

DRAFT

STANDARD PROCEDURES FOR THE SYSTEM XXVI OPERATOR AUGUST EDITION

PRELIMINARY DRAFT
August, 1982

This is a preliminary draft; a revised version is forthcoming. To avoid confusion later on, we strongly suggest that you limit the number of circulating copies, and that you discard this draft when you receive the revised version.

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CONTENTS

HOW TO USE THIS DOCUMENT	1
Introduction	1
Conventions	2
HOW TO KNOW IF SOMETHING IS WRONG	3
Introduction	3
Determining If The System Crashed or Is Hung	3
Error Messages and BUGHLTs	3
Memory Parity Errors	4
HOW TO HALT THE SYSTEM	5
Introduction	5
Method A. With the Halt Command	5
Method B. From Mini-Exec	6
Method C. With BK	6
Method D. With the Circuit Breaker	7
BRINGING UP THE SYSTEM	8
Introduction	8
First Time You Bring Up the System	8
Bring Up After Power Failure or Circuit Breaker Halt	9
Disk Recovery	10
Tape Recovery	13
Standalone Recovery Procedure	14
System Rebuild	15
After the System is Up	21
FILE STORAGE AND RETRIEVAL	26
Introduction	26
DUMPER Program	26
Save (dump) Onto Tape	26
Restore (load) From Tape Onto Disk	31
Archived Files - BSYS	40
MAINTENANCE	46
Introduction	46
Batch	46
Bit-Table Rebuild	47

HOW TO USE THIS DOCUMENT

Introduction

The System XXVI consists of a PDP-11 computer and its memory, disk drives (used to save and restore information on disks), a tape drive (used to read information into the system from tape), a dis (data line scanner, used to control communication between the system and the users) and a console (used to communicate with the system). The system is connected to one or more networks.

These different parts of the system are run by a monitor (or operating system) called "AUGUST". AUGUST talks to the network, makes sure that all the parts of the system are working properly and in harmony, and oversees users' interaction with the system programs. The monitor has two parts: the "resident" monitor and the "swappable" monitor. The "resident" monitor resides in the central memory and contains basic information and instructions for the system to function. The "swappable" monitor contains information and programs related to users' needs. This information is copied or "swapped" into central memory only when the user needs it.

AUGUST is written for a PDP-11, so its instructions need to be translated to run on the System XXVI. A microprocessor, another part of the system, translates these instructions for the System XXVI. The microprocessor has two parts, a memory that contains "microcode" (the information) and a "microcontroller" (translates the information).

AUGUST also enables users to give commands directly to the operating system through a program called the Executive System.

This document describes how to operate the System XXVI in a brief, outline form. This document first explains how to know if there is a system problem, then it explains how to halt the system if there is a problem, how to bring up the system (under normal conditions and when there are problems), how to save and retrieve requested directories and files from disk, how to restore information from tape to the system, and how to generally maintain the system.

The procedures and examples in this document are written in steps that you must follow in the order given. If you are having problems with the system, be sure that you are following the procedures correctly; if you continue to have problems, contact your site manager.

Conventions

This section explains the terms and special characters used in this document.

Program names always appear in uppercase.

A word that represents a specific name that is to be typed in by you always appears in uppercase; for example, DIRECTORYNAME means that you type in a name of a directory.

Quote marks (") indicate what you type at the console; system prompts and responses to what you type are not surrounded by quote marks unless they are in text, such as "system prompts with a "@".

The term "console" means the terminal on which you boot the system and give system commands. If you previously had two terminals for communicating with the system, sometimes called the system console and the operator's console, you now have the one terminal called "console".

The terms "prompts:" or "responds:" indicate that the text following these terms is what the system or a program displays to you on the console. A prompt indicates to you what your next command should be and a response is only for your information.

Special keys on the console are indicated in the document as the following:

<CR> -- type a carriage return; the key labeled "RETURN" on the console keyboard

<SPACE> -- type a space; hit the space bar on the console keyboard

<ESC> -- the altmode or escape key

Special characters in the document mean the following:

-- a number (for example, "office-#" means to type your specific host number)

HOW TO KNOW IF SOMETHING IS WRONG

Introduction

Sometimes the system stops operating correctly. It could be hung (the monitor is up, but the system cannot be used) or crashed (the monitor is down). You can determine if the system is hung or has crashed by certain symptoms that are listed in this section. You can determine the nature of the problem by reading error messages and BUGHLT numbers, as well as memory parity errors. These aids are also described in this section.

Determining if the System Crashed or is Hung

Before you can repair a system that is not operating correctly, you must determine if it is hung or has crashed. You know the system is hung if all of the following symptoms exist; otherwise, the system has crashed.

The system status is no longer displayed in the upper left window of the console.

There is no response when you type <CTRL-C> or <CTRL-T> on the console.

You cannot log in from another terminal.

You are receiving irate calls from users who are unable to do anything.

Despite the four symptoms above, there is no BUGHLT indicated on the console. See the section "Error Messages and BUGHLTs" for a discussion of BUGHLTs.

If the system is hung, you must halt the system before you can bring it back up. See the sections "HOW TO HALT THE SYSTEM" and "BRINGING UP THE SYSTEM". If the system has crashed, you may need to bring it back up with the Standalone Procedure or System Rebuild. See the sections "Standalone Procedure" and "System Rebuild" in the section "BRINGING UP THE SYSTEM."

Error Messages and BUGHLTs

When the system crashes, it usually provides a "BUGHLT", which is an error message, followed by a number. The message gives you only an idea of what caused the crash and the number indicates the location in the file <system>busstrings.office-# where you can find more detailed information about what caused the error. The format of this file is a list of location

numbers with an error message description following each number. The following is an example of a BUGHLT:

```
BUGHLT/ CAIE PGRTRP+3 .I 264000,,115111
```

The system may be set so it does not display the number of the BUGHLT, but only the word "BUGHLT" followed by an error message. The following is an example:

```
BUGHLT/ CAIE PGRTRP+3
```

Type ".I" to force the system to print the BUGHLT number. For example:

```
System responds: BUGHLT/ CAIE PGRTRP+3
```

```
Type ".I".
```

```
System responds: .I 264000,,115111
```

The BUGHLT number is 264000; the location number is 115111. You can find more detailed information about the error by looking up the location number in the file <system>busstrings.office-#.

Record this information in your system logbook because it can be used later by maintenance and by system programmers in the Office Automation Division of Tymshare to correct the problem.

Memory Parity Errors

The system checks the parity of every word of memory. The parity is a sum of zeroes or ones (on or off bits) in an array plus one more bit (the parity bit). The parity must be an odd number; if it is not, there is an error at that address. The system will try to correct the error; if it cannot, it automatically scans central memory, prints an error message listing the locations and contents of the problem addresses, then stops and issues a BUGHLT.

You should notify Tymshare Maintenance whenever there is a parity error.

HOW TO HALT THE SYSTEM

If the system is hung, you must halt it before you can bring it back up and before you can check if it is running properly. There are four methods for halting the system. Method A is used for a halt with a warning to the users, B is used when you are in the Mini-Exec, Method C is used when you halt the monitor and give no warning to the users, and Method D, the most drastic, is used only when you cannot communicate with the monitor.

Method A. With the Halt Command

You can use the Halt command to schedule the system to come down in five minutes. This method should be used before trying any of the others. For this method, type the following:

1) System prompts: ! Type "<CTRL-E>halt<CR>". System progressively prompts:

*** OFFICE-# going down in 5 minutes. ***

*** OFFICE-# going down in !!ONE!! minute. ***

Shutdown complete.

You can also use this command to schedule and advertise a certain time and date when system downtime will occur. This is useful for preventive maintenance downtime or in emergency situations when you must take the system down, but you want to ensure some time for the users to log out. To do this, type the following commands:

1) System prompts: ! Type "<CTRL-E>halt,<CR>". (REMEMBER THE COMMA.) The comma means that the system will halt in the amount of time you specify in the next command. If the command is not present, the system will halt in five minutes (the default). System prompts: !! The "!!" indicates that you are in the Halt subprogram and you may specify more downtime information.

2) Type "at<SPACE>MM/DD/YY<SPACE>HHMM<CR>". System prompts: !!

3) Type "until<SPACE>MM/DD/YY<SPACE>HHMM<CR><CR>". System prompts: !!

4) If you wish to specify the reason for this downtime, type "DUE<SP>[emergency]<CR>". The word "emergency" is the reason; instead you can use "hardware", "pm", "preventive-maintenance", or "software". If you do not

want to specify a reason, just type a "<CR>" after <SP>. System Prompts: !!

5) This procedure updates the downtime message without announcing to the user when the system is going down. You can type "downtime<CR>" to learn of the latest downtime schedule.

If you forget the comma in the first step of the procedure, or you no longer want the system to come down, you can retract the halt by typing these commands:

1) System Prompts: ! Type "<CTRL-E>halt,<CR>". (REMEMBER THE COMMA this time!) System Prompts: !!

2) Type "retract<CR>". System Prompts: "[Confirm]" Type "<CR>".

You can also override the five minute default time advertisement and specify a time from 1 to 60 minutes by typing:

1) System Prompts: ! Type "<CTRL-E>halt,<CR>". (REMEMBER THE COMMA.) System Prompts: !!

2) Type "in<space>x<CR>". (x can be any number from 1 to 60.) System Prompts: "[Confirm]" Type "<CR>". System responds:

*** OFFICE-# going down in !!ONE!! minute. *** (if you typed "1")

Shutdown complete (when the system is completely down)

Method B. From Mini-Exec

This method halts the system with no warning to the users. Type the following commands:

1) System Prompts: ! Type "quit<CR>". System responds: Do you really want to go into the TENEX monitor??? [CONFIRM] Type "<CR>". System responds with a "." (period).

3) Type "h". System responds: HALTING SYSTEM

4) Type ".". System responds with the BUGHLT number (shown below as BUGCHK).

.\$7B>>CHKADR BUGCHK/ CAIE SWHLT1x

Method C. With BK

Halts the monitor with no warning to the users. Type the following commands:

1) Type "bk<CR>". This puts a 5 in register 20. The system periodically peruses register 20 for instructions on whether it should halt or not. The 5 indicates to the system that there is a dangerous problem and that it should halt immediately.

2) Wait until the system status window activity stops, then bring the system up with one of the appropriate recovery procedures. See the sections "HOW TO KNOW WHEN SOMETHING IS WRONG" and "BRINGING UP THE SYSTEM".

Method D. With the Circuit Breaker

If you cannot communicate with the monitor and Methods A thru C have failed, use Method D. To halt the system with this method, switch the black circuit breaker and the silver toggle switch (located on the bottom right-hand side of the computer cabinet) to off (down). You must now bring up the system as explained in the section "Bring Up After Power Failure or Circuit Breaker Halt".

BRINGING UP THE SYSTEM

Introduction

The procedure you use to bring up the system depends on a few factors. You need to know how it went down (power failure, halted, etc.), if the monitor is loaded and useable, and if you want to return the system to normal operation. "Normal" means the CHECKDISK program runs to check for errors in the system and the system makes itself available to users. When there is a system problem, it can often be corrected by replacing the monitor with a new copy from disk with the disk recovery procedures. These procedures are explained in this section. If these procedures do not work, then you must try the tape recovery, standalone, or disk rebuild procedure. These procedures are also explained in this section.

You can use a disk recovery procedure to bring up the system if one of the following conditions occurred: the system crashed from anything but a power failure; the system was hung and you halted it; problems found by CHECKDISK have been corrected. The two disk recovery procedures are "dbso" and "ubso". If the microcode is still loaded, then you can bring up the system using "dbso". If you need to load a new copy of the microcode because it was damaged, then you can bring up the system with "ubso".

If the system crashed or was hung because of a power failure, then you should use the tape recovery procedure. See the section "Tape Recovery Procedure".

The disk recovery and tape recovery procedures return the system to normal operation. If you were unsuccessful in bringing up the system and you need to bypass the normal self-checking procedures (CHECKDISK program) and come up CLOSED to the users, use the two other recovery procedures described in this section, called "standalone" and "disk rebuild".

First Time You Bring Up the System

If you are bringing the system up for the first time, you must follow the steps in this section. You then continue with step 2) in the section "Bring Up After Power Failure or Circuit Breaker Halt".

- 1) Press up the circuit breaker (black switch located on the bottom right side of the computer cabinet). This lever controls the Power supply to the console.

- 2) Press on (in) the "write-protect" button (located on the

left side of the disk drive). Switch on the disk drive power units (located on the back of each disk drive, near the bottom, left side). Be sure to wait five seconds after you have switched on each disk drive before switching on the next one.

3) Press up the toggle switch (silver switch located on the bottom, right side of the computer cabinet).

4) After the green light on the disk drives turns on, switch the "write-protect" button to off (out).

Bring Up After Power Failure or Circuit Breaker Halt

If the system crashed because of a power failure or was halted with the circuit breaker, follow these steps to bring up the system, then continue with a disk recovery procedure.

1) Press up on the circuit breaker, then up on the toggle switch.

2) Type "<CR>" on the console. System prompts: Type \$G to start CCL, followed by a row of numbers. (The \$ means <ESC>.)

3) Type "<ESC>9". System responds with rows of data, then: BLAST

4) Type "loadu<CR>". This boots the microcode from main memory to micromemory.

Loading BOOT Ucode

#####

5) Type "bootu<CR>". System responds:

Starting uBOOT

Status=#####,,#####(OK)

6) Type "bootc<SP>x<CR>". System responds:

Starting uBOOT

Status=#####,,#####(OK)

7) Type "loadc<CR>". System responds with definitions of the computer console language and ends with:

INSISTNOISE: 0

OPYINIT: OK

DPYCLEAR

BLAST: ok

IDLE: ID1

8) Press the PF1 key to begin communications with the console computer. The system responds: BREAK

9) The console command language is now loaded. At this point, you can continue with the disk recovery procedure "ubso". See the section "Disk Recovery".

Disk Recovery

Use the disk recovery procedure if the system crashed from anything but a power failure, if the system is hung, or if you have corrected any problems found by CHECKDISK and you are now ready to bring up the system. The two types of disk recovery procedures are "dbso" and "ubso". An explanation of when and how to use these procedures is in this section.

The disk recovery procedures cannot bring up the system if part of the monitor was damaged from a crash or when hung. You know that the monitor did not survive if nothing happens when you type either "dbso" or "ubso". At this point, you can specify another disk pack number from which to receive a new copy of the monitor.

If you cannot bring up the system with either disk recovery procedure, even after loading a new monitor from a different disk pack, you must try the tape recovery procedure. You must also use the tape recovery procedure if the system crashed or was hung because of a power failure. See the section "Tape Recovery Procedure".

The disk recovery and tape recovery procedures return the system to normal operation. If there are major problems with the system and you cannot bring it up with either disk or tape recovery or if you want to bypass the normal self-checking procedure and make the system unavailable to users when you bring it up, you should use the recovery procedures "standalone" and "disk rebuild". See the sections "Standalone Recovery Procedures" and "Disk Recovery Procedures".

Load Only Monitor-dbso

Use the disk recovery procedure "dbso" if the microcode is

not damaged. If this procedure does not work, then you must use "ubso".

1) Check the BUGHLT number displayed on the console and look it up in the list in the file <system>busstrings.office-#. Record this number in your jobbook. The following is an example of a BUGHLT:

```
BUGHLT/ CAIE PGRTRP+3 .I 264000,,115111
```

2) If you have not already done so, press the PF1 key. System responds: BREAK Type "dbso OCCR>". (O is the disk pack number.) System prompts:

```
dbso:
```

```
BOOTSTRAP loaded successfully.
```

```
BOOTSTRAP started.
```

```
BOOTING FROM DISK PACK #, RESIDENT MONITOR READ COMPLETE.
```

```
STARTING MONITOR...
```

If the system cannot find the resident monitor, it responds:

```
FAILED TO READ RESIDENT MONITOR
```

To know what to do when you see this message, see the section "Errors During Disk Recovery".

System then reports the memory size, runs CHECKDISK, and if all is successful, responds and prompts:

```
**** August in operation!
```

```
Welcome to AUGMENT Service from OFFICE-#
```

```
Enter date and time as MM/DD/YY<SP>HH:MM --
```

If there are problems with the system, you will see:

```
**** August not in operation!
```

If you see this message, begin the tape recovery procedure.

3) If all is successful when loading the monitor, type the date and time, followed by "<CCR>". System prompts: Please reconfirm: DAY, DATE TIME. Type "<CCR>".

4) The startup of the system jobs (SYSJOB program) now begins. When it is complete, type "<CR>". System Prompts:
@ Log in to the system.

5) Type "enable<CR>". You are now ready to continue with your daily routine.

Load Microcode and Monitor-ubso

1) Check the BUGHLT number on the console and look it up in the table in the file <system>busstrins.office-#. Record this number in your logbook. A BUGHLT number looks like:

```
BUGHLT/ CAIE PGRTRP+3 .[ 264000,,115111
```

2) If you have not already done so, press the PF1 key. System responds: BREAK Type "ubso 0<CR>". (0 is the disk pack number.) System prompts:

```
ubso:
```

```
Loading BOOT ucode
```

```
#### #####,#####
```

```
EPROM ucode bootstrap loaded. #####,#####,#####,#####
```

```
MICROCODE OR MEMING loaded successfully. ####
```

```
#####,#####
```

```
BOOTSTRAP loaded successfully.
```

```
BOOTSTRAP started.
```

3) System reports the memory size, runs CHECKDISK and DDMP (program that copies everything in temporary storage to disk packs), and if all is successful, responds and prompts:

```
**** August in operation!
```

```
Welcome to AUGMENT Service from OFFICE-#
```

```
Enter date and time as MM/DD/YY<SP>HH:MM --
```

If there are problems with the system, you will see:

```
**** August not in operation!
```

If you see this message, begin the tape recovery procedure.

4) If all is successful when loading the monitor, type the

date and time, followed by "<CR>". System Prompts: Please reconfirm: DAY, DATE TIME. Type "<CR>".

5) The startup of the system jobs (SYSJOB program) now begins. When it is complete, type "<CR>". System Prompts: @ Log in to the system.

6) Type "enable<CR>". You are now ready to continue with your daily routine.

Errors During Disk Recovery

You could have an error occur during disk recovery. If you do, it might be one of the following:

- Nothing happens when you type "ubso 0<CR>" or "dbso 0<CR>".

- The system responds: FAILED TO READ RESIDENT MONITOR

If you have told the system to look on a specific disk pack for the monitor, suspend the system with Method C (explained in the section "HOW TO HALT"), try disk recovery again, but tell the system to look on a different disk for the monitor. If, after checking all the disk packs (by individually giving the number of each disk), you discover that none of the disks has a good copy of the monitor, you cannot use disk recovery. Bring up the system with tape recovery.

- Errors occur before CHECKDISK reports on the file system.

If the system hangs or crashes before CHECKDISK reports on the status of the file system and you never get the message "**** August in operation" or see "**** August not in operation", recovery will not be successful. Bring up the system with the tape recovery procedure.

- CHECKDISK discovers problems with the file system.

The system will stop and wait for you to correct the problems. It cannot come up while something is wrong with the file system; the risk of destroying files is too great. For directions on how to correct any problems CHECKDISK finds, see the section "Correcting Errors Found by CHECKDISK."

Tape Recovery

Use the tape recovery procedure if disk recovery has failed or after a crash due to a power failure.

1) Mount the monitor tape on the tape drive.

2) Type "mboot<SP>x<CR>". This loads the first part of the monitor. (# is the disk pack number.) System responds: #
,#####:OK

3) Type "ma<SP>140". This sets the internal address of the monitor to 140, which indicates the system should come up under the editor EDDT.

4) Type "cty". System responds: EDDT

5) Type "start<ESC>s". System then reports the memory size, runs CHECKDISK, and if all is successful, responds and prompts:

**** August in operation!

Welcome to AUGMENT Service from OFFICE-#

Enter date and time as MM/DD/YY<SP>HH:MM --

6) Type the date and time, followed by "<CR>". System prompts: Please reconfirm: DAY, DATE TIME. Type "<CR>".

Standalone Recovery Procedure

Use the standalone procedure when some error in the disk, in CHECKDISK, or in system jobs (SYSJOB) is causing the system to crash before it can come all the way up successfully. If the system is hung, you must first halt the system, then use the standalone procedure to bring up the system. The standalone procedure brings the system up without making it available to the users and without running CHECKDISK and other maintenance programs that are usually part of recovery procedures. Before you can bring up the system with the standalone procedure, you must correct any problems found by CHECKDISK when the system was up. See the section "Correcting Errors Found by CHECKDISK". Once you have corrected any problems, you can bring up the system with standalone. Once the system is up, you can halt the system with Method B, then bring it up again in order to make it available to the users with one of the disk recovery procedures. See the sections "HOW TO HALT THE SYSTEM" and "Disk Recovery". Type the following for the standalone recovery procedure:

1) If you have not already done so, press the PF1 key. System responds: BREAK If only the monitor needs to be loaded, type

"dbeddt 0<CR>". If the monitor and the microcode need to be loaded, type "ubeddt 0<CR>". (0 is the disk pack number.) Depending on which one you type, the system prompts with one of the following::

```
dbeddt 0: BOOTSTRAP loaded successfully.
```

```
BOOTSTRAP started.
```

```
EDDT
```

```
ubeddt 0: Loading BOOT ucode
```

```
#### #####,#####
```

```
EPROM ucode bootstrap loaded.
```

```
#####,#####,#####,#####
```

```
MICROCODE OR MEMING loaded successfully. ####
```

```
#####,#####
```

```
BOOTSTRAP loaded successfully.
```

```
BOOTSTRAP started.
```

```
EDDT
```

2) Type "DBUGSWI". The system responds with either "0" or "1".

3) Type "2<CR>". Putting a value of 2 at address dbussw tells the system to skip running CHECKDISK and the system jobs and to come up in such a way that only input from the console is accepted.

4) Type "start<ESC>". The monitor tape should spin, which means it is reading in the second half of the monitor (the part containing the swappable monitor). System prompts:

```
Enter date and time as MM/DD/YY<SP>HH:MM --
```

5) Type the date and time, followed by "<CR>". System prompts: Please reconfirm: DAY, DATE TIME. Type "<CR>".

6) System prompts: SYSJOB COMMAND FILE NOT FOUND. Type "<CR>". System prompts: @ You are automatically logged in, but not enabled. Remember to enable yourself if you want to do anything requiring special control. Type "enable<CR>".

System Rebuild

Occasionally, a major problem occurs that destroys the file system. In this case, you should rebuild the disk with the "Savass" tape and restore the users' files as completely as possible to pre-crash state using back-up incremental and full dump tapes.

Never start a disk rebuild without specific instructions from a manager or an operating systems programmer because even though rebuilding the disk is a fairly simple procedure, the loss of users' files and the possibility that the files might be damaged or incompletely restored is a serious problem.

The Savass Tape was created using the file "<oper>savass.ofx", which stores to tape the following files in this order:

1) location 0 (zero): restfr.ofx

Contains all directory parameters on disk at the time of savass tape creation. Using the restfr.ofx file, the restore program can recreate directories to pre-crash state, but "empty" of files.

2) location 1: dumper.sav

Contains a copy of <subsys>dumper.sav program, which enables you to restore user's files from incrementals/full dumps later in the rebuild procedure.

3) location 2: exec.sav

Contains a copy of <system>exec.sav program since the program has been destroyed at reinitialization time.

Do the following steps for the system rebuild procedure:

1) Mount the monitor tape on the tape drive.

2) Type "mboot<SP>x<CR>". This loads the first part of the monitor. (x is the disk pack number.) System responds: #
,#####:OK

3) Type "ms<SP>140". This sets the internal address of the monitor to 140, which indicates the system should come up under the editor EDDT.

4) Type "cty". System responds: EDDT

5) Type "DEBUGSWI". The system responds with either "0" or "1".

6) Type "2<CR>". Putting a value of 2 at address debugsw tells the system to skip running CHECKDISK and the system

Jobs and to come up in such a way that only input from the console is accepted.

7) Type "77/". System responds: 0 Type "<CR>" to turn off Tymnet.

7) Type "tymflg/". System responds: -1 Type "<CR>".

8) Type "100/". System responds: T1 Type "<CR>".

9) Type "syslod<ESC>g" to load the swappable monitor in from tape. System reports the memory size, then prompts:

DO YOU REALLY WANT TO CLOBBER THE DISC BY
RE-INITIALIZING?

10) Type "y". System responds:

OK, YOU ASKED FOR IT.

EXAMINING BAT BLOCKS.

ASSIGNING DISK AND DRUM ADDRESSES FOUND IN BAT BLOCKS.

CREATING BAT BLOCKS AND ASSOCIATED FILES.

CREATING SPECIAL SYSTEM FILES.

CREATING HOME BLOCKS AND ASSOCIATED FILES.

RUNNING DDMP.

**** August not available.

NO EXEC.

If you do not see this text, contact a system programmer in the Office Automation Division of Tymshare. At this point, all system files have been reinitialized.

11) Dismount the monitor tape from the tape drive, then mount the SAVASS tape. You are now at Mini-Exec level; the prompt is a ".".

12) Type "l". System prompts: LOAD MAG TAPE FROM:

13) Type "mta0:<CR>". System prompts: [Confirm]. Type "<CR>". System prompts: FILE NUMBER:

14) Type "<CR>". System prompts with a ".".

15) Type "d". System prompts: dUMP USER ADR SPACE ON FILE:

16) Type "restfr.sav <CR>". System prompts: [Confirm].
Type "<CR>". System prompts: .

17) Type "s." (remembering to follow the "s" with a period). You are put in the RESTORAL Program. System prompts: Restore>

18) Type "mailbox<ESC>". System prompts: (creation is desired for)

19) Type one of the following:

ONLY

When the system responds with "(dir's that had one)[Confirm]", type a "<CR>". Directories that had mailboxes before will be restored with a mailbox; those without mailboxes previously will not be issued a new one.

ALL

When the system responds with "(all directories)[Confirm]", type a "<CR>". Directories will be issued a mailbox when restored even though they might not have had a mailbox previously.

NO

When the system responds with "(no directories)[Confirm]", type a "<CR>". Directories will be restored with a mailbox, although they might have had one previously.

NOTE: Under most conditions, it is HIGHLY RECOMMENDED that your choice be "ONLY".

20) System prompts: RESTORE>

21) Type "directories". System prompts: (for) Type "all". System prompts: (users using) old dir x's [Confirm] Type "<CR>".

22) Automatic verification of the directory numbers and names will begin. When verification is complete, the system responds (the second statement responds with ONLY when you choose that option):

Verification successful, no duplicate names or numbers found.

Mailboxes will be created for ONLY those that had a mailbox.

23) System prompts: Do you really want to begin restoring (Y or N)?

24) Type "y". DO NOT type a <CR> after the y. System prompts: Do you want to create a runfil for default accounts?

25) Type "n". System begins printing the names of the directories as each is restored. When the list is complete, the system responds:

All done restoring directories.

Restore>

26) Type "quit<CR>". You are back now at the Mini-Exec's period prompt. System prompts: .

27) Type "1". System prompts: LOAD MAG TAPE FROM:

28) Type "mta0:<CR>". System prompts: [Confirm]. Type "<CR>". System prompts: FILE NUMBER

29) Type "2<CR>" (indicates the exec program is to be read into disk). System prompts: .

30) Type "d". System prompts: dUMP USER ADDRESS SPACE ON FILE:

31) Type "exec.sav<CR>". System prompts: [New File] 58) Type another "<CR>".

32) After the exec.sav file is restored, you will be returned to the Mini-Exec period prompt and are now ready to load in the dumper.sav program. System prompts: .

33) Type "1". System prompts: LOAD MAG TAPE FROM

34) Type "mta0:<CR>". System prompts: [Confirm] Type "<CR>". 64) System prompts: FILE NUMBER:

35) Type "1<CR>" (indicates the dumper.sav location). System prompts: dUMP USER ADR SPACE ON FILE:

36) Type "dumper.sav". System responds: [New file] Type "<CR>".

37) Since all the necessary components to restore the disk to pre-crash state have been replaced (dumper program,

top-level exec program and the user directories), you may now begin restoring the user's files by running the dumper program. Dismount the savass tape and mount the first MINI-DUMP tape of the full dump set. Type the following commands:

"S" (see S TART), confirm by typing "<CR>"

At the enabled prompt of "!", type "dumper.sav<CR>"

38) System prompts: DUMPER> Type "restore". System prompts: (tape files) Type "<*>*.:*:<CR>". System prompts: [Confirm] Type "<CR>".

When this first tape has been completely read to disk, it will automatically rewind, then rewind and prompt:

\$End of tape, mount next reel

Tape device (MTAn:)

Dismount the restoral tape and mount the second tape of the full dump set. At the above prompt, type "mta0:<CR>". This new tape will then be read and again prompt for the mag tape unit number when finished. Continue until the entire full dump set has been loaded and you are prompted by:

TOTAL FILES DUMPED = ###

TOTAL PAGES DUMPED = #####

DUMPER>

39) Dismount the last tape of the full dump set. It is now time to load the incremental dump tapes. As you load the incremental dump tapes, you progressively update the files that had been entered from the full dump set and thus you should be careful to mount the incrementals in chronological order. Begin with the tape made right after the full dump and end with the tape made most recently. Use the same procedure used to load the full dump tapes: mount the tape and type "mta0:<cr>".

40) The last tape you must now load is the distribution tape. The distribution tape contains copies of the most up-to-date monitor, bootstrap program, list of BUGHLTS, and so forth enabling you to boot the system from disk. To read the tape into the system, dismount the last incremental tape (i.e. most recent) and mount the distribution tape.

41) At the System prompt: DUMPER> type "quit<cr>" returning you to the "!" prompt.

42) Type "runfil<CR>". System Prompts: COMMANDS FROM FILE:

43) Type "<system>read.distribution<CR>". System reads the files on the distribution tape and when finished, it responds and Prompts:

FINISHED

!

44) Remove the tape from the tape drive.

45) Again, type "runfil<CR>". System Prompts: "COMMANDS FROM FILE:"

46) Type "<xfer>install.distribution<CR>". System distributes the files it just read to the appropriate directories and when completed, Prompts:

FINISHED

!

47) At this point, the system has all the files it needs to come up and run correctly. You may now halt the system (follows Method B in section "HOW TO HALT THE SYSTEM")..

48) Type "quit<CR>". System responds: DO YOU REALLY WANT TO GO INTO THE TENEX MONITOR??? [Confirm] Type "<CR>". System responds: .

49) Type "h". System responds: HALT SYSTEM Type ".". You can now bring up the system again with the disk recovery procedure. (See the section "BRINGING UP THE SYSTEM".)

After the System is Up

Running the CHECKDISK Program Manually

CHECKDISK is a program that checks the address system and page allocation of the disk. CHECKDISK usually is run automatically when you bring up the the system with disk or tape recovery, but if the system is brought up with the standalone procedure or the system rebuild procedure, the CHECKDISK program will not be run and you will need to run CHECKDISK manually. This section explains how to run CHECKDISK manually (from the Executive System). The section "Correcting Errors Found by CHECKDISK" explains how

You can correct problems found by CHECKDISK whether it is run automatically or manually. Do the following steps to run CHECKDISK:

- 1) If the system prompts: @ Type "enable<CR>". System should then prompt: ! If the system first prompts with a !, proceed to step 2).
- 2) Type "<system>checkdisk<ESC><CR>". CHECKDISK Program prompts: Checkdisk running.
Multiple fork mode (Y,N, or ?) ?
- 3) Type "Y". (All answers to CHECKDISK's questions must be capitalized and a single letter.) CHECKDISK prompts: Want to run backwards instead?
- 4) Type "N". CHECKDISK prompts: Rebuild bit table?
- 5) Type "N". CHECKDISK prompts: Scan for disk addresses?
- 6) Type "N".
- 7) CHECKDISK now checks the disk for bad files and prints a list of bad files and their errors. For instructions on dealing with bad files, see the section "Correcting Errors Found by CHECKDISK".

Correcting Errors Found by CHECKDISK

If CHECKDISK finds any file problems, you will not be able to bring up the system all the way and make it available to users. Instead, the system displays the message, "**** August not in operation", stops, and waits for the problem to be corrected.

CHECKDISK runs and lists any "bad" files with Illegal Disk Addresses (IDAs), Multiple Disk Addresses (MDAs) and Bit Table Errors (BTEs). CHECKDISK can correct BTEs, but not IDAs or MDAs. An example of CHECKDISK MDA and IDA report:

```
XXXXXXXXXXXXXXXXX MULTIPLE DISK ADDRESS XXX
x,x,xxx,x,x:DISK ADDRESS IN FILE <DIRECTORYNAME>FILENAME
x PAGE TABLE CONTAINS BAD POINTER
x MULTIPLE FILES USING SAME DISK ADDRESS
```

You must therefore delete and expunge all files reported by

CHECKDISK that are listed as bad files with IDAs or MDAs. You will need to type the entire file name, including all extensions; do not use <ESC> to fill out names. To learn how to delete and expunge files, see the section "Deleting and Expunging Files".

Having deleted and expunged all problem files, you should halt the system with Method A or B, and bring it up with the ubso disk recovery. See the section "DISK Recovery". If CHECKDISK again discovers problems, you will need to repeat the deletion and expunge procedure, halt the system, and once again try disk recovery until successful.

Notify any users whose files you have deleted.

Deleting and Expunging Files

Delete a File

When you need to delete a file because it is a bad file, type the following:

- 1) If system prompts: @ Type "enable<CR>". System should then prompt: ! If the system prompts with an "!", instead of an "@", you can proceed with step 2).
- 2) Type "cd<SP>DIRECTORYNAME<CR>" to connect to the directory that contains the file you want to delete.
- 3) Type "del<SP>FILENAME<CR>". Make sure you type the entire file name including extensions. Do not use <ESC> to fill out the name because the file may not be recognized correctly. Precede all unusual characters in the file name, such as an "^", with <CTRL-V>.
- 4) System might prompt: Cannot delete perpetual file. If you see this prompt, type "not<SP>perpetual<SP>FILENAME<CR>", then delete the file. The system next prompts: !
- 5) Type "expunge<ESC><CR>" to expunge the file(s).
- 6) Remember to connect back to the directory "oper" when you finish deleting files by typing "cd<SP>oper<CR>".

NOTE: Notify any users whose files you have deleted.

Critical Files

Critical files should never be deleted or restored

(unless you are specifically instructed to do so by a systems programmer). Critical files are in the "<system>" directory and are the followings:

Bootstrap.pack-0:1

Bootstrap.pack-1:1

Bootstrap.pack-2:1

Cordmp.256:

Cordmp.512:

Cordmp.768:

Cordmp.1024:

Directory.:1

Dskbtbl.:1

Hombat-1.pack-0:1

Hombat-1.pack-1:1

Hombat-1.pack-2:1

Hombat-2.pack-0:1

Hombat-2.pack-1:1

Hombat-2.pack-2:1

Index.:1

Microcode.pack-0:1

Microcode.pack-1:1

Microcode.pack-2:1

Microdias.pack-0:1

Microdias.pack-1:1

Microdias.pack-2;1

Monitor.pack-0;1

Monitor.pack-1;1

Monitor.pack-2;1

The files Directory.;1 and Index.;1 are extremely critical files. If they ever become bad files, the entire file system is in danger. Run CHECKDISK again and if any of these files turn up with MDA's or IDAs, or bad in any way, contact a system programmer in the Office Automation Division of Tymshare as soon as possible.

Setting the System's Date and Time

If you need to change the date and time shown by the system, type the following:

1) If system prompts with a "@", type "ena<CR>". System should then prompt: !

2) Type "<CTRL-E>set<ESC>DD-MON-YY<SP>HH:MM<CR>". System prompts: [Confirm]. Type another "<CR>". DD (day), YY (year), HH (hour), and MM (minutes) are two-digit numbers. MON (month) is the first three letters of the month. You must type the entire date and time to reset any part of it. System prompts: !

3) Type "day<CR>" to check the new date and time.

FILE STORAGE AND RETRIEVAL

Introduction

You can use the DUMPER.SAV Program to backup files by dumping directory files from the system to a tape, and to restore directory files by loading one or more from a tape to the system. You are given the choices of save (dumping from disk to tape) or restore (loading from tape to disk). The following steps explain what you do to save or to restore one or more directories or one or more files. To save and restore archived files use BSYS program described in the section "Archived Files - BSYS".

DUMPER Program

Save (dump) Onto Tape

The Save command creates a saveset on tape. A saveset is a portion of the tape containing all the source files specified. When specifying files, you can use "*" for wildcard characters in any field. File specifications must be separated with commas, terminated with a carriage return and confirmed with a second carriage return. If you do not specify files to be saved, DUMPER saves all files in your connected directory.

Use an "incremental" save for a daily dump, which saves any modified files, then name the saveset in the format "inre-daydd.mm;#. Use "full" save for a weekly dump, which saves the entire system's files, and name the saveset in the format "fdu#dd.mm". The full dump uses more than one tape. Each tape of the full dump is automatically named "MINI-DUMP TAPE #". (# is the number of the tape. The numbers increment automatically.) Use the Files command to display a listing at the terminal of files saved. The following procedures explain how to run DUMPER for a daily incremental dump and a weekly full dump. Change any incorrectly typed lines by typing or <CRUB>.

Daily Incremental Save

- 1) If the system prompts: @ Type "enable<CR>". System should then prompt: ! If the system first prompts with an "!", proceed to step 2).
- 2) Type "dumper<CR>". System responds and prompts:

AUGUST-DUMPER VERSION 0.0.1 January 21, 1982

DUMPER>

3) Type "tape mta0: <CR>". System prompts: [CONFIRM] Type "<CR>". (Tape drive 0 is the default when you type <CR>.) System prompts: DUMPER>

4) Type "list". System prompts: list (log information on file) Type "<utility>incre-daydd.mm<CR>". System prompts: [NEW FILE] Type "<CR>". The List command lists saved files to this specified file. System prompts: DUMPER>

5) Type "ssname". System prompts: ssname (arbitrary save setname text) Type "incre-daydd.mm<CR>". System prompts: [CONFIRM] Type "<CR>". The ssname is a 30-character or less title for what you are dumping (the name of the saveset). System prompts: DUMPER>

6) Type "incremental (&)*.*;&*<CR>" System prompts: [CONFIRM] Type "<CR>". When the dump is complete, the system responds and prompts:

TOTAL FILES DUMPED = xxx

TOTAL PAGES DUMPED = xxxxxx

DUMPER>

7) Type "quit<CR>". System prompts: !

Weekly Full Save

1) If the system prompts: @, type "enable<CR>". System should then prompt: ! If the system first prompts with an "!", proceed to step 2).

2) Type "dumper<CR>". System responds and prompts:

August-Dumper Version 0.0.1 January 21, 1982

DUMPER>

3) Type "tape mta0: <CR>". (Tape drive 0 is the default when you type <CR>.) System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>

4) Type "list". System prompts: list (log information on file) Type "<utility>FILENAME.EXTENSION;VERSION<CR>". System prompts: [NEW FILE] Type "<CR>". The List command

lists saved files to this specified file. System prompts: DUMPER>

5) Type "<utility>fdu#dd.mm<CR>". System prompts: [NEW FILE] Type "<CR>". System prompts: DUMPER>

6) Type "ssname". System prompts: ssname (arbitrary save set name text) Type "fdu#dd.mm<CR>". System prompts: [CONFIRM] Type "<CR>". The ssname is a 30-character or less title for what you are dumping (the name of the saveset). System prompts: DUMPER>

7) Type "full <*>*.!*:*<CR>". System prompts: [Confirm] Type "<CR>". When the system reaches the end of a tape and more needs to be written, the tape rewinds automatically and the system responds:

\$ End of tape, continue save on

Tape device (MTAn:) >

8) Dismount the tape and mount a clean tape on drive number 0, then type "mta0:<CR>". System prompts: [CONFIRM]. Type another "<CR>". The next tape is automatically labelled and the full dump is continued. Repeat this process until the dump is complete and system responds:

TOTAL FILES DUMPED = ###

TOTAL PAGES DUMPED = #####

9) When you are done with DUMPER.SAV, type "quit<CR>" at the prompt DUMPER>.

10) The entire list of directory names and directory files stored onto each DUMP tape has been recorded in the directory "<utility>" in the file that you specified in the List command. If you did not specify a file, the directory names and files are stored in the highest version of the file "dump.log". If this is the case, then you must rename the file to be the same name as the label header you specified earlier (with "ssname") by typing the following commands:

1) System prompts: ! Type "cd utility<CR>". System prompts: !

2) Type "rename dump.log<ESC>". System prompts: (to be) Type "fdu#dd.mm<CR>". System prompts: [NEW FILE] Type "<CR>". System prompts: !

3) Type "dir fdu#dd.mm<CR>". System responds and prompts:

<UTILITY>

FDU-DAYDD.MM

TOTAL OF XXX PAGES (XXX = NUMBER OF PAGES
DUMPED TO DISK)

!

4) Type "cd oper <CR>".

Specific Directory Dumps

Occasionally, you are asked to save to tape a specific directory(ies). If this occurs, you type the name of the specific directory(ies) in the Save command. Type the following for a specific directory:

1) System prompts: @ Type "enable<CR>". System should then prompt: ! If the system first prompts !, proceed to step 2).

2) Type "dumper<CR>". System responds and prompts:

August-Dumper Version 0.0.1 January 21, 1982

DUMPER>

3) Type "tape mta0:<CR>". System prompts: [CONFIRM] Type "<CR>". System prompts: DUMPER>

4) Type "list". System prompts: list (log information on file) Type "<utility>FILENAME.EXTENSION;VERSION<CR>". System prompts: [NEW FILE] Type "<CR>". The List command lists saved files to this specified file. System prompts: DUMPER>

5) Type "ssname". System prompts: ssname (arbitrary save set name text) Type the same name as you typed for the List command, followed by a "<CR>". System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>

6) Type "save(disk files)<DIRNAME>,<DIRNAME>FILENAME.AUG,<CR>[CONFIRM I<CR>".

Note: Separate more than one directory name with commas, and indicate the list is complete with a <CR>.

Restarting a Dump

If the system crashed during an incremental or full dump, you can restart the dump. Reset the "tapenumber" to be one greater than the last tape number used before the crash. Specify a different saveset name and a new file for the filename listing.

You are also able to restart any restoring process. You can start restoring files on tape from the file specified in the Initial command. (See the section "Restore (load) from Tape onto Disk").

You must first look at the Dump Listing to determine the last file that was successfully dumped before the crash occurred. This information is entered in the Initial command as shown in the following steps.

Follow these steps to restart a dump:

- 1) System prompts: ! Type "dumper<CR>". System prompts: DUMPER>
- 2) Type "initial<SP><DIRNAME>FILENAME.EXT;VERSION<CR>". System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>
- 3) Type "set<SP>TAPENUMBER<CR>". System prompts: [Confirm] Type "<CR>". (TAPENUMBER indicates the number on the tape.) System prompts: DUMPER>
- 4) Type "ssname" and then the same saveset name that you entered previous to the crash, followed by a "<CR>". System prompts: DUMPER>
- 5) Type "list", then the same title as used in the List command that you typed previously to the crash. System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>
- 6) Type "full <*>*.:*;<CR>" to restart a full dump or "incremental <*>*.:*;<CR>" to restart an incremental dump. System prompts: [Confirm] Type "<CR>".

Example

The following example shows that the system

crashed on May 1, on tape set #3, and on file
<system>checkdisk.sav;12.

:dumper<CR>

August-Dumper Version 0.0.1 January 21,1982

DUMPER> INITIAL (filespec)
<system>checkdisk.sav;12<CR><CR>

DUMPER> SET (tape number) 4<CR> [Confirm]<CR>

DUMPER>ssname Fdu#01.05<CR>

DUMPER>list <utility>Fdu#01-Continuation.05<CR>
[Confirm]<CR>

DUMPER>full <*>*..*;*<CR><CR>

Restore (load) From Tape Onto Disk

The restore procedure allows you to transfer requested files or directories from tape to disk. When specifying a file you can use "*" for wildcard characters in any field. You can also rename a file when you restore it by specifying destination file specifications. If you do not specify file specifications, all files saved from your connected directory are restored to your connected directory with the same name, type, and version number.

If you restore a file or directory for a user, you must ask her/him certain questions. Once these questions are answered, you can then do the restoration procedure. If you do not know what tape the requested file is on, you will need to search for the location using the XSEARCH program. The program searches the <utility> directory, which has tape names and contents of both incremental and full dumps for this particular host. If the file is found to be on a full dump, you will need to do a further search for the specific tape. A search of the full dump can be done with the TECO program, or any other editor that you are comfortable using. You can then load the requested file from the tape onto disk.

Directory or Set of Directories

Questions to Ask Before Restoring

Have ALL files been deleted in the directory(ies) to be restored?

If the user answers "yes" to this question, you

should begin the restoration procedure by loading the most recent full dump tape. Next, load the first incremental tape taken after the full dump, then the following incremental tapes up to the tape that is most recent to the date that the user reported an empty directory.

For example, if a user reports that she/he accidentally deleted all the files in her/his directory today (Wednesday, 8/24/84) and wishes the directory restored in full, you would first determine when the last full dump was taken (Saturday, 8/20/84) and which dump tape her/his directory is on, then load this tape of the full dump. Next you would load the incremental dump that was taken after the full dump (Monday, 8/22/84), followed by any incrementals after that up to the most recent (Tuesday, 8/23/84).

Have a SUBSET of files been deleted from the directory(ies) to be restored?

If the user answers "yes" to this question, you should follow the procedure to restore specific files in the section "File or Set of Files".

Procedure for Restoring

If Directory Name on Tape Same as Disk

To restore a single directory from tape to the same directory name on disk using DUMPER, you must first mount the tape on drive number 0, then type in the following:

- 1) System prompts: @ Type "enable<CR>". System should then prompt: ! If the system first prompts with an "!", proceed to step 2).
- 2) Type "dumper<CR>". System prompts DUMPER>
- 3) Type "tape mta0:<CR>". System prompts: [Confirm]. Type "<CR>". System prompts: DUMPER>
- 4) Type "restore <DIRNAME><CR>". System prompts: [Confirm]. Type "<CR>". System prompts: DUMPER>
- 5) Type "quit<CR>".

An example of the Restore command is !Restore

<xfer><CR><CR>. The directory on tape <xfer> is restored to the disk directory of the same name.

If you want to restore more than one directory, simply separate the directory names with commas. For example, !Restore <xfer>,<oper><CR><CR> will restore the directories <xfer> and <oper> to the disk directories of the same names.

If Directory Name on Tape is Different from Disk

To restore a single directory from tape to a different directory name on disk using DUMPER, you must first mount the tape on drive number 0, then type in the following:

- 1) System prompts: @ Type "enable<CR>". System should then prompt: !
- 2) Type "dumper<CR>". System prompts: DUMPER>
- 3) Type "tape mta0:<CR>". System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>
- 4) Type "restore <dirname1><SP><dirname2><CR>". System prompts: [Confirm] Type "<CR>". System prompts: DUMPER>
- 5) Type "quit<CR>".

An example of using the Restore command when the directory name on tape is different from the name on disk is !Restore <xfer><SP><oper><CR><CR>. The directory on tape <xfer> would be restored to the disk directory <oper>.

If you want to restore more than one directory, simply separate the directory names with commas. For example, !Restore <xfer><SP><xfer2>,<oper><SP><oper2><CR><CR> would restore the directories <xfer> and <oper> to the disk directories of the different names. The directory <xfer> would be restored to <xfer2> and the directory <oper> would be restored to <oper2>.

File or Set of Files

Questions to Ask Before Restoring

If you are requested by a user to restore a file, you must first acquire information from the user that you

will need for the restore procedure. Ask the user the following NECESSARY questions:

What is the filename? (include filename, extension and version #)

What is the directory name?

Does this filename already exist within the directory and does it have a lower version number than the one you have been asked to restore? If so, be sure that when you restore a file that has a lower version number, rename the file, prefaced by "old-".

If an AUGMENT file, does this file have a partial copy?

Do you want this file restored to the same directory?

Searching For Requested Files

XSEARCH Program

When you have all of the above information, you can search through the <utility> directory for the tape name on which the requested filename is located using the following procedure:

- 1) System prompts: ! Type "ena<CR>". System should then prompt: !
- 2) Type "cd utility<CR>". System prompts: !
- 3) Type "xsearch<CR>". System prompts: Files To Search:
- 4) Type one of the following choices:
 - *.*:*<CR> (means to search for ALL utility files)
 - *.MM:*<CR> (means to search only utility files from one month)
 - incr-dayDD.MM:#<CR> (means to search for a specific incremental file)
- 5) System prompts: Target 1)
- 6) Type the name of the file you wish restored

in the form FILENAME.EXT;VERSION. Do NOT include the directory name. You can type in portions of the filename if you are not sure of the full filename. You can type "FILENAME" or "FILENAME.EXTENSION". Follow your choice with a <CR>. Type only one choice per target line. You can also use an "*" as a wildcard character in any field of the directory or file that you are restoring.

7) System prompts: Target 2)

8) Continue typing choices as for TARGET 1), completing your choices with a <CR>. When you have completed your choices, type "<CR>".

9) System prompts: Equivalences: 1//:

10) Type "<CR>".

11) System prompts: current expression:
Expression:<CR>

12) Type "<CR>".

13) System prompts: Create .PL Files? NO//:

14) Type "<CR>".

15) System prompts: Output Goes To: * TTY: //:

16) Type one of the following choices:

<CR> (for a terminal printout of search)

filename<CR>[new file]<CR> (for output to this file of search info; delete this file from <utility> directory when completed)

17) System prompts: Type ^Q to abort any particular file search. (^Q indicates <CTRL-Q>.)

18) System prompts: Searching
<UTILITY>INCRE-DUMP.DD-MM-YY:#

19) As the search continues, the system displays a table of the files that match the target files you specified. The table shows which tapes contain the specified files that you want to restore. To continue, start over.

An example of search for filename "blap.aus":

Type ^Q to abort any particular file search.

Searching <UTILITY>AMESSAGE.COPY:1

Searching <UTILITY>ARCHIVE-29-OCT-81.40001:1

Searching <UTILITY>ARCHIVE-BACKLIST.40006:1

Searching <UTILITY>ARCHIVE-LIST.40005:1

(ARCHIVE-LIST.40005:1 18.44) (blap.aus)

BLAP.AUG:i
3 pages

ARCDEV

Searching <UTILITY>FULL-DUMP.11-MAY-82:2

(FULL-DUMP.11-MAY-82:2 10.11) (blap.aus)

BLAP.AUG:2
24-Nov-81 1535

Searching <UTILITY>G00.LOG:1

Searching <UTILITY>INCRE-DAY26.07:i

Searching <UTILITY>INCRE-DUMP.04-MAY-82:1

Searching <UTILITY>INCRE-DUMP.06-MAY-82:1

Searching <UTILITY>INCRE-DUMP.12-MAY-82:1

Searching <UTILITY>MINI-DUMP.LISTING:104

Searching <UTILITY>MINI-DUMP.LISTING:103

Searching <UTILITY>MINI-DUMP.LISTING:102

Searching <UTILITY>MINI-DUMP.LISTING:101

Searching <UTILITY>MINI-DUMP.LISTING:100

Searching <UTILITY>MINI-DUMP.LISTING:99

Searching <UTILITY>PROFILE-SRCH.TXT:1

Searching <UTILITY>^VJARCHIVE-DIRECTORY[:1

Lines recognized = 2

String	Matches	Unrecognized	Matches
--------	---------	--------------	---------

1) "biap.aus"	2	0	
---------------	---	---	--

Letter case ignored ("Ab" = "aB").

Files with no matches: AMESSAGE.COPY;1,
ARCHIVE-29-OCT-81.40001;1, ... ^VJARCHIV

**E-DIRECTORY[:1.

20 files searched, 18 without matches.

^L

...DONE... continue to start over

!

TECO Program

If the <utility> matching file is a full dump tape, it is advisable to use the TECO program to search the full dump file listing for the particular DUMP tape on which the file has been saved. Note: In TECO, <ESC> is a confirmation command, it is not an escape character. The steps for the TECO program are:

1) System Prompts: ! Type "enable". System Prompts: !

2) Type "cd utility<CR>". System Prompts: !

3) Type "teco<CR>". System responds and prompts:

TECO 1.30.05 20-JUN-75

*

4) Type ";<ESC>". System Prompts: INPUT FILE:

5) Type "fdull-day05.06;1<CR> System Prompts:
[Confirm] Type "<CR>".

6) When the file has been "yanked in" by teco,
the system reports the exact character count in
the form:

CHARS

7) System prompts: *

8) Type "sDIRECTORY<CR><ESC>".

9) At this point, you are searching for the
name of the directory in which the restored
file should be found. When the directory name
text has been found, TECO prompts: *

10) Type "25v<ESC>". (Lists the files stored
under the directory name that was specified for
the search. You should see in this list the
filename for which you are searching. Now you
must determine on which dump tape of the full
dump set the file has been saved on.)

11) System prompts: *

12) Type "sDUMPER tape<SPACE><ESC>".

13) The next DUMP tape is located and teco
prompts: *

14) Type "2v<esc>" to list the next two lines
to see the DUMP header line on the terminal.

15) Subtract one increment from the DUMP tape #
reported to ascertain the correct tape number
on which the file can be found. For example,
if you see: DUMPER tape # 3, then you know the
file will be on dump tape number 2.

16) The line that you see is:

DUMPER tape #,	Ssname Given	Date & time stored
----------------	--------------	-----------------------

Procedure for Restoring

If File Name on Tape Same as Disk

To restore a single file from tape to the same
file name on disk using DUMPER, you must first

mount the tape on drive number 0, then type in the following:

- 1) System Prompts: @ Type "enable<CR>".
System Prompts: ! If the system first Prompts with an "!", proceed to step 2).
- 2) Type "dumper<CR>". System Prompts: DUMPER>
- 3) Type "tape mta0:<CR>" System Prompts:
[Confirm] Type "<CR>". System Prompts:
DUMPER>
- 4) Type "restore <dirname>filename1<CR>"
System Prompts: [Confirm] Type "<CR>". System
Prompts: DUMPER>
- 5) Type "rewind<CR>". System Prompts: DUMPER>
- 6) Type "quit<CR>".

An example of the Restore command is >Restore
<xfer>foo.bar;1<CR><CR>. The file on tape
<xfer>foo.bar;1 would be restored to the disk file
of the same name.

If you want to restore more than one file, simply
separate the file names with commas. For example,
>Restore <xfer>foo.bar;1,<oper>bar.foo;10<CR><CR>.
The two tape files would be restored to the disk
files of the same name.

If File Name on Tape Different from Disk

To restore a single file from tape to a different
file name on disk using DUMPER, you must first
mount the tape on drive number 0, then type in the
following:

- 1) System Prompts: @ Type "enable<CR>".
System Prompts: ! If the system Prompts with
an "!", proceed to step 2).
- 2) Type "dumper<CR>". System Prompts: DUMPER>
- 3) Type "tape mta0:<CR>" System Prompts:
[Confirm] Type "<CR>". System Prompts:
DUMPER>
- 4) Type "restore
<DIRNAME>FILENAME1<SP><DIRNAME>NEWFILENAME1<CR>

", and when system prompts with "[Confirm]", type another "<CR>". System prompts: DUMPER>

5) Type "rewind<CR>". System prompts: DUMPER>

6) Type "quit<CR>".

An example of the Restore command is >Restore <xfer>foo.bar;1<SP><oper>bar.foo;10<CR><CR>. The file on tape <xfer>foo.bar;1 would be restored to the disk file name <oper>bar.foo;10.

If you want to restore more than one file, simply separate the file names with commas. For example, <xfer>foo.bar;1<SP><oper>bar.foo;10,<xfer>foo2.bar;1<SP><oper>bar2.foo;10. This would restore files foo and foo2 to files on disks with different names and into different directories.

Archived Files - BSYS

The BSYS (Backup SYStem) Program provides various functions relating to storage and retrieval of files from disk to tape, maintenance of system disk pages and checking file report pointers in the FDBs (File Descriptor Block).

Archiving files refers to the storage of files from disk to tape. Any disk files that users have marked to be stored to tape, as well as any files that have not been examined within a certain period of time (generally 3 months or 1,000 days) are automatically archived and then deleted from disk.

Archive Procedure

Type the following to archive a file from disk to tape:

1) If system prompts: @, type "enable<CR>". System prompts: ! If the system prompts with an "!", you can proceed to step 2).

TENEX-BSYS 5.01.01 23-Sep-76

*

2) Type "bsys<CR>". System responds and prompts: TENEX-BSYS #.##.## DD-MON-YY (time and date)

3) Type "archive". System prompts: (user Files) Type "<CR>". BSYS prompts: Archival Period (days) =

Unless your operating staff has requested otherwise, type "1000<CR>". BSYS then prompts: Listing Only?

This question, and the next three, refer to outputting a list of archivable files to a filename you designate. Since the listing shows total amount of archivable pages BSYS has noted, but does not store the files to tape, you can use this listing to determine if it is worthwhile to run the BSYS Program.

4) If you want only a listing, type "yes". System prompts: [CONFIRM] Type "<CR>". BSYS prompts: Listing to File:

5) Type "nil", if you are on a paper terminal; otherwise, you can indicate a filename for future reference, such as "<oper>archive.list". BSYS prompts: Entire File System?

6) Type "yes". System prompts: [Confirm] Type "<CR>".

7) BSYS prompts: List For users?

This prompt gives you the choice of whether or not to list the files that are being archived to a separate file that you can designate. You would not usually need this list.

8) Type "no". System prompts: [Confirm] Type "<CR>".

Each directory name, followed by its total number of archivable files and its total amount of archivable pages is printed in the following format:

Feedback(##)	# Files
### Pages	
Directory1(###)	## Files
#### Pages	
etc.	

TOTAL ARCHIVABLE FILES = ####

TOTAL ARCHIVABLE PAGES = #####

9) System prompts: *

10) Type "q<CR>" to exit the BSYS procedure. If the total amount of pages exceeds 2,000, continue the archival procedure by running the following preparatory programs. Otherwise, stop here.

11) System prompts: !

12) Type "<peters>prearc<CR>". System prompts: !

13) Type "<peters>archer<CR>". System prompts: !

14) Type "<peters>crarch<CR>". System prompts: !

15) Type "bsys<CR>". System responds and prompts: TENEX-BSYS 5.01.01 23-Sep-76", and returns you to the BSYS prompt "*". Type "archive" and at noisewords (user files) type "<CR>".

TENEX-BSYS 5.01.01 23-Sep-76

*

16) Type "archive". BSYS prompts: (user Files) Type "<CR>". System prompts: Archival Period (days) =

17) Unless you have been requested otherwise by your Operating Staff, type "1000<CR>". BSYS prompts: Listing Only?

18) Type "no". BSYS prompts: [CONFIRM] Type "<CR>". The files are now stored. BSYS prompts: Listing to File:

19) Type a filename, such as "<oper>archive.list" for future reference. BSYS prompts: Entire File System

20) Type "yes". BSYS prompts: [CONFIRM] Type "<CR>". BSYS prompts: List For users?

21) Type "no". BSYS prompts: [CONFIRM] Type "<CR>".

22) Mount a tape to the tape drive unit. BSYS prompts: Enter Tape Unit (MTAn:) Type MTA0:<CR>. BSYS prompts: New Tape?

23) Type "yes<CR>". BSYS prompts: [CONFIRM] Type "<CR>". BSYS prompts: Really?

24) Type "yes<CR>". The tape should begin to spin and each directory name, the directories' archivable filenames, and each directory's archivable pages should be listed as in the following examples:

Feedback(37) Pages	3 Files	418
JPJones(667) Pages	27 Files	1355
etc.		

TOTAL ARCHIVABLE FILES = ####

TOTAL ARCHIVABLE PAGES = #####

25) When complete, system prompts: *

26) Type "archive<CR>" then repeat the procedure from step number 12 to 19 for the purpose of setting a backup copy of the tape set.

27) When the second tape set is complete, system prompts: *

28) Type "q<CR>" to exit the BSYS procedure. System prompts: !

29) Type "deld.sav<cr>". The DELD program connects to each directory and expunges any files that have been marked for deletion. Statements regarding the number of free pages prior to, and after running DELD are listed as in the following example:

START: 1234566 FREE PAGES LEFT

STOP: 1343567 FREE PAGES LEFT

Interrogate Program

To comply with a user's request to restore file(s) from archive, you first need to know on which tape the file or files has been stored. Each directory has an on-line file named Jarchive-directory[.;1 into which the archival process automatically copies the names of the user's files as their files are stored to tape and inserts the archive tape number for future reference. The procedure for you to read a user's archive-directory file and ascertain this tape number is referred to as "interrogate". You will connect to the user's directory and interrogate

for the filename that the user has requested be restored on-line. The system will then report on which tape the file can be found.

- 1) If the system prompts: @, type "enable<CR>". System should then prompt: ! If the system first prompts with a "!", proceed to step 2).
- 2) Type "cd DIRECTORYNAME<CR>".
- 3) Type "INTERROGATE FILENAME.EXTENSION;#<CR><CR>". System responds and prompts:

```
<DIRECTORYNAME>FILENAME.EXTENSION;#
```

```
Archived on tapes ##### and #####
```

```
Do you want it retrieved? (Y or N)
```

- 4) Type "n". System fills out no and returns you to the "!" prompt.

Restoral Process

Same DIRECTORYNAME To Disk

- 1) If the system prompts: @, type "enable<CR>". System should then prompt: ! If the system first prompts with a "!", proceed to step 2).
- 2) Type "cd DIRECTORYNAME<CR>".
- 3) Type "INTERROGATE FILENAME.EXTENSION;#<CR><CR>". System responds and prompts:

```
<DIRECTORYNAME>FILENAME.EXTENSION;#
```

```
Archived on tapes ##### and #####
```

```
Do you want it retrieved? (Y or N)
```

- 4) Type "n". System fills out no and returns you to the "!" prompt.
- 5) Type "<DIRECTORYNAME>FILENAME.EXTENSION;#<CR>" for the file you wish restored to disk.
- 6) When the file is retrieved, system prompts: restore MTAO:
- 7) Hit the DEL key. Tape will automatically rewind and prompt: *

8) Type "quit<CR>" to exit program.

Restoral To Different DIRECTORYNAME On Disk

1) If system prompts: @, type "enable<CR>". System prompts: ! If the system first prompts with a "!", proceed to step 2).

2) Type "bsys<CR>". System prompts:

TENEX-BSYS 5.01.01 23-Sep-76

*

3) Type "single<CR>". System prompts: enter tape unit (mtan:)

4) Type "mta0:<CR>". System prompts:

mounting tape directory

OF#	tape number	#####	archived files	Day, Date
-----	-------------	-------	----------------	-----------

Time

copy MTA0:

5) Type "<directoryname>filename.extension:#<CR>" indicating the file you wish restored from tape. System prompts: to:

6) Type "<DIFFERENTDIRECTORYNAME>FILENAME.EXTENSION:#<CR>" for the file you wish restored to disk.

7) When the file has been retrieved, system prompts: copy MTA0:

8) Hit the DEL key. Tape will automatically rewind and prompt: *

9) Type "quit<CR>" to exit program.

MAINTENANCE

Introduction

You need to follow some general maintenance procedures to keep the system in correct working order. Two maintenance procedures you need to run are BATCON.SAV Program and Bit-Table Rebuild. BATCON.SAV allows users to run batch jobs. The Bit-Table Rebuild increases the number of available pages in the system.

Batch

BATCON INITIALIZATION

The BATCON.SAV Program allows users to submit runfiles (controlling files that process commands in those files as if the user were "live" at the terminal). BATCON.SAV is run as a "sysjob" or a job run under the system. It is included in the directory and file <system>sysjob.run. It is automatically initialized when the system processes the sysjob.run file. However, if you receive a revised BATCON.SAV file or need to stop and restart the BATCON.SAV Program, follow these steps:

- 1) System prompts: ! Type "batch<CR>". System prompts:
*
- 2) Type "status<CR>". System prompts:
PTY: no active jobs
*
- 3) Type "<CTRL-C>". System prompts: !
- 4) Type "cd system<CR>". System prompts: !
- 5) Type "systat<CR>". System responds and prompts:
Job # for BATCON.SAV
!
- 6) Type "logo # <CR>". (# is the ???.) System prompts:
JOB #, Det, BATCON, System [Confirm]
!

7) Type "<CR>". You have now logged off the BATCON.SAV Program. To restart the program proceed with step 8).

8) System Prompts: ! Type "cd system<CR>". System Prompts: !

9) Type "syscom<CR>". System responds: -

10) Type "CRJOB USER SYSTEM,FILE <SYSTEM>BATCON.SAV<CR><CTRL-Z>". System responds:

```
!sysJob: CRJOB USER SYSTEM,FILE <SYSTEM>BATCON.SAV
```

```
!sysJob:
```

11) Type "<CR>". System Prompts: !

12) Type "cd oper<CR>".

Using the SYSCOM Program, you have instructed the system to create a Job for the BATCON.SAV Program.

Bit-Table Rebuild

The Bit-Table Rebuild releases "trapped" disk pages, which increases the number of available pages for the system. This section explains the general steps that you follow to run a Bit-Table Rebuild and shows an example of a Bit-Table Rebuild.

General Steps

1) Bring the system down normally. (See the section on halting the system.)

2) Bring the system up by the Standalone procedure (See the section "Standalone procedure".)

3) Run CHECKDISK Program (say "no" to question for Bit-Table Rebuild) to check for errors on the disk. System reports error conditions, such as Multiple Disk Address (MDA) or Impossible Disk Addresses (IDA), Bad Directory Block, Bad FDB, or Bad pointers. If error conditions are reported, do NOT run the rebuild.

4) If there are no error messages, run CHECKDISK again, and say "yes" to the question for Bit-Table Rebuild and "yes" to the question for flush all user prompts.

5) After Bit-Table Rebuild is complete, halt the system and bring it back up with the normal procedure. (See the section "Bringing Up the System-Normal Procedure".)

The following is an example of a disk rebuild procedure:

System prompts: Eddt

Type "DEBUGSWI". System prompts: T1

Type "2".

Type "Start<ESC>G<CR>". System responds and prompts:

Perini: 512K Physical Core Online

Assigning drum addresses found in BAT Blocks
Assigning disk addresses found in BAT Blocks
Running DDMP

**** August not available.

Welcome To Augment Service From Office-6
Enter Date and Time as MM/DD/YY HH:MM --

Type "07-15-82 02:40". System prompts:

@Sysjob Startedsysjob: sys Job: time is 07-15-82 02:40
@##/##/### #### Tymbase Reset ##/##/## #### Tymbase Up
@

Type "enable<CR>". System prompts: !

Type "<system>checkdisk<CR>". System prompts:

Checkdisk running.

Multiple fork mode (y,n, or ?)

Type "Y". System prompts:

Want to go backwards instead? (y,n, or ?) ?

Type "N". System prompts:

Rebuild Bit Table?

Type "N". System prompts:

Scan for Disc Addresses?

Type "N". System responds and prompts:

Obtaining Bad Spots from BAT Blocks....Done.

Sorted.

Internal Rebuild Gives ##### pages left, ##### pages used.

Initial Bit Table Gives ##### pages left, ##### pages used.

Final Bit Table Gives ##### pages left, ##### pages used.

File Area Bad Spots known to system.

Swapping Area Bad Known to System.

!

NOTE: If you have not received any errors at all during this first running of CHECKDISK, proceed to the next stage and continue with Bit-Table Rebuild. However, if you have received errors, contact your site manager.

Type "<system>checkdisk<CR>". System responds and prompts:

CHECKDISK Running

Multiple Fork Mode (Y,N, or ?)

Type "Y". System prompts:

Want To Go Backwards Instead? (y,n, or ?)

Type "N". System prompts:

Should I flush all users?

Type "Y". System prompts:

No One Else On System? [Confirm] "<CR>"

Type "<CR>". System responds and prompts:

BIT TABLE CLEARED, INCLUDING BAD SPOTS.

OBTAINING BAD SPOTS FROM BAT BLOCKS....DONE.

SORTED.

INTERNAL REBUILD GIVES ##### PAGES LEFT, ##### PAGES USED.

INITIAL BIT TABLE GIVES ##### PAGES LEFT, ##### PAGES USED.

FINAL BIT TABLE GIVES ##### PAGES LEFT, ##### PAGES USED.

FILE AREA BAD SPOTS KNOWN TO SYSTEM.

SWAPPING AREA BAD KNOWN TO SYSTEM.

Type "quit<CR>". System Prompts:

Do you really want to go into the TENEX monitor???
[Confirm]

Type "<CR>". System Prompts with a "."

Type "H". System Prompts: Halt System .

System will then go down and should be brought up with one of the disk recovery procedures. (See the section "BRINGING UP THE SYSTEM".)