DNOS Object
Installation Guide

1.2.0

READ FIRST

Contents

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+-------------------------------------------------------------------+
|                                                                   |
|     READ THIS DOCUMENT BEFORE ATTEMPTING TO  USE  THIS  OBJECT|
|KIT.    IT  DESCRIBES    THE    DNOS    OPERATING  SYSTEM  OBJECT|
|INSTALLATION MEDIA.  THE DISK MEDIUM IS  PART  NUMBER  2276403-|
|1601.   TAPE  MEDIA  INCLUDES PART NUMBERS 2276403-1301 THROUGH|
|2276403-1304  FOR  MT1600  TAPES  AND  CARTRIDGE  TAPES.   THE|
|DISKETTE  MEDIA INCLUDES PART NUMBERS 2276403-1606 AND 2276403-|
|1624 THROUGH 2276403-1632.  YOU SHOULD ALSO  READ  THE  PRODUCT|
|RELEASE   INFORMATION,   PART   NUMBER  2234366-9901,  PRIOR  TO|
|INSTALLATION.                                                      |
|                                                                   |
|TEXAS INSTRUMENTS ASSUMES NO RESPONSIBILITY  FOR  MODIFICATIONS|
|MADE TO THIS OBJECT KIT.                                           |
|                                                                   |
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SECTION 1

Introduction

1.1 GENERAL INFORMATION

This document contains instructions for installing the object of
the DNOS operating system. As a precaution, make a copy of the
object media before proceeding with the installation. For copy
procedures, refer to the DNOS Operations Guide, part number
2270502-9701.

DNOS is a general-purpose, multitasking operating system designed
to operate with the Model 990/10, 990/10A or 990/12 computers and
the Business System 300, 600, and 800 series of computers. DNOS
includes a sophisticated file management package that provides
support for key-indexed, relative record, and sequential files.
DNOS is a multiterminal system which allows several users to
appear to have exclusive control of the system. Job-level and
task-level operations enable comprehensive and efficient use of
the system resources.

DNOS is an international operating system designed to meet the
commercial requirements of the United States, most European
countries, South America, and Japan. DNOS supports a wide range
of international data terminals that permit users to enter, view,
and process data in their own languages. This object kit includes
system message files and command procedure batch streams which you
can edit into a language other than English.

For further details about the operating system, refer to the DNOS
Concepts and Facilities Manual, part number 2270501-9701.

For a list of current known problems, refer to the DNOS 1.2
Release and Update Information, part number 2234366-9901.

Execute the System Command Interpreter (SCI) commands in this
document by entering the commands exactly as they are shown. If
there is no initial value displayed on the screen or specified in
this manual for a prompt, press Return to use the default value.
For a discussion of the SCI commands and their responses, refer to
the DNOS System Command Interpreter (SCI) Reference Manual, part
number 2270503-9701.

The prompts displayed at your terminal during execution of the
Disk Build and Tape Build utilities may be lined up in TTY mode at
the left margin of your terminal, rather than indented in VDT mode

as they are in this manual. The manual format was chosen for readability; the software format was chosen for coding efficiency.

Throughout this guide, references to keys on terminal keyboards are made by generic key name. A table of generic key names and their terminal equivalents is found in each of the DNOS user manuals. Consult Appendix A of any of those manuals for which key to use in cases where the generic name is not sufficient.

1.2   MEDIA DEFINITION

Product shipments are made in three formats:

* <u>Disk</u> -- A DS25, DS50, DS80, DS200, DS300, or CD1400 disk pack

* <u>Diskette</u> -- A set of ten double-sided, double-density diskettes containing the object

* <u>Tape</u> -- Four 1600 bits per inch (bpi) magnetic tapes or cartridge tapes (CT) containing the object

1.3   INSTALLATION PROCEDURE

The DNOS object kit contains all files necessary to form a DNOS system which is ready for initial program load (IPL). The object kit includes the following major components, along with several other files and directories:

* .S$SHIP -- System kernel program file

* .S$UTIL -- Utility program file

* .S$CMDS -- SCI command procedure library

* .S$USER -- User ID library

* .S$LANG -- Assembler and Link Editor program file

* .S$SECURE -- File security tasks

* .S$MSG -- Basic error message library

* .S$EXPMSG -- Expanded error message library

The first IPL creates the user ID library and defines SYSTEM and SYSMGR as available user IDs for the first log-on procedure. If you are going to use the file security option on your system, read the <u>DNOS Security Manager's Guide</u>, part number 2308954-9701,

before building your system disk. If you plan to use security, you need to plan your system disk security before the first users log on to the new system.

The object kit also contains the object libraries needed for custom system generations. If the object kit is shipped on magnetic tapes or double-sided, double-density diskettes, it includes a program that allows you to build a DNOS system onto your system disk.

1.4   HARDWARE CONFIGURATION

The DNOS object kit supports the following base hardware configuration in the .S$SHIP system:

TYPE(number)	ADDRESS	INTERRUPT	
Disk (3)	TILINE >F800	13	
Tape (1)	TILINE >F880	9	
911 VDT	CRU >0100	10	
931 or 940 VDT	CRU >1700 (S300, CI402, or /10A)	8	9600 Baud
931 or 940 VDT (channel 0)	TILINE >F980 (CI403 or CI404)	11	9600 Baud

The object kit supports three disk drives, as noted in the table. Any additional devices you need to support can be added by a system generation or a dynamic system configuration session. Refer to the DNOS System Generation Reference Manual, part number 2270511-9701, for details.

The base system needed to build your system disk varies, depending on how your object kit is shipped to you. Section 2 describes the configuration required for the object installation when using disk, tapes, or diskettes. If your hardware configuration does not meet the configuration required for installation, you must reconfigure it before installing DNOS.

If you are building your system onto an S300 system, that system must have at least 512K bytes of memory and a system disk of at least 16MB in capacity. (One K equals 1024 bytes.)

SECTION 2

Installing the Object

2.1 INTRODUCTION

The following paragraphs describe the DNOS object installation
procedures for disk, tape, and diskette formats. Initial program
load (IPL) instructions are included for each different type of
system chassis, since IPL procedures differ for the Business
System computers, the 990/10, 990/10A, and the 990/12 systems.

2.2 DISK FORMAT

To install DNOS from an object kit shipped on disk, your hardware
must contain the standard ROM loader, have two disks, and at least
one of the VDTs in this configuration:

TYPE(number)	ADDRESS	INTERRUPT	
Disk (3)	TILINE >F800	13	
Tape (1)	TILINE >F880	9	
911 VDT	CRU >0100	10	
931 or 940 VDT	CRU >1700 (S300, CI402, or /10A)	8	9600 Baud
931 or 940 VDT (channel 0)	TILINE >F980 (CI403 or CI404)	11	9600 Baud

No other devices that can issue interrupts should be attached to
the system during the build process.

The terminal listed as a 931 or 940 is generated as a 931; if you
are using a 940, you need to modify your configuration after
building your system disk to make appropriate use of the 940 VDT.
You can modify the configuration with either the system generation
utility using the XSGU command or the system configuration utility
using the XSCU command. Refer to the DNOS System Generation
Reference Manual for details about using these commands.

Perform these steps to install the DNOS object:

1. Insert the shipped system disk in unit 0 of the system
   disk drive and prepare it for use.

2. Perform the IPL procedure that applies to your hardware.

   * If you have a 990/10 or 990/12 system, perform
     the following steps:

     a. Press HALT/SIE
     b. Press RESET
     c. Press LOAD

   * If you have a 990/10A computer or a Business
     System 600 or 800, perform the following steps:

     a. Press HALT
     b. Press LOAD

   * If you have an S300 system, perform this
     sequence:

     a. Write-protect all disks except the DNOS
        object disk.
     b. Turn off the power to the computer.
     c. Turn on the power to the computer.

   Wait for all system activity to cease. If you are using
   a 990/10 or 990/12, wait until all of the data lights on
   the programmer panel are off. If you are using a
   990/10A or a Business System 600 or 800, wait until the
   display shows 0000 on the front panel. This may take
   some time since the first IPL of the system must create
   several structures. These structures include a user ID
   defined for the first log-on, system swap files, and a
   number of interprocess communication (IPC) channels.

   During the first IPL, DNOS checks to see that your crash
   file is large enough to hold the entire system image in
   the case of a system crash. If the file is not large
   enough, DNOS makes it larger and then forces a crash to
   happen so that the new crash file is ready for use. The
   crash code in this case is >163. If the >163 crash
   occurs, go through the IPL sequence again; the crash
   file is now usable. (A right angle bracket (>) before a
   number indicates a hexadecimal value.)

3. Log on at a terminal by pressing the Attention key and
   then the exclamation mark (!).

4. If no one else has logged on, the screen displays the
   following message and prompts:

          INITIALIZE DATE AND TIME
          YEAR: <year>
          MONTH: <month>
          DAY: <day>
          HOUR: <hour>
          MINUTE: <minute>

   where you respond as follows:

          <year>   is a two- or four-digit integer
                      representing the current year.

          <month>   is a one- or two-digit integer
                      representing the current month.

          <day>   is a one- or two-digit integer
                      representing the current day.

          <hour>   is a one- or two-digit integer
                      representing the current hour
                      according to the 24-hour clock.

          <minute>   is a one- or two-digit integer
                      representing the current minute.

5. The system identifier appears next. DNOS x.x.xx will
   appear, where x.x.xx is the current release version of
   DNOS.

6. The JOB NAME prompt appears next. Enter a one- to
   eight-character alphanumeric string (for example, your
   name).

SCI is now active and the SCI prompt ([]) appears in the lower
left corner. Proceed to Section 3 to back up your new system
disk.

2.3 TAPE FORMAT

You received four tapes containing the DNOS object. These tapes are labeled DNOS OPERATING SYSTEM BUILD TAPE, DNOS OPERATING SYSTEM BACKUP TAPE VOLUME 1, DNOS OPERATING SYSTEM BACKUP TAPE VOLUME 2, and DNOS OPERATING SYSTEM BACKUP TAPE VOLUME 3. Throughout the instructions, we will refer to them by shorter names. The first tape will be referred to as Build Tape. Each of the others will be referred to as Backup Tape with the appropriate volume indicator.

Use the tape labeled Build Tape and the tape labeled Backup Tape-Volume 1 to build the DNOS system disk. If you plan to use the system generation utility to generate a system after you build the system disk, you must restore the linkable system generation parts from Backup Tape-Volume 2. If you plan to use the system configuration utility to modify the shipped system, you must restore Backup Tape-Volume 2 and preserve at least the device service routines (DSRs) on a system or data disk. Use Backup Tape-Volume 3 to restore expanded messages and special files that you need to internationalize the DNOS messages and command procedures.

To build a DNOS system disk from tape, your disk must be at least 16 MB (for example, a CD1400).

Your system must be a standard configuration. It may be a Business System 300 as shipped. It may be a 990/10, 990/10A, 990/12, or a Business system 600 or 800 with a standard ROM loader, at least one disk drive, at least one magnetic tape drive, and at least one VDT from the following configuration:

TYPE(number)	ADDRESS		INTERRUPT	
Disk(1)	TILINE	>F800	13	
Magnetic tape(1)	TILINE	>F880	9	
911 VDT	CRU	>0100	10	
931 or 940 VDT	CRU	>1700	8	9600 Baud
	(S300, CI402, or /10A)			
931 or 940 VDT (channel 0)	TILINE	>F980	11	9600 Baud
	(CI403 or CI404)			

Your hardware may contain more than one magnetic tape drive at the specified location, but you must build from unit 0.

Note that the terminal shown as a 931 or 940 is generated as a 931. If you are using a 940, you need to modify your configuration after building your system disk to make appropriate use of the 940 VDT. You can modify the configuration with either the system generation utility using the XSGU command or the system configuration utility using the XSCU command. Refer to the DNOS System Generation Reference Manual for details. You can do this modification with XSGU only after you have restored the system generation parts from Backup Tape - Volume 2.

Perform these steps to build the DNOS system disk from tape:

1. Mount the tape labeled Build Tape on the tape drive with the write-protection enabled. Prepare the drive for use.

2. Insert a disk in the system disk drive and prepare it for use with the write-protection enabled. (This disk will be referred to as the target disk.)

3. To start the Tape Build process, perform the steps that apply to your hardware. For all but the S300 system, the fault light will come on for several seconds after this sequence, with a code of hexadecimal 0100 showing on the front panel.

   * If you have a 990/10 or 990/12 system, perform these steps on the programmer panel:

       a. Press HALT/SIE
       b. Press CLR
       c. Enter >0082 on the programmer panel
       d. Press ENTER MA
       e. Press CLR
       f. Enter >F880 on the programmer panel
       g. Press MDE
       h. Press MAI
       i. Press CLR
       j. Enter >8000 on the programmer panel
       k. Press MDE
       l. Press LOAD

   * If you have a 990/10A or a Business System 600 or 800, perform these steps on the front panel:

       a. Press HALT
       b. Press ALTERNATE LOAD

   * If you have an S300 system:

       a. Turn off the power to the computer
       b. Turn on the power to the computer

4. The disk to which you are building will be initialized
    during the build process. The effect will be the same
    as if you had issued an Initialize New Volume (INV)
    command with the FORCED CLEARING OF DISK response of NO.
    As the build is done, a Tape Build program is read from
    the tape and sent to memory. This program uses a DX10
    operating system to do the build process. Depending on
    the type of terminal you use, you may see a DX10 system
    banner on the screen as the build starts.

    When the Tape Build program begins execution, the
    following message and prompt are displayed on one or all
    of the terminals. If you are away from the terminal and
    do not respond in five minutes, the system will crash
    with a code of >144. If this happens, restart the build
    process.

        DISK BUILD UTILITY
        DO YOU WANT TO CHANGE ANY DEFAULT VALUES? (Y/N):

    If you respond N and accept the default values, the Tape
    Build program will use its own values for the following
    items:

        *   The volume name of the disk being built, using
            the current volume name of the disk if it has
            one. The name SYSTEM is used if the volume
            currently has no name.

        *   The standard IDS default for medium testing
            level.

        *   The standard INV defaults for the physical
            record size, the number of VCATALOG (volume
            directory) entries, and the hardware
            interleaving factor while initializing the disk
            being built. These defaults are based on the
            type of disk being initialized.

        *   A bad track map, allowing you to enter none as
            the disk is initialized.

    At this point, remove the write protection from the
    target drive. Answer N to this question if do not want
    to make any changes. Answer Y if you want to make any
    changes to the items in the preceding list as the build
    proceeds. If you answer Y, the build utility assumes
    that you know exactly what responses to give for the
    questions that follow; there are few chances for
    retrying answers to questions.

    Whether you enter Y or N, the terminal you are using
    remains active. All other terminal screens that

displayed the introductory message are cleared. A digital clock display appears in the bottom right corner of your screen and monitors the execution time of the Tape Build utility. It is updated at intervals that vary depending on the type of disk you are building; the intervals may be several seconds to several minutes long.

Tape Build now inspects the target disk and evaluates its condition. It will find the disk to be in one of two states, needing a surface analysis or needing an initialization of the volume. Your actions are outlined as Case 1 and Case 2 below. Follow the set of instructions for the case that begins with the message you see next.

a. CASE 1. If Tape Build does not find a bad track map on the target disk, the disk must have its surface analyzed for defects. The following message appears:

DISK REQUIRES SURFACE ANALYSIS

*   If you answered N to the prompt to change defaults, the following message now appears as Tape Build begins the work of analyzing and formatting the disk.

BEGIN STEP 1.

Tape Build automatically issues an Initialize Disk Surface (IDS) command, which analyzes the target disk for physical flaws and lists the location of any flaw on a bad track map.

When the IDS is complete, Tape Build performs an Initialize New Volume (INV) command, which creates VCATALOG, assigns a volume name, and installs the volume on the target disk. In this case Tape Build uses default values for the INV parameters. For details about the prompts shown for initializing the disk, see the descriptions of the IDS and INV commands in the DNOS System Command Interpreter (SCI) Reference Manual.

Proceed to step 5.

*   If you answered Y to the prompt to change defaults, the following prompts appear.

```
                       VOLUME NAME: SYSTEM
              NUMBER OF VCATALOG ENTRIES:
           DEFAULT PHYSICAL RECORD SIZE: <initial value>
                    INTERLEAVING FACTOR:
                 RESTORE BAD TRACK LIST?:
```

When you have answered this set of prompts, the
following messages appear:

BEGIN STEP 1.

ENTER HEAD AND CYLINDER ADDRESSES OF KNOWN BAD TRACKS.
ENTER THE ADDRESSES ONE PER LINE.
END THE LIST BY ENTERING RETURN ONLY FOR THE NEXT HEAD.
 HEAD #

Enter the addresses of any known bad tracks on this
volume. Enter the decimal number for the head on the
line prompting HEAD #. Then press the Return key.
Do not use any special characters such as commas or
semicolons. Tape Build will then prompt with
CYLINDER #. Enter the decimal value of the cylinder
number immediately after this prompt. Then press the
Return key. Do not use any special characters such
as commas or semicolons. Tape Build will then prompt
you for the next head and cylinder number in the same
manner. When the list of head and cylinder pairs is
complete, press only the Return key in response to
the HEAD # prompt to terminate your input.

Proceed to step 5.

b. CASE 2. If Tape Build determines that no surface
analysis is needed, only the INV process is
required. The following message appears:

DISK REQUIRES INITIALIZATION

* If you answered N to the prompt to change
defaults, the following message appears as the INV
is started:

BEGIN STEP 1.

Proceed to step 5.

* If you answered Y to the prompt to change
defaults, the following message appears:

PERFORM INV?

If you want to reformat the disk (the equivalent of the INV command with FORCED CLEARING OF DISK set to YES), answer Y to this prompt. Otherwise, answer N. If you answer N, the INV will be done with the equivalent of FORCED CLEARING OF DISK set to NO. If you answer Y, you are given the option to force surface analysis of the disk. The following prompt appears:

PERFORM IDS?

If you want to have the surface analyzed, answer Y. Otherwise, answer N. The following prompts appear next. (The RESTORE BAD TRACK LIST prompt appears only if you responded Y to PERFORM IDS.)

```
                             VOLUME NAME: SYSTEM
                  NUMBER OF VCATALOG ENTRIES:
                 DEFAULT PHYSICAL RECORD SIZE:
                          INTERLEAVING FACTOR:
                      RESTORE BAD TRACK LIST?:
```

When you have answered this set of prompts, the following messages appear:

BEGIN STEP 1.

ENTER HEAD AND CYLINDER ADDRESS OF KNOWN BAD TRACKS.
ENTER THE ADDRESSES ONE PER LINE.
END THE LIST BY ENTERING RETURN ONLY FOR THE NEXT HEAD.
 HEAD #

Enter the addresses of any known bad tracks on this volume. Enter the decimal number for the head on the line prompting HEAD #. Then press the Return key. Do not use any special characters such as commas or semicolons. Tape Build will then prompt with CYLINDER #. Enter the decimal value of the cylinder number immediately after this prompt. Then press the Return key. Do not use any special characters such as commas or semicolons. Tape Build will then prompt you for the next head and cylinder number in the same manner. When the list of head and cylinder pairs is complete, press only the Return key in response to the HEAD # prompt to terminate your input.

5. If Tape Build is performing the IDS command, a graph may be displayed showing IDS progress. If you answered YES to PERFORM INV?, the display shows the tracks being formatted. If the disk contains bad tracks, a bad track list will be displayed upon completion of the disk initialization.

6. When the target disk is logically installed, the Tape
   Build program copies the remainder of the Tape Build
   operating system software from the tape to the target
   disk.   During this process, the following message
   appears on the terminal:

       BEGIN STEP 2.

   The system files are being recreated for the system that
   builds DNOS. As directories and files are created,
   their names appear on the screen:

       ** VCATALOG **
       ** S$DIAG   **
       ** S$ROLLA **
       ** B$LOADER **
       ** B$PROC   **
       ** B$OVLYA **
       ** S$IMAGES **
       ** B$PROGA **
       ** B$PASS   **

7. Tape Build automatically loads the system using the
   newly-created files on the target disk. The following
   message appears:

       REMOVE INITIAL BUILD MEDIA.
       THEN TYPE Y TO CONTINUE:

   Unload and remove the tape. With the tape removed from
   the drive, respond Y and press the Return key. The
   following message appears:

       SYSTEM LOAD INITIATED - WAIT ONE MINUTE.
       IF NO MESSAGES APPEAR, START OVER AT STEP 1.

   If the tape remains mounted, the system might not load
   from the disk.   In this case, to load the system you
   need to remove the tape and perform the standard initial
   program load sequence.

   *   If the load is successful, the following
       message appears on the terminal:

           MOUNT BACKUP DATA VOLUME 1
           THEN TYPE Y TO CONTINUE:

       BACKUP DATA VOLUME 1 refers to the tape
       labeled Backup Tape-Volume 1.

   *   If a message does not appear on the screen
       after one minute, the load process was not
       successful and the data lights on the front

panel will display a crash code. Refer to the
DNOS Messages and Codes Reference Manual, part
number 2270506-9701, for an explanation of the
crash code. Correct the cause of the crash and
repeat the Tape Build procedure from the
beginning.

8. Mount Backup-Volume 1 on the tape drive. When the tape
   is ready, type Y and press the Return key to continue
   the build process. A response other than Y causes the
   message THEN TYPE Y TO CONTINUE: to reappear. (Typing
   the dollar ($) sign aborts the Tape Build process.)

9. Tape Build issues a Restore Directory (RD) command to
   copy the DNOS operating system from tape to the target
   disk. The following message appears on your screen:

   BEGIN STEP 3.

   During STEP 3, Tape Build deletes the .S$USER directory
   and the following files since they could cause a
   conflict with the new system:

   .S$UTIL
   .S$SHIP
   .S$LANG
   .S$SHARED
   .S$CLF
   .S$SCA
   .S$SDTQUE (file or directory)

10. After Tape Build copies Backup Tape-Volume 1 of the
    object kit to the target disk, the following message
    appears:

    BUILD PROCESS COMPLETED
    REMOVE BACKUP MEDIA.
    THEN TYPE Y TO CONTINUE:

11. Unload and remove the tape. With the tape removed from
    the drive, respond Y and press the Return key. The
    following message appears:

    SYSTEM LOAD INITIATED - WAIT 1 MINUTE.
    THEN LOG ON.

12. After four seconds, the system executes an IPL.   The
    terminal screen is cleared. When the IPL is complete,
    the following banner is displayed to 911 terminals:

    * TEXAS INSTRUMENTS * DNOS "S$SHIP" SYSTEM IPL * STxy *

where:

STxy is the station number of your terminal.

Wait for all system activity to cease. If you are using a 990/10 or 990/12, wait until all of the data lights on the front panel are off. If you are using a 990/10A or a Business System computer, wait until all the lights show 0000 on the front panel. This may take some time since the first IPL of the system must create several structures. These structures include a user ID defined for the first log-on, system swap files, and a number of interprocess communication (IPC) channels.

During the first IPL, DNOS checks to see that your crash file is large enough to hold the entire system image in the case of a system crash. If the file is not large enough, DNOS makes it larger and then forces a crash to happen so that the new crash file is ready for use. The crash code in this case is >163. If the >163 crash occurs, go through the IPL sequence again; the crash file is now usable.

13. Log on at a terminal by pressing the Attention key and then the exclamation mark (!).

14. If no one else has logged on, the screen displays the following message and prompts:

        INITIALIZE DATE AND TIME
        YEAR: <year>
        MONTH: <month>
        DAY: <day>
        HOUR: <hour>
        MINUTE: <minute>

where you supply the following responses:

    <year>   is a two- or four-digit integer
                representing the current year.

    <month>   is a one- or two-digit integer
                representing the current month.

    <day>   is a one- or two-digit integer
                representing the current day.

    <hour>   is a one- or two-digit integer
                representing the current hour
                according to the 24-hour clock.

    <minute>   is a one- or two-digit integer
                representing the current minute.

15. The JOB NAME prompt appears next. Enter a one- to eight-character alphanumeric string (for example, your name).

    SCI is now active and the SCI prompt ([]) appears in the lower left corner.

16. To change your terminal from TTY mode to VDT mode for easier use, issue the following commands.

    a. Issue the Show Terminal Information (STI) command to determine your station number. It will appear as STxy, where x and y are single decimal digits.

    b. Execute the Modify Terminal Status (MTS) command with the following responses:

```
             [] MTS
             MODIFY TERMINAL STATUS
                         TERMINAL NAME: STxy
                    NEW STATUS (ON/OFF): ON
                     NEW MODE (TTY/VDT): VDT
                 DEFAULT MODE (TTY/VDT): VDT
                       ASK FOR USER ID?: YES
                      ASK FOR JOB NAME?: YES
                    ASK FOR ACCOUNT ID?: NO
             ASK FOR NAME MANAGER FILES?: NO
                     RECONNECT ENABLED?: NO
                 SUPPLY ACCOUNT ID
                 DEFAULT ACCOUNT ID:
```

       where:

             STxy indicates your station number.

    c. Enter the Quit SCI (Q) command to log off.

    d. Log on again by pressing the Attention key and then the exclamation mark (!).

e. This message and these prompts appear:

DNOS x.x.xx

    USER ID: SYSTEM
    PASSWORD:
    JOB NAME: <job name>

where:

        x.x.xx   indicates the released version
                      of DNOS.

        <job name> is a one- to eight-character
                   alphanumeric   string   (for
                   example, your name).

    SCI is now active and your terminal is in VDT
    mode.

17. The following file and directory names are reserved;
    they are created during the Tape Build process. They
    are deleted during an IPL of DNOS. Therefore you should
    not use these names for your own files.

        .B$PROGA
        .B$LOADER
        .B$PASS
        .B$OVLYA
        .S$BGTCA
        .S$FGTCA
        .S$ROLLA
        .S$SLG1
        .S$SLG2
        .S$TCALIB

    The file .B$LISTRD is a Restore Directory (RD) listing
    of the system just built. Examine it if you wish; you
    can delete it with the Delete File (DF) command.   There
    is also a directory created for the build process named
    .S$PROC. Delete it by issuing the Delete Directory (DD)
    command.

18. Backup Tape-Volume 2 contains the linkable parts needed
    to do a system generation or system configuration
    session. You can restore Backup Tape-Volume 2 to your
    new system disk if it is a 16 MB CD1400 or larger disk. *7MB*
    Otherwise, use another disk of at least 5MB capacity for
    Backup Tape-Volume 2. Insert the disk in a drive and
    prepare it for use.

19. Mount Backup Tape-Volume 2 on an available tape drive
    and prepare it for use.

20. Enter the Restore Directory (RD) command with the
    following responses:

    RESTORE DIRECTORY
         SEQUENTIAL ACCESS NAME: MTxy
            DIRECTORY PATHNAME: <volume name>
         CONTROL ACCESS NAME:
         LISTING ACCESS NAME:
                    OPTIONS: REPLACE,NOREWIND
         EXECUTION MODE(F,B): FOREGROUND

    where:

        MTxy   indicates the tape drive you
                             are using.

        <volume name> is the name of the volume
                             that receives the restored
                             directory.

    Backup Tape-Volume 3 contains the expanded error message
    files in the .S$EXPMSG directory. You need these files
    if you plan to use the Show Expanded Message (SEM)
    command or the question mark (?) to display
    explanations of messages appearing at your terminal.
    Backup Tape-Volume 3 also contains the text editable
    versions of the DNOS messages and SCI command
    procedures. (Refer to the DNOS System Programmer's
    Guide, part number 2270510-9701, for details about using
    the messages and SCI command procedures.)

    If you want to use the DNOS expanded messages or if you
    want to modify DNOS for internationalization purposes,
    you need to restore Backup Tape-Volume 3 to a disk. If
    you are not providing versions of DNOS in languages
    other than English, you can delete the .BATCH and
    .MESSAGES directories after you restore the tape.

21. To restore Backup Tape-Volume 3 to a disk, perform the
    following steps. You can restore Backup Tape-Volume 3
    to your new system disk if it is a 16 MB CD1400 or

larger disk. Otherwise, use another disk of at least
5MB capacity for Backup Tape-Volume 3. Insert the disk
in a drive and prepare it for use.

22. Mount Backup Tape-Volume 3 on an available tape drive
    and prepare it for use.

23. Enter the RD command with the following responses:

        RESTORE DIRECTORY
            SEQUENTIAL ACCESS NAME: MTxy
               DIRECTORY PATHNAME: <volume name>
               CONTROL ACCESS NAME:
               LISTING ACCESS NAME:
                          OPTIONS: REPLACE,NOREWIND
            EXECUTION MODE(F,B): FOREGROUND

    where:

        MTxy   indicates the tape drive you
                        are using.

        <volume name>   is the name of the volume
                        that receives the restored
                        directory.

Proceed to Section 3 to back up your system disk.

2.4   DISKETTE FORMAT

The object kit on diskette is in the following portions:

* 1 diskette labelled DNOS12DB – the build diskette for restoring the bootable system

* 3 diskettes labelled DX – Volume 1, 2, and 3 – the bootable system to be restored by Disk Build

* 4 diskettes labelled DNLINK12 – Volume 1, 2, 3, and 4 – the linkable parts for system generation

* 1 diskette labelled DNEXPM12 – the .S$EXPMSG directory of message explanations and user actions

* 1 diskette labelled DNINTL12 – the text files for messages and proc batch streams, to allow for editing into international versions

To build a DNOS system disk from diskette, your disk must be at least 16 MB (for example, a CD1400).

Your system must contain the standard ROM loader. The system must include a disk drive, a diskette drive, and at least one VDT in the following configuration:

TYPE(number)	ADDRESS	INTERRUPT	
Disk or Diskette(4)	TILINE >F800	13	
Disk or Diskette(4)	TILINE >F820	9	
911 VDT	CRU >0100	10	
931 or 940 VDT	CRU >1700 S300, CI402 or /10A	8	9600 Baud
931 or 940 VDT (channel 0)	TILINE >F980 CI403 or CI404	11	9600 Baud

If you are using a 940 or 931 VDT, the shipped configuration supports it directly connected at 9600 baud. Note that the configuration is generated with the VDT as a 931; if you are using a 940, you need to modify your configuration after building your system disk to make appropriate use of the 940 VDT. You can modify the configuration with either the system generation utility using the XSGU command or the system configuration utility using the XSCU command. Refer to the DNOS System Generation Reference Manual for details.

Use this build procedure to restore the shipped DNOS system from diskette to disk. You can also use this build procedure to restore any system that you save to diskettes. You need to ensure that the configuration on the system you save has both disk and diskette drives. To restore your own saved system, use the initial build diskette (DNOS12DB) and your set of backup diskettes that contain the operating system and files. You can build the backup diskettes using the Backup Directory (BD) command. More information on this system backup and restore procedure can be found in the DNOS Operations Guide, part number 02770502-9701.

The build procedure initiates and executes the Disk Build utility. If you need to terminate Disk Build prematurely, enter a dollar sign ($) in response to any of the prompts.

Perform the following steps to build the DNOS system disk from diskette:

1. Insert the DNOS12DB diskette in the primary diskette drive. Do not write-protect the diskette.

2. Insert a disk that can contain at least 16 MB (for example, a CD1400) in an available drive with the write-protection enabled. (This disk will be referred to as the target disk.)

3. To load the Disk Build utility from the diskette to system memory, perform the steps that apply to your hardware.

   * If you have a 990/10 or 990/12 system, perform the following steps on the programmer panel:

        a. Press HALT/SIE
        b. Press CLR
        c. Enter >0082 on the programmer panel
        d. Press ENTER MA
        e. Press MDD
        f. Enter >F820 on the programmer panel
        g. Press MDE
        h. Press LOAD

   * If you have a 990/10A or a Business System 600 or 800 computer, perform the following steps on the front panel:

        a. Press HALT/SIE
        b. Press ALTERNATE LOAD

   * If you have an S300 system, perform this sequence:

        a. Write-protect all disk drives except the one

that has the DNOS build diskette.
b. Turn off the power to the computer.
c. Turn on the power to the computer.

4. The Disk Build utility is read from the diskette and sent to memory. This utility uses a DX10 system to do the build. Depending on the type of terminal you are using, you may see a DX10 banner on your screen for a short time when the build begins.

When Disk Build begins execution, the following message and prompt are displayed on the terminals in the base configuration. If you are away from the terminal and do not respond in five minutes, the system will crash with a code of >144. If this happens, restart the build process.

      DISK BUILD UTILITY
      DO YOU WANT TO CHANGE ANY DEFAULT VALUES? (Y/N):

If you answer Y, you will have three opportunities to change default values during the execution of Disk Build:

   * Before Disk Build is copied from the initial build diskette to the target disk, you can change the default volume characteristics of the target disk.

   * When Disk Build is being loaded, you can specify the location of the target disk.

   * Before Disk Build restores the first backup diskette to the target disk, you can name your backup file.

At this point, turn off the write protection on the target disk drive. If you need to change any of the default values, enter Y in response to the prompt. Otherwise, enter N.

After your response to the prompt, only your terminal remains active; other terminals displaying the message are cleared. A digital clock display appears in the lower right corner of your screen and monitors the execution time of the Disk Build utility. It is updated at intervals that vary depending on the type of disk you are building; the intervals may be several seconds to several minutes long.

5. If you answered N to change the default values, skip this step. If you answered Y to change the default values, the following message and prompt will appear on

the screen. The contents of this message vary with each
system, depending on the drives that are configured and
online. The following is an example of a typical
message and prompt:

```
SYSTEM WILL BE BUILT ON ONE OF THE FOLLOWING DISKS:
    ID    ADDRESS    UNIT      INTERRUPT     TYPE
    1     F800        01          13        DS50  - 50M
    2     F800        00          13        DS50  - 50M
    3     F820        00           9        FD1000 - 1M
    INPUT ID NUMBER OF DESIRED DISK UNIT:
```

The table in your message shows all of the disks that
are online in your computer system. This list includes
the disk from which disk build is running; you cannot
specify this disk as your new system disk. Choose the
disk unit that you want to be the system disk and
inspect the leftmost column to determine the ID number
of that disk unit. Enter the ID number in response to
the prompt. For example, if you choose unit 01 located
at >F800 for your target disk, its associated ID number
is 1. Therefore, you enter 1 in response to the INPUT
ID NUMBER OF DESIRED DISK UNIT prompt.

Note that the system built to the disk you specify will
support only those devices generated in the system being
restored. If the system being built is the system
shipped from Texas Instruments, it supports only the
base S$SHIP configuration.

6. Disk Build now inspects the target disk and evaluates
   its condition. It will find the disk to be in one of
   three states. Your actions are outlined as Case 1, Case
   2, and Case 3 below. Follow the set of instructions for
   the case that begins with the message you see next. For
   details about the prompts shown for initializing the
   disk, see the descriptions of the Initialize Disk
   Surface (IDS) command and the Initialize New Volume
   (INV) command in the <u>DNOS System Command Interpreter</u>
   <u>(SCI) Reference Manual</u>.

   a. CASE 1. If Disk Build does not find a bad track
      map on the target disk, the disk must have its
      surface analyzed for defects. The following
      message appears:

                 DISK REQUIRES SURFACE ANALYSIS

      * If you answered N to the prompt to change
        defaults, the following message now appears as
        Disk Build begins the work of analyzing and
        formatting the disk.

BEGIN STEP 1.

Disk Build automatically issues an IDS command, which
analyzes the target disk for physical flaws and lists
the locations of any flaws on a bad track map.

When the IDS is complete, Disk Build performs an INV
command, which creates VCATALOG, assigns a volume
name, and installs the volume on the target disk. In
this case Disk Build uses default values for the INV
parameters.

Proceed to step 7.

* If you answered Y to the prompt to change
defaults, the following prompts appear:

                    VOLUME NAME: SYSTEM
        NUMBER OF VCATALOG ENTRIES:
     DEFAULT PHYSICAL RECORD SIZE:
              INTERLEAVING FACTOR:
              RESTORE BAD TRACK LIST?

When you have answered this set of prompts, the
following messages appear:

BEGIN STEP 1.

ENTER BAD TRACKS IN THE FORMAT:
HEAD, CYLINDER;
         OR
HEAD, CYLINDER; HEAD, CYLINDER; ETC.
TO END LIST, ENTER AN EMPTY LINE
<

Enter the list of known bad tracks in the requested
format using decimal numbers for the values (for
example, 2, 235; 0,15;). All entries, including the
last, must end with a semicolon. Improper
positioning or absence of the punctuation marks
causes an error to be returned.

Proceed to step 7.

b. CASE 2. If Disk Build determines that no surface
analysis is needed, only the INV process is
required. The following message appears:

DISK REQUIRES INITIALIZATION

* If you answered N to the prompt to change
defaults, the following message appears as the INV
begins:

BEGIN STEP 1.

Proceed to step 7.

*   If you answered Y to the prompt to change
    defaults, the following message appears:

        PERFORM INV?

If you want to reformat the disk (the equivalent of
the INV command with FORCED CLEARING OF DISK set to
YES), answer Y to this prompt. Otherwise, answer N.
An answer of N causes the equivalent of an INV
command with FORCED CLEARING OF DISK set to NO.

If you answer Y, you are given the option to force
surface analysis of the disk. The following prompt
appears:

        PERFORM IDS?

If you want to have the surface analyzed, answer Y;
Disk Build will do a medium level surface analysis.
Otherwise, answer N. The following prompts appear
next:

                    VOLUME NAME: SYSTEM
         NUMBER OF VCATALOG ENTRIES:
         DEFAULT PHYSICAL RECORD SIZE:
                INTERLEAVING FACTOR:

If you answered Y to PERFORM IDS, this prompt also
appears:

        RESTORE BAD TRACK LIST?

When you have answered this prompt, the following
message appears:

BEGIN STEP 1.

ENTER BAD TRACKS IN THE FORMAT:
HEAD, CYLINDER;
        OR
HEAD, CYLINDER; HEAD, CYLINDER; ETC.
TO END LIST, ENTER AN EMPTY LINE
<

Enter the list of known bad tracks in the requested format using decimal numbers for the values (for example, 2, 235; 0,15;). All entries, including the last, must end with a semicolon. Improper positioning or absence of the punctuation marks causes an error to be returned.

Proceed to step 7.

c. CASE 3. If Disk Build determines that the disk does not have to be initialized and that VCATALOG exists on the target disk, the following message and prompt appear:

VOLUME NAME: <your volume name>
THE SPECIFIED DISK COULD CONTAIN SOME INFORMATION
ABOUT YOUR BUSINESS. IF N IS ENTERED, THE DISK
WILL BE ERASED. IF Y IS ENTERED, ONLY SYSTEM INFORMATION
WILL BE ERASED. IF THERE IS INFORMATION THAT MUST
BE SAVED, ENTER Y. IF THE INFORMATION CAN BE
REPLACED, ENTER N.

SHOULD THE USER INFORMATION ON THE
SYSTEM DISK BE SAVED? (Y/N):

The preceding message indicates that software or data may exist on the target disk. If you want to keep this information, enter Y. Disk Build will issue the Install Volume (IV) command. If you do not want to keep this information, enter N and Disk Build will issue the INV command with FORCED CLEARING set to NO.

Enter a Y or N. If you enter Y, go to step 7.

* If you enter an N and you previously responded Y to change the default values, the following prompt appears:

        PERFORM INV?

    If you want to reformat the disk (the equivalent of the INV command with FORCED CLEARING OF DISK set to

YES), answer Y to this prompt. Otherwise, answer N.
If you answer Y, you are given the option to force
surface analysis of the disk. An answer of N causes
an INV with FORCED CLEARING OF DISK set to NO. The
following prompt appears:

    PERFORM IDS?

If you want to have the surface analyzed, answer Y.
Otherwise, answer N. The following prompts appear
next:

                        VOLUME NAME: <volume name>
            NUMBER OF VCATALOG ENTRIES:
        DEFAULT PHYSICAL RECORD SIZE:
                INTERLEAVING FACTOR:

    where:

        <volume name> is the current name of
                      the target disk.

If you answered N to PERFORM IDS, this message
appears next:

    BEGIN STEP 1.

If you answered Y to PERFORM IDS, this prompt
appears:

    RESTORE BAD TRACK LIST?

When you have answered this prompt, the following
message appears:

```
BEGIN STEP 1.

ENTER BAD TRACKS IN THE FORMAT:
HEAD, CYLINDER;
        OR
HEAD, CYLINDER; HEAD, CYLINDER; ETC.
TO END LIST, ENTER AN EMPTY LINE
<
```

Enter the list of known bad tracks in the requested format using decimal numbers for the values (for example, 2, 235; 0,15;). All entries, including the last, must end with a semicolon. Improper positioning or absence of the punctuation marks causes an error to be returned.

7. When the target disk is logically installed, the Disk Build utility copies the remainder of the Disk Build operating system software from DNOS12DB to the target disk. During this process, the following message appears on the terminal:

```
BEGIN STEP 2.
```

While the copy is made, Disk Build creates a listing file named .B$LISTCD on the target disk. It also creates the Disk Build system files that are used to build DNOS. When the copy finishes, the following message appears on the terminal:

```
REMOVE INITIAL BUILD MEDIA.
THEN TYPE Y TO CONTINUE:
```

8. Remove DNOS12DB from the diskette drive. Type Y and then press the Return key.

9. Disk Build automatically loads the system from the newly created files on the target disk. The following message appears:

```
SYSTEM LOAD INITIATED - WAIT ONE MINUTE.
IF NO MESSAGES APPEAR, START OVER AT STEP 1.
```

  * If the load is successful, this message appears on the screen:

```
MOUNT BACKUP DATA VOLUME 1
THEN TYPE Y TO CONTINUE:
```

  * If a message does not appear on the screen

after one minute, the load process was not
successful and the data lights on the front
panel will display a crash code. Refer to the
DNOS Messages and Codes Reference Manual, part
number 2270506-9701, for an explanation of the
crash code. Correct the cause of the crash,
and repeat the Disk Build procedure from the
beginning.

If you are preserving data on your target disk, you may
receive a >120 crash code as a result of temporary files
that needed to be deleted. Start over from the
beginning; the build process should work the second
time.

10. Insert the DNOS parts diskette labeled DX Volume 1 in
the diskette drive. This diskette contains backup data
for the DNOS operating system. Type Y and press the
Return key to continue the build process. A response
other than Y causes the message THEN TYPE Y TO CONTINUE
to reappear. (Typing the dollar sign ($) aborts the
Disk Build process.)

11. Disk Build is now ready to restore the backup data from
the diskettes to the target disk. If you answered Y to
change the default values, the following message appears
on the screen:

        ENTER THE PATHNAME OF SEQUENTIAL
        BACKUP FILE: DX.SYSTEM

Press the Return key.

12. Disk Build copies the DNOS operating system from the
diskette to the target disk. The following message
appears on your screen:

        BEGIN STEP 3.

During STEP 3, Disk Build deletes the .S$USER directory
and the following files since they could cause a
conflict with the new system if left on the disk:

        .S$UTIL
        .S$SHIP
        .S$SHARED
        .S$LANG
        .S$CLF
        .S$SCA
        .S$SDTQUE (file or directory)

You will be prompted by Disk Build at the appropriate
times to insert the remaining diskettes. The following

message will appear:

END OF MEDIA MOUNT VOLUME <x>; TYPE $ TO QUIT, Y TO CONTINUE

where:

> <x> is the number of the next volume that
> you need to install.

Remove the current diskette and mount volume <x> as requested.

13. After Disk Build copies all of the bootable operating system to the target disk from the diskettes labeled DX, Volume 1 through DX, Volume 3, the following message appears on the screen:

> BUILD PROCESS COMPLETED.
> REMOVE BACKUP MEDIA.
> THEN TYPE Y TO CONTINUE:

14. Remove the diskette. Then type Y and press the Return key. The following message appears:

> SYSTEM LOAD INITIATED - WAIT 1 MINUTE.
> THEN LOG ON.

15. After four seconds, the system executes an IPL and the screen becomes blank. When the IPL is complete, the following message is displayed to 911 screens:

* TEXAS INSTRUMENTS * DNOS "S$SHIP" SYSTEM IPL * STxy *

where:

> STxy is the station number of your terminal.

Wait for all system activity to cease; that is, wait until all of the data lights on the programmer panel are off. If you are using a Business System computer, wait until the lights show 0000 on the front panel. This may take some time, since the first IPL of the system must create several structures. These structures include a user ID defined for the first log-on, system swap files, and a number of interprocess communication (IPC) channels.

During the first IPL, DNOS checks to see that your crash file is large enough to hold the entire system image in the case of a system crash. If the file is not large enough, DNOS makes it larger and then forces a crash to happen so that the new crash file is ready for use. The crash code in this case is >163. If the >163 crash

occurs, go through the IPL sequence again; the crash file is now usable.

16. Log on at a terminal by pressing the Attention key and then the exclamation mark (!).

17. If no one else has logged on, the following message and prompts are displayed in teletype (TTY) mode:

```
INITIALIZE DATE AND TIME
YEAR:    <year>
MONTH:   <month>
DAY:     <day>
HOUR:    <hour>
MINUTE: <minute>
```

where you respond as follows:

    <year>   is a two- or four-digit integer representing the current year.

    <month>   is a one- or two-digit integer representing the current month.

    <day>   is a one- or two-digit integer representing the current day.

    <hour>   is a one- or two-digit integer representing the current hour according to the 24-hour clock.

    <minute>   is a one- or two-digit integer representing the current minute.

18. The system identifier appears next. DNOS x.x.xx will appear, where x.x.xx is the current release version of DNOS.

19. The JOB NAME prompt appears next. Enter a one- to eight-character alphanumeric string (for example, your name).

SCI is now active and the SCI prompt ([]) appears in the lower left corner.

20. To change your terminal from TTY mode to VDT mode for easier use, issue the following commands.

a. Execute the Modify Terminal Status (MTS) command
   with the following responses:

```
[] MTS
MODIFY TERMINAL STATUS
                TERMINAL NAME: STxy   (use what appears)
             NEW STATUS (ON/OFF): ON
             NEW MODE (TTY/VDT): VDT
         DEFAULT MODE (TTY/VDT): VDT
              ASK FOR USER ID?: YES
             ASK FOR JOB NAME?: YES
           ASK FOR ACCOUNT ID?: NO
    ASK FOR NAME MANAGER FILES?: NO
            RECONNECT ENABLED?: NO
         SUPPLY ACCOUNT ID
            DEFAULT ACCOUNT ID:
```

   where:

        STxy indicates your station number.

b. Enter the Quit SCI (Q) command to log off.

c. Log on again by pressing the Attention key and
   then the exclamation mark (!).

d. This message and these prompts appear:

        DNOS x.x.xx

           USER ID: SYSTEM
           PASSWORD:
           JOB NAME: <job name>

   where:

           x.x.xx   indicates the released version
                        of DNOS.

           <job name> is a one- to eight-character
                      alphanumeric   string   (for
                      example, your name).

   SCI is now active and your terminal is in VDT
   mode.

21. The following file names were created during the Disk Build process. Most are deleted during IPL; therefore, you should not use these file names for your own files.

        .B$CONFIG
        .B$CONTRL
        .B$LISTCD
        .B$LOADER
        .B$OVLYA
        .B$PASS
        .B$PROGA
        .S$BGTCA
        .S$FGTCA
        .S$PRINT
        .S$ROLLA
        .S$SLG1
        .S$SLG2
        .S$TCALIB

    The file .B$LISTRD is a Restore Directory (RD) listing of the system just built. Examine it if you wish; you can delete it with the Delete File (DF) command.

22. You need to copy the remaining diskettes with your S$SHIP system that is now running. If your diskette drive is at address >F820, you need to perform the following to add a diskette to the S$SHIP configuration. If your diskette drive is at address >F800, proceed to the next step.

    a. Begin a configuration session by issuing the Execute System Configuration Utility (XSCU) command with the following responses.

            EXECUTE SYSTEM CONFIGURATIN UTILITY
                 SYSTEM VOLUME: DSxy
                   SYSTEM NAME: S$SHIP

        where:

            DSxy indicates the disk drive containing
                the system disk.

    b. The configuraton utility displays the current device configuration. Press the Command key.

c. Enter the Modify Device Configuration (MDC) command with the following responses to remove the tape drive in the .S$SHIP configuration.

        MODIFY DEVICE CONFIGURATION
            DATA DISK/VOLUME: <Return>

        MODIFY DEVICE CONFIGURATION
          COMMAND(CHANGE,ADD,DELETE):D

        DELETE DEVICE
            DEVICE NAME: MT01

d. Continue with the MDC command, using these responses to add another disk to the .S$SHIP configuration.

        MODIFY DEVICE CONFIGURATION
          COMMAND(CHANGE,ADD,DELETE):A

        ADD DEVICE
            DEVICE TYPE: DS

        ADD DISK
              TILINE ADDRESS: 0F820
                      DRIVES: 1
          DEFAULT RECORD SIZE: 864
                   INTERRUPT: 9
            EXPANSION CHASSIS: <Return>
           EXPANSION POSITION: <Return>

e. Press the Command key to finish the MDC command.

f. Enter the Quit Configuration Utility Session (QSCU) command as follows.

        QUIT CONFIGURATION UTILITY SESSION
                    ABORT?: NO

g. The diskette drive has now been added to your S$SHIP configuration. Go through an IPL sequence and log on to the system again as described in the previous steps.

23. If you plan to do a system generation in the future, you
    now need to restore the linkable parts from the four
    diskettes labeled DNLINK12. Issue the Restore Directory
    (RD) command as follows:

```
RESTORE DIRECTORY
     SEQUENTIAL ACCESS NAME: <drive name>
        DIRECTORY PATHNAME: <volume name>
        CONTROL ACCESS NAME:
        LISTING ACCESS NAME:
                   OPTIONS: REPLACE
     EXECUTION MODE(F,B): FOREGROUND

     PATHNAME OF BACKUP FILE
                  PATHNAME: DNLINK12.S$OSLINK
```

where:

    <drive name>   is the name of the diskette
                    drive that contains DNLINK12

    <volume name>   is the name of the volume
                    that receives the restored
                    directory.

After the first diskette is restored, you will be
prompted to insert the remaining diskettes from this set
in sequence. The following message will appear:

END OF MEDIA MOUNT VOLUME <x>; TYPE $ TO QUIT, Y TO CONTINUE

where:

    <x> is the number of the next volume that
        you need to install.

Remove the current diskette and mount volume <x> as
requested.

24. If you wish to have expanded messages on line with your system, you need to restore the messages on the diskette labeled DNEXPM12. Issue the following RD command to restore messages:

```
RESTORE DIRECTORY
    SEQUENTIAL ACCESS NAME: <drive name>
       DIRECTORY PATHNAME: <volume name>
       CONTROL ACCESS NAME:
       LISTING ACCESS NAME:
                   OPTIONS: REPLACE
       EXECUTION MODE(F,B): FOREGROUND

    PATHNAME OF BACKUP FILE
                  PATHNAME: DNEXPM12.S$EXPMSG
```

where:

    <drive name>   is the name of the diskette
                    drive that contains DNEXPM12

    <volume name> is the name of the volume
                   that receives the directory.

25. If you need to translate the supplied message files or command procedures to a language other than English, restore the DINITL12 diskette. Issue the following RD command:

```
RESTORE DIRECTORY
    SEQUENTIAL ACCESS NAME: <drive name>
       DIRECTORY PATHNAME: <volume name>
       CONTROL ACCESS NAME:
       LISTING ACCESS NAME:
                   OPTIONS: REPLACE
       EXECUTION MODE(F,B): FOREGROUND

    PATHNAME OF BACKUP FILE
                  PATHNAME: DNINTL12.INTL
```

where:

    <drive name>   is the name of the diskette
                    drive that contains DNLINK12

    <volume name> is the name of the volume
                   that receives the directory.

Proceed to Section 3 to back up your new system disk.

SECTION 3

Backing Up the System Disk

You are responsible for backing up the system disk that you have created. You can back up your system disk to magnetic tape or disk by using one of the following commands:

* Copy Directory (CD)

* Backup Directory (BD)

* Backup Directory to Device (BDD)

* Disk Copy/Restore (DCOPY)

* Copy and Verify Disk (CVD)

If you use the BD or BDD command, you must use the Restore Directory (RD) command to restore the contents.

Refer to the DNOS Operations Guide, part number 2270502-9701, for further details about system disk backup procedures and procedures for restoring a backed up system.

Before you back up the disk, you may want to move some files from the system disk to another location or you may want to delete certain files. The table below shows the approximate amount of space used by the files shipped with the DNOS object kit. Some of the files and directories can be removed to conserve disk space. The implications of removing these files and directories vary, as described below.

The build process may also have left traces of the build system in your volume information. Use the Modify Volume Information (MVI) command to examine the volume information. If an entry is present for the OVERLAY FILE, you can delete it. This entry will cause no harm to the DNOS system, but it may be misleading to people examining the disk with MVI. Consult the DNOS System Command Interpreter (SCI) Reference Manual for details on how to use MVI.

File Name or Directory Name	ADUs on a DS50	Comments
.S$CLF	4	Required (Expands with new IDs)
.S$CMDS	630	Required
.S$CRASH		Required (varies with system size)
.S$DIAG	63	Required
.S$IPL	14	Required
.S$ISBTCH	2	Required (user can expand)
.S$ISLIST		Required (created in first IPL)
.S$LOG1		Required (created in first IPL)
.S$LOG2		Required (created in first IPL)
.S$MVI	1	Required
.S$ROLLD	80	Required (Grows with use)
.S$SCA	1	Required (Grows with use)
.S$SDTQUE	6	Required (Grows with use)
.SSGU	311	Required (Changes with sysgen)
.S$SHARED	38	Required (User can expand)
.S$SYSLIB	12	Required
.S$SYSTEM	36	Required
.S$UTIL	1651	Required
.S$USER	6	Required (Expands with new IDs)
.AAAMAP	131	Optional
.BATCH	352	Optional
.MESSAGES	697	Optional
.MFG$$$	1	Optional
.S$ACT1		Optional (used for accounting)
.S$ACT2		Optional (used for accounting)
.S$EXPMSG	1483	Optional
.S$LANG	172	Optional
.S$MSG	634	Optional
.S$OSLINK	5470	Optional
.S$SECURE	53	Optional
.S$SHIP	246	Required for first IPL
.SCI990	157	Optional

The files and directories labeled as optional can be removed from
the system disk. They serve the purposes described below.

.AAAMAP
    This directory includes a disk map of the object kit. It can
    be deleted.

.BATCH
    This directory contains the source files for the batch
    streams that build the .S$CMDS directory. Unless you plan to
    internationalize the commands to a language other than
    English, this directory can be deleted.

.MESSAGES

This directory contains the source files for the messages
files for the .S$MSG and .S$EXPMSG directories. Unless you
plan to internationalize the messages to a language other
than English, this directory can be deleted.

.MFG$$$

This file contains manufacturing information from Texas
Instruments. It can be deleted.

.S$ACT1 and .S$ACT2

These files are used if the accounting feature is enabled
during system generation. Otherwise these files are not
needed on the disk.

.S$EXPMSG

This directory contains the explanations and recommended user
actions for error and status messages. If the directory is
removed, the SEM command and the question mark feature can
not gather explanations of error messages. It is recommended
that you keep this directory on your system disk.

.S$LANG

This program file contains the Assembler and Link Editor when
DNOS is installed. If COBOL is installed, COBOL also resides
in .S$LANG. If your system disk is to be used only in a
production environment that makes no use of these facilities,
.S$LANG can be deleted. Note that this file is required for
patching DNOS, since the Assembler is often called from DNOS
patch files.

.S$MSG

This directory contains the basic messages for DNOS and
utilities. If the directory is removed, the error and status
messages will be in an abbreviated form, showing only the
internal message ID and variable text. It is recommended
that you keep this directory on your system disk.

.S$OSLINK

This directory contains the linkable parts needed for a
system generation. The directory does not need to be on the
system disk, but can be used from any other disk during a
system generation.

.S$SECURE

This program file includes software to handle file access
security. If you do not use this feature of DNOS, you can
delete this program file.

.S$SHIP

This program file is the initial system shipped with the
object kit. If you generate your own system, you can delete

this system.   If you delete this file, you can also delete
the directory .SSGU.S$SHIP on your system disk.

.SCI990
    This set of runtime routines is needed if you are linking
    them with your own programs.

SECTION 4

Configuring the System

4.1   INTRODUCTION

The initial program load (IPL) performs all initialization
necessary for the system to operate (for example, system log and
accounting initialization).   However, once you install and back up
the system disk, you may want to perform additional system
initialization before allowing other users to log on.

If you plan to use DNOS file security, be sure to carefully study
the   DNOS Security Manager's Guide,   part   number   2308954-9701,
before allowing anyone to log on to the system.

The following paragraphs describe how to modify terminal status,
assign user IDs, and configure additional devices.

4.2   MODIFYING TERMINAL STATUS

If you are using a VDT, perform these steps to place your terminal
in VDT mode:

    1. Execute the Modify Terminal Status (MTS) command with
       the following responses:

           [] MTS
           MODIFY TERMINAL STATUS
                          TERMINAL NAME: STxy
                     NEW STATUS (ON/OFF): ON
                      NEW MODE (TTY/VDT): VDT
                  DEFAULT MODE (TTY/VDT): VDT
                        ASK FOR USER ID?: YES
                       ASK FOR JOB NAME?: YES
                     ASK FOR ACCOUNT ID?: NO
            ASK FOR NAME MANAGER FILES?: NO
                       RECONNECT ENABLED?: NO
                  SUPPLY ACCOUNT ID
                      DEFAULT ACCOUNT ID:

       where:

           STxy indicates your station number.

2. Enter the Quit SCI (Q) command to log off.

3. Log on again by pressing the Attention key and then the
    exclamation mark (!).

4. This message and these prompts appear:

        DNOS x.x.xx

            USER ID: SYSTEM
            PASSWORD:
            JOB NAME: <job name>

        where:

            x.x.xx   indicates the released version
                          of DNOS.

            <job name> is a one- to eight-character
                          alphanumeric   string   (for
                          example, your name).

        SYSTEM and SYSMGR are the only valid responses to the
        USER ID prompt after the first IPL. After you log on
        the system, your terminal is in VDT mode.

You can now use the MTS command to place other terminals in VDT
mode. To determine which terminals were configured during the
IPL, issue the List Device Configuration (LDC) command.

4.3 ASSIGNING USER IDS

Before other users can log on the system, you need to assign user
IDs for them. A user ID allows them to maintain their own
synonyms and logical names. You will also be able to define the
privilege level for each user. If your system is going to use the
file security option, skip this section and follow the procedures
outlined in the DNOS Security Manager's Guide.

To assign a user ID, issue the Assign User ID (AUI) command with
the following responses:

    [] AUI
    ASSIGN USER ID
                USER DESCRIPTION: <description>
                    NEW USER ID: <user ID>
                  NEW PASSCODE: <passcode>
        USER PRIVILEGE CODE (0..7): <privilege code>

where:

<description>   is a string of 1 to 20
                      characters.   Use this to
                      identify the user.

<user ID>   is a string of one to eight
                      alphanumeric characters.

<passcode>   is a string of one to eight
                      alphanumeric characters that
                      comprise a passcode to be
                      associated with the user ID
                      assigned in response to the
                      NEW USER ID prompt. If no
                      passcode is given, the
                      default is eight blanks.
                      Special characters are legal
                      passcode components.

<privilege code>   is a number in the range of
                      zero through seven. Seven
                      denotes the highest
                      privilege level.

4.4 CONFIGURING DEVICES

Use the System Configuration Utility (SCU) to add or delete
devices from a DNOS system by modifying the disk image of a
generated DNOS system. You cannot use SCU to add nonstandard
devices or communication devices to the system. You can also use
SCU to change the system table sizes.

To configure additional devices, perform the following steps:

   1. To use SCU to modify your system, you should copy the
      kernel program file (the file named with your system
      name) to another program file and then modify that copy.
      Issue the Copy Directory (CD) command to copy the
      current system kernel program file to a new program
      file:

```
            COPY DIRECTORY
                    INPUT PATHNAME:  .S$SHIP
                   OUTPUT PATHNAME:  .TEMPDIR
              CONTROL ACCESS NAME:
              LISTING ACCESS NAME:
                          OPTIONS: ADD
              EXECUTION MODE(F,B): FOREGROUND
```

2. Modify the file name by entering the Modify File Name (MFN) command with the following responses:

```
MODIFY FILE NAME
          OLD PATHNAME: .TEMPDIR.S$SHIP
          NEW PATHNAME: .TEMPDIR.S$NEWSYS
          REPLACE?: YES
```

3. Move the copy from the .TEMPDIR directory to the main directory with the CD command using the following responses:

```
COPY DIRECTORY
         INPUT PATHNAME: .TEMPDIR.S$NEWSYS
        OUTPUT PATHNAME:
    CONTROL ACCESS NAME:
    LISTING ACCESS NAME:
                OPTIONS: ADD
    EXECUTION MODE(F,B): FOREGROUND
```

4. Issue the Delete Directory (DD) command with the following responses:

```
DELETE DIRECTORY
               PATHNAME: .TEMPDIR
    LISTING ACCESS NAME:
           ARE YOU SURE: YES
```

5. To start a configuration session, enter the XSCU command with the following responses:

```
EXECUTE SYSTEM CONFIGURATION UTILITY
         SYSTEM VOLUME: DSxy
           SYSTEM NAME: S$NEWSYS
```

where:

DSxy indicates the disk drive containing the system disk.

SCU displays the current device configuration. After reviewing the list, press the CMD key.

6. Enter the Modify Device Configuration (MDC) command. This command allows you to add new devices and change or delete existing devices. Refer to the DNOS System Generation Reference Manual, part number 2270511-9701, or the DNOS System Command Interpreter (SCI) Reference Manual, part number 2270503-9701, for instructions on how to use the MDC command.

7. After modifying the device configuration, issue the Quit

Configuration Utility Session (QSCU) command with the
following response:

                QUIT CONFIGURATION UTILITY SESSION
                         ABORT?: NO

The changes have now been made to the disk image of the
copied system.

8. To test the new system, enter the TGS command with the
    following responses:

            TEST GENERATED SYSTEM
             TARGET DISK/VOLUME: DSxy
                 SYSTEM NAME: S$NEWSYS

    where:

        DSxy indicates your system disk drive.

9. Perform the IPL to initialize the test system.

10. Log on to the system.

11. Test the newly configured devices to be sure they were
    added   correctly.   If any devices are incorrectly
    defined, use SCU to modify those devices. Reissue the
    TGS command and initialize the test system again.

12. When you are satisfied with the system, use the IGS
    command to make the system permanent:

            INSTALL GENERATED SYSTEM
                TARGET DISK/VOLUME: DSxy
                  SYSTEM NAME: S$NEWSYS

    where:

        DSxy indicates your system disk drive.

4.5 CAPABILITIES OF THE NEW DNOS SYSTEM

Your DNOS system includes the following optional capabilities:

    * Full range of file types, including key indexed files

    * Optional SVC groups for accounting, encryption, and
       intertask communication

    * System log and account information gathering

* All of the utilities described in the <u>DNOS System</u>
  <u>Command Interpreter (SCI) Reference Manual</u>.

4.6   GENERATING A NEW SYSTEM

Use the System Generation utility to generate a new system with
additional capabilities or devices that cannot be defined using
SCU.   Refer to the <u>DNOS System Generation Reference Manual</u> for
details about this utility and system generation.