEASE 4.1 MONITOR THE PRIMARY MONITOR (Section A.3)
- MAKING THE RELEASE 4.1 MONITOR THE PERMANENT MONITOR (Section A.4)

A.1 INSTALLING THE RELEASE 4.1 SOFTWARE

To install the TOPS-20 Release 4.1 software, you need:

- System Floppy A
- System Floppy B
- System Floppy C, which should be used for new installations only. If you are updating your software from a previous version, DO NOT USE Floppy C.
- TOPS-20 Installation Tape V4.1
- A separate tape for each unbundled software product you have purchased.

➡ **Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.**



NOTE

If you are using the PTYCON program at the CTY, you can give the PUSH command to PTYCON instead of logging in another job. The PUSH command to PTYCON puts you at TOPS-20 command level with enabled capabilities, so you can perform Step 2 and then skip to Step 4. Below is an example of giving the PUSH command to PTYCON at the CTY and performing Step 2:

```
PTYCON>PUSH(RET)

TOPS-20 Command processor 5.1(1354)
                (ESC)
                  ↓
$INFORMATION (ABOUT) DISK-USAGE(RET)
 n pages assigned
 n Working pages, n Permanent pages allowed
 n Pages free on PS:
$
```

Continue at Step 4.

➡ **Step 2: Give the Command: INFORMATION (ABOUT) DISK-USAGE and Press the RETURN Key.**

You must have enough disk space on your public structure (PS:) before you can proceed. To find out how many free pages there are on PS:, type INFORMATION and press the ESCAPE key. The system prints (ABOUT); type DISK-USAGE and press the RETURN key. The system prints the number of pages assigned to you and the number of free pages on PS:.

```
              (ESC)
                ↓
@INFORMATION (ABOUT) DISK-USAGE(RET)
```

The system prints

```
 n pages assigned
 n Working pages, n Permanent pages allowed
 n Pages free on PS:
@
```

Where n = the number of pages

NOTE

The number of free pages on PS: must be at least 5000. If you do not have at least this number of pages free, you must dump some files to tape.

➡ **Step 3: Give the Command: ENABLE (CAPABILITIES).**

```
          (ESC)
          ↓
@ ENABLE (CAPABILITIES) (RET)
```

➡ **Step 4: Give the Command: TAKE PS:<UETP.LIB>CLEAN-UP.CMD and Press the RETURN Key.**

To delete various directories created by the UETP program, type TAKE PS:<UETP.LIB>CLEAN-UP.CMD and press the RETURN key.

```
$ TAKE PS:<UETP.LIB>CLEAN-UP.CMD (RET)
$
```

➡ **Step 5: Give the Command: ^ECREATE (DIRECTORY NAME) PS:<UETP.LIB> and Press the RETURN Key.**

Before you can load the Release 4.1 UETP program onto PS:, you must delete the Release 4 PS:<UETP.LIB> directory. Type CTRL/E CREATE and press the ESC key. The system prints (DIRECTORY NAME). Type PS:<UETP.LIB> and press the ESC key. The system prints (PASSWORD). Press the RETURN key.

```
(CTRL/E)  (ESC)                              (ESC)
↓         ↓                                  ↓
$^E CREATE (DIRECTORY NAME)  PS:<UETP.LIB> (PASSWORD) (RET)
[OLD]
$$
```

➡ **Step 6: Give the Command: KILL and Press the RETURN Key.**

To delete the Release 4 PS:<UETP.LIB> directory, type KILL and press the RETURN key. The system prints [CONFIRM].

```
$$ KILL (RET)
[CONFIRM]
```

➡ **Step 7: Press the RETURN Key Twice.**

To confirm you are deleting the directory PS:<UETP.LIB>, press the RETURN key twice.

```
[CONFIRM] (RET)
$$ (RET)
$
```

Step 8: Kill Directories PS:<UETP.RUN> and PS:<UETP> in the Same Manner.

```
(CTRL/A)
$^ECREATE PS:<UETP.RUN>(RET)
[OLD]
$$KILL(RET)
[CONFIRM](RET)
(CTRL/E)
$^ECREATE PS:<UETP>(RET)
[OLD]
$$KILL(RET)
[CONFIRM](RET)(RET)
$
```

Step 9: Give the Command: DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE .QUASAR and Press the RETURN Key.

After allowing any pending jobs to run or sending messages to their owners asking them to re-submit them later, you must delete the master spooling file in preparation for the Release 4.2 batch and spooling (GALAXY) system. Type DELETE PS:<SPOOL>PRIMARY- and press the ESCAPE key. The system prints MASTER-QUEUE-FILE.QUASAR.1 and gives a message verifying the deletion.

```
                                    (ESC)
$DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR
PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR [OK]
$
```

Step 10: Mount the Installation Tape on MTA0: and Give the Following Commands:

```
        (ESC)
$REWIND (DEVICE) MTA0:(RET)

      (ESC)
$SKIP (DEVICE) MTA0: 2 FILES(RET)
```

Step 11: Give the Command: RUN (PROGRAM) MTA0: and Press the RETURN Key.

To run the DLUSER program from magnetic tape, type RUN and press the ESCAPE key. The system prints (PROGRAM). Type MTA0: and press the RETURN key. After the DLUSER program starts, the system prints the DLUSER prompt.

```
     (ESC)
$RUN (PROGRAM) MTA0:(RET)

DLUSER>
```

Error: If you make a typing mistake, rewind the tape, skip two files, and reissue the command above. The following example shows how to do this when the Installation tape is on MTA0:.

```
$REWIND (DEVICE) MTA0:
$SKIP (DEVICE) MTA0: 2 FILES
$RUN (PROGRAM) MTA0:
DLUSER>
```

Step 12: Give the DLUSER Command: LOAD (FROM FILE) MTA0: and Press the RETURN Key.

To load the directory structure into the file system from the TOPS-20 Installation tape, type LOAD and press the ESCAPE key. The system prints (FROM FILE). Type MTA0: and press the RETURN key. After a few seconds, the system prints DONE. and gives the DLUSER prompt.

```
DLUSER>LOAD (FROM FILE) MTA0:
```

The system prints

```
DONE.
DLUSER>
```

Step 13: Type EXIT and Press the RETURN Key.

Type EXIT and press the RETURN key to leave the DLUSER program. The system prints the TOPS-20 enabled prompt.

```
DLUSER>EXIT
$
```

Step 14: Give the Command: RUN (PROGRAM) MTA0: and Press the RETURN Key.

To run the DUMPER program, type RUN and press the ESCAPE key. The system prints (PROGRAM). Type MTA0: and press the RETURN key. After the DUMPER program starts, the system prints the DUMPER prompt.

```
$RUN (PROGRAM) MTA0:
```

The system prints

```
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 (DEVICE) MTA0:<RET>

$SKIP (DEVICE) MTA0: 4 FILES<RET>

$RUN (PROGRAM) MTA0:<RET>
```

The system prints

```
DUMPER>
```

Step 15: Give the DUMPER Command: TAPE (FILESPEC) MTA0: and Press the RETURN Key.

To tell the DUMPER program which tape drive you are using, type TAPE and press the ESC key. The system prints (FILESPEC). Type MTA0: and press the RETURN key. The system prints the DUMPER prompt.

```
DUMPER>TAPE (FILESPEC) MTA0:<RET>
```

The system prints

```
DUMPER>
```

Step 16: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SYSTEM> and Press the RETURN Key.

To copy the TOPS-20 monitor and its related programs from the Installation tape to your public structure, type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<NEW-SYSTEM> and press the RETURN key.

This DUMPER command restores all the files in the first saveset to the directory PS:<NEW-SYSTEM>. When all the files are restored, the system prints the message END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SYSTEM><RET>

DUMPER TAPE #1, "NEW-SYSTEM FOR RELEASE 4.1", THURSDAY, 2-AUG-82 2103

LOADING FILE(S) INTO PS:<NEW-SYSTEM>

END OF SAVESET
DUMPER>
```

CAUTION

The saveset you have just restored contains the TOPS20.BWR and TOPS20.DOC files. These files describe changes in the software made too late for inclusion in this manual. Read these files before continuing with your installation.

To print the contents of the TOPS20.BWR and TOPS20.DOC perform the following steps:

➡ **Step 16A: Type CTRL/C and Press the RETURN Key.**

To exit from the DUMPER program and to return to command level, type CTRL/C and press the RETURN Key.

```
          (CTRL/C)
             ↓
DUMPER>^C(RET)
```

➡ **Step 16B: Give the TYPE Command: TYPE(FILE) PS:<SYSTEM>TOPS20.BWR and Press the RETURN Key.**

To print the contents of the TOPS-20 BEWARE file, type TY and press the ESCAPE Key. The system prints PE (FILE). Type PS:<SYSTEM>TOPS20.BWR and press the RETURN Key. The system will print the entire contents of the BEWARE file.

```
          (ESC)
            ↓
$TYPE (FILE) PS:<SYSTEM>TOPS20.BWR(RET)
```

➡ **STEP 16C: Give the TYPE Command: TYPE (FILE) PS:<SYSTEM>TOPS20.DOC and Press the RETURN Key.**

To print the contents of the TOPS-20 DOCUMENTATION file, type TY and press the ESCAPE Key. The system prints PE (FILE), TYPE PS:<SYSTEM>TOPS20.DOC and press the RETURN Key. The system will print the entire contents of the DOCUMENTATION FILE.

```
          (ESC)
            ↓
$TYPE (FILE) PS:<SYSTEM>TOPS20.DOC(RET)
```

STOP

Please read these files in their entirety before continuing with your installation.

➡ **Step 16D: Type CONTINUE and Press the RETURN Key.**

To return to the DUMPER program to proceed with your installation, type CONTINUE and press the RETURN Key twice. The system returns the DUMPER prompt.

```
$CONTINUE(RET)(RET)
DUMPER>
```

Step 17: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SUBSYS> and Press the RETURN Key.

Restore the system program files to the directory PS:<NEW-SUBSYS>. Type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<NEW-SUBSYS> and press the RETURN key. When all the files are restored, the system prints the message END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SUBSYS>

DUMPER TAPE #1, "NEW-SUBSYS FOR RELEASE 4.1, THURSDAY, 2-AUG-82 2106
LOADING FILE (S) INTO PS:<NEW-SUBSYS>

END OF SAVESET
DUMPER>
```

Step 18: Give the DUMPER Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<UETP.LIB>*.*.* and Press the RETURN Key.

To restore the files for the User Environment Test Package, type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press the ESC key. The system prints <*>*.*.* (TO). Type PS:<UETP.LIB> and press the ESC key. The system prints *.*.*. Press the RETURN key. When all the files are restored, the system prints END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<UETP.LIB>*.*.*

DUMPER TAPE #1, "UETP FOR RELEASE 4.1", THURSDAY, 2-AUG-82 2136
LOADING FILE(S) INTO PS:<UETP.LIB>

END OF SAVESET
DUMPER>
```

Step 19: Give the DUMPER Command: EXIT and Press the RETURN Key.

To terminate the DUMPER program and return to the TOPS-20 command level, type EXIT and press the RETURN key.

```
DUMPER>EXIT
$
```

Step 20: Give the Command: UNLOAD (DEVICE) MTA0: and Press the RETURN Key.

To rewind and unload the tape on MTA0:, type UNLOAD and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key.

```
$UNLOAD (DEVICE) MTA0:
$
```

A.1.1 Renaming the Release 4 Monitor

In case you ever need to revert to the Release 4 monitor, you must rename it before copying the Release 4.1 monitor into <SYSTEM>MONITR.EXE.

➡ **Step 21: Give the Command: RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO) PS:<SYSTEM>4-MONITR.EXE and Press the RETURN Key.**

To rename and save the Release 4 monitor, type RENAME and press the ESC key. The system prints (EXISTING FILE). Type PS:<SYSTEM>MONITR.EXE and press the ESC key. The system prints (TO BE). Type PS:<SYSTEM)4-MONITR.EXE and press the RETURN key. When the rename is successfully completed, the system prints a message specifying that the file was renamed correctly.

```
$RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO BE)
     PS:<SYSTEM>4-MONITR.EXE
<SYSTEM>MONITR.EXE.1 => PS:<SYSTEM>4-MONITR.EXE.1 [OK]
$
```

➡ **Step 22: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>montyp.EXE (TO) PS:<SYSTEM>MONITR.EXE and Press the RETURN Key.**

To copy the Release 4.1 monitor into PS:<SYSTEM>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM>montyp.EXE and press the ESC key. (Montyp designates the type of monitor you have selected for your system, for example MONMED, or MONSML; refer to Chapter 3, Section 3.1 of this manual for information about choosing a monitor for your system.) The system prints (TO). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the copy is successfully completed, the system prints a message specifying that the file was copied correctly.

```
$COPY (FROM) PS:<NEW-SYSTEM>montyp.EXE (TO) PS:<SYSTEM>MONITR.EXE
<NEW-SYSTEM>montyp.EXE. => <SYSTEM>MONITR.EXE.1 [OK]
$
```

A.1.2 Creating the File <NEW-SYSTEM>4-1-CONFIG.CMD

You must create the file <NEW-SYSTEM>4-1-CONFIG.CMD to declare system parameters.

➡ **Step 23: Give the Command: EDIT (FILE) PS:<SYSTEM>4-CONFIG.CMD.1 (OUTPUT AS) PS:<NEW-SYSTEM>4-1-CONFIG.CMD and Press the RETURN Key.**

To edit PS:<SYSTEM>4-CONFIG.CMD and to have the changes placed in PS:<NEW-SYSTEM>4-1-CONFIG.CMD, type EDIT and press the ESC key. The system prints (FILE). Type PS:<SYSTEM>4-CONFIG.CMD and press the ESC key. The system prints the generation number of that file and (OUTPUT AS). Type PS:<NEW-SYSTEM>4-1-CONFIG.CMD and press the RETURN key. The system prints: EDIT: <SYSTEM>4-CONFIG.CMD and the EDIT prompt.

```
   (ESC)                                  (ESC)
     ↓                                      ↓
$EDIT (FILE) PS:<SYSTEM>4-CONFIG.CMD.1 (OUTPUT AS)
PS:<NEW-SYSTEM>4-1-CONFIG.CMD(RET)
```

The system prints

```
EDIT: <SYSTEM>4-CONFIG.CMD.1

*
```

Step 24: Give the Edit Command: P^:* and Press the RETURN Key.

To print the contents of PS:<SYSTEM>4-CONFIG.CMD, type P^:* and press the RETURN key. The system prints the entire 4-CONFIG.CMD file and then the EDIT prompt.

```
EDIT: <SYSTEM>4-CONFIG.CMD.1

*P^:*(RET)
```

A.1.3 Changing System Parameters

Read Chapter 3 of this manual (Tailoring the System), and make any changes to the system parameters that are necessary. Two parameters that must be added are the definitions for the logical names SYS: and SYSTEM:. Add the following commands to the 4-1-CONFIG.CMD file.

```
DEFINE SYS: PS:<NEW-SUBSYS>,PS:<SUBSYS>
DEFINE SYSTEM:  PS:<NEW-SYSTEM>, PS:<SYSTEM>
```

NOTE

> When you are making a change to existing lines of the 4-1-CONFIG.CMD file, use the EDIT command R line number. Any changes made to the system parameters will be made only in <NEW-SYSTEM>4-1-CONFIG.CMD. The file <SYSTEM>4-CONFIG.CMD will remain the same.

Step 25: Press the ESC Key, Type EU and Press the RETURN Key.

After you make all the necessary changes to the system parameters, press the ESC key, 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.

```
*EU(RET)

[<NEW-SYSTEM>4-1-CONFIG.CMD.1]
```

NOTE

Before bringing up the system under Release 4.1, you should check the Release 4.1 PTYCON.ATO file against the Release 4 PTYCON.ATO file. You do not have to compare these files if you have not changed the Release 4 file. However, if you have made your own changes to the Release 4 PTYCON.ATO file and you wish those changes to exist under Release 4.1, you must add the changes to the Release 4.1 PTYCON.ATO.

A.1.4 Setting a User Group for the Operator

You must be certain that the operator is a member of user group 100. Do so by giving the following command.

Step 26: Give the Command: ^ECREATE (DIRECTORY NAME) PS:<OPERATOR> and Press the RETURN Key.

Type CTRL/E CREATE and press the ESC key. The system prints (DIRECTORY NAME). Type PS:<OPERATOR> and press the RETURN key. The system prints [Old], then the subcommand prompt.

```
(CTRL/E)   (ESC)
 |          |
$^ECREATE (DIRECTORY NAME) PS:<OPERATOR>(RET)
[Old]
$$
```

Step 27: Type USER 100 and Press the Return Key.

At the subcommand prompt type USER, press the space bar, then type 100. Press the RETURN key.

```
$$USER 100(RET)
$$
```

Step 27A: Give the Subcommand: IPCF and Press the RETURN Key.

To execute all privileged IPCF functions, type the subcommand IPCF and press the RETURN Key.

```
$$IPCF(RET)
```

Step 28: Press the RETURN Key.

To exit from the subcommand level, press the RETURN key.

```
$$(RET)
$
```

Step 29: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

To bring the system down, type CTRL/E CEASE and press the ESC key. The system prints (TIMESHARING AT). Type +1 and press the ESC key. The system prints (RESUMING AT). Type the date and time and press the RETURN key.

```
(CTRL/E)  (ESC)                    (ESC)
   ↓        ↓                       ↓
$^ECEASE (TIMESHARING AT) +1 (RESUMING AT)
date and time(RET)
 System shutdown scheduled for 2-SEP-82 13:47:00,
 System going down in one minute!!
 System down, up again at 2-SEP-82 13:48:00

 Shutdown complete
```

NOTE

Wait for the system to print Shutdown complete.

Step 30: 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>.

```
Shutdown complete
(CTRL)
  ↓
 PAR>
```

Step 31: Type SHUTDOWN and Press the RETURN Key.

To stop the TOPS-20 monitor, type SHUTDOWN and press the RETURN key. The system prints a list of messages.

```
PAR>SHUTDOWN
** HALTED **
%DECSYSTEM-20 NOT RUNNING
```

Step 32: Type CTRL/\.

Type CTRL/\ to return to the front-end Command Parser. Because the system is not running now, you will see the prompt PAR%. If you see the prompt PAR> instead, go back to Step 30.

```
(CTRL)
  ↓
 PAR%
```

Step 33: Type MCR PIP and Press the RETURN Key.

To load the PIP program and start it, type MCR PIP and press the RETURN key. After 1 second, PIP is ready for you to type commands. The system prints the prompt PIP>:

```
PAR MCR PIP(RET)
PIP>
```

➡ Step 34: 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 Release 4.1 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 with Step 35.

➡ Step 35: Type CTRL/Z and CTRL/\.

To end PIP and return to the front-end Command Parser, type CTRL/Z followed by CTRL/\.

```
(CTRL/Z)
   ↓
PIP>
(CTRL)
   ↓
 PAR%
```

➡ Step 36: Mount Release 4.1 System Floppy A in Floppy Drive 0 and Release 4.1 System Floppy B in Floppy Drive 1.

➡ Step 37: Set the Switch Register to 000007 (Switches 0, 1, and 2 Up), and Press the ENABLE and SWITCH-REGISTER Buttons Simultaneously.

To bring up the Release 4.1 front-end monitor, press the ENABLE and SWITCH-REGISTER buttons simultaneously. The system prints:

```
RSX-20F VB14-45G 6:11 23-OCT-82
[SY0:  REDIRECTED TO DX0:]
[DX0:  MOUNTED]
[DX1:  MOUNTED]

KLI -- VERSION VB12-12 RUNNING
KL1 -- ENTER DIALOG [NO,YES,EXIT,BOOT]?
KLI>
```

➡ Step 38: 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 and press the RETURN key. 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 -- MICROCODE VERSION 231 LOADED
KLI -- % NO FILE - ALL MEMORY BEING CONFIGURED

LOGICAL MEMORY CONFIGURATION.
 ADDRESS   SIZE  INT TYPE CONTROLLER
 00000000  128K   4  MA20  0 & 1
 00400000  768K   4  MF20  11

KLI -- % NO FILE - LOADING BOOTSTRAP
KLI -- CONFIGURATION FILE ALTERED
KLI -- BOOTSTRAP LOADED AND STARTED

BOOT>
```

Step 39: Press the RETURN Key.

To tell the bootstrap program to restart the system, press the RETURN key. The system prints [PS MOUNTED] and System restarting, wait... before prompting for the date and time.

```
BOOT>(RET)


[PS MOUNTED]

System restarting, wait...

ENTER CURRENT DATE AND TIME:
```

Step 40: Type the Date and Time, Then Press the RETURN Key.

After the prompt, type the date and time in the format day-month-year hhmm. Then press the RETURN key.

```
ENTER CURRENT DATE AND TIME: 24-OCT-82 1112(RET)
```

The system prints

```
YOU HAVE ENTERED WEDNESDAY,                11:12AM, IS THIS
CORRECT (Y,N)
```

Step 41: Type Y or N and Press the RETURN Key.

If you have entered the correct date and time, type Y and press the RETURN key. Otherwise, type N and press the RETURN key. The system will ask for the date and time again.

```
IS THIS CORRECT (Y,N) Y(RET)
```

The system prints

```
WHY RELOAD?
```

➡ **Step 42: Type TS and Press the RETURN Key.**

```
WHY RELOAD? TS(RET)
```

The system prints

```
<SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED

RUN CHECKD?
```

NOTE

The system prints the message SYSTEM ACCOUNTS TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED because the ACTGEN program has not been run. (Refer to Chapter 6 of the TOPS-20 System Manager's Guide for more information.)

➡ **Step 43: Type N and Press the RETURN Key.**

The CHECKD program examines the entire disk file system, reports any errors, and tries to correct the errors. You do not have to run the program unless the system crashes unexpectedly or you suspect that there may be disk errors. Type N and press the RETURN key. The system runs the DDMP program. The DDMP program is a background task that moves pages from the disk swapping area to the disk file system.

```
RUN CHECKD? N(RET)

RUNNING DDMP


SYSJOB 4(10) STARTED AT 24-OCT-82 1112
RUN SYS:ORION
RUN SYS:QUASAR

*****
24-OCT-82 11:12:09 - TGHA V2 IS RUNNING FOR THE FIRST TIME.
*****
RUN SYS:MOUNTR
RUN SYS:INFO
RUN SYS:MAILER
RUN SYS:MAPPER
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:PTYCON.ATO
/
JOB 1 /LOG OPERATOR XX OPERATOR
ENA
RUN SYS:BATCON
/
```

```
SJ  0:
SJ  0:  10/24-INSTALLATION-TEST SYSTEM, TOPS-20 MONITOR 4.1(5443)
SJ  1:
SJ  1:  10/24-INSTALLATION-TEST SYSTEM, TOPS-20 MONITOR 4.1(5443)
SJ  0: @LOG OPERATOR OPERATOR
SJ  1: @LOG OPERATOR OPERATOR
SJ  0:  JOB 1 ON TTY206 24-OCT-82 11:12:22
SJ  0: @ENA
SJ  0: $^ESET LOGIN PSEUDO
SJ  0: $^ESET LOGIN CONSOLE
SJ  0: $^ESET OPERATOR
SJ  0: $PTYCON
SJ  1:  JOB 2 ON TTY207 24-OCT-82 11:12:23
SJ  1: @ENA
SJ  0: PTYCON> GET SYSTEM:PTYCON.ATO
SJ  0: PTYCON> SILENCE
SJ  1: $RUN SYS:BATCON

[From OPERATOR on line 210: SYSTEM IN OPERATION]
SJ  0: PTYCON.LOG.1
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)]
```

A.1.5 Running the CNVDSK Program

If you did not use the TOPS-20 Tape Archiving feature with TOPS-20, Version 4, but are planning on using the Tape Archiving feature with TOPS-20, Version 4.1, you must run the CHVDSK program to enlarge the file descriptor block of each file that is not opened. Version 4.1 files have already been formatted for the Tape Archiving feature.

➡ **Step 44: Type a CTRL/C and Log In as OPERATOR.**

```
(CTRL/C)
 ↓
 Installation-test System, TOPS-20 Monitor 4.1(5443)

     (ESC)              (ESC)                (ESC)
      ↓                  ↓                    ↓
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT)
Job 1 on TTY205 2-SEP-82 11:05:50
```

➡ **Step 45: ENABLE Your Capabilities.**

```
      (ESC)
       ↓
@ENABLE (CAPABILITIES) (RET)
$
```

➡ **Step 46: Run the CNVDSK Program.**

```
 (ESC)
  ↓
$R (PROGRAM) CNVDSK.EXE (RET)

Output errors to file:
```

➡ **Step 47:** Type the Name of Any New File. (ERRORS.LOG is Only an Example.)

```
Output errors to file: ERRORS.LOG(RET)

Convert files:
```

➡ **Step 48:** Press the ESCAPE Key. The System Prints DSK:<*>*.*.*. Then Press the RETURN Key. The System Prints a List of Directories.

```
                (ESC)
                  ↓
Convert files: DSK*:<*>*.*.*(RET)
PS:<ROOT-DIRECTORY>
PS:<ACCOUNTS>
     .
     .
     .
$
```

➡ **Step 49:** Use the COPY Command to Print the Log File That You Specified in Step 47.

The CNVDSK program produces a log file containing a list of files and/or directories it was unable to convert. It will fail to convert a file if the file is open when you run CNVDSK, or if the directory in which the file resides was more than three-quarters full (a directory can contain a maximum of approximately 300 files). Use the COPY command to print the log file on PLTP0:, or give the TYPE command to print the log file on the console terminal. The example below uses the COPY command.

```
     (ESC)                  (ESC)
       ↓                      ↓
$COPY (FROM) ERRORS.LOG (TO) PLPT0:(RET)
 ERRORS.LOG => PLPT0:ERRORS [OK]
$
```

➡ **Step 50:** Examine the Line Printer Listing of ERRORS.LOG.

Examine the listing of the error file produced by the CNVDSK program for files it was unable to convert. Normally several files of type .EXE from directory PS:<NEW-SUBSYS> will be shown. This is expected because they represent programs that were started during the system start-up procedures of Step 43. Other files from system directories may also be shown for similar reasons. You should save this listing. The TOPS-20 System Manager's Guide gives instructions for converting any files shown by the listing.

A.2 REVERTING TO RELEASE 4

If you must revert to running the TOPS-20 Release 4 software, follow the steps in this section.

➡ **Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.**

```
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) account(RET)
@
```

➡ **Step 2: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.**

To perform the next step you must enable your capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key.

```
@ENABLE (CAPABILITIES) (RET)
$
```

➡ **Step 3: Give the Command: RENAME (EXISTING FILES) PS:<SYSTEM>4-MONITR.EXE (TO BE) PS:<SYSTEM>MONITR.EXE and Press the RETURN Key.**

In Section A.1.1, you renamed the Release 4 monitor to PS:<SYSTEM>4-MONITR.EXE. If you are reverting to Release 4, you must put this monitor back into PS:<SYSTEM>MONITR.EXE. Type RENAME and press the ESC key. The system prints (EXISTING FILE). Type PS:<SYSTEM>4-MONITR.EXE and press the ESC key. The system prints the generation number and (TO BE). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the rename has been successfully executed, the system prints a message specifying that the file has been renamed correctly.

```
$RENAME (EXISTING FILE) PS:<SYSTEM>4-MONITR.EXE (TO BE)
PS:<SYSTEM>MONITR.EXE(RET)

 <SYSTEM>4-MONITR.EXE.1=> <SYSTEM>MONITR.EXE [OK]
```

NOTE

Before reverting to Release 4, examine the PS:<SYSTEM>4-CONFIG.CMD file. Be sure it contains a definition of logical name SYSTEM:, and that this definition does **not** include the directory, PS:<NEW-SYSTEM>. If it does include the directory, PS:<NEW-SYSTEM>, when you revert to Release 4 the Release 4 monitor will attempt to operate programs that do not function properly in a Release 4 system. If the PS:<SYSTEM>4-CONFIG.CMD file does not contain a definition of logical name SYSTEM:, insert the following command into the file:

```
DEFINE SYSTEM:  PS:<SYSTEM>
```

Step 3A: Give the Command: DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR and Press the RETURN Key.

To delete the master spooling file type DELETE PS:<SPOOL>PRIMARY- and press the ESCAPE KEY. The system prints MASTER-QUEUE-FILE.QUASAR.1 and gives a message verifying the deletion.

```
                                    (ESC)
                                      ↓
$DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR.1 (RET)
PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR.1 [OK]
$
```

Step 4: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

To bring the system down, type CTRL/E CEASE and press the ESC key. The system prints (TIMESHARING AT). Type +1 and press the ESC key. The system prints (RESUMING AT). Type the date and time you want timesharing to start again and press the RETURN key. The system prints a list of messages; the last message is Shutdown complete.

```
(CTRL/E) (ESC)                    (ESC)
   ↓       ↓                        ↓
$^ECEASE (TIMESHARING AT)  +1 (RESUMING AT) date and time(RET)

System shutdown scheduled for 2-SEP-82 13:47:00,
System going down in one minute!!
System down, up again at 2-SEP-82 13:48:00

Shutdown complete.
```

NOTE

Wait for the system to print 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 and press the RETURN key. The system prints a list of messages.

```
PAR> SHUTDOWN(RET)
** HALTED **

%DECSYSTEM-20 NOT RUNNING
```

Step 7: Reload the Release 4 Monitor Using the Release 4 Floppies or the Release 4 Disk.

To reload the Release 4 monitor using the Release 4 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 Release 4 monitor using the Release 4 disk, press the ENABLE and DISK buttons simultaneously, and answer the usual start-up questions.

NOTE

You can reload the Release 4 monitor from disk only if the Release 4 front-end software is still on the disk.

A.3 MAKING THE RELEASE 4.1 MONITOR THE PRIMARY MONITOR

In case you are presently using the Release 4 monitor, you must rename it in Step 4, below, before copying the Release 4.1 monitor into <SYSTEM>MONITR.EXE.

Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.

```
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) account
@
```

Step 2: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.

To perform the next few steps you must enable your capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key.

```
@ENABLE (CAPABILITIES)
$
```

Step 3: STOP.

Proceed with Step 4 if you have reverted to a Release 4 system, and your present monitor is a Release 4 monitor. You must rename this monitor in Step 4 in case you ever need to revert to Release 4 again.

Skip to Step 6 if your present monitor is a Release 4.1 monitor. You do not need to rename your present monitor in Step 4. This action was already performed in Section A.1.1, Step 21.

➡ Step 4: Give the Command: RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO BE) PS:<SYSTEM>4-MONITR.EXE and Press the RETURN Key.

To rename and save the Release 4 monitor, type RENAME and press the ESC key. The system prints (EXISTING FILE). Type PS:<SYSTEM>MONITR.EXE and press the ESC key. The system prints (TO BE). Type PS:<SYSTEM>4-MONITR.EXE. When the Release 4 monitor is successfully renamed, the system prints a message specifying that the file has been renamed correctly. Continue with Step 5.

```
$RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO BE)
PS:<SYSTEM>4-MONITR.EXE<RET>

 <SYSTEM>MONITR.EXE.1 => <SYSTEM>4-MONITR.EXE.1 [OK]

$
```

➡ Step 5: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>montyp.EXE (TO) PS:<SYSTEM> MONITR.EXE and Press the RETURN Key.

To copy the Release 4.1 monitor into PS:<SYSTEM>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM> montyp.EXE and press the ESC key. (Montyp designates the type of monitor you have selected for your system.) The system prints (TO). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the copy is successfully completed, the system prints a message specifying that the file was copied correctly.

```
$COPY (FROM) PS:<NEW-SYSTEM>montyp.EXE (TO) PS:<SYSTEM>MONITR.EXE<RET>
 <NEW-SYSTEM>montyp.EXE. => <SYSTEM>MONITR.EXE.1 [OK]
```

➡ Step 6: Give the Command: ^ECEASE (TIMESHARING AT) Date and Time (RESUMING AT) Date and Time and Press the RETURN key.

Shut down the system by typing CTRL/E CEASE and pressing the ESC key. The system prints (TIMESHARING AT). Type the date and time you want timesharing to cease and press the ESC key. The system prints (RESUMING AT). Type the date and time you want timesharing to start again and press the RETURN key.

```
$^ECEASE (TIMESHARING AT) date and time (RESUMING AT)
date and time<RET>
```

➡ Step 7: Put the Release 4.1 Front-End Software no Disk.

Start at Step 108 in Chapter 4 of this manual to put the Release 4.1 front-end software on disk.

NOTE

When the Release 4.1 front-end software is put on disk, the Release 4 front end is destroyed. In order to use the Release 4 front-end software again, you must use the Release 4 floppies.

A.4 MAKING THE RELEASE 4.1 MONITOR THE PERMANENT MONITOR

The steps in this section should be performed when you feel comfortable with the Release 4.1 software.

➡ **Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.**

```
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) account<RET>
@
```

➡ **Step 2: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.**

To perform the next step you must enable your capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key.

```
@ENABLE (CAPABILITIES)<RET>
$
```

➡ **Step 3: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>*.* (TO) PS:<SYSTEM>*.* and Press the RETURN Key.**

To copy the directory <NEW-SYSTEM> to <SYSTEM>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM>*.* and press the ESC key. The system prints (TO). Type PS:<SYS and press the ESC key. The system prints TEM>*.*. Press the RETURN key. The system prints a message specifying that each file has been copied correctly.

```
$COPY (FROM) PS:<NEW-SYSTEM>*.* (TO) PS:<SYSTEM>*.*<RET>
```

➡ Step 4: Give the Command: COPY (FROM) PS:<NEW-SUBSYS>*.* (TO) PS:<SUBSYS> and Press the RETURN Key.

To copy the directory <NEW-SUBSYS> to <SUBSYS>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SUBSYS>*.* and press the ESC key. The system prints (TO). Type PS:<SUB and press the ESC key. The system prints SYS>*.*. Press the RETURN key. The system prints a message specifying that each file has been copied correctly.

```
$COPY (FROM) PS:<NEW-SUBSYS>*.* (TO) PS:<SUBSYS>*.*
```

(ESC) (ESC) (RET)

➡ Step 5: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM> and Press the RETURN Key.

Connect to the directory PS:<SYSTEM> by typing CONNECT and pressing the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<SYSTEM>
$
```

(ESC) (RET)

➡ Step 6: Give the Command: EDIT (FILE) PS:<SYSTEM>4-1-CONFIG.CMD and Press the RETURN Key.

To edit the 4-1-CONFIG.CMD file, type EDIT and press the ESC key. The system prints (FILE). Type PS:<SYSTEM>4-1-CONFIG.CMD and press the RETURN key.

```
$EDIT (FILE) PS:<SYSTEM>4-1-CONFIG.CMD
```

(ESC) (RET)

The system prints:

```
EDIT:  4-1-CONFIG.CMD
*
```

➡ Step 7: Give the EDIT Command: P^:* and Press the RETURN Key.

To print the entire 4-1-CONFIG.CMD file, type P^:* and press the RETURN key.

```
*P^:*
```

(RET)

Step 8: Give the EDIT Command: R line number and Press the RETURN Key.

The parameter DEFINE SYS: PS:<SUBSYS> must be replaced by DEFINE SYSTEM: PS:<SYSTEM>. To do this, type an R and the line number where DEFINE SYS: PS:<SUBSYS> is located; then press the RETURN key. The system prints the line number you entered in the R command. In the example below, the parameter is located at line 00500.

```
*R500(RET)
```

The system prints

```
00500
```

Step 9: 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, be sure to use the EDIT program's D command to delete any line giving another definition of SYSTEM:.

```
00500 DEFINE SYSTEM: PS:<SYSTEM>(RET)
```

The system prints

```
1 LINES (00500/1) DELETED
*
```

Step 10: Type EU and Press the RETURN Key.

To end the EDIT program and save the file, type EU and press the RETURN key. The system prints <SYSTEM>4-1-CONFIG.CMD.2 and the TOPS-20 command prompt.

```
*EU(RET)
 <SYSTEM>4-1-CONFIG.CMD.2
$
```

Step 11: Give the Command: CONNECT and Press the RETURN Key.

Connect back to your log-in directory by typing CONNECT and pressing the RETURN key.

```
$CONNECT(RET)
$
```

Step 12: Give the Command: DELETE (FILES) PS:<NEW-SYSTEM>*.*.* and Press the RETURN Key.

To delete the files in the directory PS:<NEW-SYSTEM>, type DELETE and press the ESC key. The system prints (FILES). Type PS:<NEW-SYSTEM>*.*.* and press the RETURN key. The system prints an [OK] message for each file it deletes.

```
$DELETE (FILES) PS:<NEW-SYSTEM>*.*.*
.
.
.
.
.
.
.
.
.
$
```

Step 13: Give the Command: DELETE (FILES) PS:<NEW-SUBSYS>*.*.* and Press the RETURN Key.

To delete the files in the directory PS:<NEW-SUBSYS>, type DELETE and press the ESC key. The system prints (FILES). Type PS:<NEW-SUBSYS>*.*.* and press the RETURN key. The system prints an [OK] message for each file it deletes.

```
$DELETE (FILES) PS:<NEW-SUBSYS>*.*.*
.
.
.
.
.
.
.
.
.
.
.
$
```

Step 14: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

Shut down the system by typing CTRL/E CEASE and press the ESCAPE key. The system prints (TIMESHARING AT). Type +1 and press the ESCAPE key. The system prints (RESUMING AT). Type the date and time you want timesharing to start again and press the RETURN key. The system prints a list of messages. The last message is Shutdown complete.

```
(CTRL E)    (ESC)                      (ESC)
   ↓          ↓                          ↓
$^ECEASE (TIMESHARING AT) +1 (RESUMING AT)
date and time(RET)

  System shutdown scheduled for 2-SEP-82 13:47:00,
  System going down in one minute!!
  System down, up again at 2-SEP-82 13:48:00

  Shutdown complete
```

NOTE

Wait for the system to print 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>.

```
Shutdown complete
(CTRL\)
   ↓
 PAR>
```

➡ Step 16: Type SHUTDOWN and Press the RETURN Key.

To stop the TOPS-20 monitor, type SHUTDOWN and press the RETURN key. The system prints a list of messages.

```
PAR>SHUTDOWN(RET)
** HALTED **

%DECSYSTEM-20 NOT RUNNING
```

➡ Step 17: Press the ENABLE and DISK Buttons Simultaneously.

To run the Release 4.1 software from disk, press the ENABLE and DISK buttons simultaneously and answer the usual start-up questions. (Refer to Section A.1.4, Step 38, of this appendix.)

NOTE

If you ever need to revert to Release 4, you must reinstall Release 4, using the Release 4 floppies and tapes.

NOTE

If you are installing any unbundled software, perform the steps in Chapter 7 at this time.

➡ **Step 18: Perform the Steps in Chapter 8 of This Manual.**

APPENDIX B

UPDATING THE DECSYSTEM-2020 TO TOPS-20 RELEASE 4.1 SOFTWARE

This appendix describes how to install Release 4.1 software on a DECSYSTEM-2020 now running TOPS-20 Release 4 software.

To update the system to Release 4.1, enter the commands printed in RED. The system's replies are printed in BLACK.

The updating procedures are divided into three sections. They are:

- INSTALLING THE RELEASE 4.1 SOFTWARE (Section B.1)
- REVERTING TO RELEASE 4 (Section B.2)
- MAKING THE RELEASE 4.1 MONITOR THE PERMANENT MONITOR (Section B.3)

NOTE

The Release 4 SMFILE must **not** be used if you ever rewrite the microcode for an existing Release 4.1 disk pack. The Release 4 SMFILE (Version 0.2 of SMFILE) writes the microprocessor file system to non-contiguous areas of disk, in such a way that it is not accessible to Release 4.1 bootstrap routines. The instructions in this appendix use the Release 4.1 SMFILE only, which functions properly for both Release 4 and Release 4.1 systems.

B.1 INSTALLING THE RELEASE 4.1 SOFTWARE

To install the TOPS-20 Release 4.1 software, you need:

- TOPS-20 Installation tape V4.1
- A separate tape for each unbundled software product you have purchased.

Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.

@LOGIN (ESC) (USER) OPERATOR (ESC) (PASSWORD) password (ESC) (ACCOUNT) account (RET)

Step 2: Give the Command; ENABLE (CAPABILITIES) and Press the RETURN Key.

To enable your capabilities, type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key. The system prints the TOPS-20 enabled prompt.

ENABLE (ESC) (CAPABILITIES) (RET)

Step 2A: Give the Command: INFORMATION (ABOUT) DISK-USAGE and Press the RETURN Key.

You must have enough disk space on your public structure (PS:) before you can proceed. To find out how many free pages there are on PS:, type INFORMATION and press the ESCAPE Key. The system prints (ABOUT); type DISK-USAGE and press the RETURN Key. The system prints the number of pages assigned to you and the number of free pages on PS:.

@INFORMATION (ESC) (ABOUT) DISK-USAGE (RET)

The system prints

```
     n pages assigned
     n working pages, n Permanent pages allowed
     n pages free on PS:
@
```

where n = number of pages

NOTE

The number of free pages on the PS: must be at least 5000. If you do not have at least this number of pages free, you must dump some files to tape.

Step 2B: Give the Command: TAKE PS:<UETP.LIB>CLEAN-UP.CMD and Press the RETURN Key.

To delete various directories created by the UETP program type TAKE PS:<UETP.LIB>CLEAN-UP.CMD and press the RETURN Key.

```
$TAKE PS:<UETP.LIB>CLEAN-UP.CMD (RET)
$
```

Step 3: Give the Command: ^ECREATE (DIRECTORY NAME) PS:<UETP.LIB> and Press the ESC Key. Then Press the RETURN Key.

Before you can load the Release 4.1 UETP program onto PS:, you must delete the Release 4 PS:<UETP.LIB> directory. Type CTRL/E CREATE and press the ESC key. The system prints (DIRECTORY NAME). Type PS:<UETP.LIB> and press the ESC key. The system prints (PASSWORD). Press the RETURN key.

```
$^ECREATE (DIRECTORY NAME) PS:<UETP.LIB> (PASSWORD)
[OLD]
$$
```

Step 4: Give the Command: KILL and Press the RETURN Key.

To delete the Release 4 PS:<UETP.LIB> directory, type KILL and press the RETURN key. The system prints [CONFIRM].

```
$$KILL
[CONFIRM]
```

Step 5: Press the RETURN Key Twice.

To confirm you are deleting the directory PS:<UETP.LIB> press the RETURN key twice.

```
[CONFIRM]
$$
$
```

Step 6: Give the Command: INFORMATION (ABOUT) LOGICAL-NAMES (OF) SYSTEM and Press the RETURN Key.

You must be sure that your system-wide definition of logical name SYSTEM: does not include the directory PS:<NEW-SYSTEM>. Type INFORMATION and press the ESCAPE key. The system prints, (ABOUT). Type LOGICAL-NAMES and press the ESCAPE key. The system prints, (OF). Type SYSTEM and press the RETURN key. The system prints a list of system-wide logical names and their definitions.

```
$INFORMATION (ABOUT) LOGICAL-NAMES (OF) SYSTEM
```

Step 7: STOP.

Go to Step 8 if there is no definition of logical name SYSTEM:, or if the definition of logical name SYSTEM: includes the directory PS:<NEW-SYSTEM>.

Go to Step 9 if there is a definition of logical name SYSTEM: that does **not** include the directory PS:<NEW-SYSTEM>.

Step 8: Give the ^EDEFINE Command to Define System-Wide Logical Name SYSTEM: Without Including PS:<NEW-SYSTEM> in the Definition.

If no definition of logical name SYSTEM: is shown in the list of logical name definitions, give the command: CTRL/E DEFINE and press the ESCAPE key. The system prints, (SYSTEM LOGICAL NAME). Type SYSTEM: and press the ESCAPE key. The system prints (AS). Type PS:<SYSTEM> and press the RETURN key. The system prints, [CONFIRM]. Press the RETURN key again. Now go to Step 9.

If a definition of logical name SYSTEM: is shown that includes the directory PS:<NEW-SYSTEM>, you should give a CTRL/E DEFINE command to include all the items of the definition except PS:<NEW-SYSTEM>. The example below shows how you would change the definition of logical name SYSTEM: shown by the command, INFORMATION (ABOUT) LOGICAL-NAMES (OF) SYSTEM, to one that does not include PS:<NEW-SYSTEM>.

```
                 ESC                              ESC
$INFORMATION (ABOUT) LOGICAL-NAMES (OF) SYSTEM RET
HLP: => SYS:
NEW: => PS:<NEW>, SYS:
OLD: => PS:<OLD>, SYS:
SYS: => PS:<MEXN>, PS:<SUBSYS>
SYSTEM: => PS:<S-MEXN>, PS:<NEW-SYSTEM>, PS:<SYSTEM>
TT: => TTY:

 CTRL/E   ESC                                  ESC
$EDEFINE (SYSTEM LOGICAL NAME) SYSTEM: (AS) PS:<S-MEXN>,- RET
PS:<SYSTEM> RET
[CONFIRM] RET
$
```

Step 9: Mount the Installation Tape on MTA0: and Give the Following Commands.

```
        ESC
$REWIND (DEVICE) MTA0: RET

     ESC
$SKIP (DEVICE) MTA0: 4 FILES RET
```

Step 10: Give the Command: RUN (PROGRAM) MTA0: and Press the RETURN Key.

To run the DLUSER program from magnetic tape, type RUN and press the ESCAPE key. The system prints (PROGRAM). Type MTA0: and press the RETURN key. After the DLUSER program starts, the system prints the DLUSER prompt.

```
     ESC
$ RUN (PROGRAM) MTA0: RET

DLUSER>
```

Error: If you make a typing mistake, rewind the tape, skip four files, and reissue the command above. The following example shows how to do this when the Installation tape is on MTA0:.

```
$REWIND (DEVICE) MTA0:
$SKIP (DEVICE) MTA0: 4 FILES
$RUN (PROGRAM) MTA0:

DLUSER>
```

Step 11: Give the DLUSER Command: LOAD (FROM FILE) MTA0: and Press the RETURN Key.

To load the directory structure into the file system from the TOPS-20 Installation tape, type LOAD and press the ESCAPE key. The system prints (FROM FILE). Type MTA0: and press the RETURN key. After a few seconds, the system prints DONE. and the DLUSER prompt.

```
DLUSER>LOAD (FROM FILE) MTA0:
```

The system prints

```
DONE.
DLUSER>
```

Step 12: Type EXIT and Press the RETURN Key.

Type EXIT and press the RETURN key to leave the DLUSER program. The system prints the TOPS-20 enabled prompt.

```
DLUSER>EXIT

$
```

Step 13: Give the Command: SKIP (DEVICE) MTA0: 1 FILES.

To skip over the Release 4.1 DUMPER program stored on the Installation tape, give the SKIP command. The system prints the enabled prompt.

```
$SKIP (DEVICE) MTA0: 1 FILES
$
```

Step 14: Give the Command: R PROGRAM DUMPER.EXE and Press the RETURN Key.

To run the Release 4 DUMPER program, type R and press the ESCAPE key. The system prints (PROGRAM). Type DUM and press the ESCAPE key. The system prints PER.EXE. Press the RETURN key. After the DUMPER program starts, the system prints the word DUMPER, the current version, and then the DUMPER prompt.

```
$R (PROGRAM)  DUMPER.EXE
```

The system prints

```
DUMPER 4(172)

DUMPER>
```

Error: If you receive any errors, rewind the tape, skip six 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 (DEVICE)  MTA0:

$SKIP (DEVICE)  MTA0: 6 FILES

$R (PROGRAM)  DUMPER.EXE
```

The system prints

```
DUMPER 4(172)

DUMPER>
```

Step 15: Give the DUMPER Command: TAPE (FILESPEC) MTA0: and Press the RETURN Key.

To tell the DUMPER program which tape drive you are using, type TAPE and press the ESC key. The system prints (FILESPEC). Type MTA0: and press the RETURN key. The system prints the DUMPER prompt.

```
DUMPER>TAPE (FILESPEC)  MTA0:
```

The system prints

```
DUMPER>
```

Step 16: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SYSTEM> and Press the RETURN Key.

To copy the TOPS-20 monitor and its related programs from the Installation tape to your public structure, type RESTORE and press the ESC key. The system prints (MTA FILES). Press the ESC key again. The system prints PS:<*>*.*.* (TO). Type PS:<NEW-SYSTEM> and press the RETURN key.

This DUMPER command restores all the files in the first saveset to the directory PS:<NEW-SYSTEM>. When all the files are restored, the system prints the message END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE (MTA FILES) PS:<*>*.*.* (TO) PS:<NEW-SYSTEM>

DUMPER TAPE #1, "NEW-SYSTEM FOR RELEASE 4.1", THURSDAY, 2-AUG-82 2020

LOADING FILE(S) INTO PS:<NEW-SYSTEM>

END OF SAVESET
DUMPER>
```

NOTE

The Saveset you have just restored contains the TOPS20.BWR and TOPS20.DOC files. The TOPS20.BWR file describes changes made too late for inclusion in this manual. Please read these files in their entirety before continuing with your installation.

Step 17: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<NEW-SUBSYS> and Press the RETURN Key.

Restore the system program files to the directory PS:<NEW-SUBSYS>. Type RESTORE and press the ESC key. The system prints (MTA FILES). Press the ESC key again. The system prints PS:<*>*.*.* (TO). Type PS:<NEW-SUBSYS> and press the RETURN key. When all the files are restored, the system prints the message END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE (MTA FILES) PS:<*>*.*.* (TO) PS:<NEW-SUBSYS>

DUMPER TAPE #1, "NEW-SUBSYS FOR RELEASE 4.1", THURSDAY, 2-AUG-82 2020
LOADING FILE(S) INTO PS:<NEW-SUBSYS>

END OF SAVESET
DUMPER>
```

Step 18: Give the DUMPER Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<UETP.LIB>*.*.* and Press the RETURN Key.

To restore the files for the User Environment Test Package. Type RESTORE and press the ESC key. The system prints (MTA FILES). Press the ESC key again. The system prints PS:<*>*.*.* (TO). Type PS:<UETP.LIB> and press the ESC key. The system prints *.*.*. Press the RETURN key. When all the files are restored, the system prints END OF SAVESET and the DUMPER prompt.

```
DUMPER>RESTORE(ESC) (MTA FILES)(ESC) PS:<*>*.*.* (TO) PS:<UETP.LIB>(ESC)*.*.*(RET)

DUMPER TAPE #1, "UETP FOR RELEASE 4.1", THURSDAY, 2-AUG-82 2020
LOADING FILE(S) INTO PS:<UETP.LIB>

END OF SAVESET
DUMPER>
```

Step 19: Give the DUMPER Command: EXIT and Press the RETURN Key.

To terminate the DUMPER program and return to the TOPS-20 command level, type EXIT and press the RETURN key.

```
DUMPER>EXIT(RET)
$
```

Step 20: Give the Command: UNLOAD (DEVICE) MTA0: and Press the RETURN Key.

To rewind and unload the tape on MTA0:, type UNLOAD and press the ESC key. The system prints (DEVICE). Type MTA0: and press the RETURN key.

```
$UNLOAD(ESC) (DEVICE) MTA0:(RET)
$
```

B.1.1 Renaming the Release 4 Monitor

In case you ever need to revert to the Release 4 monitor, you must rename it before copying the Release 4.1. monitor into <SYSTEM>MONITR.EXE.

Step 21: Give the Command: RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO BE) PS:<SYSTEM>4-MONITR.EXE and Press the RETURN Key.

To rename and save the Release 4 monitor, type RENAME and press the ESC key. The system prints (EXISTING FILE). Type PS:<SYSTEM>MONITR.EXE and press the ESC key. The system prints (TO BE). Type PS:<SYSTEM>4-MONITR.EXE and press the RETURN key. When the rename is successfully completed, the system prints a message specifying that the file was renamed correctly.

```
$RENAME (EXISTING FILE) PS:<SYSTEM>MONITR.EXE (TO BE)
     PS:<SYSTEM>4-MONITR.EXE

<SYSTEM>MONITR.EXE 1 => PS:<SYSTEM>4-MONITR.EXE.1 [OK]

$
```

Step 22: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>2020-MONtyp.EXE (TO) PS:<SYSTEM>MONITR.EXE and Press the RETURN Key.

To copy the Release 4.1 monitor into PS:<SYSTEM>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM>2020-MONtyp.EXE (typ designates the type of monitor you have selected for your system) and press the ESC key. The system prints (TO). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the copy is successfully completed, the system prints a message specifying that the file was copied correctly.

```
$COPY (FROM) PS:<NEW-SYSTEM>2020-MONtyp.EXE (TO) PS:<SYSTEM>MONITR.EXE
<NEW-SYSTEM>2020-MONtyp.EXE. => <SYSTEM>MONITR.EXE.1 [OK]
```

B.1.2 Creating the File PS:<NEW-SYSTEM>4-1-CONFIG.CMD

You must create the file PS:<NEW-SYSTEM>4-1-CONFIG.CMD to declare system parameters.

Step 23: Give the Command: EDIT (FILE) PS:<SYSTEM>4-CONFIG.CMD.1 (OUTPUT AS) PS:<NEW-SYSTEM>4-1-CONFIG.CMD.

To edit PS:<SYSTEM>4-CONFIG.CMD and to have the changes placed in PS:<NEW-SYSTEM>4-1-CONFIG.CMD, type EDIT and press the ESC key. The system prints (FILE). Type PS:<SYSTEM>4-CONFIG.CMD and press the ESC key. The system prints the generation number of that file and (OUTPUT AS). Type PS:<NEW-SYSTEM>4-1-CONFIG.CMD and press the RETURN key. The system prints, EDIT:<SYSTEM>4-CONFIG.CMD and the EDIT prompt.

```
$EDIT (FILE) PS:<SYSTEM>4-CONFIG.CMD.1 (OUTPUT AS) PS:<NEW-SYSTEM>4-1-CONFIG.CMD
```

The system prints

```
EDIT:<SYSTEM>4-CONFIG.CMD.1

*
```

➡ Step 24: Give the Edit Command: P^:* and Press the RETURN Key.

To print the contents of <SYSTEM>CONFIG.CMD, type P^:* and press the RETURN key. The system prints the entire CONFIG.CMD file and then the EDIT prompt.

```
EDIT:<SYSTEM>4-CONFIG.CMD.1

*P^:*(RET)
```

B.1.3 Changing System Parameters

Read Chapter 3 of this manual (Tailoring the System), and make any changes to the system parameters that are necessary. One parameter that must be added is the definition for the logical name SYS:. Add the following command to the 4-1-CONFIG.CMD file.

```
DEFINE SYS: PS:<NEW-SUBSYS>,PS:<SUBSYS>
```

Another parameter that must be changed is the definition of logical name SYSTEM:. You must define it so that the first element of the search list is the directory, PS:<NEW-SYSTEM>. If the PS:<SYSTEM>4-CONFIG.CMD file contains a line that defines logical name SYSTEM:, you must replace it with a line that has PS:<NEW-SYSTEM> as the first element of the search list. The example below shows how to replace a definition of SYSTEM: on line 700 of the PS:<SYSTEM>4-CONFIG.CMD file with a corrected line.

```
500   MAGTAPE 1 449
600   TIMEZONE 5
700   DEFINE SYSTEM: PS:<S-MEXN>, PS:<SYSTEM>
*R700(RET)
700   DEFINE SYSTEM: PS:<NEW-SYSTEM>, PS:<S-MEXN>, PS:<SYSTEM>(RET)
```

If the PS:<SYSTEM>4-CONFIG.CMD file does not contain a definition of SYSTEM:, add the following line to the 4-1-CONFIG.CMD file:

```
DEFINE SYSTEM:  PS:<NEW-SYSTEM>, PS:<SYSTEM>
```

NOTE

When you are making a change to the system parameters, use the EDIT command R line number. Any changes made to the system parameters will be made only in <NEW-SYSTEM>4-1-CONFIG.CMD. The file <SYSTEM>4-CONFIG.CMD will remain the same.

➡ Step 25: Press the ESC Key, Type EU, and Press the RETURN Key.

After you make all the necessary changes to the system parameters, press the ESC key, 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.

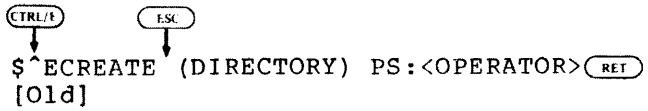
```
(ESC)
*EU(RET)

[<NEW-SYSTEM>4-1-CONFIG.CMD.1]
```

NOTE

Before bringing up the system under Release 4.1, you should check the Release 4.1 PTYCON.ATO and SYSJOB.RUN files against the Release 4 PTYCON.ATO and SYSJOB.RUN files. You do not have to compare these files if you have not changed the Release 4 PTYCON.ATO and SYSJOB.RUN files. However, if you have made your own changes to the Release 4 PTYCON.ATO and SYSJOB.RUN and you wish those changes to exist under Release 4.1, you must add the changes to the Release 4.1 PTYCON.ATO and SYSJOB.RUN.

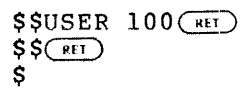
Step 26: Give the Command: ^ECREATE (DIRECTORY) PS:<OPERATOR> and Press the RETURN Key.

You must be sure that the operator is a user member of group 100. Type CTRL/E CREATE and press the ESCAPE key. The system prints (DIRECTORY). Type PS:<OPERATOR and press the RETURN key. The system prints [Old] and gives the enabled subcommand prompt ($$).



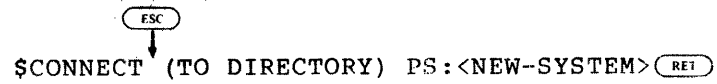
Step 27: Type USER 100 and Press the RETURN Key Twice.

Give the subcommand USER 100 and press the RETURN key. The system repeats the subcommand prompt ($$). Press the RETURN key again to return to TOPS-20 command level.



Step 28: Give the Command: CONNECT (TO DIRECTORY) PS:<NEW-SYSTEM> and Press the RETURN Key.

To connect to the directory PS:<NEW-SYSTEM>, type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<NEW-SYSTEM> and press the RETURN key. The system prints the TOPS-20 enabled prompt.



CAUTION

You must perform the ten steps indicated in Step 29 to save the Release 4.1 microprocessor file system on disk. If you do not perform these steps, you will be unable to resume timesharing in Step 35. You must then perform the error recovery procedure shown in Step 35.

Step 29: Perform Steps 136 through 145 in Chapter 5 of This Manual to Save the Microprocessor File System on Disk.

Step 30: Make Sure All GALAXY Queues are Empty.

Because GALAXY queues are not compatible between Release 4 and Release 4.1, you must be sure all queues are empty before bringing up the Release 4.1 system. You may allow all pending jobs to run, or delete these jobs and send a message to the owners asking them to re-submit them later. Any jobs left in the queues past this point will be automatically deleted.

Step 31: Give the Command: DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR and Press the RETURN Key.

When the GALAXY queues are empty, delete the file, PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR. This prepares the system for the new GALAXY programs.

```
                ESC
                 ↓
$DELETE (FILES) PS:<SPOOL>PRIMARY-MASTER-QUEUE-FIL
E.QUASAR RET
 PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR.1 [OK]
```

Step 32: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

To bring the system down, type CTRL/E CEASE and press the ESC key. The system prints (TIMESHARING AT). Type +1 and press the ESCAPE key. The system prints (RESUMING AT). Type the date and time and press the RETURN key.

```
CTRL/E   ESC                    ESC
  ↓       ↓                      ↓
$ECEASE (TIMESHARING AT) +1 (RESUMING AT)
date and time RET
 System shutdown scheduled for 2-SEP-82 13:47:00,
 System going down in one minute!!
 System down, up again at 2-SEP-82 13:48:00

[System down]
```

NOTE

Wait for the system to print [System down].

➡ Step 33: Type CTRL/\.

To return to KS10 command level, type CTRL/\. The system prints ENABLED and the prompt KS10>.

```
CTRL
 ENABLED

KS10>
```

➡ Step 34: Type SH and Press the RETURN Key.

To shut down the monitor, type SH and press the RETURN key. The system prints KS10>USR MOD, **HALTED**, and a message similiar to: %HLTD/000001 PC000000,,010062.

```
KS10>SH RET
KS10>USR MOD
**HALTED**
%hltd/000001$$pc000000,,010062
```

➡ Step 35: Press the BOOT Switch on the Control Panel.

To restart the Release 4.1 monitor, press the BOOT switch on the control panel. Within 15 seconds the system prints BT SW and [PS MOUNTED], then asks for the date and time.

```
KS10>BT SW


[PS MOUNTED]
ENTER CURRENT DATE AND TIME:
```

ERROR: If the system does not ask for the date and time within two minutes after you press the BOOT switch, you may have performed the procedures in Step 29 incorrectly. The example below shows how to recover from this condition.

```
[PS MOUNTED]
CTRL
 ENABLED

KS10>BT

BOOT>4-MONITR.EXE RET

System restarting, wait...
ENTER CURRENT DATE AND TIME:
```

Now you can perform Steps 135 through 145 in Chapter 5 of this manual. Then type CTRL/C and log in to the system again as OPERATOR, enable your capabilities, and begin again with Step 32, above.

➡ Step 36: Type the Date and Time and Press the RETURN Key.

After the prompt, type the date and time in this format:

```
day-month-year hhmm
```

Then press the RETURN key:

```
ENTER CURRENT DATE AND TIME: 2-SEP-82 1324(RET)

YOU HAVE ENTERED SUNDAY, 2-SEPTEMBER-82 1:24 PM,
IS THIS CORRECT (Y,N)
```

➡ Step 37: 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 the last step.

```
YOU HAVE ENTERED SUNDAY, 2-SEPTEMBER-82 1:24 PM,
IS THIS CORRECT (Y,N) Y(RET)
WHY RELOAD?
```

➡ Step 38: Type TS and Press the RETURN Key.

Type TS and press the RETURN. When you bring up the system for any reason, type one of the abbreviations listed in Table 6-1 of this manual.

```
WHY RELOAD?TS(RET)
<SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION
IS DISABLED
RUN CHECKD?
```

➡ Step 39: Type N and Press the RETURN Key.

You do not have to run the CHECKD program unless the system crashes unexpectedly or you suspect that there may be disk errors. Type N and press the RETURN key. The system runs the DDMP program:

```
RUN CHECKD?N(RET)
RUNNING DDMP
```

B.1.4 Running CNVDSK

To prepare your system for the new file archiving and migration feature, you must run the CNVDSK program. CNVDSK, which must be run during timesharing, enlarges the FDB (File Descriptor Block) of each file that is not open. For this reason, you should run CNVDSK as soon as you bring up the Release 4.1 system for timesharing but before other users have logged in, if possible.

NOTE

If you did not use the TOPS-20 Tape Archiving feature with TOPS-20 Version 4, but are planning on using the Tape Archiving feature with TOPS-20 Version 4.1, you must run the CNVDSK program to enlarge the file descriptor block of each file that is not opened. The version 4.1 files have already been formatted for the Tape Archiving feature.

➡ **Step 40: Type CTRL/C at the Console Terminal to Start a Job.**

```
(CTRL/C)
↓
INSTALLATION-TEST SYSTEM, TOPS-20 MONITOR 4.1(5443)
@
```

➡ **Step 41: Log in to the System with Wheel or Operator Capabilities.**

```
INSTALLATION-TEST SYSTEM, TOPS-20 MONITOR 4.1(5443)

     (ESC)          (ESC)                (ESC)
      ↓              ↓                    ↓
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT)  account(RET)
```

➡ **Step 42: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.**

To enable your capabilities, type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
      (ESC)
       ↓
@ENABLE (CAPABILITIES)(RET)
$
```

➡ **Step 43: Give the Command: R CNVDSK and Press the RETURN Key. The CNVDSK Program Responds with the Prompt: Output errors to file:.**

To enlarge the FDBs of all the disk files on your system so they can include archiving information, run the CNVDSK program. The CNVDSK program asks for the name of the file where you want to record any errors encountered by the program.

```
$R CNVDSK(RET)

Output errors to file:
```

Step 44: Type ERRORS.LOG and Press the RETURN Key.

You can give any new file specification to CNVDSK for recording errors encountered while the program runs. It is recommended that you give ERRORS.LOG as this file specification. Then any errors encountered by the CNVDSK program will be found in PS:<OPERATOR>ERRORS.LOG. Type ERRORS.LOG and press the RETURN key. The CNVDSK program responds with the prompt, Convert files:

```
Output errors to file:

     ERRORS.LOG(RET)

Convert files:
```

Step 45: Press the ESCAPE Key. The Program Prints DSK*:<*>*.*.*. Press the RETURN Key.

You can specify any combination of files and/or directories to be converted by the CNVDSK program. Converted files are compatible with non-converted files. Not running CNVDSK will have no effect on your system's performance, although then you cannot use the new archiving and migration features. Therefore, it is recommended that you take the default, which is DSK*:<*>*.*.* (all files on all mounted structures). Press the ESCAPE key. The CNVDSK program prints DSK*:<*>*.*.*. Press the RETURN key. The CNVDSK program prints a list of the directories that it converts.

```
Convert files:

     (ESC)
     ↓
     DSK*:<*>*.*.* (RET)

     PS:<ROOT-DIRECTORY>
     PS:<ACCOUNTS>
           .
           .
           .
           .
           .
           .
     $
```

Step 46: Give the Command: PRINT ERRORS.LOG and Press the RETURN Key.

To obtain a record of errors encontered by the CNVDSK program, print the error log file. Type PRINT and press the ESCAPE key. The system prints (FILES). Type ERRORS.LOG and press the RETURN key. A listing of the file ERRORS.LOG will be printed on your line printer.

```
          (ESC)
          ↓
     $ PRINT (FILES)  ERRORS.LOG(RET)
     [Job ERRORS Queued, Request-ID 1, Limit 27]
```

Step 47: Examine the Line Printer Listing of ERRORS.LOG.

Examine the listing of the error file produced by the CNVDSK program for files it was unable to convert. Normally several files of type .EXE from directory PS:<NEW-SUBSYS> will be shown. This is expected because they represent programs that were started during the system start-up procedures of Step 39. Other files from system directories may also be shown for similar reasons. You should save this listing. The <u>TOPS-20 System Manager's Guide</u> gives instructions for converting any files shown by the listing.

B.2 REVERTING TO RELEASE 4

Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.

```
                          (ESC)                  (ESC)
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) account(RET)
```

Step 2: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.

To enable your capabilities, type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
       (ESC)
@ENABLE (CAPABILITIES)(RET)
$
```

Step 3: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM> and Press the RETURN Key.

Connect to the directory PS:<SYSTEM> by typing CONNECT and pressing the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
        (ESC)
$CONNECT (TO DIRECTORY) PS:<SYSTEM>(RET)
$
```

Step 4: Give the Command: RUN PS:<NEW-SYSTEM>SMFILE.EXE and Press the RETURN Key.

To run the Release 4.1 SMFILE program, type RUN PS:<NEW-SYSTEM>SMF and press the ESCAPE key. The system prints ILE.EXE.1. Press the Return key. The SMFILE program prints some messages and gives the SMFILE> prompt.

```
                         (ESC)
$RUN PS:<NEW-SYSTEM>SMFILE.EXE.1(RET)
DECSYSTEM-2020 DIAGNOSTICS FE-FILE PROGRAM
VERSION 0.3, TOPS-20, KS10, CPU#=4097
[FOR HELP TYPE "HELP"]
SMFILE>
```

Step 5: Perform Steps 137 through 145 in Chapter 5 of This Manual.

To rebuild the Release 4 microprocessor file system, perform Steps 136 through 145 in Chapter 5 of this manual.

Step 5A: Make Sure All GALAXY Queues are Empty.

Because GALAXY queues are not compatible between Release 4 and Release 4.1, you must be sure all queues are empty before bringing up the Release 4.1 system. You can allow all pending jobs to run, or delete these jobs and send a message to the owners asking them to re-submit them later. Jobs left in the queue past this point will be automatically deleted.

Step 5B: Give the Command: DELETE PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE-QUASAR and Press the RETURN Key.

When the GALAXY queues are empty, delete the file, PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR. This prepares the system for the new GALAXY programs.

```
$DELETE (FILES) PS:<SPOOL>PRIMARY-MASTER QUEUE-FILE.QUASAR(RET)
PS:<SPOOL>PRIMARY-MASTER-QUEUE-FILE.QUASAR.1[OK]
```

Step 6: Give the Command: RENAME (EXISTING FILES) PS:<SYSTEM>4-MONITR.EXE (TO BE) PS:<SYSTEM>MONITR.EXE and Press the RETURN Key.

In Section B.1.1 you renamed the Release 4 monitor to PS:<SYSTEM>4-MONITR.EXE. If you are reverting to Release 4, this monitor must be put back into PS:<SYSTEM>MONITR.EXE. Type RENAME and press the ESC key. The system prints (EXISTING FILE). Type PS:<SYSTEM>4-MONITR.EXE and press the ESC key. The system prints (TO BE). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the rename has been successfully executed, the system prints a message specifying that the file has been renamed correctly.

```
$RENAME (EXISTING FILE) PS:<SYSTEM>4-MONITR.EXE (TO BE)
PS:<SYSTEM>MONITR.EXE(RET)

 <SYSTEM>4-MONITR.EXE.1 => <SYSTEM>MONITR.EXE [OK]
```

NOTE

Before reverting to Release 4, examine the PS:<SYSTEM>4-CONFIG.CMD file. Be sure it contains a definition of logical name SYSTEM:, and that this definition does **not** include the directory, PS:<NEW-SYSTEM>. If it does include this directory, when you revert to Release 4 the Release 4 monitor will attempt to operate programs that do not function properly in a Release 4 system. If the PS:<SYSTEM>4-CONFIG.CMD file does not contain a definition of logical name SYSTEM:, insert the following command into the file:

```
DEFINE SYSTEM:  PS:<SYSTEM>
```

Step 7: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

To bring the system down, type CTRL/E CEASE and press the ESC key. The system prints (TIMESHARING AT). Type +1 and press the ESC key. The system prints (RESUMING AT). Type the date and time you want timesharing to start again and press the RETURN key. The system prints a list of messages. The last message is [System down].

```
CTRL/E   ESC                    ESC
$ECEASE (TIMESHARING AT) +1 (RESUMING AT) date and time RET

[System down]
```

Step 8: Type CTRL/\.

To return to KS10 command level, type CTRL/\ (backslash). When you are at KS10 command level, the system prints the prompt KS10>.

```
CTRL/
ENABLED
KS10>
```

Step 9: Type SH and Press the RETURN Key.

To stop the TOPS-20 monitor, type SH and press the RETURN key. The system prints three messages.

```
KS10>SH RET
KS10>USR MOD
**HALTED**
%HLTD/000001  PS/000000,,010372
```

Step 10: Press the BOOT Switch on the Control Panel.

To reload the Release 4 monitor from the disk, press the BOOT button on the control panel and answer the usual start-up questions.

B.3 MAKING THE RELEASE 4.1 MONITOR THE PERMANENT MONITOR

The steps in this section should be performed when you feel comfortable with the Release 4.1 software.

➡ **Step 1: Log in to the System with OPERATOR or WHEEL Capabilities.**

```
@LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) account<RET>
@
```

➡ **Step 2: Give the Command: ENABLE (CAPABILITIES) and Press the RETURN Key.**

To perform the next step you must enable your capabilities. Type ENABLE and press the ESC key. The system prints (CAPABILITIES). Press the RETURN key.

```
@ENABLE (CAPABILITIES)<RET>
$
```

➡ **Step 3: Give the Command: CONNECT (TO DIRECTORY) PS:<NEW-SYSTEM> and Press the RETURN Key.**

To connect to the directory PS:<NEW-SYSTEM>, type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<NEW-SYSTEM> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<NEW-SYSTEM><RET>

$
```

NOTE

If you had to revert to the Release 4 monitor, you must perform Steps 136 through 145 in Chapter 5 of this manual at this time to recreate the Release 4.1 microprocessor file system.

➡ **Step 4: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>2020-MONtyp.EXE (TO) PS:<SYSTEM>MONITR.EXE and Press the RETURN Key.**

To copy the TOPS-20 Release 4.1 monitor to MONITR.EXE, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM>2020-MONtyp.EXE and press the ESC key. The system prints (TO). Type PS:<SYSTEM>MONITR.EXE and press the RETURN key. When the Release 4 monitor has been copied successfully, the system prints a message informing you of this.

```
$COPY (FROM) PS:<NEW-SYSTEM>2020-MONtyp.EXE (TO)
PS:<SYSTEM>MONITR.EXE

 <NEW-SYSTEM>2020-MONtyp.EXE.1 => <SYSTEM>MONITR.EXE.1[OK]
```

Step 5: Give the Command: COPY (FROM) PS:<NEW-SYSTEM>*.* (TO) PS:<SYSTEM>*.* and Press the RETURN Key.

To copy the directory PS:<NEW-SYSTEM> to PS:<SYSTEM>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SYSTEM>*.* and press the ESC key. The system prints (TO). Type PS:<SYS and press the ESC key. The system prints TEM>*.*. Press the RETURN key. The system prints a message specifying that each file has been copied correctly.

```
$COPY (FROM) PS:<NEW-SYSTEM>*.* (TO) PS:<SYSTEM>*.*
```

Step 6: Give the Command: COPY (FROM) PS:<NEW-SUBSYS>*.* (TO) PS:<SUBSYS> and Press the RETURN Key.

To copy the directory PS:<NEW-SUBSYS> to PS:<SUBSYS>, type COPY and press the ESC key. The system prints (FROM). Type PS:<NEW-SUBSYS>*.* and press the ESC key. The system prints (TO). Type PS:<SUB and press the ESC key. The system prints SYS>*.*. Press the RETURN key. The system prints a message specifying that each file has been copied correctly.

```
$COPY (FROM) PS:<NEW-SUBSYS>*.* (TO) PS:<SUBSYS>*.*
```

Step 7: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM> and Press the RETURN Key.

Connect to the directory PS:<SYSTEM> by typing CONNECT and pressing the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key.

```
$CONNECT (TO DIRECTORY) PS:<SYSTEM>
$
```

Step 8: Give the Command: EDIT (FILE) PS:<SYSTEM>4-1-CONFIG.CMD and Press the RETURN Key.

To edit the 4-1-CONFIG.CMD, type EDIT and press the ESC key. The system prints (FILE). Type PS:<SYSTEM>4-1-CONFIG.CMD and press the RETURN key.

```
        (ESC)
        ↓
$ EDIT (FILE)  PS:<SYSTEM>4-1-CONFIG.CMD(RET)
```

The system prints:

```
EDIT: 4-1-CONFIG.CMD
*
```

Step 9: Give the EDIT Command: P^:* and Press the RETURN Key.

To print the contents of PS:<SYSTEM>4-1-CONFIG.CMD, type P^:* and press the RETURN key. The system prints the entire 4-1-CONFIG.CMD file and then the EDIT prompt.

```
* P^:*(RET)
```

Step 10: Give the EDIT Command: R Line Number and Press the RETURN Key.

The parameter DEFINE SYS: PS:<NEW-SUBSYS>, PS:<SUBSYS> must be replaced by DEFINE SYSTEM: PS:<SYSTEM>. To do this, type an R and the line number where DEFINE SYS: PS:<NEW-SUBSYS>, PS:<SUBSYS> is located; then press the RETURN key. The system prints the line number you entered in the R command. In the example below, the parameter is located at line 00500.

```
* R500(RET)
```

The system prints

```
00500
```

Step 11: 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.

```
00500  DEFINE SYSTEM: PS:<SYSTEM>(RET)
```

The system prints

```
1 LINES (00500/1) DELETED
*
```

Step 12: Type EU and Press the RETURN Key.

To end the EDIT program and save the file, type EU and press the RETURN key. The system prints <SYSTEM>4-1-CONFIG.CMD.2 and the TOPS-20 command prompt.

```
* EU(RET)
  [<SYSTEM>4-1-CONFIG.CMD.2]
$
```

Step 13: Give the Command: CONNECT and Press the RETURN Key.

Connect back to your log-in directory by typing CONNECT and pressing the RETURN key.

```
$CONNECT(RET)
$
```

Step 14: Give the Command: DELETE (FILES) PS:<NEW-SYSTEM>*.*.* and Press the RETURN Key.

To delete the files in the directory PS:<NEW-SYSTEM>, type DELETE and press the ESC key. The system prints (FILES). Type PS:<NEW-SYSTEM>*.*.* and press the RETURN key. The system prints an [OK] message for each file it deletes.

```
          (ESC)
$DELETE (FILES) PS:<NEW-SYSTEM>*.*.*(RET)
.
.
.
.
.
.
.
.
$
```

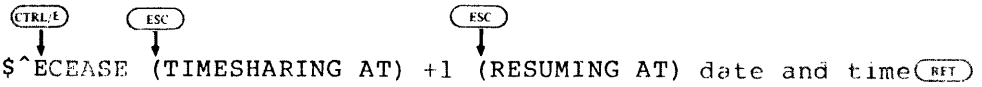
Step 15: Give the Command: DELETE (FILES) PS:<NEW-SUBSYS>*.*.* and Press the RETURN Key.

To delete the files in the directory PS:<NEW-SUBSYS>, type DELETE and press the ESC key. The system prints (FILES). Type PS:<NEW-SUBSYS>*.*.* and press the RETURN key. The system prints an [OK] message for each file it deletes.

```
          (ESC)
$DELETE (FILES) PS:<NEW-SUBSYS>*.*.*  (RET)
.
.
.
.
.
.
.
.
$
```

Step 16: Give the Command: ^ECEASE (TIMESHARING AT) +1 (RESUMING AT) Date and Time and Press the RETURN Key.

Shut down the system by typing CTRL/E CEASE and press the ESCAPE key. The system prints (TIMESHARING AT). Type +1 and press the ESCAPE key. The system prints (RESUMING AT). Type the date and time you want timesharing to start again and press the RETURN key. The system prints a list of messages. The last message is [System down].



[System down]

Step 17: Type CTRL/\.

To halt the TOPS-20 monitor, type CTRL/\. The system prints the prompt KS10>.

Step 18: Type SH and Press the RETURN Key.

To shut down the system, type SH and press the RETURN key. The system prints the messages KS10>USR MOD and **HALTED**, and a message similar to: %HLTD/000001 PC/000000,,010372.

```
KS10>SH RET
KS10>USR MOD

**HALTED**
%HLTD/000001  PC/000000,,010372
```

Step 19: Press the BOOT Switch.

To run the Release 4.1 TOPS-20 software from disk, press the BOOT switch on the control panel and answer the usual start-up questions.

NOTE

If you ever have to revert to the Release 4 monitor you must re-install the Release 4 software, using the Release 4 Installation tape.

Step 20: Perform the Steps in Chapter 8 of This Manual.

APPENDIX C

POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-20

This appendix contains an example of a typical installation of the TOPS-20 software on a DECSYSTEM-20 Model 2040.

STEP	OPERATION
1	Read all the instructions in this manual before proceeding with your installation.
2	Have the disk packs formatted if necessary.
3	Power up the system.
4	Label the disk packs.
5	Mount the disk packs.
6	Check the Controller Select switches.
7	Mount System Floppy A in drive 0.
8	Mount System Floppy B in drive 1.
9	Mount the TOPS-20 Software Installation tape on MTA0:.
10	Place the front-end HALT switch in the ENABLE position.
11	Set the Switch Register to 000007 (octal).
12	Press the ENABLE and SWITCH REGISTER buttons simultaneously.

```
   RSX-20F VB14-45G 6:11 23-OCT-79

   [SY0: REDIRECTED TO DX0:]
   [DX0: MOUNTED]
   [DX1: MOUNTED]
   KLI-- VERSION VB12-12 RUNNING
   ENTER DIALOG [NO,YES,EXIT,BOOT]
13 KLI>YES(RET)
   KL1 -- KL10 S/N: 2102., MODEL A, 60 HERTZ
   KL1 -- KL10 HARDWARE ENVIRONMENT:
          INTERNAL CHANNELS
          CACHE

   KLI-- RELOAD MICROCODE [YES,VERIFY,FIX,NO]?
14 KLI>YES(RET)
   KLI-- MICROCODE VERSION 231 LOADED
   KLI-- RECONFIGURE CACHE [FILE,ALL,YES,NO]?
```

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

17          KLI>ALL(RET)

            LOGICAL MEMORY CONFIGURATION:
                              CONTROLLER

            ADDRESS  SIZE  RQ0  RQ1  RQ2  RQ3  CONTYPE  INT
            00000000 128K   00   01   00   01    MA20    4
            00400000 128K   02   03   02   03    MA20    4

18          KLI>MTBOOT(RET)  KLI -- WRITE CONFIGURATION FILE [YES,NO]?
19          KLI>NO(RET)  KLI-- BOOTSTRAP LOADED AND STARTED

36          MTBOOT>/L(RET)    CHN:2  DX20:0 MICROCODE   VERSION   1(0)
            LOADED, VERIFIED, AND STARTED

37          MTBOOT>/G143(RET)

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

38        DO YOU WANT TO REPLACE THE FILE SYSTEM ON THE PUBLIC STRUCTURE?  YES(RET)

39        DO YOU WANT TO DEFINE THE PUBLIC STRUCTURE?  YES(RET)

40        HOW MANY PACKS ARE IN THIS STRUCTURE:  1(RET)

42        ON WHICH "CHANNEL,CONTROLLER,UNIT" IS LOGICAL PACK # 0 MOUNTED:  1,-1,0(RET)

44        DO YOU WANT THE DEFAULT SWAPPING SPACE?  YES(RET)

47        DO YOU WANT THE SIZE FRONT-END FILE SYSTEM?  YES(RET)

49        DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA?  YES(RET)

          [STRUCTURE "PS" SUCCESSFULLY DEFINED]

          [PS MOUNTED]

          %NO SETSPD

          SYSTEM RESTARTING, WAIT...

51        ENTER CURRENT DATE AND TIME:  24-OCT-82 1200(RET)   YOU  HAVE
          ENTERED WEDNESDAY, 24-OCTOBER-1982 12:00PM,
52        IS THIS CORRECT (Y,N) Y(RET)
53        WHY RELOAD?  INSTALLATION(RET)
          <SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED
          RUNNING DDMP NO SYSJOB
54
          (CTRL/C)
            ↓
           ^C
          NO EXEC
55        MX>GET FILE MTA0:(RET)
          INTERRUPT AT 0

56        MX>GET FILE MTA0:(RET)  (again)
```

```
57      MX>START(RET)

        TOPS-20 COMMAND PROCESSOR 5.1(1354)
58      @ENABLE (CAPABILITIES)(RET)

          (ESC)
          ↓
59      $RUN (PROGRAM) MTA0:(RET)

                (ESC)
                ↓
60      DLUSER>LOAD (FROM FILE) MTA0:(RET)
        DONE.

61      DLUSER>EXIT(RET)

          (ESC)
          ↓
62      $RUN (PROGRAM) MTA0:(RET)

                (ESC)
                ↓
63      DUMPER>TAPE (DEVICE) MTA0:(RET)

                      (ESC)                (ESC)                (ESC)
                      ↓                    ↓                    ↓
64      DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SYSTEM>*.*.*(RET)

        DUMPER TAPE # 1, "NEW-SYSTEM FOR RELEASE 4.1" ,THURSDAY, 2-AUG-79 12:07  LOADING
        FILE(S) INTO PS:<SYSTEM>

        END OF SAVESET

              (CTRL/C)
              ↓
64A     DUMPER>^C(RET)

          (ESC)
          ↓
64B     $TYPE (FILE) PS:<SYSTEM>TOPS20.BWR(RET)

          (ESC)
          ↓
64C     $TYPE (FILE) PS:<SYSTEM>TOPS20.DOC(RET)

64D     $CONTINUE(RET)(RET)

                      (ESC)                (ESC)                (ESC)
                      ↓                    ↓                    ↓
65      DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SUBSYS>*.*.*(RET)

        DUMPER TAPE # 1, "NEW-SUBSYS FOR RELEASE 4.1", THURSDAY, 2-AUG-79 12:10
        LOADING FILE(S) INTO PS:<SUBSYS>

        END OF SAVESET

                      (ESC)                              (ESC)
                      ↓                                  ↓
66      DUMPER>RESTORE     (TAPE     FILES)     PS:<*>*.*.*     (TO)
        PS:<UETP.LIB>*.*.*(RET)

        DUMPER TAPE # 1, "UETP.LIB FOR RELEASE 4.1" ,THURSDAY, 2-AUG-79 12:10
        LOADING FILE(S) INTO PS:<SUBSYS>

        END OF SAVESET
```

```
67      DUMPER>EXIT<RET>

              <ESC>
68      $UNLOAD (DEVICE) MTA0:<RET>

              <ESC>
70      $CONNECT (TO DIRECTORY) PS:<SYSTEM><RET>

          <ESC>                  <ESC>
71      $COPY (FROM) MONMED.EXE (TO) MONITR.EXE<RET>
        MONMED.EXE.1 => MONITR.EXE.1;P777700 [OK]

              <ESC>
72      $TERMINAL (MODE IS) NO RAISE<RET>

          <ESC>              <ESC>
73      $COPY (FROM) TTY: (TO) MONNAM.TXT<RET>
        TTY: => MONNAM.TXT.1
        Installation-test System<RET>
        <CTRL Z>
        ^Z
          <ESC>              <ESC>
74      $COPY (FROM) TTY: (TO) TAPNAM.TXT<RET>
        TTY: => TAPNAM.TXT.1
        Instal-tst<RET>
        <CTRL Z>
        ^Z
              <ESC>
75      $CREATE (FILE) 4-1-CONFIG.CMD<RET>
        INPUT: 4-1-CONFIG.CMD
76      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 22 to 40 are shut off<RET>
        00700  TERMINAL 22-40 SPEED 0<RET>
        00800  ! Line 21 is a dialup line<RET>
77      00900  TERMINAL 21 REMOTE SPEED 300<RET>
        01000  TERMINAL 22 REMOTE AUTO<RET>
78      01100  DEFINE NEW: PS:<NEW>,SYS:<RET>
        01200  DEFINE OLD: PS:<OLD>,SYS:<RET>
        01300  DEFINE HLP: SYS:<RET>
80      01400  MAGTAPE 0 24<RET>
        01500  MAGTAPE 1 25<RET>
81      01600  PRINTER 0 VFU  SYS:NORMAL.VFU<RET>
        01700  PRINTER 1 VFU  SYS:NORMAL.VFU<RET>
82      01800  PRINTER 0 LOWERCASE RAM SYS:LP96.RAM<RET>
        01900  PRINTER 1 RAM SYS:LP64.RAM<RET>
83      02000  TIMEZONE 5<RET>
86      02100  ENABLE FULL-LATENCY-OPTIMIZATION<RET>   (see CAUTION, below)
87      02200  ENABLE WORKING-SET-PRELOADING<RET>
88      02300  BIAS  6<RET>
```

```
89          02400  CREATE 0 .15(RET)
            02500  CREATE 1 .20(RET)
            02600  CREATE 2 .40(RET)
90          02700  BATCH-CLASS 3(RET)
            02800  CREATE 3 .25(RET)
91          02900  ENABLE CLASS-SCHEDULING ACCOUNTS ALLOCATED(RET)
92          03000  ARCHIVE-TAPE-RECYCLE-PERIOD  1825(RET)
93          03100  TAPE-RECYCLE-PERIOD  90(RET)
94          03200  ENABLE TAPE-DRIVE-ALLOCATION(RET)
95          03300  TAPE-RECOGNITION-ERRORS UNLOAD(RET)
96          03400  CHANGE WEEKDAYS 9:00(RET)
            03500  CHANGE WEEKDAYS 17:00(RET)
            03600  CHANGE SATURDAY 0:00(RET)(ESC)
97          *EU(RET)
```

CAUTION -- Step 86

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-C processor, it must be at revision level 11.

2. If you have a KL10-E processor, it must be at revision level 3.

3. If you have board M7772, it must be at revision level E and CS revision level F; or you may have board M7786.

If your hardware does not meet the above requirements, take the system default, which is, DISABLE FULL-LATENCY-OPTIMIZATION.

```
                (CTRL/E)      (ESC)
                   ↓            ↓
99          $^ecreate (directory name) ps:<operator>(RET)

100         $$password think-sun(RET)

                          (ESC)
                            ↓
101         $$USER-GROUP (NUMBER) 100(RET)

101A        $$IPCF(RET)

102         $$(RET)

                (CTRL/E)      (ESC)
                   ↓            ↓
103         $^ECREATE (DIRECTORY NAME) PS:<REMARKS>(RET)

104         $$(RET)
```

```
                ESC
                 |
105     $CONNECT (TO DIRECTORY) <SUBSYS>RET

                ESC
                 |
106     $CREATE (FILE) LPFORM.INIRET
        00100   NORMAL/BANNER:2/HEADER:2/TRAILER:2RET
        00200   NARROW/BANNER:2/HEADER:2/TRAILER:2/WIDTH:72RET ESC
107     *EURET

        [LPFORM.INI]
        $
```

NOTE

If you are part of the ARPA network, perform the steps in APPENDIX E at this time.

```
109     CTRL
         |
110     PAR>SHUTDOWNRET
        **HALTED**

        %DECSYSTEM-20 NOT RUNNING

111     Set the switch register to 000003 (OCTAL).

112     Hold ENABLE and press the SWITCH REGISTER button.

        RSX-20F VB14-45G 6:11 23-OCT-79

        [SY0: REDIRECTED TO DX0:]
        [DX0: MOUNTED]
        [DX1: MOUNTED]
113     CTRL
         |
115     PAR%MCR INIRET

116     INI>DB0:RET  (proceed to next step after 5 seconds)
117     CTRL
         |
118     PAR%MCR MOURET

119     MOU>DB0:RET
        MOU -- MOUNT COMPLETE
            CTRL Z
              |
120     MOU>
        CTRL
         |
121     PAR%MCR UFDRET

122     UFD>DB0:[5,5]RET   (Proceed to next step after 10 seconds.)
123     CTRL
         |
124     PAR%MCR PIPRET

125     PIP>DB0:/NV=DX0:*.*,DX1:*.*RET
```

126 PIP>DB0:/LI(RET)

```
DIRECTORY DB0:[5,5]
17-DEC-80 16:36

F11ACP.TSK;1          77.    C  17-DEC-80 16:30
KLDISC.TSK;1          5.     C  17-DEC-80 16:30
KLRING.TSK;1          6.     C  17-DEC-80 16:30
KLXFER.TSK;1          5.     C  17-DEC-80 16:30
TKTN.TSK;1            6.     C  17-DEC-80 16:31
MIDNIT.TSK;1          4.     C  17-DEC-80 16:31
SETSPD.TSK;1          4.     C  17-DEC-80 16:31
KLE.TSK;1             28.    C  17-DEC-80 16:31
KLI.TSK;1             66.    C  17-DEC-80 16:31
MOU.TSK;1             5.     C  17-DEC-80 16:32
KLA.MCB;231           36.       17-DEC-80 16:32
BOOT.EXB;1            60.       17-DEC-80 16:32
MTBOOT.EXB;1          60.       17-DEC-80 16:33
BF16N1.A11;1          1.        17-DEC-80 16:33
PARSER.TSK;1          48.    C  17-DEC-80 16:33
T20ACP.TSK;1          8.     C  17-DEC-80 16:34
BOO.TSK;1             19.    C  17-DEC-80 16:34
COP.TSK;1             8.     C  17-DEC-80 16:34
DMO.TSK;1             5.     C  17-DEC-80 16:34
INI.TSK;1             23.    C  17-DEC-80 16:34
PIP.TSK;1             56.    C  17-DEC-80 16:35
RED.TSK;1             6.     C  17-DEC-80 16:35
SAV.TSK;1             13.    C  17-DEC-80 16:35
UFD.TSK;1             9.     C  17-DEC-80 16:35
ZAP.TSK;1             38.    C  17-DEC-80 16:35
RSX20F.SYS;1          57.    C  17-DEC-80 16:36

        TOTAL OF 696.  BLOCKS IN 28. FILES
```

NOTE

Systems without RP20's also have the file RSX20F.MAP on System Floppy B. This file is 142 blocks long.

(CTRL/Z)

127 PIP>

(CTRL)

128 PAR%MCR RED(RET)

129 RED>DB0:=SY0:(RET) (Proceed to next step after 5 seconds.)

130 (CTRL)

131 PAR%MCR SAV(RET)

133 SAV>SY0:/WB(RET)

```
[DB0: DISMOUNTED]
[DX0: DISMOUNTED]
[DX1: DISMOUNTED]
```

134 Store the floppy disks in a safe place.

134A Mount System Floppy C on Drive 0.

134B (CTRL)
↓
134C PAR%MCR MOU(RET)

134D MOU>DX0:(RET)
MOU -- MOUNT COMPLETE
(CTRL Z)
↓
134E MOU
(CTRL)
↓
134F PAR%MCR PIP(RET)

134G PIP>DB0:/NV=DX0:*.*(RET)
134H PIP>DB0:/LI(RET)

```
DIRECTORY DB0:[5,5]
17-DEC-80 16:46

F11ACP.TSK;1        77.     C  17-DEC-80 16:40
TKTN.TSK;1          6.      C  17-DEC-80 16:41
MOU.TSK;1           5.      C  17-DEC-80 16:41
KLA.MCB;231         36.        17-DEC-80 16:41
KLX.MCB;231         42.        17-DEC-80 16:41
BOOT.EXB;1          60.        17-DEC-80 16:41
MTBOOT.EXB;1        60.        17-DEC-80 16:42
BF16N1.A11;1        1.         17-DEC-80 16:42
PARSER.TSK;1        48.     C  17-DEC-80 16:42
KLDISC.TSK;1        5.      C  17-DEC-80 16:42
KLRING.TSK;1        6.      C  17-DEC-80 16:43
MIDNIT.TSK;1        4.      C  17-DEC-80 16:43
SETSPD.TSK;1        4.      C  17-DEC-80 16:43
KLE.TSK;1           28.     C  17-DEC-80 16:43
KLI.TSK;1           66.     C  17-DEC-80 16:43
T20ACP.TSK;1        8.      C  17-DEC-80 16:44
BOO.TSK;1           19.     C  17-DEC-80 16:44
COP.TSK;1           8.      C  17-DEC-80 16:44
DMO.TSK;1           5.      C  17-DEC-80 16:44
INI.TSK;1           23.     C  17-DEC-80 16:44
PIP.TSK;1           56.     C  17-DEC-80 16:45
RED.TSK;1           6.      C  17-DEC-80 16:45
SAV.TSK;1           13.     C  17-DEC-80 16:45
UFD.TSK;1           9.      C  17-DEC-80 16:45
ZAP.TSK;1           38.     C  17-DEC-80 16:45
RSX20F.SYS;1        57.     C  17-DEC-80 16:46
RSX20F.MAP;1        142.       17-DEC-80 16:46

   TOTAL OF 838. BLOCKS IN 28. FILES
```

(CTRL Z)
↓
134I PIP>

134J PAR(CTRL/Z)%MCR DMO(RET)

134K DMO>DX0:(RET)

134L DMO>(CTRL/Z)

(CTRL/Z) PAR

147 Be sure the central processor is stopped.

Set the Switch Register to 000007 (0, 1, and 2 up).

148 Hold ENABLE and press the DISK button.

RSX-20F VB14-45G 6:11 23-OCT-82

[SY0:REDIRECTED TO DB0:] [DB0: MOUNTED] KLI -- VERSION
[DB0: MOUNTED]
KLI -- KL10 HARDWARE ENVIRONMENT:
MOS MASTER OSCILLATOR
EXTENDED ADDRESSING
INTERNAL CHANNELS
CACHE

KLI -- MICROCODE VERSION 231 LOADED KLI -- ALL CACHES ENABLED

LOGICAL MEMORY CONFIGURATION.

ADDRESS	SIZE	INT	TYPE	CONTROLLER
00000000	1024K	4	MA20	4

KLI -- CONFIGURATION FILE WRITTEN KLI -- BOOTSTRAP LOADED AND STARTED

152 ENTER CURRENT DATE AND TIME: 24-OCT-79 1300(RET) YOU HAVE ENTERED WEDNESDAY, 24-OCTOBER-1979 1:00PM,
153 IS THIS CORRECT (Y,N) Y(RET)
154 WHY RELOAD? SA(RET)
<SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS DISABLED

```
155     RUN CHECKED?  N(RET)

        RUNNING DDMP


        SYSJOB  4(10) STARTED AT 24-OCT-79 1112 RUN SYS:ORION RUN
        SYS:QUASAR

        *****
        24-OCT-79 11:12:09 - TGHA V2 IS RUNNING FOR THE FIRST TIME.
        *****
        RUN SYS:MOUNTR
        RUN SYS:INFO
        RUN SYS:MAILER
        RUN SYS:MAPPER
        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:PTYCON.ATO
        /
        JOB 1 /LOG OPERATOR XX OPERATOR
        ENA
        RUN SYS:BATCON
        /
        SJ  0: @LOG OPERATOR OPERATOR
        SJ  1: @LOG OPERATOR OPERATOR
        SJ  0:  JOB 1 ON TTY206 24-OCT-82 11:12:22
        SJ  0: @ENA
        SJ  0: $^ESET LOGIN PSEUDO
        SJ  0: $^ESET LOGIN CONSOLE
        SJ  0: $^ESET OPERATOR
        SJ  0: $PTYCON
        SJ  1:  JOB 2 ON TTY207 24-OCT-82 11:12:23
        SJ  1: @ENA
        SJ  0: PTYCON> GET SYSTEM:PTYCON.ATO
        SJ  0: PTYCON> SILENCE
        SJ  1: $RUN SYS:BATCON

        [From OPERATOR on line 210:  SYSTEM IN OPERATION]
        SJ  0: PTYCON.LOG.1
        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)]

156     (CTRL C)
        ↓
        Installation-test System, TOPS-20 Monitor 4.1(5443)

157     @SYSTAT OPERATOR(RET)

           0    DET   SYSJOB     OPERATOR
           1    206   PTYCON     OPERATOR
           2    207   BATCON     OPERATOR
           3    210   OPR        OPERATOR
```

```
                ESC                 ESC
158     @ATTACH (USER) OPERATOR (JOB #) 1 RET
        [PSEUDO-TERMINAL, CONFIRM] RET
159     PASSWORD:    your password RET
        RET

        OPR>SHOW STATUS TAPE-DRIVE /ALL RET
        OPR>
         9:35:49          --Tape Drive Status--
                DRIVE   STATE      VOLID   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
161     OPR>SET TAPE-DRIVE MTA0:  UNAVAILABLE RET
162     INSTALLING UNBUNDLED SOFTWARE RET CTRL Z
        CTRL Z
        ^Z
163     OPR>PUSH RET

                ESC
164     @ASSIGN (DEVICE) MTA0: RET

                ESC
165     @ENABLE (CAPABILITIES) RET

166     $DUMPER RET

                    ESC
167     DUMPER>TAPE (DEVICE) MTA0: RET

168     Mount the unbundled software tape.

169     DUMPER>REWIND RET

                      ESC                 ESC
170     DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<OPERATOR> RET

        DUMPER TAPE  #  1,  <DOCUMENTS>,  THURSDAY,  2-AUG-79  17:41
        LOADING FILE(S) INTO PS:<OPERATOR>

        END OF SAVESET

                      ESC                 ESC
171     DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<SUBSYS> RET

        DUMPER TAPE # 1, <BINARY>, THURSDAY, 2-AUG-79 17:45  LOADING
        FILE(S) INTO PS:<SUBSYS>

        END OF SAVESET
```

173 Dismount the tape and store it in a safe place.

174 Go back to Step 168 if you want to restore other software products.

175 DUMPER>EXIT(RET)

176 $DEASSIGN (DEVICE) MTA0:(RET)

NOTE

If you performed Steps 156 through 176, you may now skip to Step 181.

178 (CTRL/C)

Installation-test System, TOPS-20 Monitor 4.1(5443)

179 @LOGIN (USER) OPERATOR (PASSWORD) password (ACCOUNT) OPERATOR(RET)

180 @ENABLE (CAPABILITIES) (RET)

181 $TAKE (COMMANDS FROM) <UETP.LIB>SET-UP.CMD(RET)

182 $CONNECT (TO DIRECTORY) <UETP.RUN>(RET)

183 $RUN (PROGRAM) UETP.EXE(RET)
[12-AUGUST-79 10:42:41 User Environment Test Package]

```
                    (ESC)
184         UETP>TAKE (COMMANDS FROM> <UETP.LIB>VERIFY.CMD(RET)
            UETP>ENABLE VERIFY/CYCLE:1
             10:38:07 [ENABLE COMPLETED]
            UETP>BEGIN
             10:42:07 [BEGIN COMPLETED]
            UETP>DEFAULT/CYCLE:00:30
             10:43:01 [DEFAULT COMPLETED]
            UETP>ENABLE RANCBL
             10:43:07 [ENABLE COMPLETED]
            UETP>ENABLE RANFOR
             10:43:07 [ENABLE COMPLETED]
            UETP>ENABLE MTA0
             10:43:07 [ENABLE COMPLETED]
            UETP>STATUS

[ 1-Nov-79  9:42:47]

  Test    Depth  Status    Cycle  Times  Error  Error  Start
  name                            run    count  limit  time
  ======  =====  =======   =====  =====  =====  =====  =====
  VERIFY  VER    Queued        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

  UETP>

185         Mount a scratch tape on MTA0:,

            UETP>ENABLE  MTA0(RET)

186         UETP>BEGIN(RET)

            The following steps are optional.  Perform  only  the  steps
            that pertain to your system.

                    (ESC)
188         UETP>ENABLE (TEST) BASIC(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
189         UETP>ENABLE (TEST) ALGOL(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
190         UETP>ENABLE (TEST) DBMS(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
191         UETP>ENABLE (TEST) APL(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
191A        UETP>ENABLE (TEST) FORTRA(RET)
             10:45:08 [ENABLE COMPLETED]
```

```
                ESC
                 ↓
191B    UETP>ENABLE (TEST) COBOL RET
         10:45:08 [ENABLE COMPLETED]

                ESC
                 ↓
191C    UETP>ENABLE (TEST) CBL74 RET
         10:45:08 [ENABLE COMPLETED]

                ESC
                 ↓
191D    UETP>ENABLE (TEST) SORT RET
         10:45:08 [ENABLE COMPLETED]


192     UETP>BEGIN RET
         10:45:09 [BEGIN COMPLETE]
```

NOTE

Do not perform the following steps until all the tests are completed.

```
193     UETP>EXIT RET

            ESC
             ↓
194     $TAKE (COMMANDS FROM) PS:<UETP.LIB>CLEAN-UP.CMD RET
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
        [OLD]
         End of <UETP.LIB>CLEAN-UP.CMD.3

195     $POP RET
        OPR>
196     OPR>SET TAPE-DRIVE MTA0: AVAILABLE RET
        OPR>
```

APPENDIX D

POCKET INSTALLATION GUIDE FOR THE DECSYSTEM-2020

This appendix contains an example of a typical installation of the TOPS-20 software on a DECSYSTEM-2020.

STEP	OPERATION
21	Power up the system.
22	Type CTRL/C.
23	Type CTRL/C.
24	Format the disk packs if necessary.
25	Label the disk packs.
26	Mount the disk packs.
27	Check the CONTROLLER SELECT switches.
28	Mount the Installation tape on MTA0:.
29	KS10>MS RET
30	>>UBA? 3 RET
31	>>RHBASE? 772440 RET
32	>>TCU? 0 RET
33	>>DENS? 1600 RET
34	>>SLV? 0 RET
35	KS10>MT RET
36	MTBOOT>/L RET
37	MTBOOT>/G143 RET
	[FOR ADDITIONAL INFORMATION TYPE "?" TO ANY OF THE FOLLOWING QUESTIONS.]
38	DO YOU WANT TO REPLACE THE FILE SYSTEM ON THE PUBLIC STRUCTURE? YES RET
39	DO YOU WANT TO DEFINE THE PUBLIC STRUCTURE? YES RET

```
40      HOW MANY PACKS ARE IN THIS STRUCTURE?  2 (RET)

42      ON  WHICH  "CHANNEL,  UNIT"  IS  LOGICAL  PACK  #0  MOUNTED:
        0,0 (RET)

42      ON  WHICH  "CHANNEL,  UNIT"  IS  LOGICAL  PACK  #1  MOUNTED:
        0,1 (RET)

44      DO YOU WANT THE DEFAULT SWAPPING SPACE?  YES(RET)

47      DO YOU WANT THE DEFAULT FRONT-END FILE SYSTEM?  YES(RET)

49      DO YOU WANT THE DEFAULT SIZE BOOTSTRAP AREA?  YES(RET)

        [STRUCTURE "PS" SUCCESSFULLY DEFINED]

        [PS MOUNTED]

        %%NO SETSPD
        System restarting, wait...

51      ENTER CURRENT DATE AND TIME:  24-OCT-82 1254(RET)
        YOU HAVE ENTERED WEDNESDAY, 24-OCTOBER-1982 12:54PM
52      IS THIS CORRECT (Y,N) Y(RET)
53      WHY RELOAD?  INSTALLATION
        <SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND-ACCOUNT  VALIDATION  IS
        DISABLED
        RUNNING DDMP

        NO SYSJOB

54        (CTRL/C)
          ↓
          ^C
        NO EXEC
55      MX>GET FILE MTA0:(RET)
        INTERRUPT AT 0
56      MX>GET FILE MTA0:(RET)   (again)

57      MX>START(RET)

              (ESC)
              ↓
58      $ENABLE (CAPABILITIES)(RET)

           (ESC)
           ↓
59      $RUN (PROGRAM) MTA0:(RET)

                 (ESC)
                 ↓
60      DLUSER>LOAD (FROM FILE) MTA0:(RET)

        DONE.
61      DLUSER>EXIT(RET)

           (ESC)
           ↓
62      $RUN (PROGRAM) MTA0:(RET)

                 (ESC)
                 ↓
63      DUMPER>TAPE (DEVICE) MTA0:(RET)
```

64 DUMPER>RESTORE (ESC) (TAPE FILES) PS:<*>*.*.* (ESC) (TO) PS:<SYSTEM>*.*.* (ESC) (RET)

```
DUMPER TAPE #1, "NEW-SYSTEM FOR RELEASE 4.1", FRIDAY, 2-AUG-79 13:00
LOADING FILE(S) INTO PS:<SYSTEM>

END OF SAVESET
```

64A DUMPER>^C (CTRL/C) (RET)

64B $TYPE (ESC) (FILE) PS:<SYSTEM>TOPS20.BWR (RET)

64C $TYPE (ESC) (FILE) PS:<SYSTEM>TOPS20.DOC (RET)

64D $CONTINUE (RET) (RET)

65 DUMPER>RESTORE (ESC) (TAPE FILES) PS:<*>*.*.* (ESC) (TO) PS:<SUBSYS>*.*.* (ESC) (RET)

```
DUMPER TAPE #1, "NEW-SUBSYS FOR RELEASE 4.1", FRIDAY, 2-AUG-79 1305
LOADING FILE(S) INTO PS:<SUBSYS>

END OF SAVESET
```

66 DUMPER>RESTORE (ESC) (TAPE FILES) PS:<*>*.*.* (ESC) (TO) PS:<UETP.LIB>*.*.* (ESC) (RET)

```
DUMPER TAPE #1, "UETP FOR RELEASE 4.1" FRIDAY, 2-AUG-79 1315
LOADING FILE(S) INTO PS:<UETP.LIB>

END OF SAVESET
```

67 DUMPER>EXIT (RET)

68 $UNLOAD (ESC) (DEVICE) MTA0: (RET)

70 $CONNECT (ESC) (TO DIRECTORY) PS:<SYSTEM> (RET)

71 $COPY (ESC) (FROM) 2020-MONSML.EXE.1 (ESC) (TO) MONITR.EXE (RET)

```
2020-MONSML.EXE.1 =>MONITR.EXE.2;P777700 [OK]
```

72 $TERMINAL (ESC) (MODE IS) NO RAISE (RET)

```
                ESC             ESC
73      $COPY (FROM) TTY:  (TO) MONNAM.TXT<RET>
        TTY:  => MONNAM.TXT.1
        Installation-test System<RET>
          CTRL/Z
            ↓
            ^Z

                ESC             ESC
74      $COPY (FROM) TTY:  (TO) TAPNAM.TXT<RET>
        TTY:  => TAPNAM.TXT.1
        Instal-tst
           CTRL/Z
             ↓
             ^Z

                  ESC
                   ↓
75      $CREATE (FILE) 4-1-CONFIG.CMD<RET>
        Input: 4-1-CONFIG.CMD.1

76      00100    ;TERMINAL SPEEDS<RET>
        00200    ;Line 2 has input=9600 and output=9600<RET>
        00300    TERMINAL 2 SPEED 9600<RET>
        00400    ;Lines 3 to 20 have input and output=2400<RET>
        00500    TERMINAL 3-20 SPEED 2400<RET>
        00600    ;Lines 23 to 32 do not exist<RET>
        00700    TERMINAL 23-42 SPEED 0<RET>
        00800    ;Lines 21 and 22 are dialup lines<RET>
77      00900    TERMINAL 21-22 REMOTE SPEED 300<RET>
78      01000    DEFINE NEW:  PS:<NEW>,SYS:<RET>
        01100    DEFINE OLD:  PS:<OLD>,SYS:<RET>
        01200    DEFINE HLP:  SYS:<RET>
80      01300    MAGTAPE 0 24<RET>
        01400    MAGTAPE 1 25<RET>
81      01500    PRINTER 0 LOWERCASE VFU SYS:NORMAL.VFU<RET>
82      01600    PRINTER 0 LOWERCASE RAM SYS:LP96.RAM<RET>
83      01700    TIMEZONE 5<RET>
87      01800    ENABLE WORKING-SET-PRELOADING<RET>
88      01900    BIAS 6<RET>
89      02000    CREATE 0 .15<RET>
        02100    CREATE 1 .20<RET>
        02200    CREATE 2 .40<RET>
90      02300    BATCH-CLASS 3<RET>
        02400    CREATE 3 .25<RET>
91      02500    ENABLE CLASS SCHEDULING ACCOUNTS ALLOCATED<RET>
92      02600    ARCHIVE-TAPE-RECYCLE-PERIOD 1825<RET>
93      02700    TAPE-RECYCLE-PERIOD 90<RET>
94      02800    ENABLE TAPE-DRIVE-ALLOCATION<RET>
95      02900    TAPE-RECOGNITION-ERRORS UNLOAD<RET>
96      03000    CHANGE 9:00 WEEKDAYS<RET>
        03100    CHANGE 17:00 WEEKDAYS<RET>
        03200    CHANGE 0:00 SATURDAY<RET>
97      *EU<RET>
        [4.1-CONFIG.CMD.1]

                  ESC
                   ↓
98      $TYPE (FILE) PS:<SYSTEM>4-1-CONFIG.CMD<RET>
```

```
                CTRL/E      ESC
                  ↓          ↓
99              $^ECREATE (DIRECTORY NAME) PS:<OPERATOR>RET
                [OLD]
100             $$PASSWORD your password RET

101             $$USER-GROUP 100 RET

101A            $$IPCF RET

102             RET
                CTRL/E      ESC
                  ↓          ↓
103             $^ECREATE (DIRECTORY NAME) PS:<REMARKS>RET

104             $$ RET

                      ESC
                       ↓
105             $CONNECT (TO DIRECTORY) PS:<SUBSYS> RET

                      ESC
                       ↓
106             $CREATE (FILE) LPFORM.INI RET
                INPUT:  LPFORM.INI

                00100   NORMAL/BANNER:2/HEADER:2/TRAILER:2 RET
                00200   NARROW/BANNER:2/HEADER:2/TRAILER:2/WIDTH:72 RET
                00300    ESC
                *EU RET
                [LPFORM.INI.1]

                        ESC
                         ↓
135             $CONNECT (TO DIRECTORY) PS:<SYSTEM> RET

                    ESC
                     ↓
136             $RUN (PROGRAM) SMFILE RET
                DECSYSTEM-2020 DIAGNOSTICS FE-FILE PROGRAM
                VERSION 0.3, TOPS-20, KS10, CPU#=4097
                [FOR HELP TYPE "HELP"]

137             SMFILE>WRITE SETUP PS:<ROOT-DIRECTORY>BOOTSTRAP.BIN RET

138             SMFILE>WRITE RESET RET

139             SMFILE>READ KS10.ULD RET

140             SMFILE>SERIAL nnnnn RET

141             SMFILE>WRITE CRAM RET

142             SMFILE>WRITE BOOT SMBOOT.EXE RET

143             SMFILE>WRITE DONE RET

                [HOME BLOCKS SET]
144             SMFILE>OUTPUT CRAM PS:<SYSTEM>KS10.RAM RET
145             SMFILE>OUTPUT MTBOOT SMMTBT.EXE PS:<SYSTEM>MTBOOT.RDI RET
146             SMFILE>EXIT RET
```

```
149     (CTRL/)
        ↓
150     KS10>SH(RET)

151     Press the BOOT button.

152     ENTER THE CURRENT DATE AND TIME:  24-OCT-79 1324(RET)

        YOU HAVE ENTERED, WEDNESDAY, 24-OCTOBER-1979 1:24PM
153     IS THIS CORRECT (Y,N)(RET)

154     WHY RELOAD? TS(RET)
        <SYSTEM>ACCOUNTS-TABLE.BIN NOT FOUND - ACCOUNT VALIDATION IS
        DISABLED

155     RUN CHECKD? N(RET)
        RUNNING DDMP

        SYSJOB 4(10) STARTED AT 24-OCT-79 1325
        RUN SYS:ORION
        RUN SYS:QUASAR
        RUN SYS:MOUNTR
        RUN SYS:INFO
        RUN SYS:MAILER
        RUN SYS:MAPPER
        RUN SYS:LPTSPL
        RUN SYS:CDRIVE
        JOB O /LOG OPERATOR XX OPERATOR
        ENA
        ^ESET LOGINS ANY
        ^ESEND * SYSTEM IN OPERATION
        ^ESET OPERATOR
        PTYCON
        GET <SYSTEM>PTYCON.ATO
        /
        SY  0:
        SJ  0: Installation-test System, TOPS-20 Monitor 4.1(5443)
        SJ  0: @LOG OPERATOR OPERATOR
        SJ  0: JOB 1 ON TTY46 24-OCT-79 13:25:25
        [From OPERATOR:SYSTEM IN OPERATION]
        SJ  0: @ENA
        SJ  0: $^ESET LOGINS ANY
        SJ  0: $^ESEND * SYSTEM IN OPERATION
        SJ  0: $PTYCON
        SJ  0: PTYCON> GET SYSTEM:PTYCON.ATO
        SJ  0: PTYCON SILENCE
        SJ  1: $RUN SYS:BATCON
        SJ  0: PTYCON.LOG.1
        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)]

156     (CTRL/C)
        ↓
        Installation-test System, TOPS-20 Monitor 4.1(5443)

157     @SYSTAT OPERATOR(RET)

          0    DET   SYSJOB     OPERATOR
          1    206   PTYCON     OPERATOR
          2    207   BATCON     OPERATOR
          3    210   OPR        OPERATOR
```

```
158     @ATTACH(ESC) (USER)  OPERATOR(ESC) (JOB #) 1(RET)
        [PSEUDO-TERMINAL, CONFIRM](RET)

159     PASSWORD:   your password(RET)
        (RET)

        OPR>SHOW STATUS TAPE-DRIVE /ALL(RET)
        OPR>
         9:35:49                   Tape Drive Status--
                DRIVE  STATE      VOLID  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

161     OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE(RET)
162     INSTALLING UNBUNDLED SOFTWARE(RET)
        (CTRL/Z)
        ^Z
163     OPR>PUSH(RET)

164     @ASSIGN(ESC) (DEVICE)  MTA0:(RET)

165     @ENABLE(ESC) (CAPABILITIES)(RET)

166     $DUMPER(RET)

167     DUMPER>TAPE(ESC) (DEVICE)   MTA0:(RET)

168     Mount the distribution tape.

169     DUMPER>REWIND(RET)

170     DUMPER>RESTORE(ESC) (TAPE FILES)  PS:<*>*.*.*(ESC) (TO)  PS:<OPERATOR>(RET)

        DUMPER TAPE # 1, <DOCUMENTS>, THURSDAY, 2-AUG-79 17:41
        LOADING FILE(S) INTO PS:<OPERATOR>

        END OF SAVESET
```

171 DUMPER>RESTORE (ESC) (TAPE FILES) PS:<*>*.*.* (ESC) (TO) PS:<SUBSYS>(RET)

```
DUMPER TAPE # 1, <BINARY>, THURSDAY, 2-AUG-79 17:45
LOADING FILE(S) INTO PS:<SUBSYS>

END OF SAVESET
```

173 Dismount the tape and store it in a safe place.

174 Go back to Step 168 if you want to restore other software products.

175 DUMPER>EXIT(RET)

176 $DEASSIGN (ESC) (DEVICE) MTA0:(RET)

NOTE

If you performed Steps 156 through 176, you may now skip to Step 181.

178 (CTRL/C)

```
Installation-test System, TOPS-20 Monitor 4.1(5443)
```

179 @LOGIN (ESC) (USER) OPERATOR (ESC) (PASSWORD) password (ESC) (ACCOUNT) OPERATOR(RET)

180 @ENABLE (ESC) (CAPABILITIES)(RET)

181 $TAKE (ESC) (COMMANDS FROM) <UETP.LIB>SET-UP.CMD(RET)

182 $CONNECT (ESC) (TO DIRECTORY) <UETP.RUN>(RET)

183 $RUN (ESC) (PROGRAM) UETP.EXE(RET)

```
[12-AUGUST-79 10:42:41 User Environment Test Package]
```

```
                    (ESC)
184         UETP>TAKE (COMMANDS FROM) <UETP.LIB>VERIFY.CMD(RET)
            UETP>ENABLE VERIFY/CYCLE:1(RET)
             10:38:07 [ENABLE COMPLETED]
            UETP>BEGIN(RET)
             10:42:07 [BEGIN COMPLETED]
            UETP>DEFAULT/CYCLE:00:30
             10:43:01 [DEFAULT COMPLETED]
            UETP>ENABLE RANCBL
             10:43:07 [ENABLE COMPLETED]
            UETP>ENABLE RANFOR
             10:43:07 [ENABLE COMPLETED]
            UETP>ENABLE MTA0
             10:43:07 [ENABLE COMPLETED]
            UETP>STATUS

[ 1-NOV-79  9:42:47]

  Test    Depth  Status   Cycle  Times  Error  Error  Start
  name                             run    count  limit  time
  ======  =====  =======  =====  =====  =====  =====  =====
  VERIFY  VER    Queued       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

  UETP>

185         Mount a scratch tape on MTA0:.

            UETP>ENABLE  MTA0(RET)
186         UETP>BEGIN(RET)

            The following steps are optional.  Perform  only  the  steps
            that pertain to your system.

                    (ESC)
188         UETP>ENABLE (TEST) BASIC(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
189         UETP>ENABLE (TEST) ALGOL(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
190         UETP>ENABLE (TEST) DBMS(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
191         UETP>ENABLE (TEST) APL(RET)
             10:45:08 [ENABLE COMPLETED]

                    (ESC)
192         UETP>BEGIN (UETP RUN AFTER)(RET)
             10:45:09 [BEGIN COMPLETED]
```

NOTE

Do not perform the following steps until all the tests are completed.

193 UETP>EXIT(RET)

(ESC)

194 $TAKE (COMMANDS FROM) PS:<UETP.LIB>CLEAN-UP.CMD(RET)
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
[OLD]
End of <UETP.LIB>CLEAN-UP.CMD.3

195 $POP(RET)
OPR>

196 Start timesharing.

APPENDIX E

TAILORING YOUR SYSTEM FOR ARPANET

Perform the steps in this appendix only if you are using the ARPA network.

At this point you have installed the ARPANET software.

➡ **Step 1: Give the Command: CONNECT (TO DIRECTORY) PS:<SYSTEM> *and Press the RETURN Key.**

If you are part of the ARPA network, you must add a parameter to the PS:<SYSTEM>4-1-CONFIG.CMD file. Type CONNECT and press the ESC key. The system prints (TO DIRECTORY). Type PS:<SYSTEM> and press the RETURN key.

```
          (ESC)
          ↓
$CONNECT (TO DIRECTORY) PS:<SYSTEM>(RET)
$
```

➡ **Step 2: Give the Command: EDIT (FILE) 4-1-CONFIG.CMD and Press the RETURN Key.**

If you are using the ARPA network you must set up a HOST number in the 4-1-CONFIG.CMD file. Type EDIT and press the ESC key. The system prints (FILE). Type 4-1-CONFIG.CMD and press the RETURN key.

```
          (ESC)
          ↓
$EDIT (FILE) 4-1-CONFIG.CMD(RET)
```

E.1 DEFINING THE HOST NUMBER

You should have received a HOST number from ARPA when you were given permission to connect to the ARPANET. If you do not know your HOST number, you may get it by phoning the ARPANET Network Control Center at BB&N. The format for the HOST command is:

```
HOST octal-host-number
```

Step 3: Give the Edit Command: I Line Number. Press the RETURN Key.

To insert the HOST command into the 4-1-CONFIG.CMD file, type I and then the number of the line at which you want to insert the HOST command.

```
*I2150(RET)
*
```

Step 4: Type the HOST Number.

Type HOST followed by the OCTAL-HOST-NUMBER and press the RETURN key.

```
02150  HOST 45(RET)
*
```

Step 5: Type EU and Press the RETURN Key.

Type EU and press the RETURN key to save the file without line numbers. The system prints the file specification and the $ prompt.

```
*EU(RET)
[4-1-CONFIG.CMD.1]
$
```

E.1.1 Entering the Host Number, Name, and Other Pertinent Information

The following information must be entered into a file named HSTNAM.TXT:

1. Host number
2. Host name
3. System type
4. Flags
5. NEW

The format for the command is: NNN,SSSS,TT,Fl,...,Fn

Where:

NNN is the host number in octal.

SSSSS is the name string.

TT is the system type spelled out. (A null string means no system type or insufficient representation.) Current valid types are:

TENEX	--	Systems running some version of BBN-Tenex or TOPS-20.
ITS	--	System running a version of ITS.
DEC	--	System running DECsystem-10.
TIP	--	a TIP.
MTIP	--	Magtape TIP.
ANTS	--	some ANTS.
ELF	--	ELF operating system for PDP-11.
MULTICS	--	MULTICS

Fl,...,Fn are flags, as follows:

USER	-- Doesn't run Server TELNET.
SERVER	-- Runs some type of Server TELNET on Sockets 1 and/or 27(8).
nickname	-- This is another name you can give for the host.
NEW	-- Uses new network protocol (RAR/RAS, etc).

NOTE

The following section shows you how to edit the file HSTNAM.TXT, to include information that pertains to your own system. A version of HSTNAM.TXT is included with every new DECSYSTEM-20 and DECSYSTEM-2020. However, to be sure of using the most up-to-date version, you should use the FTP program to copy the file, <SYSTEM>HOST-NAME/DESCRIPTOR-FILE.TXT from node SRI-KA of the ARPANET network. Copy this file into the file, PS:<SYSTEM>HSTNAM.TXT. Then proceed with Step 6 below.

Step 6: Give the Command: EDIT (FILE) HSTNAM.TXT and Press the RETURN Key.

You must enter your Host number, Host name, and other pertinent information into the file HSTNAM.TXT. Type EDIT and press the ESC key. The system prints (FILE). Type HSTNAM.TXT and press the RETURN key. The system prints the name of the file being edited, the generation number, and the EDIT prompt.

```
      (ESC)
      ↓
$EDIT (FILE) HSTNAM.TXT(RET)
EDIT: HSTNAM.TXT.1
*
```

Step 7: Give the EDIT Command: I Line Number and Press the RETURN Key.

To inform the EDIT program where to insert the information, type I and then the line number you have chosen in which to place the information. Press the RETURN key. The system prints the line number you entered. The following is an example:

```
*I150(RET)
00150
```

Step 8: Type the Information for Your System.

Type the information for your system. The following is just an example. You must enter the information pertaining to your system.

```
00150 145,DEC-MARLBORO,TENEX,SERVER,USER,NEW(RET)
*
```

NOTE

The previous example assumes that the line number you selected was between two existing line numbers. If the line number you selected was at the end of the file, the system will print another line number. If the latter is the case, press the ESC key and continue at the next step.

➡ **Step 9: Type EU and Press the RETURN Key.**

To end the EDIT program and save the file without line numbers, type EU and press the RETURN key. The system prints the name of the file and the TOPS-20 enabled prompt.

```
*EU(RET)
[HSTNAM.TXT.2]
$
```

NOTE

Proceed at Chapter 4 (Creating the Front-end File System) if you have a DECSYSTEM-20, or Chapter 5 (Creating the Microprocessor File System), if you have a DECSYSTEM-2020.

APPENDIX F

USING THE STAND-ALONE DISK FORMATTER [DECSYSTEM-2020 ONLY]

F.1 INTRODUCTION

KSFORM is designed to run stand-alone on any DECSYSTEM-2020 (KS10 CPU) using RP06 and/or RM03 disk drives, connected through an RH11 controller. It is designed to provide a flexible yet easy-to-use formatting program for RP06 and RM03 disk packs. The program will format disk packs on up to 11 drives, the maximum number that can be connected to an RH11 controller. The program is organized so that the formatting of packs on all selected drives begins at the same time. The disks are formatted in 18-bit mode (i.e., -10 format, same as -20 format).

F.2 LOADING PROCEDURE

➡ Step 1: Mount the tape containing the KSFORM program on a tape drive. If necessary, refer to Section 2.2, Step 28, of this manual for help.

➡ Step 2: After bringing the tape on line, type (CTRL/) (Control-backslash) at the CTY to get the KS10> prompt.

➡ Step 3: Type MT(RET) . The program starts automatically.

F.3 PROGRAM-OPERATOR INTERACTION

KSFORM has been designed to require a minimal amount of user interaction. Following is a description of all user dialog under a variety of conditions.

The program prints:

1. "MODIFY ANY CONTROLLER ADDRESS PARAMETERS? Y,N OR ? - "

   Typing "N" to this question will cause the program to access the standard addresses, which are:

   ```
   UBA # 1
   RH ADDR 776700
   INTERRUPT VECTOR 254
   ```

   Typing "Y" is required if you wish to format drives accessed at some other address. The program will question you as to the desired addresses.

This is a one-time question, and any further changes will require program reload.

2. "DO YOU WANT TO FORMAT PACKS? Y,N OR ? - "

   The program has polled all drives in the system configuration, and listed their current status. If you would like to format any of the on-line drives listed, you should type "Y".

   Typing "N" will cause the program to jump back to the program starting address and halt. The program may be continued by typing "CO" (RET).

   This question is asked after each batch of disk packs is formatted.

3. "WHAT DRIVE(S) TO BE FORMATTED? (TYPE 00 TO 77, OR "H" FOR THE COMPLETE LIST OF POSSIBLE COMMANDS.)"
   *

   or

   "what drive #'s -"

   If you type "H" (RET), a HELP message, containing an explanation of all possible responses to this question, is printed. The options are:

AXX	Add drive XX to the test list.
DXX	Delete drive XX from the test list.
PXX	Program-write-lock drive XX.
PALL	Program-write-lock all drives.
WEALL	Program-write-enable all drives.
EXX	Program-write-enable drive XX.
XX	Select only drive XX.
XX,YY,ZZ	Select drives XX,YY,ZZ.
SELECT	Print summary of operator-selected drives.
LOCKED	Print summary of write-locked drives.
SAME	Select same drives reported by SELECT.
DDT	Enter DDT.
H	Print this help message.

   You are then notified that if a drive is software (program) write locked you must write-enable it before it can be formatted, and that the program does not support formatting of both RM03s and RP06s in the same operation.

4. "DO YOU WANT TO MAPOUT SOFT (RECOVERABLE) ERROR SPOTS? Y,N OR ? - "

   Typing "Y" will cause the locations of all areas of the pack that have created read errors (both recoverable and non-recoverable) to be written into the BAT block (bad block) area of the pack.

   Typing "N" will cause only the locations on the pack that have created hard (non-recoverable) read errors to be written onto the BAT block area.

5. "PRINT SYSTEM TOTALS? Y,N OR ? - "

   Typing "Y" will cause the system totals to be printed.

   The system totals are an itemized list of statistics:

   a. Number of bits XFERFD, read and written.

   b. Number of transfer and positioning errors.

   c. Number of MBC errors detected.

   Typing "N" will accumulate the totals but not print them.

F.4 CONFIGURING THE DRIVES

After program initialization, the configuration routine is called. This routine performs an initial diagnostic check on the UBA and RH11. It ensures that the enable transfer bit in the UBA can be set and cleared with a UBA INIT, and that all IP channels can be cleared. The drive select register, RHCS2, is tested to ensure that none of the select bits are stuck either on or off. If any of these checks fail, the program halts.

The program then proceeds to poll the drives and reports to the operator the present status of all drives in the system configuration. The status report includes the following:

1. Drive type
2. Serial number
3. If the drive is on line
4. If the drive is presently write locked
5. If the pack is software write protected
6. If the drive is single or dual ported
7. If the drive is -10 formatted or in unknown format
8. If available, the serial number where formatted

The program will recognize only -10-formatted packs as already formatted (that is, -11(16-bit mode)-formatted packs are reported as unknown). Pack recognition is done with zero drive offset.

F.5 PROGRAM DESCRIPTION

If you have entered valid drive numbers to be formatted, program control passes to PAKINT, the routine that directs the formatting of the disk packs.

The PAKINT routine will automatically format, map, and create the BAT blocks for the selected RP06 or RM03 disk drives. The script minimizes the necessary dialog, so as to avoid user errors.

The PAKINT routine directs the formatting operation by calling three major task routines - FORMAT, RONLY, and MAPOUT.

FORMAT - routine to format RP06 or RM03 disk packs in PDP-10 mode

The first of these routines to be called is FORMAT, which provides the facilities for formatting in 18-bit (PDP-10) mode. The operator is notified as to when the formatting begins with the message "FORMAT" and the current runtime.

Formatting is done on a track-by-track basis (that is, an individual sector cannot be processed, but only the entire track). The formatting of all selected packs is done at the same time.

Twenty errors are allowed on each pack, only five of which may be hard errors. Cylinder 000, surface 00 of each pack may not have any hard errors.

Each area on the pack is formatted with header and worst-case data information. This data is written to the pack with 0 offset.

When all selected packs have been formatted, you are notified with the message "OPERATION COMPLETED" and the current runtime.

RONLY - routine to perform a read-only verify on a formatted pack

The PAKINT routine then transfers control to the RONLY subroutine, which is designed to read all areas of each pack. The routine acknowledges only errors detected by the ECC logic (that is, no write-transfer or data-compare code is executed). Any error corrected by the ECC logic is reported, as well as those ECC correction attempts that fail.

Again, you are notified when the operation begins and when it ends.

MAPOUT - routine to report the BAT block contents to the user and write them on the pack

After the pack is verified by the RONLY routine, control passes to MAPOUT, the hard-data-error-spot identifier. This routine will report the pack BAT block contents and update the pack BAT block area. MAPOUT works in conjunction with several other routines that are responsible for generating the BAT block entry word and putting this entry into the drive's BAT block area, writing the drive's BAT block area onto the pack, and generating the BAT block area for the drive in memory.

F.6 PROGRAM ERROR MESSAGES

All program messages are intended to notify you as to current program inactivity. Remember that no interaction with the program is required, other than answering the questions discussed in Section F.3 (Program-Operator Interaction). This is true even in the case of program error.

There are two basic types of errors that can occur in the program. These are:

1. Fatal errors, which terminate program operation. In the case of a fatal error, the program prints a message describing a possible cause, and returns to the starting address. You may restart the program by typing "CO" (RET).

   Errors of this type may indicate a problem within the system or disk packs. If you are formatting several packs, try formatting only half of them, to isolate the damaged packs. If fatal errors occur repeatedly using diferent packs, notify your DIGITAL Field Service Representative.

2. Errors that the program will attempt to recover from and continue.

   There are several types of errors from which the program may be able to recover. For example, up to 20 recoverable and 5 non-recoverable transfer errors per disk pack are considered acceptable (although cylinder 00, surface 00 may not have any non-recoverable errors). You are notified when the error occurs, and may be given additional information concerning the error. Usually, you are also notified of the resolution of the problem.

   It is a recoverable error if one of the selected disk drives goes off line for some reason. The program will continue to format all other selected drives. If there are no other selected drives, the program will ask you to select some drives.

Some errors, especially soft, easily recoverable errors, are to be expected. Since all information on the pack has been written using the same drive (with the exception of the initial reading of the HOME and BAT blocks on the pack), retry is always done with zero offset. The retry procedure is as follows:

All non-fatal drive errors processed in channel 5 interrupt routines request error recovery. The error recovery is initiated at interrupt level and is automatic. Once the recovery procedure is initiated, all other data transfers and positioning operations are inhibited until its completion.

All positioning operations are limited to three retries. The drive is recalibrated before each retry.

Write header and data commands are also limited to three retries. The command is reissued at zero drive offset and examined for errors.

READ/WRITE commands are retried seven times at zero offset.

APPENDIX G

GENERATING A TAILORED BATCH AND SPOOLING SYSTEM

G.1 INTRODUCTION

This appendix shows you 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 4.2 GALAXY system. The standard GALAXY system is satisfactory for most sites. The procedures shown in Chapters 1 through 8 of this manual, or in Appendix A or B, show you how to install Release 4.1 TOPS-20 software, including a standard Release 4.2 GALAXY system. After performing those procedures, you may 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 4.2 GALAXY system can be used with timesharing users logged in, the critical phase of stopping the standard Release 4.2 system and starting up your tailored one (Steps 29-56) should, for safety reasons, be performed on a stand-alone system. The queues need not be empty, however, as long as a Release 4.2 (as opposed to Release 4.0 or earlier) GALAXY system is already running.

The following paragraphs summarize the procedure for generating and starting up a new GALAXY system. The actual steps you would perform are shown in the next section.

1. Run the DUMPER program to transfer the GALAXY source files from the TOPS-20 bundled system software tape (also called the TOPS-20 Distribution tape) to a disk directory. This directory is referred to as the build area. In addition to the source code, this directory contains 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. The batch job will create a log file that should be saved for reference, at least until the new batch and spooling system is correctly operating.

4. Stop all the components of the currently running GALAXY system (QUASAR, LPTSPL, etc.).

5. Copy all old GALAXY files from their current area (usually SYS:) to some other area.

6. Copy all new GALAXY files from the temporary area to SYS:.

7. Start up the components of the new GALAXY system.

8. When you are sure that the new GALAXY system is operating correctly, you may delete the .EXE files of the old system. If you want to be cautious, you may save the old .EXE files on tape. You may also delete the GALAXY source files (and the unrelated files restored along with them from the Distribution tape) from the build area. 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 will have the sources readily available. Otherwise, you will have to restore the sources from the software tape if patching is required.

NOTE

The procedures described below assume that you have a Release 4.1 GALAXY system currently running. These procedures can be carried out during normal timesharing.

G.2 RESTORING THE GALAXY FILES

NOTE

Those procedures assume that you are using the console terminal (CTY) and are attached to the system PTYCON job.

Step 1: Give the Command: WHAT ALL and Press the RETURN Key.

To find out which PTYCON subjob is running the OPR program, give the PTYCON command, WHAT ALL and press the RETURN key. The system responds with a list of PTYCON subjobs, followed by the PTYCON> prompt.

```
PTYCON>WHAT ALL(RET)
```

Step 2: Give the Command: CONNECT (TO SUBJOB) 0 and Press the RETURN Key.

To connect to the subjob running the OPR program, type CONNECT and press the ESC key. The system prints (TO SUBJOB). Type OPR and press the RETURN key. The system prints the OPR prompt.

```
                    (ESC)
                      ↓
PTYCON>CONNECT (TO SUBJOB) OPR(RET)

OPR>
```

Step 3: Give the Command: SHOW STATUS TAPE-DRIVE and Press the RETURN Key.

To find out which tape drives are not in use, give the SHOW STATUS TAPE-DRIVE command and press the RETURN key. The system responds with a list of tape drives and their status.

```
OPR>SHOW STATUS TAPE-DRIVE(RET)
```

Step 4: Give the Command: SET TAPE-DRIVE MTA0: UNAVAILABLE and Press the RETURN Key.

To allow the use of a tape drive without the intervention of the MOUNTR program, give the command, SET TAPE-DRIVE and insert the number of a tape drive that is not presently in use (MTA0: is only an example). Type UNAVAILABLE and press the RETURN key. The system prints, Enter Text and Terminate with ^Z.

```
OPR>SET TAPE-DRIVE MTA0: UNAVAILABLE(RET)

Enter Text and Terminate with ^Z
```

Error: If you see an error message similar to ?Tape drive ERROR: allocation is not enabled, your site does not have tape drive allocation enabled. Therefore, you do not have to set any drives unavailable. Skip to Step 6.

Step 5: Type USING GALGEN PROCEDURE ^Z.

To give a reason for setting a tape drive unavailable, enter USING GALGEN PROCEDURE and type a CTRL/Z. The system prints ^Z and gives the OPR> prompt.

```
Enter Text and Terminate with ^Z

                    (CTRL/Z)
                       ↓
USING GALGEN PROCEDURE ^Z

OPR>
```

Step 6: Type PUSH and Press the RETURN Key.

Type PUSH to move to another level and press the RETURN key.

```
OPR>PUSH(RET)
@
```

Step 7: Type ASSIGN MTA0: and Press the RETURN Key.

Assign to your job the tape drive that you set unavailable in Step 4.

```
@ASSIGN MTA0:(RET)

@
```

NOTE

The examples in this manual show MTA0: as the tape drive used to restore files from the Distribution tape. However, you may assign and use any tape drive. Be sure to use the name of the tape drive you assign in this step whenever MTA0: appears in this appendix.

Step 8: Type ENABLE and Press the RETURN Key.

```
@ENABLE(RET)

$
```

Step 9: Give the Command: ^ECREATE (DIRECTORY NAME) PS:<BUILD> and Press the RETURN Key.

Create a directory to which to hold the GALAXY source files. Although you may give it any name, a reasonable name for this directory is PS:<BUILD>, because it is also known as the build area. Type CTRL/E CREATE and press the ESC key. The system prints (DIRECTORY NAME). Type PS:<BUILD> and press the RETURN key. The system prints [NEW] and the subcommand prompt ($$).

```
(TRL/E)    (ESC)
  ↓          ↓
$^ECREATE (DIRECTORY NAME) PS:<BUILD>(RET)

[NEW]
$$
```

Step 10: Give the Subcommands: WORKING 3000 and PERMANENT 3000 and Press the RETURN Key.

Assign sufficient storage space to the directory to allow copying of the entire fourth save set (not just the GALAXY sources). Then complete the command with a final carriage return.

```
$ WORKING 3000(RET)
$ PERMANENT 3000(RET)
$ (RET)
$
```

Step 11: Mount the Distribution Tape on MTA0:.

To restore the GALAXY files from tape, mount the Distribution tape (the TOPS-20 bundled system software tape) on the tape drive you assigned in Step 7. If you need help mounting the Distribution tape, refer to Chapter 2, Section 2.1, Step 9, of this manual.

Step 12: Type DUMPER and Press the RETURN Key.

You will need the DUMPER program to restore the GALAXY source files from tape. Type DUMPER and press the RETURN key. The system prints the DUMPER> prompt.

```
$DUMPER(RET)

DUMPER>
```

Step 13: Give the Command: TAPE (DEVICE) MTA0: and Press the RETURN Key.

To tell the DUMPER program which tape drive you are using, type TAPE and press the ESC key. The system prints (DEVICE). Type the name of the tape drive on which you mounted the Distribution tape in Step 16 (MTA0: is only an example). Press the RETURN key. The system prints the DUMPER> prompt.

```
                (ESC)
                  ↓
DUMPER>TAPE (DEVICE) MTA0:(RET)

DUMPER>
```

Step 14: Give the Command: SKIP 4 and Press the RETURN Key.

To skip over the first three save sets on the Distribution tape, give the command SKIP 3 and press the RETURN key. The DUMPER program prints a message identifying each save set it skips, and then gives the DUMPER> prompt. Be prepared for a 5- to 10-minute wait while DUMPER positions the tape.

```
DUMPER>SKIP 4(RET)

DUMPER>
```

Step 15: Give the Command: RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<BUILD>*.*.* and Press the RETURN Key.

To restore all the files from the fourth save set (including the GALAXY source files), type RESTORE and press the ESC key. The system prints (TAPE FILES). Type PS: and press ESC. The system prints <*>*.*.* (TO). Type PS:<BUILD> and press ESC. The system prints *.*.*. Press the RETURN key. The system prints a message identifying the tape and then the message, Loading file(s) into PS:<BUILD>. Be prepared for a wait of approximately 10 minutes between this message and the next DUMPER> prompt.

```
               (ESC)             (ESC)                    (ESC)
                 |                 |                        |
DUMPER>RESTORE (TAPE FILES) PS:<*>*.*.* (TO) PS:<BUILD>*.*.*(RET)
```

Error:
ERROR: If DUMPER does not print a message identifying the save set as "Language Sources for TOPS-20 V4.1", the tape is not positioned at the correct save set. Give the REWIND command to DUMPER and begin again at Step 14.

Error:
ERROR: 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 begin again at Step 9. If errors persist, the tape may be bad. Contact your DIGITAL Representative for assistance.

Step 16: Give the DUMPER Commands: REWIND and EXIT.

Once the fifth save set has been restored from tape, rewind the tape and exit from DUMPER. Give the DUMPER command, REWIND, and press the RETURN key. The DUMPER program prints the DUMPER> prompt. Give the DUMPER command EXIT. The DUMPER program finishes, and the system prints the TOPS-20 enabled prompt ($).

```
DUMPER>REWIND(RET)

DUMPER>EXIT(RET)

$
```

Step 17: Give the Command: INFORMATION (ABOUT) DISK-USAGE (OF DIRECTORY) PS:<BUILD> and Press the RETURN Key.

To verify that you have restored all the files from the fourth save set of the TOPS-20 Distribution tape, type INFO and press the ESCAPE key; the system prints RMATION (ABOUT). Type DIS and press the ESCAPE key; the system prints K-USAGE (OF DIRECTORY). Type PS:<BUILD> and press the RETURN key. The system prints information about the amount of disk space used by the directory.

```
   (ESC)           (ESC)
     |               |
$INFORMATION (ABOUT) DISK-USAGE (OF DIRECTORY) PS:<BUILD>(RET)
 PS:<BUILD>
 2865 Pages assigned
 3000 Working, 3000 Permanent pages allowed
 7971 Pages free on PS:
$
```

Step 18: STOP.

If the number of pages assigned does not approximately match the number shown in this manual, you may not have restored all the files necessary for creating a tailored GALAXY system. Check to be sure you have the correct tape mounted, then begin again at Step 12.

Step 19: Give the Commands: UNLOAD (DEVICE) MTA0: and DEASSIGN (DEVICE) MTA0: and Press the RETURN Key.

Once the GALAXY source files have been restored from the Distribution tape, you should unload the tape and return the tape drive to the pool of available resources. Type UNLOAD and press the ESC key; the system prints (DEVICE). Type MTA0: (or the name of the tape drive on which you mounted the Distribution tape in Step 11) and press the RETURN key. The system prints the TOPS-20 enabled prompt ($). Type DEASSIGN and press the ESC key; the system prints (DEVICE). Type MTA0: and press the RETURN key. The system prints the TOPS-20 enabled prompt.

```
        (ESC)
          ↓
$UNLOAD (DEVICE) MTA0:(RET)

        (ESC)
          ↓
$DEASSIGN (DEVICE) MTA0:(RET)

$
```

You can now remove the Distribution Tape from the tape drive. If you need help, refer to Chapter 2, Section 2.7, Step 68 of this manual.

Step 20: STOP.

If in Step 4 you set unavailable the tape drive you used, you should make it again available to timesharing users: go on to Step 21. Otherwise, skip to Step 24.

Step 21: Type POP and Press the RETURN Key.

To return the tape drive to the pool of tape drives under control of the MOUNTR program, you must return to the previous level. Type POP and press the RETURN key. The system prints the OPR> prompt.

```
$POP(RET)

OPR>
```

Step 22: Give the Command: SET TAPE-DRIVE MTA0: AVAILABLE and Press the RETURN Key.

```
OPR>SET TAPE-DRIVE MTA0:  AVAILABLE(RET)

OPR>
```

Step 23: Give the Command: PUSH and Press the RETURN Key.

```
OPR>PUSH(RET)

$
```

Step 23A: Give the Command: CONNECT (TO DIRECTORY) PS:<BUILD> and Press the RETURN Key.

Before running the GALGEN program you must connect to PS:<BUILD>. Type CON and press the ESCAPE Key. The system returns NECT (TO DIRECTORY). Type PS:<BUILD> and press the RETURN Key. The system prompt returns.

```
      (ESC)
        |
$CONNECT (TO DIRECTORY) PS:<BUILD>(RET)
$
```

G.3 RUNNING THE GALGEN PROGRAM

Step 24: 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 4(2032)

[Starting GALAXY Generation Procedure for TOPS20 System]
[Writing GALAXY Configuration File PS:<BUILD>GALCNF.MAC.3]
```

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 either LONG (for a long dialog) or SHORT (for a short one). Simply pressing the RETURN key implies SHORT.

```
Dialog Length (SHORT,LONG) [SHORT]
```

➡ Step 25: 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 35.

➡ Step 26: 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.

➡ Step 27: 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 26, an explanation of each question is included. Otherwise, you will see only the questions, the range of choices, and the default answer. The default answer is the one that appears in brackets ([]). This value will be used if you answer the question by pressing the RETURN key.

Below is a sample of the dialog you would see if you typed LONG in Step 26. Press the RETURN key when you want to see the next question in the GALGEN dialog.

NOTE

You must supply the correct values for your own system.

Administrative Controls and Parameters

The questions in this section determine absolute GALAXY parameters which cannot be overridden by user or operator controls.

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]

Users can specify a priority for their batch and spooling requests with the /PRIORITY switch. The allowable values on this parameter range 1 (representing lowest priority) and 63 (representing the highest). The following two questions relate to this switch. The first question requests the maximum priority that may be specified by a non-privileged user.

Maximum priority non-privileged users may specify(10-63) [20] 

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] 

Applications

The following section establishes parameters for applications supported by GALAXY (for example, NCP). These applications will be accessible through OPR, the operator interface.

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)

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)

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]
Card punch output limit(0-99999 cards) [1000]
Paper tape punch output limit(0-5000 feet) [200]
plotter output limit(0-5000 minutes) [30]

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]

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]

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]

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.

Number of file header pages(0-5) [2]

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 (of 4-6 characters) [NORMAL]

The number of characters that uniquely identifies 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 that uniquely identifies form(2-6) [4]

Tape Label Action

The system administrator can allow non-privileged users to bypass label processing.

Allow bypassing for non-privileged users?(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]

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)

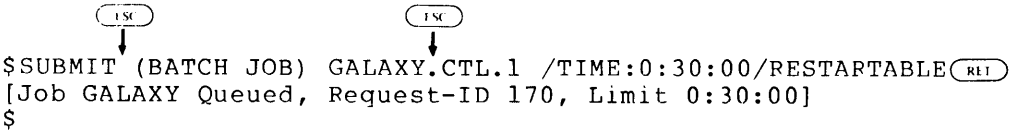
[End of Galgen Dialog]
$

G.4 ASSEMBLING THE NEW GALAXY SYSTEM

Step 28: Give the Command: SUBMIT (BATCH JOB) GALAXY.CTL /TIME:0:30:00/RESTARTABLE.

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.

Type SUBMIT and press the ESC key; the system prints (BATCH JOB). Type GALAXY and press the ESC key; the system prints .CTL.1. Type /TIME:0:30:00/RESTARTABLE and press the RETURN key. The system prints a message giving the job name, the request I.D., and the time limit of the batch job.



NOTE

If assembly is unsuccessful, examine the appropriate .LOG file to see if you can find the problem. If you 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.

When the GALAXY system assembly succeeds, you will see a series of messages similar to the following, printed on your terminal:

```
LPTSPL ASSEMBLY SUCCESSFUL

CDRIVE ASSEMBLY SUCCESSFUL
                        .
                        .
                        .
```

One message will be printed for every control file of the GALAXY system that is generated.

The new batch system can now be run. 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.

G.5 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.

NOTE

During the following steps, Steps 29-56, 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 29 as long as the old GALAXY system is a Release 4.2 system.

➡ **Step 29: Type POP and Press the RETURN Key.**

To return to the OPR program so you can stop the old GALAXY objects type POP and press the RETURN key. The system prints the OPR> prompt.

```
$POP(RET)

OPR>
```

➡ **Step 30: Give the command: SHOW STATUS and Press the RETURN Key.**

To determine which GALAXY objects are in use, give the SHOW STATUS command and press the RETURN Key. The system responds with a list of GALAXY objects.

```
OPR>SHOW STATUS
OPR>
13:42:58                    -- System Device Status --

Printer Status:
  Unit        Status
  ----    ---------------
     0    Idle

Batch-Stream Status
  Strm        Status
  ----    ---------------
     0    Idle
     1    Idle
     2    Idle
           .
           .
           .
           .
```

Step 31: Give SHUTDOWN Commands for Each Component of the GALAXY System.

To be sure that each GALAXY object has been shut down, you must give a SHUTDOWN command for each GALAXY object in Step 30.

```
                ESC                       ESC
                 ↓                         ↓
OPR>SHUTDOWN (SCHEDULING FOR) PRINTER (UNIT NUMBER) 0(RET)

                ESC                       ESC
                 ↓                         ↓
OPR>SHUTDOWN (SCHEDULING FOR) BATCH-STREAM (STREAM NUMBER) 0:2(RET)

                 .
                 .
                 .
```

Error: If you see a message similar to:--THERE ARE NO DEVICES
ERROR: STARTED--, you may 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 32: Give the Command: SHOW STATUS and Press the RETURN Key.

To verify that all parts of the GALAXY system have been shutdown, give the SHOW STATUS command, and press the RETURN Key.

```
OPR>SHOW STATUS(RET)
OPR>

13:44:55  -- THERE ARE NO DEVICES STARTED --
OPR>
```

Step 33: Give the Command: EXIT and Press the RETURN Key.

To return to TOPS-20 command level so you can kill the GALAXY components, type PUSH and press the RETURN key. The system prints the enabled prompt.

```
OPR>EXIT(RET)
$
```

Step 34: Give the Command: ^ESPEAK and Press the RETURN Key.

To kill the GALAXY components you must give the ^ESPEAK command. Type CTRL/E SPEAK and press the RETURN key. The system prints, [PLEASE TYPE SYSJOB COMMANDS - END WITH ^Z].

```
(CTRL/E)
 ↓
$^ESPEAK(RET)
 [PLEASE TYPE SYSJOB COMMANDS - END WITH ^Z]
```

Step 35: Give the KILL command for each GALAXY component.

You should KILL all the components referenced in SYSJOB.RUN. You should also KILL BATCON, which normally runs as a separate job under SYSJOB.

```
 [PLEASE TYPE SYSJOB COMMANDS - END WITH ^Z]
KILL QUASAR<RET>
KILL ORION<RET>
KILL MOUNTR<RET>
        .
        .
        .
        .
```

Step 36: Type CCJOB 1 and Press the RETURN Key.

```
CCJOB 1<RET>
```

Step 37: Type STATUS and Press the RETURN Key.

```
STATUS<RET>
```

Step 38: Type ^Z and Press the RETURN Key.

To return to TOPS-20 command level, type CTRL/Z. The system prints the TOPS-20 enabled prompt.

```
<CTRL/Z>
   ↓
   ^Z
   $
```

Step 39: Give the Command: ^ECREATE (DIRECTORY) 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:. Type CTRL/E CREATE and press the ESCAPE key. The system prints (DIRECTORY). Type PS:<OLD-GALAXY> and press the RETURN key. The system prints [NEW] and the enabled subcommand prompt.

```
<CTRL/E>      <ESC>
   ↓           ↓
$^ECREATE (DIRECTORY NAME) PS:<OLD-GALAXY><RET>
[NEW]
$$
```

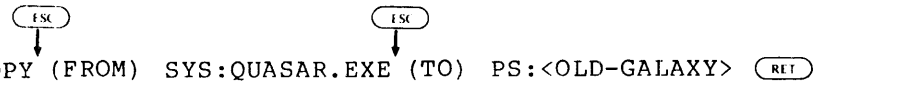
Step 40: Press the RETURN Key.

To create a directory with default characteristics, press the RETURN key.

```
[NEW]
$$<RET>
$
```

Step 41: Give the Command: COPY (FROM) SYS:QUASAR.EXE (TO) PS:<OLD-GALAXY> and Press the RETURN Key.

To copy your old QUASAR program into the back-up directory that you just created, type COPY and press the ESCAPE key. The system prints (FROM). Type SYS:QUASAR.EXE and press the ESCAPE key. The system prints (TO). Type PS:<OLD-GALAXY> and press the RETURN key. The system prints a message verifying that it has copied the file.



Step 42: Copy the other files of Your GALAXY System into PS:<OLD-GALAXY>.

Repeat Step 41 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.

QUASAR.EXE

BATCON.EXE

CDRIVE.EXE

GLXLIB.EXE

SPRINT.EXE

LPTSPL.EXE

OPR.EXE

ORION.EXE

MOUNTR.EXE

PLEASE.EXE

QMANGR.EXE

SPROUT.EXE

G.6 STARTING UP THE NEW GALAXY SYSTEM

Now you are ready to replace the old GALAXY system on SYS: with your new tailored system.

Step 43: Give the Command: COPY (FROM) PS:<BUILD>QUASAR.EXE (TO) PS:<SUBSYS>QUASAR.EXE and Press the RETURN Key.

To copy the QUASAR.EXE component of the new GALAXY system into the system, type COPY and press the ESCAPE key. The system prints (FROM). Type PS:<BUILD>QUASAR.EXE and press the ESCAPE key. The system prints (TO). Type PS:<SUBSYS>QUASAR.EXE and press the RETURN key. The system prints a message verifying each file it has copied correctly.

```
$COPY (FROM) PS:<BUILD>QUASAR.EXE (TO) PS:<SUBSYS>QUASAR.EXE

PS:<GALAXY>QUASAR.EXE.1 =>  PS:<SUBSYS>QUASAR.EXE.1  [OK]
```

Step 44: Copy the other components of the GALAXY system into the system area.

Repeat Step 43 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 42.

Step 45: Give the Command: ^ESPEAK and Press the RETURN Key.

To start the new GALAXY system you must give the ^ESPEAK command. Type CTRL/E SPEAK and press the RETURN key. The system prints, [PLEASE TYPE SYSJOB COMMANDS - END WITH ^Z]

```
$ SPEAK
[PLEASE TYPE SYSJOB COMMANDS - END WITH ^Z]
```

Step 46: Give the RUN command for each component in the new GALAXY system.

To be sure that all components of the GALAXY system are started, you must give the RUN command for each component shown in Step 35.

```
 [PLEASE TYPE SYSJOB COMMANDS - END with ^Z]
RUN SYS:QUASAR
RUN SYS:ORION
RUN SYS:BATCON
          .
          .
          .
          .
```

Step 47: Type JOB 1 / and Press the RETURN Key.

```
RUN SYS:QUASAR
RUN SYS:ORION
RUN SYS:BATCON
          .
          .
          .
JOB 1 /
```

➡ **Step 48: Give the command: RUN SYS:BATCON(RET)**

```
JOB 1 /
RUN SYS:BATCON(RET)
```

➡ **Step 49: Type / and Press the RETURN Key.**

```
JOB 1 /
RUN SYS:BATCON
/(RET)
```

➡ **Step 50: Give the Command: STATUS and Type ^Z and Press the RETURN Key.**

```
RUN SYS:BATCON
/

      (CTRL/Z)
      ↓
STATUS ^Z(RET)
$
```

➡ **Step 51: Type POP and Press the RETURN Key.**

You must return to OPR command level to start the components of your new GALAXY system. At TOPS-20 command level, type POP and press the RETURN key. The system prints the OPR prompt.

```
$POP(RET)
OPR>
```

➡ **Step 52: 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 and press the RETURN Key.

```
OPR>TAKE SYSTEM:SYSTEM.CMD(RET)
OPR>
```

➡ **Step 53: Give the Command: SHOW STATUS and Press the RETURN Key.**

To verify that each component of your GALAXY system is running properly, you should now give a SHOW STATUS command and press the RETURN key.

➡ **Step 54: Type PUSH and Press the RETURN Key.**

To move to another level, type PUSH and press the RETURN Key.

```
OPR>PUSH(RET)
@
```

➡ **Step 55: Type ENABLE and press the RETURN Key.**

```
@ ENABLE
$
```

G.7 MAKING YOUR NEW GALAXY SYSTEM THE PERMANENT SYSTEM

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 56: Give the Command: DELETE PS:<BUILD>*.*, PS:<OLD-GALAXY>*.* and Press the RETURN Key.**


```
$DELETE (FILES) PS:<BUILD>*.*, PS:<GALAXY>*.*, PS:<OLD-GALAXY>*.*(RET)
```

➡ **Step 57: Type POP and Press the RETURN Key.**

To return to OPR level to supervise your new GALAXY system, type POP and press the RETURN Key.

```
$POP(RET)
OPR>
```

➡ **Step 58: Type CTRL/X and Press the RETURN Key.**

If you wish to return to the system PTYCON job, type CTRL/X and press the RETURN Key. The system returns the PTYCON prompt.


```
OPR>^X(RET)

PTYCON>
```

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