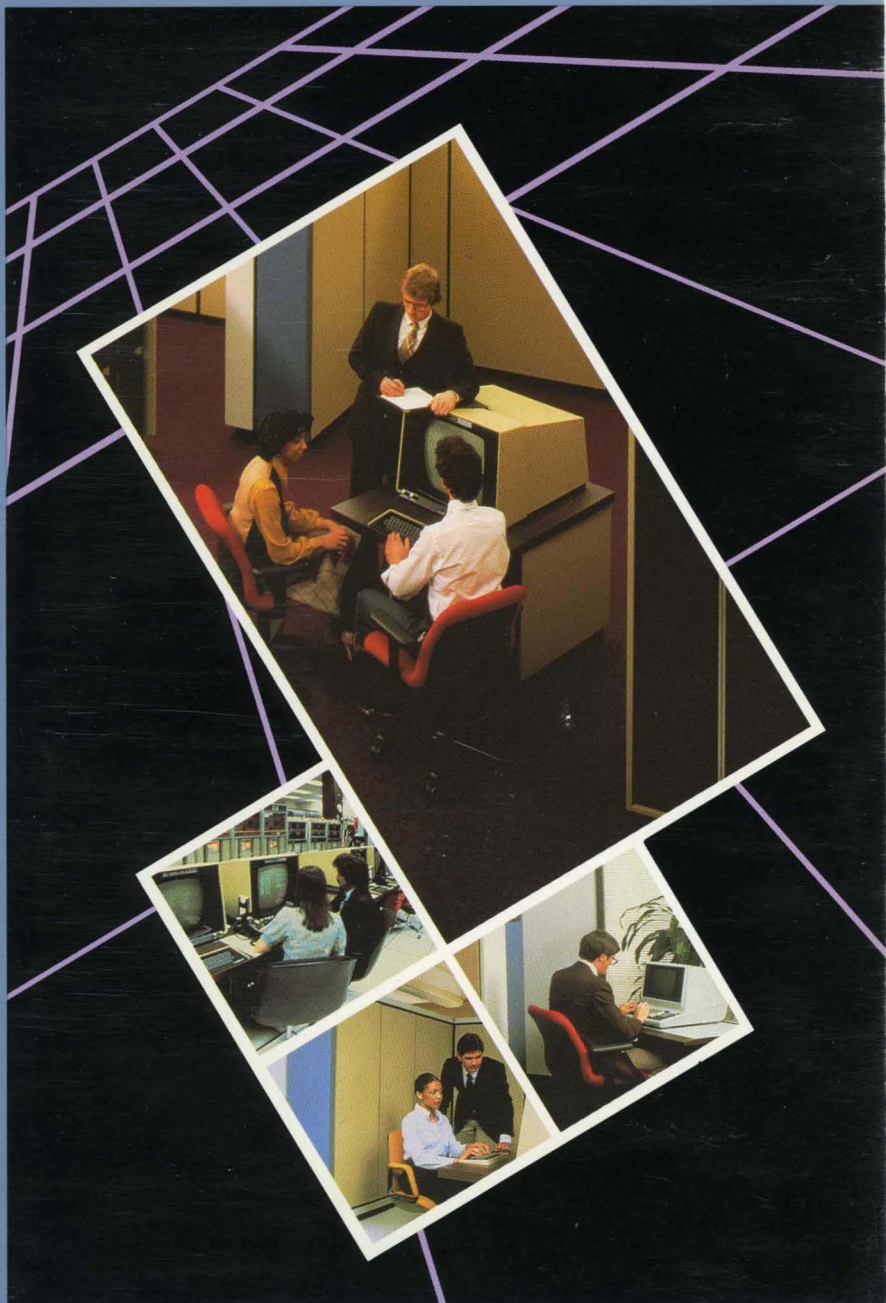


# NOS CYBER Supermini Operations

  
CONTROL  
DATA



**User's Guide**

60459850

# **CYBER Supermini**

## **Operations Handbook**

**This product is intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features or parameters.**

**Publication Number 60459850**

# Revision Record

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Revision A reflects NOS 2.3 released on 10-12-84 at PSR level 617.

<b>Previous Revisions</b>	<b>System Level</b>	<b>Date</b>
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# Preface

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## Who Should Use This Book

The *CYBER Supermini Operations Handbook* is for the CYBER Supermini operator. As the operator, you will perform such tasks as starting and shutting down the system, allowing users access to the system and determining the privileges of each user, assigning tapes to users, maintaining the tape drive, maintaining the printer, maintaining files, and installing new software. Some of these tasks are administrative and some are operational.

You should not need an extensive background in computers to understand how to do these tasks. This book gives you enough information to perform routine procedures, solve common problems, and gather information for an analyst to use. If a problem is beyond the scope of this book and involves CYBER Supermini hardware and software that Control Data supplies, you should call your Control Data Corporation® service representative. Your marketing representative will give you the telephone number.

Since you will be working with users, knowledge of how your users work with the Supermini would be helpful.

# How This Book Is Organized

The *CYBER Supermini Operations Handbook* is your guide to understanding and operating the CYBER Supermini. You should read the preface and Chapter 1 before you read other chapters in the book because these sections contain basic concepts that explain how to use the book and how the system works. For each chapter, you should read the introductory section in that chapter before using any of the procedures in the chapter.

Chapter 1 introduces the CYBER Supermini and the Network Operating System (NOS). It also describes what the operator does.

Chapter 2 tells you how to install the CYBER Initialization Package (CIP) and NOS.

Chapters 3 through 7 tell you how to start and operate your system.

Chapters 8 through 10 describe daily, weekly, and monthly maintenance.

Chapters 11 through 13 describe problems and recommend solutions.

Chapter 14 tells you how to upgrade your system.

## Notational Conventions

Certain notational conventions are used in this book to identify commands, keys, displays, messages, and equipment, and to tell you how to use the commands.

### Uppercase Letters (Capital Letters)

Uppercase letters are used to indicate commands (for example, AUTO), names of keys (for example, `NEXT`), names of displays (for example, A. OPERATOR), and system messages (for example, DISK BUSY). When uppercase letters are used in a command, the uppercase letters must be typed exactly as shown.

## Lowercase Letters (Small Letters)

Lowercase letters in commands are used to indicate variable information that you must supply. For example, in the command `K.STOP,pn`, you must replace `pn` with the name of a printer.

## Italics

Italics are used in commands to indicate options. The options can be either included in the command or omitted, according to how you want the command to work.

## Brackets [ ]

Brackets are used in commands to enclose an option when the option includes a punctuation mark (for example, `CM,est,cm,ch1[,ch2]`). When you type in the command, you should not type in the brackets.

## Enter:

When the word *Enter* precedes a command (for example, `Enter: S`), you must type in the command and press the `NEXT` key to execute it.

## Press

When the word *Press* precedes a command (for example, `Press[S]`), you should not press the `NEXT` key after you type in the command. These commands consist of one letter and are executed immediately when you press the letter.

## Type in:

When the words *Type in* precede a command (for example, `Type in: username`), you should type information in all the fields on the display before you press the `NEXT` key.

## CTRL-

When `CTRL` (for *control*) and a letter are attached with a hyphen (for example, `CTRL-[G]`), you should hold down the `CTRL` key while you press the letter key.

## Numbers That Identify Equipment

Each disk drive and tape drive has a unique equipment status table (EST) number. When a disk drive or tape drive is identified by its number (for example, disk drive 10 or tape drive 60), the number is the EST number.

## Related Publications

This handbook does not describe all the features of the CYBER Supermini or of the Network Operating System (NOS). It does describe enough features for you to be able to perform all the necessary routine procedures without your having to consult other manuals.

If you want to learn more about your system's hardware and software, we suggest you start with the following manuals. They are available from Control Data sales offices and from Literature Distribution Services, 308 North Dale Street, St. Paul, MN 55103.

<b>Control Data Publication</b>	<b>Publication Number</b>
CYBER 180 Models 810 and 830 Hardware Operator's Guide	60469440
CYBER Initialization Package (CIP) User's Handbook	60457180
NOS Version 2 Administration Handbook	60459840
NOS Version 2 Analysis Handbook	60459300
NOS Version 2 Installation Handbook	60459320
NOS Version 2 Operations Handbook	60459310
NOS Version 2 Reference Set, Volume 1, Introduction to Interactive Usage	60459660
NOS Version 2 Reference Set, Volume 2, Guide to System Usage	60459670

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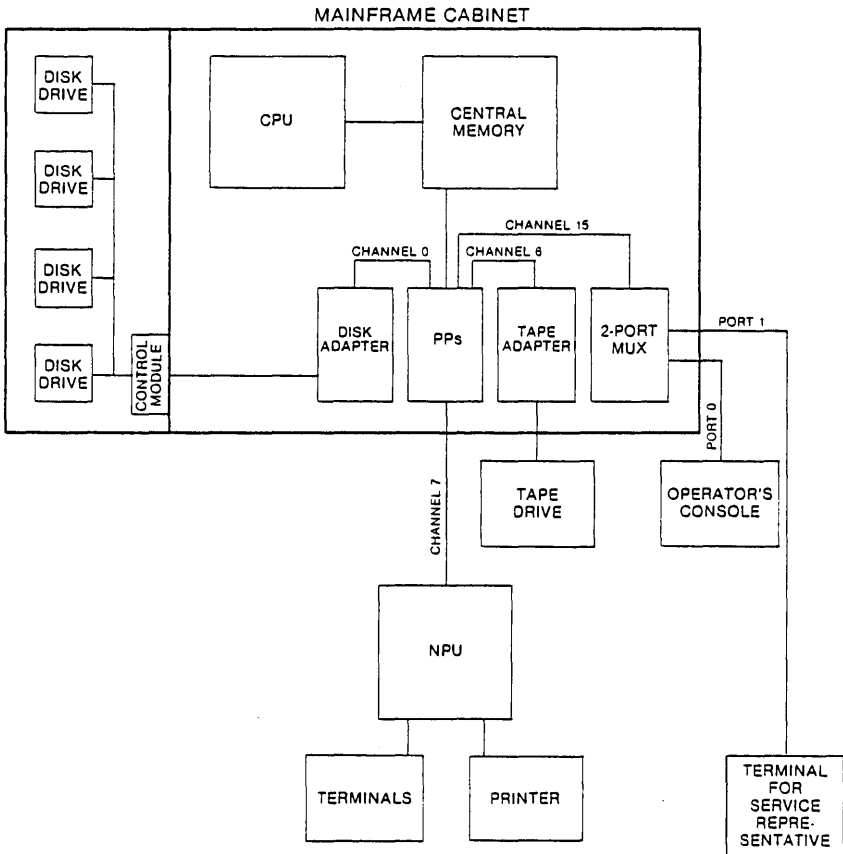
The Network Operating System (NOS) that you will use runs on the CYBER Supermini. The CYBER Initialization Package (CIP) allows NOS to run on the CYBER Supermini. The following sections describe the CYBER Supermini, CIP, NOS, and the tasks you will perform to operate the system.

## The CYBER Supermini Components

The CYBER Supermini contains several components. These components include:

- a mainframe (model 810 or 830), which houses the following:
  - a central processing unit (CPU)  
*If your mainframe is a model 830, it may have an additional CPU.*
  - 10 or 20 peripheral processors (PPs)
  - central memory (containing 2 to 16 megabytes)
  - a 2-port multiplexor (2-port mux)
  - 12 or 24 channels
  - 2 to 4 adapters for disk and tape drives (at least 1 for the disk drives and 1 for the tape drives)
  - 2 to 8 disk drives (model 834)
  - 1 to 8 control modules for the disk drives
- a console (model CC634B)
- 1 or 2 tape drives (model 639)
- a network processing unit (NPU) (model 810-1)
- 1 or 2 printers (model 533 or 536)
- 1 to 14 terminals

The following diagram shows the logical relationship of the components.



The components are connected to each other through cables and channels. Channels are the paths that connect a peripheral processor to an adapter, a network processing unit, or the 2-port mux.

## Assigning Numbers to the Equipment

A Control Data service representative assigns numbers to the channels, control modules, disk drives, and tape drives to identify them. You will need to know these numbers when you install the Network Operating System (see Chapter 2). You should get these numbers from the service representative and enter them in the chart in Chapter 2.

The procedures for installing and starting the system require that the numbers be assigned according to the description below.

Each channel has a number called a **channel number**. The channel numbers are assigned in the following manner:

- Channels 0, 6, 20, and 26 are assigned to adapters.
  - Channel 0 is assigned to a disk adapter.
  - Channel 6 is assigned to a tape adapter.
  - Channels 20 and 26 are assigned to either disk or tape adapters.
- Channel 7 is assigned to a network processing unit.
- Channel 15 is assigned to the 2-port mux.

Each control module has a number called a **control module number**. The CYBER Supermini can have up to eight control modules, numbered from 0 to 7.

A control module can control from one to four disk drives. However, the total number of disk drives for the system cannot exceed eight.

Each disk drive has a number called a **unit number**. The disk drives attached to a single control module are numbered from 0 to 3.

Each tape drive has a number called a **unit number**. The tape drives are both numbered 0.

Each port in the 2-port mux has a number called a **port number**. The ports are numbered 0 and 1. Port 0 is connected to the operator's console. Port 1 is reserved for the Control Data service representative's terminal.

Each network processing unit (NPU) has up to 16 lines for printers and terminals. Each line is connected to a **communications line adapter (CLA)**. The CLAs are located on CLA boards in the NPU, with two CLAs on each board. CLA 01 and 02 are assigned to the printers.



In addition to the numbers already mentioned, the system assigns a unique number called an **equipment status table (EST) number** to each piece of equipment (such as a disk drive or tape drive). These numbers range from 0 to 77. The EST numbers for the equipment you will work with are listed on the chart in Chapter 2.

## The CYBER Initialization Package (CIP)

The CYBER Initialization Package (CIP) contains programs that allow the Network Operating System (NOS) to run on the CYBER Supermini.

A Control Data service representative will install CIP by copying the CIP tape to a disk. The disk where CIP is installed is called the **deadstart disk**. You will use the deadstart disk to start the system.

## The Network Operating System (NOS)

The Network Operating System (NOS) is a collection of programs that manage the CYBER Supermini. NOS works with subsystems and applications.

### Subsystems

A subsystem is a program that provides a service to users. When you start NOS, the subsystems are brought into central memory. They stay there unless you remove them.

NOS has several subsystems. The following list describes the functions of the more important ones.

The **Network Access Method (NAM)** controls the network processing units (NPUs), terminals, and printers.

The **Interactive Facility (IAF)** allows interactive users to communicate with NOS through NAM.

The **Magnetic Tape Executive (MAG)** controls the tape drives.

The **Remote Diagnostic Facility (RDF)** processes commands that the Control Data service representative sends through the 2-port mux.

## **NAM Applications**

An application is a program that provides a service to a subsystem or a user. NAM brings applications into central memory when it needs them.

The subsystem NAM has several applications that help it perform various tasks. The following list describes the functions of the applications you will use.

The **Communications Supervisor (CS)** monitors printers and terminals through the NPUs.

The **Network Validation Facility (NVF)** permits only validated users to gain access to the network.

The **Network Supervisor (NS)** loads the Communication Control Program (CCP) into the NPU. CCP is a program that defines the characteristics of the NPU.

The **Printer Support Utility (PSU)** controls the printer. It sends files from the print queue to the printer.

The **Terminal Verification Facility (TVF)** allows users to check their terminals to make sure they are properly connected to the computer.

## **Starting NOS**

### **Coldstarting the Tape Drive and Disk Drive**

A coldstart loads **microcode** into a tape adapter, or it loads microcode into a control module and an adapter connected to the deadstart disk (the disk where CIP is installed). Microcode (also called **controlware**) is a program that is loaded into a piece of equipment and defines the characteristics of that equipment. The equipment can be an adapter, a control module, a network processing unit, the central processing unit, or the console.

## Deadstarting NOS

A NOS deadstart loads microcode into the central processing unit, the console, all disk adapters, and all control modules. It loads programs to the system file, generates library directories of the programs, ensures that the files on the disks are usable, and brings up the subsystems. The subsystem NAM loads microcode into the network processing units. The subsystem MAG loads microcode into all tape adapters.

A NOS deadstart makes your system ready to process jobs. (A job is a set of commands and data.)

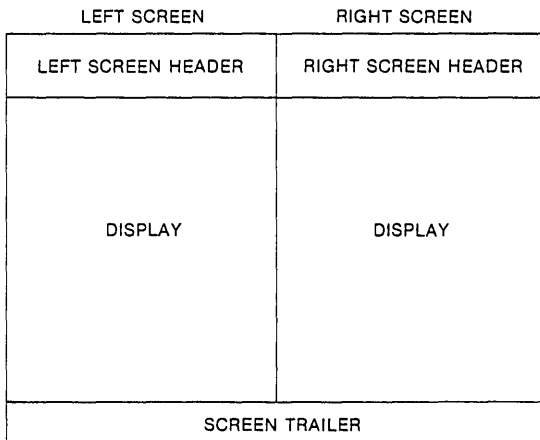
Chapter 2 describes how to coldstart the tape drive and the disk drive. Chapter 3 describes how to deadstart NOS.

## Understanding the NOS Displays

You will see two types of displays on your console. When you are starting the system, you will see the deadstart displays. After you have started your system, you will see the NOS displays.

The NOS displays give you information about the system and the jobs in the system. The individual displays are described in the appendix. Chapter 4 gives you information about using the displays.

You will see two NOS displays at a time, one on the left side of the screen (called the left screen) and one on the right side of the screen (called the right screen).



The information at the top of the display is called the header and at the bottom of the display is called the trailer.

The left screen header contains the time, the date, and identifying information about your version of NOS.

The right screen header contains messages from NOS and its subsystems. Often these messages direct you to look at particular displays.

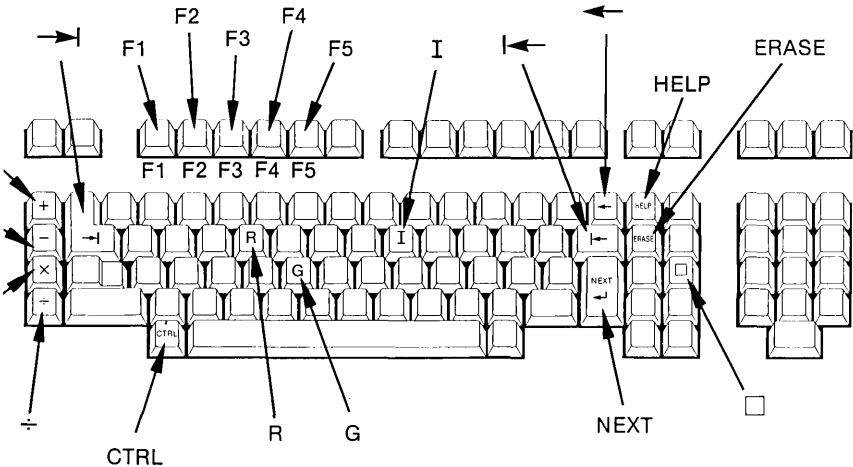
The screen trailer contains status messages about NOS and an area where you can enter commands. This area is called the command line.

Chapter 11 tells you how to respond to messages in the screen headers and trailer.












## Using the Keyboard

The console keyboard allows you to communicate with the system. Certain keys have special meanings. These are described below.

The system does not recognize some keys and will sound a bell if you press one of those keys.



These keys always have the following meanings:

<b>Key</b>	<b>Definition</b>
	Backspace one character.
 or 	Erase command and screen trailer message.
	Enter a command.
 -  and  - 	Begin the deadstart.
	Go to the next screen in a series. (After you bring up NOS, this key changes only the left screen.)
	Return to the first screen in a series. (After you bring up NOS, this key changes only the left screen.)
	Show HELP information.

After you deadstart the system, you are communicating with NOS. In NOS, these additional keys have special meanings:

<b>Key</b>	<b>Definition</b>
<input type="checkbox"/> (FWD)	Advance the right screen to the next screen in a series.
<input type="checkbox"/> (BKW)	Return the right screen to the first screen in a series.
<input type="checkbox"/> (F15)	Toggle between the NOS displays and other programs (for example, the DIS program).
<input type="checkbox"/> CTRL - <input type="checkbox"/> I	Load the microcode into the console.
<input type="checkbox"/> F1	Toggle between upper and lower sections of the left screen.
<input type="checkbox"/> F2	Show the left screen only.
<input type="checkbox"/> F3	Show the left and right screens.
<input type="checkbox"/> F4	Show the right screen only.
<input type="checkbox"/> F5	Toggle between upper and lower sections of the right screen.
<input type="checkbox"/> →	Page through the A, Q, R, and T displays.

The  SETUP key is used to set the characteristics of the console. The Control Data service representative sets the characteristics of the console at installation time. You should not use the  SETUP key. For more information about the console configuration, see the *CIP User's Handbook (CDC Publication No. 60457180)*.

# Using Commands

There are certain guidelines you should follow when you type in commands to make sure that NOS interprets your commands correctly.

## Using Upper or Lower Case

You may type in a command in upper or lower case, although it is more convenient to use lower case. NOS will display the command in upper case on the command line.

## Letting NOS Complete the Command

When you type in the characters in a command, NOS checks the characters against a table of possible commands. If NOS recognizes the command, it fills in the remaining portion of the command. This would happen after you have typed from three to five characters. You must be careful, therefore, to watch the screen and stop typing after NOS has completed your command. If you continue to type, you may have extra characters on the screen and NOS will reject the command.

After you have typed in the command, you should press . This tells NOS to process the command. If NOS accepts the command, it will clear the command entry from the screen. If NOS rejects the command, it may display the message INCORRECT ENTRY.

You can correct a command either by pressing the backspace key () to erase one character at a time or by pressing  to erase the entire command. Both keys erase the message INCORRECT ENTRY.

## Placing a Period at the End of the Command

When NOS completes a command, it places a period at the end of the command. If you are typing a command that NOS will not complete because the command has variable fields, be sure to place a period at the end of the command.

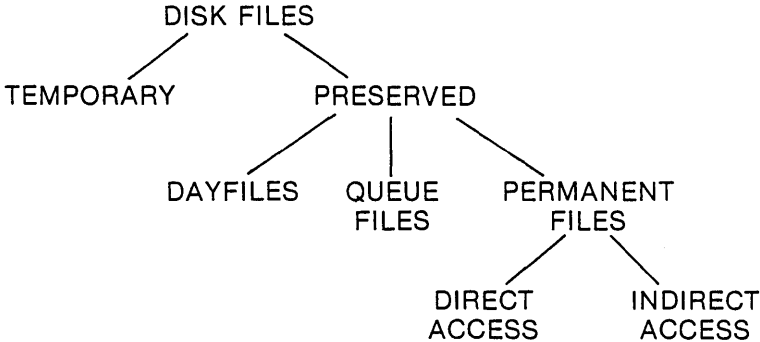
# Using a Command More Than Once

If you want NOS to keep your command on the screen so that you can press `NEXT` to process the command again, press `NEXT` before you begin typing in the command. NOS will display the message REPEAT ENTRY and will not erase the command. When you are finished using the command, press `ERASE` to erase the command and the message.

# Understanding the Files

A disk file is a collection of data. As the operator, you will sometimes need to work with disk files. This section describes the files you will work with.

There are two types of disk files in NOS: **preserved** and **temporary**. The preserved files can be divided into three groups: **dayfiles**, **queue files**, and **permanent files**. The permanent files can be divided into two groups: **direct access** and **indirect access**.





## Dayfiles

Dayfiles are files that the system creates to record information about how the system processes jobs. You usually start new dayfiles each day. There are four preserved dayfiles: DAYFILE, ACCOUNT, ERRLOG, and MAINLOG. Three of these, DAYFILE, ACCOUNT, and ERRLOG, have displays. The MAINLOG file has no display. There is also a temporary dayfile called a job dayfile, which is created for each job and is erased after the job has finished processing.

The DAYFILE records commands and messages that the system uses for each job it executes.

The ACCOUNT file records the amount of memory, CPU time, disk space, and other resources that the system charges to a job. You can use this file to bill users.

The ERRLOG file records hardware error messages.

The MAINLOG file records maintenance information in binary format. Control Data uses this information when it does maintenance work on the hardware.

## Queue Files

There are four types of queue files you will work with:

The **input queue files** are jobs that are waiting to start executing. These files make up the input queue.

The **rollout queue files** are jobs for which the execution has been temporarily halted. These jobs are removed from central memory. The process of temporarily halting jobs and removing them from central memory is called **rolling out** the jobs. The rollout queue files make up the rollout queue.

The **print queue files** are jobs that are waiting to be printed. These files make up the print queue (also called the output queue).

The **wait queue files** are jobs that are waiting to be retrieved by the user. These files make up the wait queue.

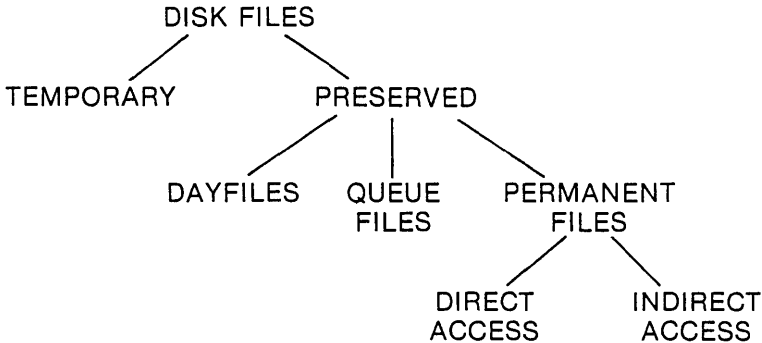
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The **wait queue files** are jobs that are waiting to be retrieved by the user. These files make up the wait queue.

## **Permanent Files**

There are two types of permanent files. A **direct access permanent file** is one that users write on directly. Any changes they make are written to the permanent file.

An **indirect access permanent file** is one that users cannot write on directly. They write on a copy of the file and can use the copy to replace the permanent file or to create a new permanent file.

## **Temporary Files**

A temporary file is a file that is erased when a job finishes executing. The copy of the indirect access permanent file is an example of a temporary file.

# What the Operator Does

As the operator, your job is to keep the system operating smoothly. To do this, you will perform a few routine tasks and respond to system messages. In addition, you will install NOS, and you may occasionally install a new version of CIP or NOS.

The tasks you will perform include the following:

- Starting the system
- Adding user names to the system
- Mounting and removing tapes
- Labeling tapes
- Copying (backing up) files from disk to tape
- Changing the paper and ribbon on the printer
- Cleaning the tape drive head unit
- Shutting down the system

You will respond to two types of messages: requests from users and warnings of problems.

When users want tapes mounted for their jobs, the system shows requests from users. After you mount the tape, the message will clear.

If a problem develops, the system shows warning messages. When this happens, you may also receive calls from users because they are having trouble processing their jobs.



---

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Installing the system involves the following procedures:

1. Filling in the Installation Checklist
2. Installing the CYBER Initialization Package (CIP)
3. Installing the Network Operating System (NOS)
4. Changing the installation passwords

The Control Data service representative will give you the information for the Installation Checklist and will install CIP. You will install NOS and change the passwords for the user names INSTALL and MANUALS.

The materials that Control Data sends you for installation include the CIP tape, the NOS deadstart tape, and a set of permanent file tapes. In addition, you will need two 1200-foot, 6250-characters-per-inch (cpi) blank tapes.

The instructions that follow are for a first-time installation. If you are upgrading your system by installing a new version of CIP or NOS, see Chapter 14, *Upgrading the System*.



# Filling in the Installation Checklist

The Control Data service representative should give you information for the Installation Checklist. The checklist identifies numbers for the channels, control modules, disk drives, and tape drives. You will use these numbers when you install NOS.

## Installation Checklist

- Number of disk channels (1-3) \_\_\_\_\_
- Disk channel numbers (0, 20, 26) \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_
- Number of tape channels (1-2) \_\_\_\_\_
- Tape channel numbers (6, 20, 26) \_\_\_\_\_, \_\_\_\_\_
- Number of control modules (1-8) \_\_\_\_\_
- Number of disk drives (2-8) \_\_\_\_\_
- Number of tape drives (1-2) \_\_\_\_\_
- Size of central memory  
(2, 4, 8, 12, or 16 megabytes) \_\_\_\_\_

## Control Module Connections

If one of the channels is 0, it must be the first channel.

<b>EST number</b>	<b>Control module number</b>	<b>1st channel</b>	<b>2nd channel</b>
40	0	<u>0</u>	_____
41	1	_____	_____
42	2	_____	_____
43	3	_____	_____
44	4	_____	_____
45	5	_____	_____
46	6	_____	_____
47	7	_____	_____

## Disk Drive Connections

<b>EST number</b>	<b>Unit number</b>	<b>Control module number</b>
10	0	<u>0</u>
11	1	_____
12	2	_____
13	3	_____
14	0	_____
15	1	_____
16	2	_____
17	3	_____

## Tape Drive Connections

<b>EST number</b>	<b>Unit number</b>	<b>Channel number</b>
60	0	<u>6</u>
61	0	_____

## Verification

- CIP is installed on disk 10 (yes or no) \_\_\_\_\_
- CIP is installed on disk 14 (yes or no) \_\_\_\_\_
- Deadstart program 1 is entered (yes or no) \_\_\_\_\_
- Deadstart program 2 is entered (yes or no) \_\_\_\_\_
- Deadstart program 3 is entered (yes or no) \_\_\_\_\_
- Identification stickers identify tape drive 60  
and tape drive 61 (yes or no) \_\_\_\_\_
- Identification stickers identify printer PRINT01  
and printer PRINT02 (yes or no) \_\_\_\_\_
- Power control switch is set to remote (yes or no) \_\_\_\_\_
- 2-port mux switch for port 0 is set to  
DS & PWR ENABLED (yes or no) \_\_\_\_\_
- 2-port mux switch for port 1 is set to  
MSG ONLY (yes or no) \_\_\_\_\_

# Installing CIP

The Control Data service representative installs CIP the first time. Later, you may be asked to install new versions of CIP.

To install CIP, you need the CIP tape. The CIP tape contains programs that are necessary for NOS to run on the CYBER Supermini. It also contains deadstart and maintenance programs. The CIP programs include the following:

- Common Test and Initialization (CTI)
- Maintenance Software Library (MSL)
- Environment Interface (EI)
- System Console Driver (SCD)
- Monitor Display Driver (MDD)
- Microcode

The CIP installation includes the following steps:

1. Coldstarting the tape drive from the CIP tape
2. Coldstarting the disk drive from the CIP tape
3. Copying the CIP tape to disk

The disk where CIP is installed is called the **deadstart disk**. You use this disk to deadstart NOS.

CIP should be installed to disk 10 if you have up to four disks, and to disks 10 and 14 if you have more than four disks. The second deadstart disk is a redundant disk that you can use if you have a problem with the first deadstart disk.

For specific information on handling tapes, see Chapter 6, *Handling Tapes*.

If you have problems, see Chapter 12, *Solving Problems*.

## NOTE

---

Do not press  after you type in the command if an instruction begins with the word *Press*. However, if an instruction begins with the word *Enter*, you should press  after you type in the command. (See the section *Notational Conventions* in the preface.)

---

## Coldstarting the Tape Drive from the CIP Tape

When you coldstart the tape drive, you load microcode from the CIP tape into one tape adapter.

Follow these steps to coldstart the tape drive:

1. Mount the CIP tape on tape drive 60.
2. Press **CTRL-G**.

Wait for the message: OPERATOR ACCESS ENABLED

3. Press **CTRL-R**.

You will see the DEADSTART OPTIONS display.

```
DEADSTART OPTIONS
S  SYSTEM LOAD OPTIONS
M  MAINTENANCE OPTIONS
(CR) SYSTEM LOAD OPTIONS
```

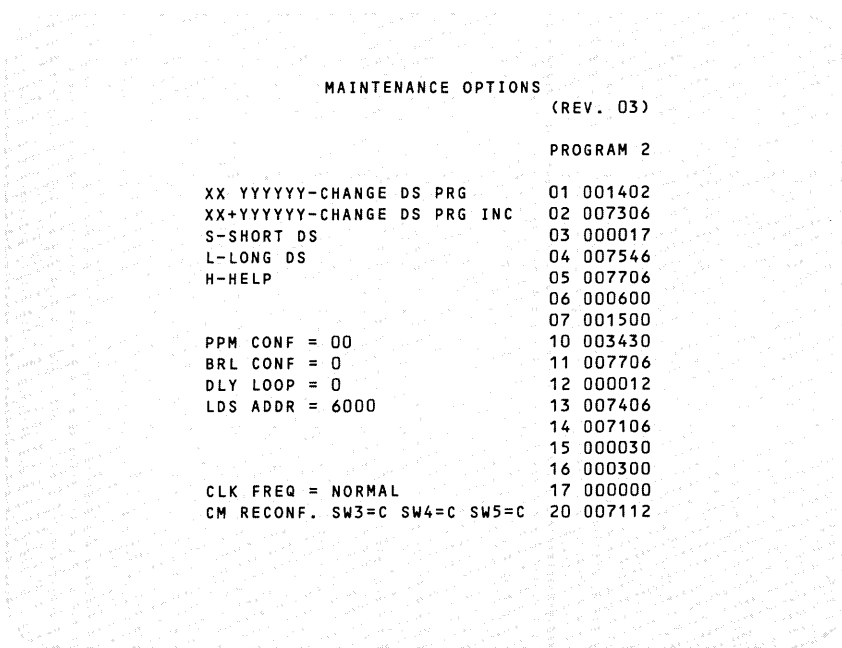
```
PROGRAM 3 SELECTED
```

4. Press **M**.

You will see the MAINTENANCE OPTIONS display.

5. Enter: GP 2

This gets program 2.



6. Enter: S

CIP loads microcode into the tape adapter.

You will see the message: SYSTEM INITIALIZATION IN PROGRESS

You should check to make sure the tape moves forward and then rewinds. This process takes several minutes.

7. When the tape has finished rewinding to the beginning of tape (BOT) marker, the tape drive is ready for use.

## **Coldstarting the Disk Drive from the CIP Tape**

When you coldstart the disk drive from the CIP tape, you load microcode into the disk adapter and control module that are connected to the deadstart disk and then store the microcode on disk.

Follow these steps to coldstart the disk drive:

1. Press **CTRL** - **G**.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press **CTRL** - **R**.

You will see the DEADSTART OPTIONS display.

3. Press **M**.

You will see the MAINTENANCE OPTIONS display.

4. Enter: GP 1

This gets program 1.

```

                                MAINTENANCE OPTIONS
                                (REV. 03)
                                PROGRAM 1
XX YYYYYY-CHANGE DS PRG      01 001402
XX+YYYYYY-CHANGE DS PRG INC  02 007306
S-SHORT DS                    03 000017
L-LONG DS                     04 007546
H-HELP                        05 007706
                                06 000120
                                07 007406
PPM CONF = 00                 10 007106
BRL CONF = 0                  11 007301
DLY LOOP = 0                  12 000710
LDS ADDR = 6000               13 000000
                                14 000000
                                15 000000
                                16 000000
CLK FREQ = NORMAL             17 000000
CM RECONF. SW3=C SW4=C SW5=C 20 007112

```



5. Enter: S

You will see the CIP INITIAL OPTIONS display.

```
                INITIAL OPTIONS

B   BUILD DEADSTART DISK
U   UTILITIES
M   OFF-LINE MAINTENANCE
H   HELP

(CR) BUILD DEADSTART DISK

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xxx-xx Lxxx
```

The number at the bottom (for example, 810-14 L002) indicates the CIP level.

6. Press .

You will see the UTILITIES display.

```
          UTILITIES
E   EXPRESS DEADSTART DUMP
P   PRINTER DUMP
S   ALTERNATE DEADSTART
    DEVICE SELECTION
D   DEFINE AND DISPLAY DEFAULT
    DEVICE PARAMETERS
L   DISPLAY CIP COMPONENT
    INFORMATION
I   INITIALIZE MAINFRAME
M   PERIPHERAL ISD-834
    MICROCODE LOAD

(CR) EXPRESS DEADSTART DUMP
(BS) PREVIOUS DISPLAY
```

7. Press .

You will see the 834 DRIVE LOCATION display.

```
834 DRIVE LOCATION
CHANNEL - 00
```

8. Press .

This accepts the default channel 00.

You will see the EQUIPMENT - 0 prompt.

9. Press .

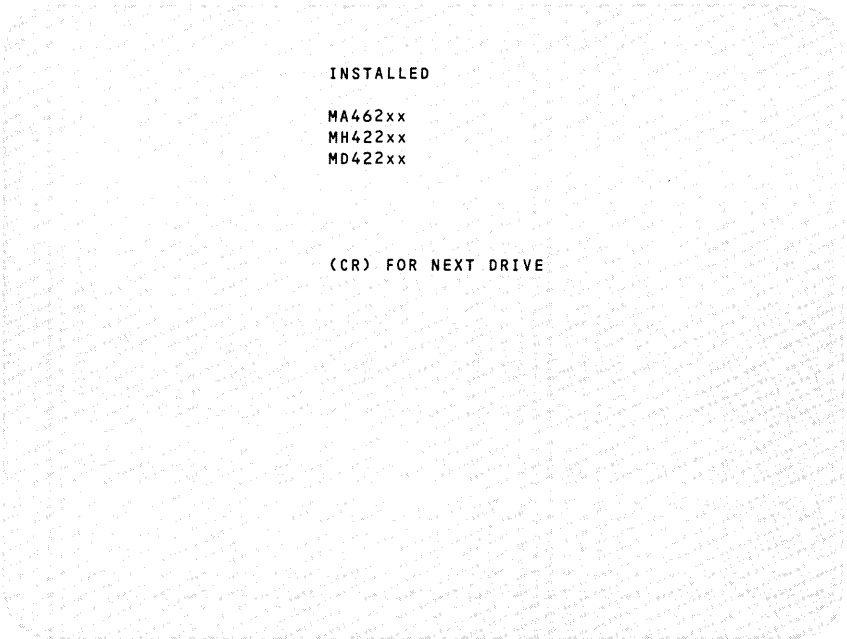
This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

10. Press .

This accepts the default control module 0 (the left digit) and unit 0 (the right digit).

You will see messages showing that CIP is loading microcode to the disk adapter, control module, and deadstart disk. After several minutes, you will see the INSTALLED display.



Microcode is now loaded to the disk adapter, control module, and deadstart disk. The letters *xx* represent the level of microcode you have.

You should load microcode to each disk to make sure that the disk diagnostic tests will use the correct level of microcode. Follow these steps for each of the remaining disks:

1. Press .

You will see the 834 DRIVE LOCATION display.

2. Enter: *nn*

Replace *nn* with the number of the first channel for the control module the disk is connected to.

You will see the EQUIPMENT - 0 prompt.

3. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

4. Enter: *nn*

Replace the *n* on the left with the control module number of the disk. Replace the *n* on the right with the unit number of the disk.

You will see messages showing that CIP is loading programs. Then you will see the INSTALLED display.

Repeat these four steps until you have loaded microcode to each disk.

## Copying the CIP Tape to Disk

This procedure copies the CIP tape to disk and allows you to deadstart from disk. It erases all files on the deadstart disk except for the microcode.

1. Press **CTRL**-**G**.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press **CTRL**-**R**.

You will see the DEADSTART OPTIONS display showing program 1 selected.

3. Press **S**.

This executes the deadstart program.

You will see the CIP INITIAL OPTIONS display.

4. Press **B**.

You will see the BUILD DEADSTART DISK display.

```
BUILD DEADSTART DISK

H   HELP
S   SHORT INSTALLATION
F   FULL INSTALLATION
U   UPDATE INSTALLATION
M   MANUAL OPERATIONS

(CR) HELP
(BS) PREVIOUS DISPLAY
```

If you are installing CIP to disk 10, proceed with the following steps. If you are installing CIP to disk 14, go to step 9.

5. Press .

This selects the full installation. It erases any files on the deadstart disk except for the microcode you installed when you coldstarted the disk drive. It also reserves space for CIP and installs all of CIP.

You will see the INSTALL DISK DEADSTART MODULE display.

```
INSTALL DISK DEADSTART MODULE

CHANNEL - 00
```

6. Press .

This accepts the default channel 00.

You will see the EQUIPMENT - 0 prompt.

7. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.



8. Press .

This accepts the default control module 0 (the left digit) and unit 0 (the right digit).

You will see messages showing that CIP is loading programs; for example:

```
INSTALLING CTI TO DISK
INSTALLING SCD
INSTALLING MDD
```

This process takes up to 20 minutes. The last message is:

```
INSTALLATION COMPLETE
DEADSTART IS REQUIRED
```

CIP is now installed to disk 10.

If you have four or fewer disks, go to step 13. If you have more than four disks, repeat steps 1-4 to install CIP to disk 14. Then go to step 9.

9. Press .

This selects the short installation. It erases any files on the deadstart disk except for the microcode you installed when you coldstarted the disk drive. It also reserves space for CIP and installs most of CIP. It does not install some of the less frequently used MSL diagnostic tests.

You will see the **INSTALL DISK DEADSTART MODULE** display.

10. Enter: *nn*

Replace *nn* with the channel number of disk 14.

You will see the **EQUIPMENT - 0** prompt.

11. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

12. Enter: n0

Replace *n* with the control module number of disk 14.

You will see messages showing that CIP is loading programs; for example:

```
INSTALLING CTI TO DISK
INSTALLING SCD
INSTALLING MDD
```

This process takes up to 15 minutes. The last message is:

```
INSTALLATION COMPLETE
DEADSTART IS REQUIRED
```

CIP is now installed to disk 14.

13. Unload and remove the CIP tape.

# Installing NOS

To install NOS, you need the NOS deadstart tape, the first NOS permanent file tape, and two 1200-foot, 6250-cpi blank tapes. The NOS deadstart tape contains the executable programs that are included in NOS. The NOS permanent file tape contains the permanent files you need for the products you ordered.

The NOS installation includes the following steps:

1. Deadstarting NOS using the Control Data NOS deadstart tape
2. Entering identifying numbers for the hardware on a new deadstart tape (this process is called configuring the system)
3. Deadstarting NOS from the new deadstart tape
4. Installing the permanent files and the deadstart file
5. Making a duplicate deadstart tape

For specific instructions on handling tapes, see Chapter 6, *Handling Tapes*.

If you have problems, see Chapter 12, *Solving Problems*.

---

## NOTE

Do not press `NEXT` after you type in the command if an instruction begins with the word *Press*. However, if an instruction begins with the word *Enter*, you should press `NEXT` after you type in the command. (See the section *Notational Conventions* in the preface.)

---

# Deadstarting NOS Using the Control Data NOS Deadstart Tape

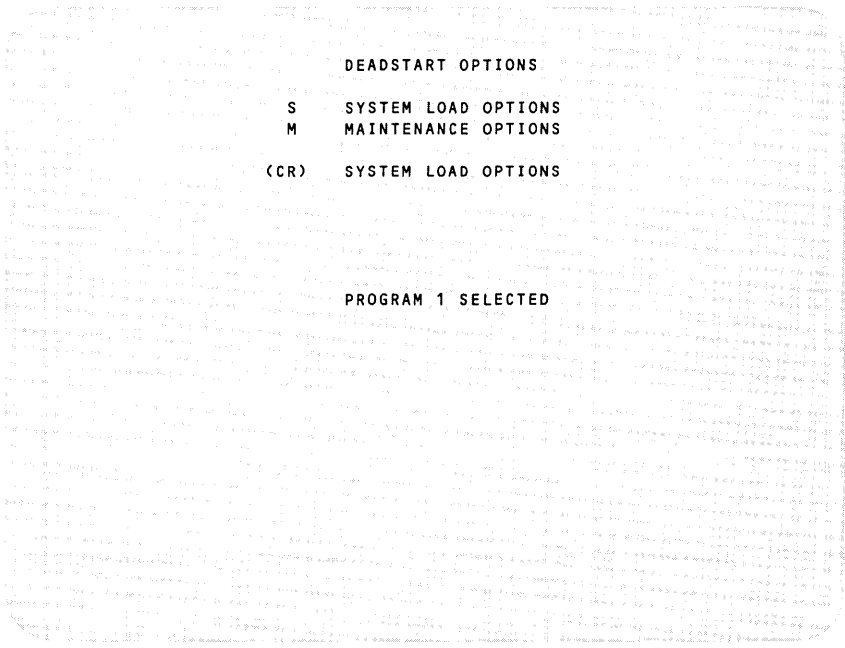
This procedure erases all NOS files on disk drive 10. It does not erase CIP files. Follow these steps:

1. Mount the deadstart tape on tape drive 60.
2. Press **CTRL** - **G**.

Wait for the message: OPERATOR ACCESS ENABLED

3. Press **CTRL** - **R**.

You will see the DEADSTART OPTIONS display.



4. Press **M**.

You will see the MAINTENANCE OPTIONS display.

5. Enter: GP 3

This gets program 3.

MAINTENANCE OPTIONS  
(REV. 03)

PROGRAM 3

XX YYYYYY-CHANGE DS PRG	01 000000
XX+YYYYYY-CHANGE DS PRG INC	02 007540
S-SHORT DS	03 007700
L-LONG DS	04 000100
H-HELP	05 007700
	06 000500
	07 007400
PPM CONF = 00	10 007100
BRL CONF = 0	11 007301
DLY LOOP = 0	12 000710
LDS ADDR = 6000	13 000002
	14 000000
	15 000000
	16 000000
CLK FREQ = NORMAL	17 000000
CM RECONF. SW3=C SW4=C SW5=C	20 007112

6. Enter: S

This executes the short deadstart program.

You will see the message: **SYSTEM INITIALIZATION IN PROGRESS**

After 20 seconds, you will see the **INITIAL OPTIONS** display.

```
INITIAL OPTIONS
A OS LOAD AUTOMATIC
O OS LOAD WITH INTERVENTION
U UTILITIES
M OFF-LINE MAINTENANCE
H HELP
(CR) OS LOAD AUTOMATIC

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xxx-xx Lxxx
```

7. Press **U**.

You will see the UTILITIES display.

```

                                UTILITIES
E   EXPRESS DEADSTART DUMP
P   PRINTER DUMP
S   ALTERNATE DEADSTART
    DEVICE SELECTION
D   DEFINE AND DISPLAY DEFAULT
    DEVICE PARAMETERS
L   DISPLAY CIP COMPONENT
    INFORMATION
I   INITIALIZE MAINFRAME

(CR) EXPRESS DEADSTART DUMP
(BS) PREVIOUS DISPLAY
```

8. Press **I**.

You will see the INITIAL OPTIONS—MAINFRAME  
INITIALIZATION display.

```
INITIAL OPTIONS

A  OS LOAD AUTOMATIC
O  OS LOAD WITH INTERVENTION
U  UTILITIES
M  OFF-LINE MAINTENANCE
H  HELP

(CR) OS LOAD AUTOMATIC

ALL MAINFRAME MEMORIES WILL
BE INITIALIZED FOR MSL/OS LOADS

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COPYRIGHT CONTROL DATA 1980.

xxx-xx Lxxx
```



9. Press  .

You will see the OPERATOR INTERVENTION display.

OPERATOR INTERVENTION

A - OS LOAD AUTOMATIC  
V - HARDWARE VERIFICATION SEQ.  
H - HARDWARE RECONFIGURATION  
P - DEADSTART PANEL PARAMS  
T - OPERATING SYSTEM FILE  
ON TAPE  
M - LOAD MDD

(CR) - ENTER OS LOAD AUTOMATIC  
(BS) - PREVIOUS DISPLAY

10. Press .

You will see the \*P\* display.

```

                                     *P*
(CR) - ENTER OS LOAD AUTOMATIC
(BS) - RETURN TO *O* DISPLAY

      I = 0   - INIT/RECOVERY LVL
      C = 02  - CMRDECK NUMBER
      D = N   - DISPLAY CMRDECK
W12 = 0710 - D/S PANEL WORD 12
W14 = 0000 - D/S PANEL WORD 14

```

11. Enter: C=1

This selects CMRDECK number 1.

12. Enter: D=Y

This tells NOS to display the CMRDECK later during the installation process.

13. Press .

This returns you to the OPERATOR INTERVENTION display.

14. Press .

You will see the OPERATING SYSTEM FILE ON TAPE display.

```
ENTER TAPE TYPE - 2
```

```
(1=66X, 2=63X/67X)
```

15. Press .

This accepts the default type 2 for the tape drive.

You will see the CHANNEL - 00 prompt.

16. Enter: 6

This is the channel number for the tape drive.

You will see the EQUIPMENT - 0 prompt.

17. Press  .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

18. Press  .

This accepts the default unit 0.

You will see messages showing that NOS is loading programs and running hardware tests.

Then you will see the CMRINST display, which contains the instructions for the CMRDECK.

19. Enter: NEXT.

You must type in the individual letters of the command N-E-X-T. Remember to type in the period whenever it is included in a command.

You will see the EQPINST display.

20. Enter: INITIALIZE,AL,10.

This prepares NOS to initialize disk 10. The initialization process writes a label on the disk. It erases all NOS files. It does not erase CIP files.

21. Enter: GO.

You will see the deadstart status messages. Some of these messages stay on the screen for up to 60 seconds.

NOS loads programs to a file. This file is called the system file. After NOS loads all the programs, it generates a library directory of the programs. NOS then initializes disk 10.

NOS shows the MAINTENANCE command in the lower left corner. It processes this command after it builds the directory. This command directs NOS to begin maintenance jobs that will periodically test the hardware.

You will see the A. SYSTEM DAYFILE and B.O. SYSTEM STATUS displays.

22. Enter: UNLOAD,60.

This rewinds the tape onto the supply reel.

23. Remove the deadstart tape.

## Configuring the System

Configuring the system is the process of creating a new deadstart tape that contains identifying numbers for the hardware. To configure the system, follow these steps:

1. Mount a 1200-foot, 6250-cpi blank tape with a write ring inserted on tape drive 60.
2. Enter: X.DIS.

This takes you into the DIS program. In DIS, you can enter commands that you would normally enter at a terminal.

You will see the DIS A. JOB DAYFILE and DIS J. JOB STATUS displays.

### NOTE

---

Do not press the  key to toggle to the NOS displays or else the DIS commands will not finish executing.

---

3. Enter: SYSGEN,CONFIG.
4. Press the period key.

Steps 3 and 4 allow you to enter identifying numbers for the control modules, disk drives, and tape drives.

Wait for the following message on the DIS A. JOB DAYFILE display: \*\*\*\*\* E N D S Y S G E N \*\*\*\*\*

5. Enter: CM,est,cm,ch1[,ch2].

Replace *est* with the EST number and *cm* with the control module number of the first control module. Replace *ch1* with the number of the first channel for that control module. If the control module is connected to a second channel, replace *ch2* with the number of the second channel. See the control module connections on the Installation Checklist at the beginning of this chapter for the numbers to enter.

6. Press the period key.

Steps 5 and 6 define the control module numbers.

Wait for the following message on the DIS A. JOB DAYFILE display: \* CM, EST nn \*\* CONFIGURED \*\*

Repeat steps 5 and 6 for the remaining control modules.

To delete an incorrect entry, enter:

CM,est,D=Y.

Replace *est* with the incorrect EST number.

Press the period key.

Wait for the following message on the DIS A. JOB DAYFILE display: \* CM, EST nn \*\* DELETED \*\*

7. Enter: DISK,est,un,cm.

Replace *est* with the EST number and *un* with the unit number of the first disk drive. Replace *cm* with the number of the control module the drive is connected to. See the disk drive connections on the Installation Checklist at the beginning of this chapter for the numbers to enter.

8. Press the period key.

Steps 7 and 8 define the disk drive numbers.

Wait for the following message on the DIS A. JOB DAYFILE display: \* 834 DISK, EST nn \*\* CONFIGURED \*\*

Repeat steps 7 and 8 for each disk drive.

To delete an incorrect entry, enter:

DISK,est,D=Y.

Replace *est* with the incorrect EST number.

Press the period key.

Wait for the following message on the DIS A. JOB DAYFILE display: \* 834 DISK, EST nn \*\* DELETED \*\*

9. Enter: TAPE,est,ch.

Replace *est* with the EST number of the tape drive. Replace *ch* with the number of the channel the tape drive is connected to. See the tape drive connections on the Installation Checklist at the beginning of this chapter for the numbers to enter.

10. Press the period key.

Steps 9 and 10 define the tape drive numbers.

Wait for the following message on the DIS A. JOB DAYFILE display: \* 639 TAPE, EST nn \*\* CONFIGURED \*\*

Repeat steps 9 and 10 if you have a second tape drive.

To delete an incorrect entry, enter:

TAPE,est,D=Y.

Replace *est* with the incorrect EST number.

Press the period key.

Wait for the following message on the DIS A. JOB DAYFILE display: \* 639 TAPE, EST nn \*\* DELETED \*\*

11. Enter: MERGE,disks,memory.

Replace *disks* with the total number of disks on your system. Replace *memory* with the size of central memory in megabytes. See the Installation Checklist at the beginning of this chapter for this information.



12. Press the period key.

Steps 11 and 12 create the new deadstart tape. These steps merge the total number of disks, the size of central memory, and the identifying numbers with the information on the system file and copy this information to the tape.

NOS rewinds the tape and verifies that the data on the tape matches the data on the disk. Then it rewinds the tape again.

You should check the DIS A. JOB DAYFILE display for the message VERIFY GOOD, which indicates that the verification succeeded. If you see the message VERIFY ERRORS, see Chapter 12, *Solving Problems*.

Wait for the following message on the DIS A. JOB DAYFILE display: \* NEW DEADSTART TAPE WRITTEN \*\*

13. Enter: DROP.

This drops the DIS program and returns you to the NOS displays.

# Deadstarting from the New Deadstart Tape

This process copies the new deadstart tape to a new system file and allows you to use all the equipment you identified in the configuration. It erases all the NOS files from all the disks. It does not erase the CIP files. Follow these steps:

1. Press -.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press -.

You will see the DEADSTART OPTIONS display showing program 3 selected.

3. Press .

This executes the deadstart program.

You will see the INITIAL OPTIONS display.

4. Press .

You will see the UTILITIES display.

5. Press .

You will see the INITIAL OPTIONS—MAINFRAME INITIALIZATION display.

6. Press .

You will see the OPERATOR INTERVENTION display.

7. Press .

You will see the \*P\* display.

The CMRDECK number is set to 2 by default.

8. Enter: D=Y

This tells NOS to display the CMRDECK later during the installation process.

9. Press .

This returns you to the OPERATOR INTERVENTION display.

10. Press .

You will see the OPERATING SYSTEM FILE ON TAPE display.

11. Press .

This accepts the default type 2 for the tape drive.

You will see the CHANNEL - 00 prompt.

12. Enter: 6

This is the channel number for the tape drive.

You will see the EQUIPMENT - 0 prompt.

13. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

14. Press .

This accepts the default unit 0.

You will see messages showing that NOS is running hardware tests and loading programs.

Then you will see the CMRINST display.

15. Enter: NEXT.

You must type in the individual letters of the command N-E-X-T. Remember to type in the period whenever it is included in a command.

You will see the EQPINST display.

16. Enter: INITIALIZE,AL,d1,d2,d3,...dn.

where: d1 is the EST number of the first disk drive

d2 is the EST number of the second disk drive

dn is the EST number of the last disk drive

See the disk drive connections on the Installation Checklist at the beginning of this chapter for the EST numbers.

For example, if you have four disk drives, enter:

```
INITIALIZE,AL,10,11,12,13.
```

If you are installing NOS on an 810-1 Supermini, enter:

```
INITIALIZE,AL,10,11.
```

Step 16 prepares NOS to initialize each disk. The initialization process writes a label on each disk. It erases all NOS files. It does not erase CIP files.

17. Enter: GO.

This copies the deadstart tape to a new system file. The new system file replaces the old system file.

You will see the deadstart status messages. Some of these messages stay on the screen for up to 60 seconds.

NOS loads programs to the new system file. After NOS loads all the programs, it generates a library directory of the programs. NOS then initializes each disk.

NOS shows the MAINTENANCE command in the lower left corner. It processes this command after it builds the directory. This command directs NOS to begin maintenance jobs that will periodically test the hardware.

You will see the A. SYSTEM DAYFILE and B.O. SYSTEM STATUS displays.

18. Enter: UNLOAD,60.

This rewinds the tape onto the supply reel.

19. Remove the new deadstart tape.

20. Remove the write ring from the tape, identify the tape as the new deadstart tape on the identification sticker, and store the tape in a safe place.

## Installing the Permanent Files and the Deadstart File

1. Mount the first permanent file tape on tape drive 60.

The first permanent file tape is the one that has the words *TPE 01 OF xx* on the label, where *xx* is the total number of permanent file tapes.

2. Enter: X.SYSGEN(FULL)

This copies the permanent files that are required for operating the system to the disks.

This process takes from 5 to 20 minutes, depending on how many products you are installing.

Wait for the following message on the A. SYSTEM DAYFILE display: \*\*\*\*\* E N D S Y S G E N \*\*\*\*\*

3. Enter: X.SYSGEN(COPYSYS,10,DISK)

This copies the system file to a deadstart file on the deadstart disk (EST number 10).

This step allows you to deadstart from disk.

Wait for the following message on the A. SYSTEM DAYFILE display: \*\*\*\*\* E N D S Y S G E N \*\*\*\*\*

4. Enter: AUTO.

This brings up the subsystems. Normally, the subsystems come up when you deadstart the system. However, they do not stay up unless the permanent files are installed.

5. Enter: UNLOAD,60.

This rewinds the tape onto the supply reel.

6. Remove the permanent file tape.

## Making a Duplicate Deadstart Tape

After you have installed NOS, you should make a duplicate backup tape of your deadstart programs in case your original tape gets damaged.

Follow these steps to make a duplicate tape:

1. Mount a 1200-foot, 6250-cpi blank tape with a write ring inserted on tape drive 60.
2. Enter: X.SYSGEN(COPYSYS,60,GE)

This copies the deadstart file to the backup deadstart tape. 60 is the EST number of the tape drive. GE is the density of the tape, indicating 6250 characters per inch.

NOS rewinds the tape and verifies that the data on the tape matches the data on the disk. Then it rewinds the tape again.

You should check the A. SYSTEM DAYFILE display for the message VERIFY GOOD, which indicates that the verification succeeded. If you see the message VERIFY ERRORS, see Chapter 12, *Solving Problems*.

Wait for the following message on the A. SYSTEM DAYFILE display: \*\*\*\*\* E N D S Y S G E N \*\*\*\*\*

3. Enter: UNLOAD,60.

This rewinds the tape onto the supply reel.

4. Remove the duplicate deadstart tape.
5. Remove the write ring, identify the tape as the duplicate deadstart tape on the identification sticker, and store the tape in a safe place, separate from the other deadstart tape.

## Changing the Installation Passwords

NOS creates two user names during installation: INSTALL and MANUALS. You should change the passwords for these user names to make your system secure. Follow these steps:

1. Enter: X.MS(VALUSER,SYSADM,INSTALL,password)

Replace *password* with a password of from 4 to 7 characters. The characters can be letters or numbers.

2. Wait for the following message on the B,O display:

REQUEST,OPER. VALUSER COMPLETE

If the message REQUEST,OPER. VALUSER FAILED appears, see Chapter 11, *Interpreting Messages*.

3. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is next to the message.

This clears the messages.

4. Enter: X.MS(VALUSER,NOLIMIT,MANUALS,password)

Replace *password* with a password of from 4 to 7 characters. The characters can be letters or numbers.

5. Wait for the following message on the B,O display:

REQUEST,OPER. VALUSER COMPLETE

If the message REQUEST,OPER. VALUSER FAILED appears, see Chapter 11, *Interpreting Messages*.

6. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is next to the message.

This clears the messages.







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You will need to start NOS only if you have shut down NOS or if NOS has gone down as a result of a problem.

You will need to start a subsystem only if you have brought down the subsystem—this is called **idling** a subsystem—or if the subsystem has gone down as a result of a problem.

When you start NOS, you make it ready to process jobs.

If you shut down NOS or if NOS goes down as a result of a problem, you should start NOS with the **deadstart** procedure. If you idle subsystems, you should start them with the **AUTO** command.

## Turning On the Power

If you turn off the power to the mainframe, you must turn the power on again before you deadstart the system. You should follow these steps:

1. Make sure the air conditioner in the room that houses the mainframe has been turned on.
2. Make sure that no objects have been placed on top of the mainframe cabinet. These could obstruct the air vents.
3. Press -.

Wait for the message: OPERATOR ACCESS ENABLED

4. Press -.

You will see the message: POWER IS OFF. DO YOU WANT POWER ON? (Y/N)

5. Enter: Y

You will see the message: POWER UP INITIATED.

You will see the DEADSTART OPTIONS display.

```
DEADSTART OPTIONS
S  SYSTEM LOAD OPTIONS
M  MAINTENANCE OPTIONS
(CR) SYSTEM LOAD OPTIONS
```

```
PROGRAM 3 SELECTED
```

You may proceed with deadstarting NOS.

# Deadstarting NOS

Deadstarting makes NOS ready to process jobs. There are four levels of deadstart, numbered from 0 to 3. This section explains when to use each level of deadstart.

You would use a **level 0 deadstart** when you are initializing a disk (initializing a disk erases the files on the disk and rewrites the disk label), when you want to use a different version of NOS, or when a level 1 or level 3 deadstart has failed.

You would use a **level 1 deadstart** when you want to recover the jobs and operating system that were running when you shut down the system. You would also use this deadstart if a Control Data service representative has done maintenance work on the mainframe and has not altered the contents of the disks.

You would not use a **level 2 deadstart** at all. Only a Control Data service representative would use this deadstart.

You would use a **level 3 deadstart** when the system has gone down as a result of a problem with the software or hardware. This deadstart works if the contents of central memory have not been damaged.

The following sections describe the deadstart procedures. If you have any problems deadstarting NOS, see Chapter 12, *Solving Problems*.

## **The Level 0 Deadstart**

The level 0 deadstart tests central memory; loads the operating system to central memory, the peripheral processors, and the disks; makes the hardware ready to process jobs; and begins the subsystems and maintenance jobs. The maintenance jobs execute until the next deadstart.

Any job that was executing when you shut down the system will execute from the beginning of the job (unless the job itself contains a command that prevents this).

You should always idle the subsystems and enter the CHECK POINT SYSTEM command before you do a level 0 deadstart. (See Chapter 8, *Shutting Down the System*, for these procedures.) Otherwise, you might lose permanent files.

You can deadstart from disk or tape if you are initializing a disk. If you want to use a different version of NOS, you must deadstart from the tape that contains the different version of NOS. You might use this deadstart if Control Data sent you a new version of NOS and you wanted to test it before installing it on disk. If you are doing a level 0 deadstart because the level 1 or level 3 deadstart has failed, you would deadstart from disk.

## The Level 0 Deadstart from Disk

To do a level 0 deadstart from disk, follow these steps:

1. If the power to the mainframe is turned off, turn it on.

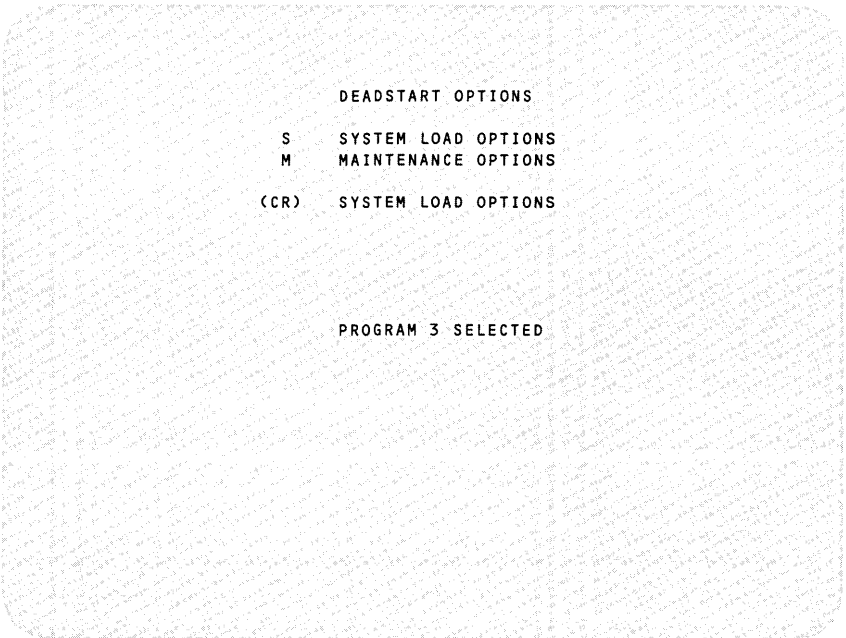
See the section *Turning On the Power* earlier in this chapter.

2. Press **CTRL** - **G**.

Wait for the message: OPERATOR ACCESS ENABLED

3. Press **CTRL** - **R**.

You will see the DEADSTART OPTIONS display.



The program selected will be the one you used most recently. If program 3 is not selected, see Chapter 13, *Special Procedures*.



4. After program 3 is selected, press **S**.

This selects the system load options.

You will see the INITIAL OPTIONS display. It may take up to 45 seconds for this display to appear.

```
                INITIAL OPTIONS

A   OS LOAD AUTOMATIC
O   OS LOAD WITH INTERVENTION
U   UTILITIES
M   OFF-LINE MAINTENANCE
H   HELP
```

```
(CR) OS LOAD AUTOMATIC
```

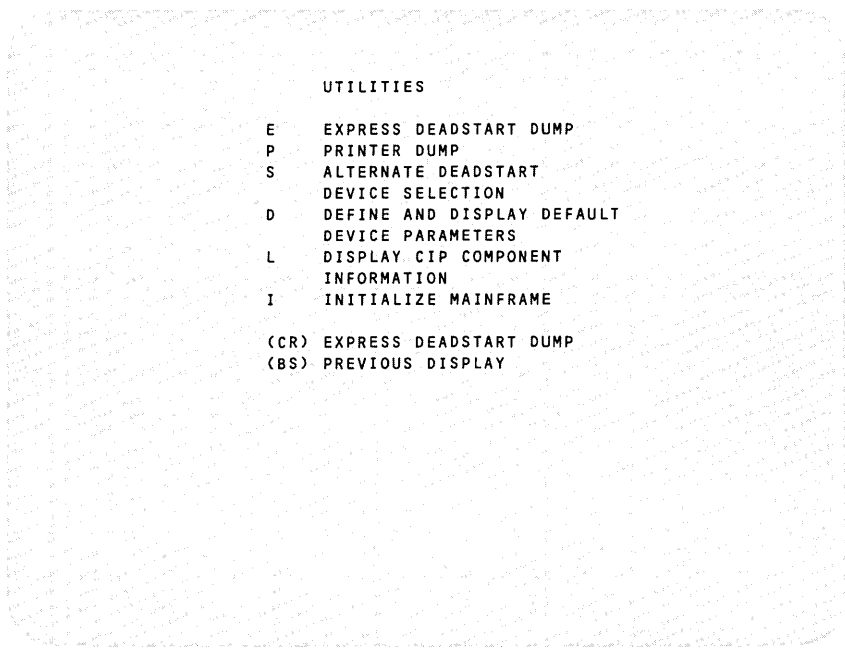
```
CONTROL DATA PROPRIETARY PRODUCT
COPYRIGHT CONTROL DATA 1980.
```

```
xxx-xx Lxxx
```

If you did not turn on the power in step 1, go to step 7. If you turned on the power, proceed with step 5.

5. Press **U**.

You will see the UTILITIES display.



6. Press **I**.

You will see the INITIAL OPTIONS—MAINFRAME  
INITIALIZATION display.

```
                INITIAL OPTIONS

A   OS LOAD AUTOMATIC
O   OS LOAD WITH INTERVENTION
U   UTILITIES
M   OFF-LINE MAINTENANCE
H   HELP

(CR) OS LOAD AUTOMATIC

      ALL MAINFRAME MEMORIES WILL
      BE INITIALIZED FOR MSL/OS LOADS

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      xxx-xx Lxxx
```

7. Press **A**.

You will see the deadstart status messages. Some of these messages stay on the screen for up to 60 seconds.

NOS shows the MAINTENANCE command in the lower left corner. It processes this command after it builds the directory. This command directs NOS to begin subsystems and maintenance jobs.

You will see the A. SYSTEM DAYFILE display on the left screen and the B.O. SYSTEM STATUS display on the right screen.

The system is now up and ready to process jobs.

## **The Level 0 Deadstart from Tape**

To do a level 0 deadstart from tape, follow these steps:

1. If the power to the mainframe is turned off, turn it on.

See the section *Turning On the Power* earlier in this chapter.

2. If you turned on the power to the mainframe in step 1, coldstart the tape drive from the CIP tape (see Chapter 2, *Installing the System*).
3. Mount the deadstart tape on tape drive 60.
4. Press `CTRL - G`.

Wait for the message: OPERATOR ACCESS ENABLED

5. Press **CTRL-R**.

You will see the DEADSTART OPTIONS display.

```
DEADSTART OPTIONS
S  SYSTEM LOAD OPTIONS
M  MAINTENANCE OPTIONS
(CR) SYSTEM LOAD OPTIONS
```

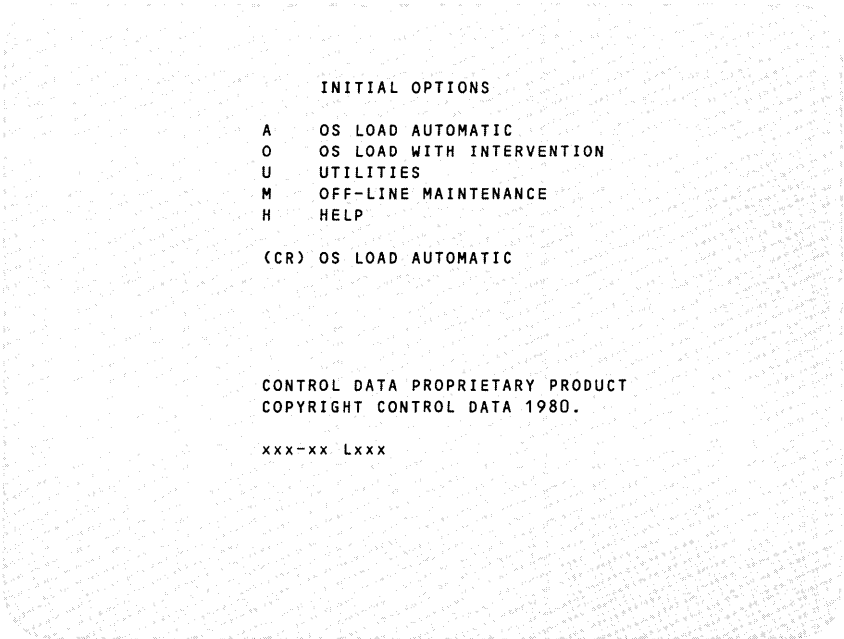
```
PROGRAM 3 SELECTED
```

The program selected will be the one you used most recently. If program 3 is not selected, see Chapter 13, *Special Procedures*.

6. After program 3 is selected, press **S**.

This selects the system load options.

You will see the INITIAL OPTIONS display. It may take up to 45 seconds for this display to appear.



If you did not turn on the power in step 1, go to step 9. If you turned on the power, proceed with step 7.

7. Press **U**.

You will see the UTILITIES display.

```
UTILITIES  
E EXPRESS DEADSTART DUMP  
P PRINTER DUMP  
S ALTERNATE DEADSTART  
  DEVICE SELECTION  
D DEFINE AND DISPLAY DEFAULT  
  DEVICE PARAMETERS  
L DISPLAY CIP COMPONENT  
  INFORMATION  
I INITIALIZE MAINFRAME  
  
(CR) EXPRESS DEADSTART DUMP  
(BS) PREVIOUS DISPLAY
```

8. Press **I**.

You will see the INITIAL OPTIONS—MAINFRAME  
INITIALIZATION display.

```
                INITIAL OPTIONS

A   OS LOAD AUTOMATIC
O   OS LOAD WITH INTERVENTION
U   UTILITIES
M   OFF-LINE MAINTENANCE
H   HELP

(CR) OS LOAD AUTOMATIC

    ALL MAINFRAME MEMORIES WILL
    BE INITIALIZED FOR MSL/OS LOADS

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xxx-xx Lxxx
```



9. Press .

You will see the OPERATOR INTERVENTION display.

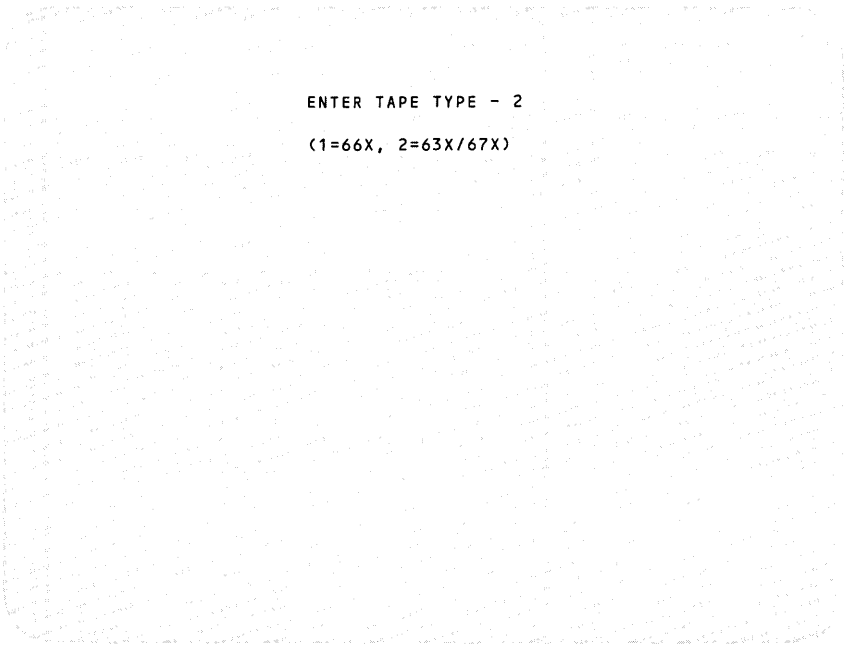
OPERATOR INTERVENTION

A - OS LOAD AUTOMATIC  
V - HARDWARE VERIFICATION SEQ.  
H - HARDWARE RECONFIGURATION  
P - DEADSTART PANEL PARAMS  
T - OPERATING SYSTEM FILE  
ON TAPE  
M - LOAD MDD

(CR) - ENTER OS LOAD AUTOMATIC  
(BS) - PREVIOUS DISPLAY

10. Press **T**.

You will see the OPERATING SYSTEM FILE ON TAPE display.



11. Press .

This accepts the default type 2 for the tape drive.

You will see the CHANNEL - 0 prompt.

12. Enter: 6

This is the channel number for the tape drive.

You will see the EQUIPMENT - 0 prompt.

13. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

14. Press .

This accepts the default unit 0.

You will see the deadstart status messages. Some of these messages stay on the screen for up to 60 seconds.

NOS shows the MAINTENANCE command in the lower left corner. It processes this command after it builds the directory. This command directs NOS to begin subsystems and maintenance jobs.

You will see the A. SYSTEM DAYFILE display on the left screen and the B.O. SYSTEM STATUS display on the right screen.

The system is now up and ready to process jobs.

15. Remove the deadstart tape.

## The Level 1 Deadstart

The level 1 deadstart tests central memory, recovers the operating system on disk and loads part of it to central memory and the peripheral processors, and makes the hardware ready to process jobs.

It allows jobs that were executing when you shut down the system to continue executing where they left off.

The CHECK POINT SYSTEM command that you entered when you shut down the system saves the information in the system checkpoint file on disk. This file is used to rebuild central memory and recover jobs.

The level 1 deadstart will not work unless you gave the CHECK POINT SYSTEM command when you shut down the system.

You should do a level 1 deadstart from disk. Follow these steps:

1. If the power to the mainframe is turned off, turn it on.

See the section *Turning On the Power* earlier in this chapter.

2. Press `CTRL-G`.

Wait for the message: OPERATOR ACCESS ENABLED

3. Press **CTRL-R**.

You will see the DEADSTART OPTIONS display.

```
DEADSTART OPTIONS
S  SYSTEM LOAD OPTIONS
M  MAINTENANCE OPTIONS
(CR) SYSTEM LOAD OPTIONS

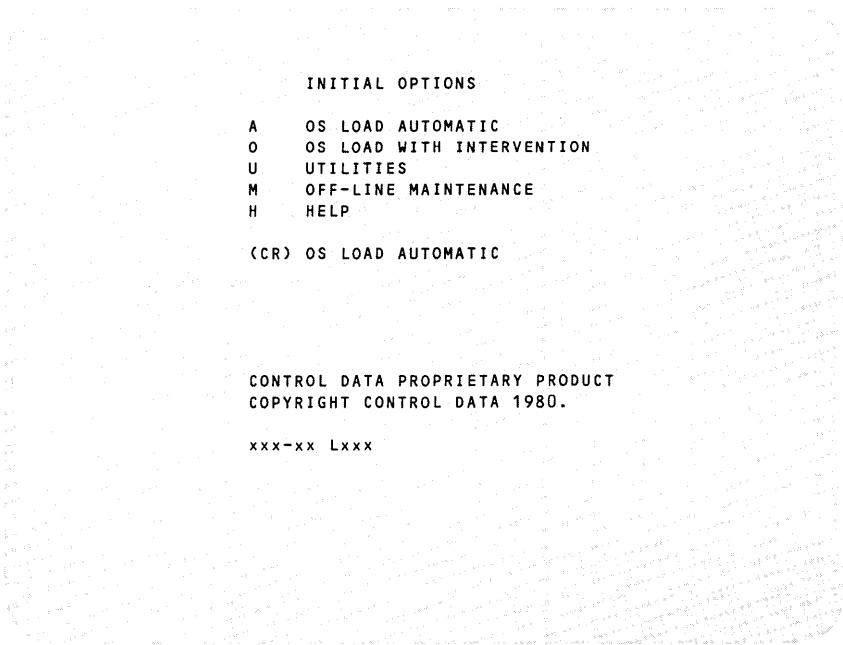
PROGRAM 3 SELECTED
```

The program selected will be the one you used most recently. If program 3 is not selected, see Chapter 13, *Special Procedures*.

4. After program 3 is selected, press **S**.

This selects the system load options.

You will see the INITIAL OPTIONS display. It may take up to 45 seconds for this display to appear.



If you did not turn on the power in step 1, go to step 7. If you turned on the power, proceed with step 5.

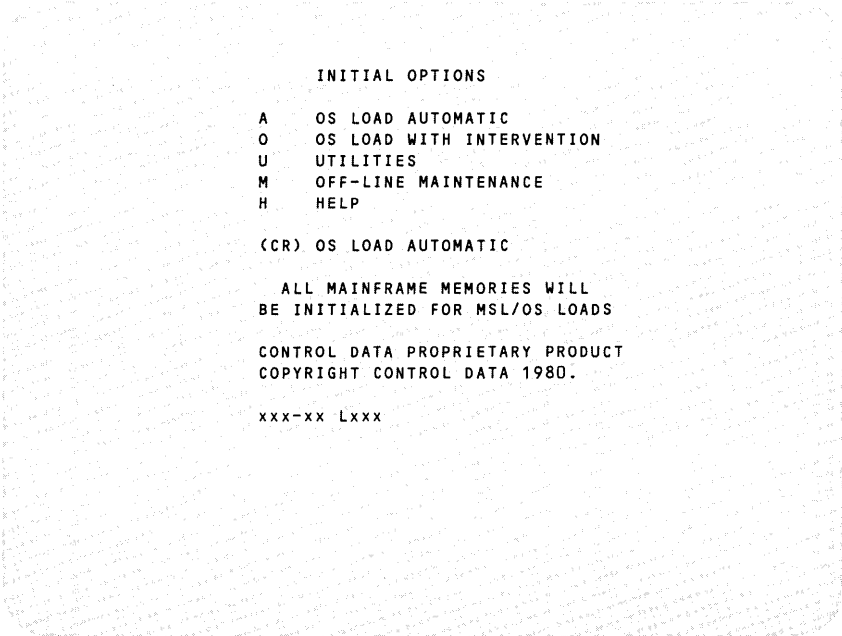
5. Press **U**.

You will see the UTILITIES display.

```
UTILITIES  
E EXPRESS DEADSTART DUMP  
P PRINTER DUMP  
S ALTERNATE DEADSTART  
  DEVICE SELECTION  
D DEFINE AND DISPLAY DEFAULT  
  DEVICE PARAMETERS  
L DISPLAY CIP COMPONENT  
  INFORMATION  
I INITIALIZE MAINFRAME  
  
(CR) EXPRESS DEADSTART DUMP  
(BS) PREVIOUS DISPLAY
```

6. Press .

You will see the INITIAL OPTIONS—MAINFRAME  
INITIALIZATION display.





7. Press  O.

You will see the OPERATOR INTERVENTION display.

OPERATOR INTERVENTION

A - OS LOAD AUTOMATIC  
V - HARDWARE VERIFICATION SEQ.  
H - HARDWARE RECONFIGURATION  
P - DEADSTART PANEL PARAMS  
T - OPERATING SYSTEM FILE  
ON TAPE  
M - LOAD MDD

(CR) - ENTER OS LOAD AUTOMATIC  
(BS) - PREVIOUS DISPLAY

8. Press .

You will see the \*P\* display.

```
          *P*  
  
      (CR) - ENTER OS LOAD AUTOMATIC  
      (BS) - RETURN TO *O* DISPLAY  
  
      I = 0   - INIT/RECOVERY LVL  
      C = 02  - CMRDECK NUMBER  
      D = N   - DISPLAY CMRDECK  
      W12 = 0710 - D/S PANEL WORD 12  
      W14 = 0000 - D/S PANEL WORD 14
```

9. Enter: I=1

This selects deadstart level 1.

10. Press .

You will see some deadstart status messages. Some of these messages stay on the screen for up to 60 seconds. Then you will see the A. SYSTEM DAYFILE display on the left screen and the B.O. SYSTEM STATUS display on the right screen.

The system is now up and ready to process jobs.

## **The Level 3 Deadstart**

The level 3 deadstart keeps the contents of central memory intact, recovers the operating system on disk, and makes the hardware ready to process jobs.

NOS will try to allow jobs to continue executing where they left off. If this is not possible, it will try to restart them. It will abort any jobs that it cannot restart.

You cannot do a level 3 deadstart if you have turned off the power to the mainframe because you will have cleared central memory.

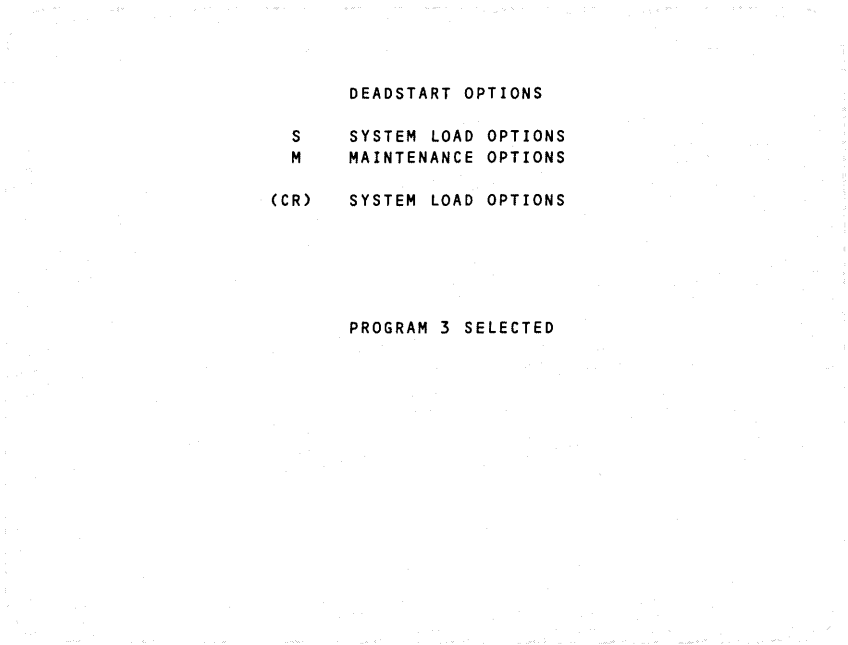
You should do a level 3 deadstart from disk. Follow these steps:

1. Press **CTRL-G**.

Wait for the message: **OPERATOR ACCESS ENABLED**

2. Press **CTRL-R**.

You will see the DEADSTART OPTIONS display.



The program selected will be the one you used most recently. If program 3 is not selected, see Chapter 13, *Special Procedures*.

3. After program 3 is selected, press .

This selects the system load options.

You will see the INITIAL OPTIONS display.

```
                INITIAL OPTIONS

A   OS LOAD AUTOMATIC
O   OS LOAD WITH INTERVENTION
U   UTILITIES
M   OFF-LINE MAINTENANCE
H   HELP

(CR) OS LOAD AUTOMATIC
```

```
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```

```
xxx-xx Lxxx
```

4. Press .

You will see the OPERATOR INTERVENTION display.

OPERATOR INTERVENTION

A - OS LOAD AUTOMATIC  
V - HARDWARE VERIFICATION SEQ.  
H - HARDWARE RECONFIGURATION  
P - DEADSTART PANEL PARAMS  
T - OPERATING SYSTEM FILE  
ON TAPE  
M - LOAD MDD

(CR) - ENTER OS LOAD AUTOMATIC  
(BS) - PREVIOUS DISPLAY

5. Press .

You will see the \*P\* display.

```

                                *P*
(CR) - ENTER OS LOAD AUTOMATIC
(BS) - RETURN TO *O* DISPLAY

I = 0   - INIT/RECOVERY LVL
C = 02  - CMRDECK NUMBER
D = N   - DISPLAY CMRDECK
W12 = 0710 - D/S PANEL WORD 12
W14 = 0000 - D/S PANEL WORD 14
```

6. Enter: I=3

This selects deadstart level 3.

7. Press .

You will see some deadstart status messages, followed by the A. SYSTEM DAYFILE display on the left screen and the B.O. SYSTEM STATUS display on the right screen.

The system is now up and ready to process jobs.

# Using the AUTO Command

The AUTO command brings up the subsystems that you idled and allows job scheduling to resume.

If you shut down the system, you idle NAM, IAF, and MAG and enter the command CHECK POINT SYSTEM, which halts job scheduling.

The AUTO command brings up NAM, IAF, and MAG and allows job scheduling to resume.

If you idle subsystems in order to back up files, you should use the AUTO command to bring up the subsystems.

To use the AUTO command, enter:

AUTO.







---

---

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The NOS displays give you information about the system and the jobs in the system.

## The Displays You Will Use

You will use several different types of displays, named according to the type of information they contain. The following is a list of the displays and the commands you will enter to see the displays.

<b>Display Type</b>	<b>Display Title</b>	<b>Command</b>
System messages	A. SYSTEM DAYFILE	A,.
	A. ERROR LOG	A,ERROR LOG.
	A. JOB DAYFILE	DAYFILE,jsn.
	A. OPERATOR	A,OPERATOR.
Executing jobs	B,A. SYSTEM STATUS	B,A.
	B,O. SYSTEM STATUS	B,O.
	R. ROLLOUT STATUS	Rx. or xR.
Equipment	E,A. EQUIPMENT STATUS	E,A.
	E,M. DISK STATUS	E,M.
	E,P. RESOURCE REQUESTS	E,P.
	E,T. TAPE STATUS	E,T.
Input/output queues	Q. QUEUE STATUS	Q,.
	Q,IN. QUEUE STATUS	Q,IN.
	Q,PR. QUEUE STATUS	Q,PR.
	Q,WT. QUEUE STATUS	Q,WT.
Interactive users	T. INTERACTIVE STATUS	Tx. or xT.
Directory	Z. DIRECTORY	Zx. or xZ.
Customized displays	K. displays	K,jsn.

The individual displays are described in the appendix.

NOS shows you two NOS displays at a time, one on the left screen and one on the right screen. You can use the **F2** or **F4** keys to see only one display in a larger version. (See the section *Using the Keyboard* in Chapter 1.)

## Bringing Up the NOS Displays

You bring up the NOS displays by typing in the commands for the displays on the command line at the bottom of the screen. You can bring up one display at a time or two displays at a time.

### Bringing Up One Display at a Time

If you are bringing up only one display, it will appear on the left screen. To do this, you should type in the command for the display. For example, to see the E,T. TAPE STATUS display, enter:

```
E,T.
```

For commands that end in *jsn* (for example, DAYFILE,jsn), replace *jsn* with the job sequence name (JSN) whose display you want to see. You use these displays when you want to look at a particular job. For example, to see the A. JOB DAYFILE display for a job named AAAC, enter:

```
DAYFILE,AAAC.
```

For commands that contain *x*, you must bring up the display along with another display. (See the next section.)

## Bringing Up Two Displays at a Time

To bring up two displays, enter the first letter of each of the displays you want to see. For example, to see the T. INTERACTIVE STATUS and R. ROLLOUT STATUS displays, enter:

TR.

If you type in two letters followed by a period and one of the letters represents an A, B, E, or Q display, you will see the A, B, E, or Q display that appeared most recently on the screen. For example, let's say that you had been looking at the E,T. TAPE STATUS display on the left screen and the B,O. SYSTEM STATUS display on the right screen. Then you looked at other displays on the left screen that were not in the E series. You can type in EB to bring up the E,T. TAPE STATUS display again.

If the command for a display contains *x* (for example, Rx), you must bring up the display along with another display. Replace *x* with the first letter of another display. For example, to see the R. ROLLOUT and B,O. SYSTEM STATUS displays, enter:

RB.

(This assumes that the B,O. SYSTEM STATUS display was the most recent B display on the screen.)

If you want to see two displays of the same series, bring up one of the displays on the left screen. Then type in the first letter of that display twice and press  to see the same display on the left and right screens. Then you can bring up the other display on the left screen.

For example, if the E,T. TAPE STATUS display is on the left screen and the B,O. SYSTEM STATUS display is on the right screen, enter EE to see the E,T. TAPE STATUS display on the left and right screens. Then you can bring up the E,P. RESOURCE REQUESTS display on the left screen.

# The Information in the Display Headers and Trailer

The information in the header and the trailer is determined by whether the display is on the left or right screen.

## The Left Screen Header

The left screen header contains four lines of information. Line 1 shows the display title. Line 2 shows highlighted messages. Line 3 shows the time, the date, and the name of your system. Line 4 shows the machine identifier and your version of NOS. You will see the information in lines 1, 3, and 4 all the time. You will see a message in line 2 only when there is a message.

The A. SYSTEM DAYFILE display is an example of a display you would see on the left screen.

```
A.  SYSTEM DAYFILE.
      STEP 47
hh.mm.ss. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                      MID=AA      NOS version
-----
09.43.15. AAARC.   ENDW, LOOP.
09.43.15. AAARC.   WHILE, (R1.NE.O), LOOP.
09.43.15. AAARC.   REWIND, NDTFIL1, NDTFIL2.
09.43.15. AAARC.   NETLOG.
09.43.15. AAARC.   MLTF, NORMAL TERMINATION.
09.43.15. AAARC.   IFE, FILE(NDTFIL2, (.NOT BOI).AND.MS). REN
                   AME, NDTFIL1=NDTFIL2.
09.43.15. AAARC.   BEGIN, ROLL, PROCS, R2+B.
09.43.15. AAARC.   ROLLOUT, 1130B.
09.49.19. AAAZB.   CATALOG COMPLETE.
09.53.15. AAARC.   REVERT. MLTFPROC/ROLL.
09.53.15. AAARC.   ENDW, LOOP.
09.53.15. AAARC.   WHILE, (R1.NE.O), LOOP.
09.53.15. AAARC.   REWIND, NDTFIL1, NDTFIL2.
09.53.15. AAARC.   NETLOG.
09.53.15. AAARC.   MLTF, NORMAL TERMINATION.
09.53.15. AAARC.   IFE, FILE(NDTFIL2, (.NOT.80I).AND.MS). REN
                   AME, NDTFIL1=NDTFIL2.
09.53.15. AAARC.   BEGIN, ROLL, PROCS, R2+B.
09.53.15. AAARC.   ROLLOUT, 1130B.
09.54.13. AAASB.   REWIND, LGO.
-----
REPEAT ENTRY
DAYFILE, AAAR.
```

## **Display Title**

The title of the display is on the first line; for example, A. SYSTEM DAYFILE.

## **Messages**

Messages appear on the second line. The only message that you will need to respond to is the STEP 47 message, which is discussed in Chapter 11, *Interpreting Messages*. Other messages that may appear on this line will be ones that you placed there in the process of executing a procedure. These are explained in the discussions of the individual procedures.

## **Time**

A 24-hour clock on the third line registers the hour, minute, and second in the format hh.mm.ss.

## **Date**

The date on the third line gives the year, month, and day in the format yy/mm/dd.

## **System Name**

The name of your system is on the third line; for example, CDC NETWORK OPERATING SYSTEM.

## **Machine Identifier**

The machine identifier (MID) is on the fourth line; for example, MID=AA.

## **Version of NOS**

The number indicating which version of NOS you have is on the fourth line in the format NOS version.



## The Right Screen Header

The right screen header contains up to four lines of information. These lines contain the display title and messages.

The B,O. SYSTEM STATUS display is an example of a display you would see on the right screen.

```
B,O. SYSTEM STATUS.          MAG. CHECK *E,P* DISPLAY  
SEE *A,OPERATOR*          NAM. REQUEST *K* DISPLAY
```

---

CP	JSN	STATUS
1	IAF	NETWORK CONNECTED.
2	NAM	REQUEST *K* DISPLAY
3		
4		
5	AAAD CT8	SMM V4.0-0.
6		
7	AAAH CMU	SMM V4.0-0.
10	AAAF FS8	SMM V4.0-0.
11		
12	AAAE CU8	SMM V4.0-0
13	AABT PSU	VERSION 1.0.
14	AAAC CSU	SMM V4.0-0.
15	AAAB ALX	SMM V4.0-0.
16		
17		
20		
21	AAAC MRG	SMM V4.0-0.
22		
23	MAG	CHECK *E,P* DISPLAY
24	SYS	CHECKPOINT COMPLETE.

---

## Display Title

The title of the display is on the left in the first line; for example, B,O. SYSTEM STATUS.

## **Messages**

The message SEE \*A,OPERATOR\* sometimes appears on the left in line 2. Messages from the subsystems, such as SYS. HUNG PP or MAG. CHECK \*E,P\* DISPLAY, sometimes appear on the right in lines 1 through 4.

You should respond to any message you see in the right screen header. For information on how to respond to these messages, see Chapter 11, *Interpreting Messages*.

## **The Screen Trailer**

The screen trailer is the last three lines on the left and right screens (lines 28, 29, and 30). The screen trailer contains the status lines and the command line.

## **The Status Lines**

Messages about the displays or about the status of the system appear on lines 28 and 29. For example, you might see a message like the following:

```
INCORRECT ENTRY  
DISK BUSY  
PP BUSY  
MTR BUSY  
REPEAT ENTRY
```

For more information on the status messages, see Chapter 11, *Interpreting Messages*.

## **The Command Line**

The commands you enter appear on line 30.





---

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---

After your system is installed, you will create user names for the users on your system and grant them certain privileges. A user name is the name a person uses to log in to the system.

If you have a display terminal that supports full screen interaction, you can use the `WRITEVI` command at the terminal to create user names. This command allows you to create user names quickly and efficiently. If you do not have this type of terminal, you should use the `VALUSER` command to create user names at the console. You can also use these commands to change a user's privileges or delete a user name.

Your user name `INSTALL` was created during installation with the user type `SYSADM`. The user type `SYSADM` gives you all the privileges you need to perform the tasks described in this manual.

## **NOTE**

---

Only create user names or change user privileges when you are directed to do so by the person responsible for allowing access to the computer.

---

# Creating User Names on a Display Terminal

To create user names for the users on your system, follow these steps:

1. At a terminal, log in to the IAF subsystem of NOS with the user name INSTALL and your password.

For information about logging in, see the *NOS 2 Reference Set, Volume 1, Introduction to Interactive Usage*.

You will see the slash (/) prompt.

2. Enter: SCREEN,terminal

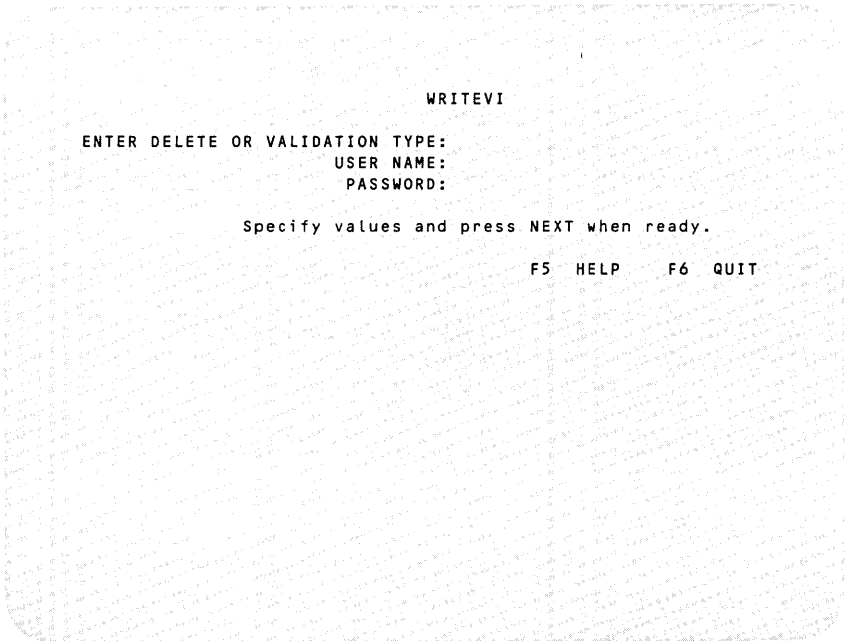
Replace *terminal* with the characters that identify your type of terminal. For example, if you have a 721 terminal, enter:

SCREEN,721

You will see the slash (/) prompt.

### 3. Enter: MS(WRITEVI)

You will see the WRITEVI display.



You will use this display to create user names, change a user's privileges, or delete user names.

The WRITEVI display has three fields. After you type in information in one field, **do not press** . You should press the tab key (  ) to advance the cursor to the next field. If you need to return to a previous field, press the backtab key (  ). You can type over letters to change them. You can also press the backspace key (  ) to erase a letter.

After you have typed in all the information, check to make sure it is correct and then press  to enter the information.

For the following instructions, remember to replace any word shown in lower case (for example, type) with the specific word indicated in the explanation that follows each instruction.



4. Type in: type

Replace *type* with the word NOLIMIT or LIMITED. The LIMITED type restricts the system resources for the user. The NOLIMIT type allows a user unlimited system resources.

You should give all users the LIMITED type. If this type becomes too restrictive for some users, you can change the type to NOLIMIT for those users.

5. Press .

This moves the cursor to the USER NAME field.

6. Type in: username

Replace *username* with a name of from 1 to 7 characters. The characters may be letters or numbers.

7. If you want to use the default password UNSECUR, go to step 8.

If you want to type in a password, press  to move to the PASSWORD field.

Type in a password of from 4 to 7 characters. The characters may be letters or numbers.

You can give all users the same password and let users change their own passwords.

8. Press .

You will see a new WRITEVI display.

9. Repeat steps 4-8 to create a user name for each user on your system.

10. After you have created the last user name, press  to quit.

You will see the following message:

REVERT. MS (WRITEVI) COMPLETED.

11. Enter: BYE

This logs you out of NOS.

12. At the console, bring up the A. SYSTEM DAYFILE and B,O. SYSTEM STATUS displays.
13. Enter: X.MS(VALUSER)

This takes the user names that you entered using the WRITEVI display and installs them on NOS.

You will see the following message on the B,O display next to a JSN:

REQUEST,OPER. VALUSER COMPLETE

If the message REQUEST,OPER. VALUSER FAILED appears on the B,O display, see Chapter 11, *Interpreting Messages*.

14. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN from the B,O display.

This clears the message.

15. You should tell users their user names and passwords. Tell them also that they can now log in to the system.

# Creating a User Name at the Console

Instead of creating user names at a terminal, you can create user names at the console. This method is not efficient for installing multiple users, but it is convenient for installing one user. Follow these steps:

1. Bring up the A. SYSTEM DAYFILE and B,O. SYSTEM STATUS displays.
2. Enter: X.MS(VALUSER,type,username[,password])

Replace *type* with the word NOLIMIT or LIMITED. The LIMITED type restricts the system resources for the user. The NOLIMIT type allows a user unlimited system resources.

You should give all users the LIMITED type. If this type becomes too restrictive for some users, you can change the type to NOLIMIT for those users.

Replace *username* with a name of from 1 to 7 characters. The characters may be letters or numbers.

Replace *password* with a password of from 4 to 7 characters. The characters may be letters or numbers.

You can give all users the same password and let users change their own passwords.

If you do not include a password, the user will have the default password UNSECUR.

On the B,O display, you will see the following message next to a JSN:

```
REQUEST,OPER. VALUSER COMPLETE
```

If the message REQUEST,OPER. VALUSER FAILED appears on the B,O display, see Chapter 11, *Interpreting Messages*.

3. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN from the B,O display.

This clears the messages.

4. You should tell users their user names and passwords. Tell them also that they can now log in to the system.

## Creating User Names for Control Data Service Representatives

Occasionally you will want a Control Data service representative to have access to your system to do maintenance. The two types of service representatives to whom you would give access are a customer engineer and a software support person. You will need to create user names for these people. The user names are valid for seven days.

You can create these user names at the console, using the procedure described above. The validation type for the customer engineer is CDCCHS, and for the software support person is CDCCSS.

You should tell the Control Data service representatives to set their terminals for half duplex and even parity.

## Changing a User's Validation Type

You can change a user's validation type at the terminal or at the console. If you change the type at the terminal, follow the steps in the section *Creating User Names on a Display Terminal* in this chapter. On the WRITEVI display, type in the new type and the old user name. When you press  to enter the information, the new type will replace the old type. The password will default to UNSECUR. (You should tell the user of the change in password.)

If you change the type at the console, follow the steps in the section *Creating a User Name at the Console* in this chapter. In the VALUSER command, type in the new type and the old user name. When you press  to enter the information, the new type will replace the old type. The password will default to UNSECUR. (You should tell the user of the change in password.) Continue with the rest of the procedure for creating user names.

## Deleting a User Name

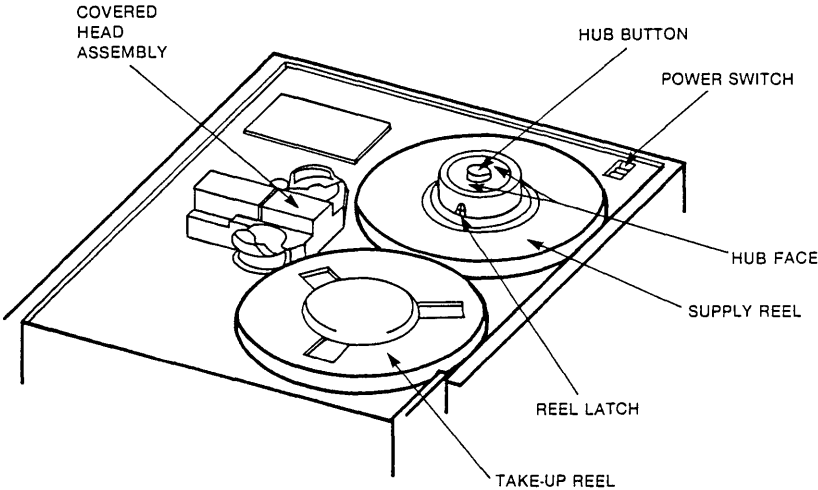
You can delete a user name at the terminal or at the console. Use the same procedure you use to create a user name, but type in DELETE for the validation type.



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There are several occasions when you will use tapes with your CYBER Supermini. You will use tapes to back up (copy) files so that you will have a copy in case a disk file is damaged or erased. You will use tapes to copy files that you want to store in an archive and purge from disk. Also, you will use tapes when you install a new system or if you modify the system.

The CYBER Supermini uses the 639 tape drive. The following diagram shows the top of the tape drive.



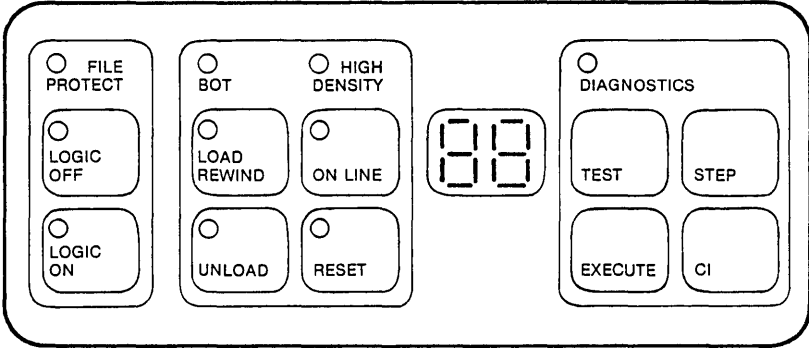


# Turning On the Tape Drive

To turn on the tape drive, follow these steps:

1. Turn on the power switch by pressing down the side of the switch marked 1.

The LOGIC ON indicator will light up.



If the LOGIC ON indicator does not light up, press the LOGIC ON switch.

The tape drive will run an internal health check. If a fault code appears on the control panel, press the RESET and LOGIC OFF switches to clear the fault code. Then press the LOGIC ON switch to repeat the health check. If a fault code reappears, refer to the table inside the lid to correct the problem.

If the health check is successful, the FILE PROTECT indicator will light up.

2. If NOS is already up and running when you turn on the power switch, then at the console enter: ON,est.

This changes the status of the tape drive from DOWN to IDLE on the E,T display. Replace *est* with the EST number of the tape drive.

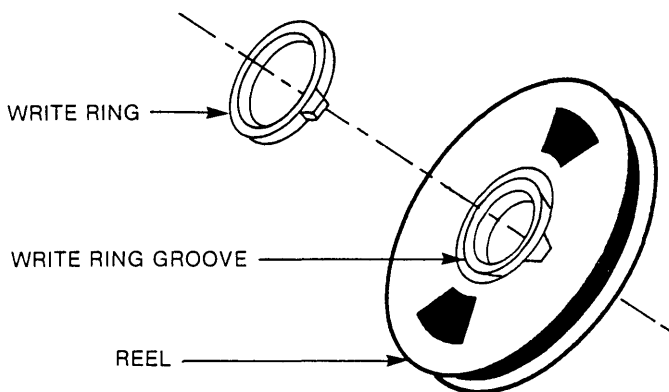
If you turn on the tape drive before you start NOS, the status of the tape drive on the E,T display is IDLE when NOS comes up.

## Mounting a Tape

When you mount a tape, you place it on the tape drive and make it available to the user.

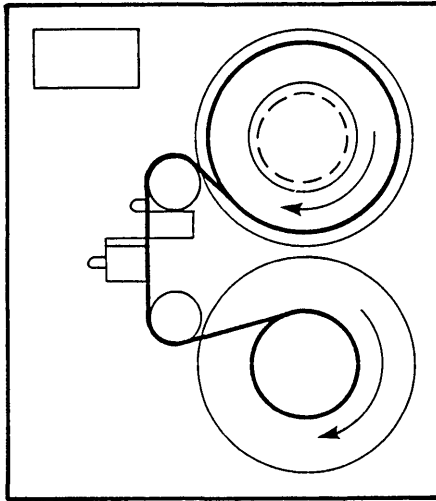
To mount a tape, follow these steps:

1. Decide whether you want to read the tape or write on the tape. If you want to write on the tape, insert the plastic write ring in the write ring groove of the tape. (See diagram.) If you are only going to read the tape, be sure that the write ring is removed.



2. Open the lid of the tape drive by sliding the plastic latch to the rear.
3. Press the button in the center of the supply reel hub to release the reel latches.
4. If the tape has a protective strap, remove it.
5. Mount the tape on the hub so that the write ring groove faces the tape drive.
6. Press down on the hub face to latch the reel.

7. Thread the tape leader through the tape path. (See diagram below.)  
Be sure to thread the leader correctly to avoid damaging the tape.



8. Loop the tape leader clockwise around the take-up reel and turn the reel several times.
9. Close the lid of the tape drive.

You are now ready to load the tape.

10. Press the LOAD/REWIND switch.

The take-up reel will wind the tape until the beginning of tape/end of tape (BOT/EOT) sensor detects the BOT reflective marker.

If you threaded too much tape onto the take-up reel so that you positioned the BOT marker after the BOT/EOT sensor, the tape drive will wind the tape forward for 40 feet, stop, and then back up to look for the BOT marker.

When the tape drive detects the BOT marker, the BOT indicator will light up. The tape is now loaded (or at load point).

11. Press the ON LINE switch to make the tape available to the user.

The ON LINE indicator will light up.

You may press the ON LINE switch while the tape is loading. The ON LINE indicator will then light up after the tape is loaded.

# Removing a Tape

Before you remove a tape, you must **unload** the tape. Unloading a tape is the process of rewinding the entire tape onto the supply reel. There are three ways to unload a tape:

- A job can include the UNLOAD command to rewind the tape.
- You can enter the UNLOAD command from the console to rewind the tape. NOS will process the command when the tape drive is no longer assigned to the job.
- You can press the UNLOAD switch on the tape drive to rewind the tape. You should use this method only if NOS is not up.

**If NOS is up**, follow these steps to unload a tape:

1. Bring up the E,T display.
2. Enter: UNLOAD,est.

Replace *est* with the EST number of the tape drive.

The tape will rewind onto the supply reel when the tape drive is no longer assigned to the job.

**If NOS is not up**, follow these steps to unload a tape:

1. At the tape drive, press the RESET switch.
2. Press the UNLOAD switch.

This places the tape drive off-line.

The tape will rewind onto the supply reel.

**To remove a tape**, follow these steps:

1. Open the lid of the tape drive.
2. Press the button in the center of the supply reel hub.

The hub unlatches and releases the supply reel.

3. Remove the tape.

Avoid squeezing the sides of the reel or in any way making them come in contact with the tape edges. Stretched, wrinkled, or creased edges can cause loss of data.

Also, be careful not to allow the tape or tape leader to touch the floor or other dirty surfaces. Dust and dirt that adheres to the tape will be transferred to the tape drive guides and heads.

4. If the reel has a write ring inserted, remove the ring.
5. Replace the protective strap on the tape if the tape has one.
6. Close the lid of the tape drive.

This prevents dust from accumulating on the working parts of the tape drive.

# Labeling Tapes

A tape that has never been used is a blank tape. A blank tape is one type of unlabeled tape.

You use unlabeled tapes to deadstart the system and to take an express deadstart dump. For all other jobs, you will label the tapes you use.

You label tapes with the **BLANK** command. This command erases any information that was on the tape. If you want to reuse a tape, you can use the **BLANK** command to erase the old data and assign a new label to the tape. If you want to remove a label from a tape, you can use the **WRITEF** command to remove the label and erase any information that was on the tape. This creates an unlabeled tape.

## Labeling a Tape for a User's Job, a Dayfile Backup, or a Queue File Backup

To label a tape for a user's job, a dayfile backup, or a queue file backup, follow these steps:

1. Mount a 6250-cpi tape with a write ring inserted.
2. Bring up the B,O. SYSTEM STATUS display.
3. Enter: X.BLANK(VSN=*vs*n,D=GE)

Replace *vs*n with a volume serial number of from 1 to 6 characters. The characters may be letters or numbers. If you plan to use the tape to back up dayfiles or queue files, you can use the following strategy:

For dayfiles, use the VSN Dmmdd, where mm is the month and dd is the day of the backup. For example, a tape to be used on July 12 would have the VSN D0712.

For queue files, use the VSN Qmmdd, where mm is the month and dd is the day of the backup.

GE indicates that you are using a high density (6250-cpi) tape.

On the B,O display, you will see the message CHECK \*E,P\* DISPLAY in the right-hand corner and the message REQUEST BLKTAPE,GE at a control point, next to a JSN.

4. Enter: ASSIGN,*js*n,*est*.

Replace *js*n with the JSN from the B,O display. Replace *est* with the EST number of the tape drive.

This assigns the tape to the job and erases the messages. The job writes the label on the tape.

5. Enter: UNLOAD,*est*.

Replace *est* with the EST number of the tape drive.

This unloads the tape.

6. Remove the tape.
7. Write the VSN on an identification sticker and place the sticker on the tape.



## Labeling Tapes for a Permanent File Backup

A permanent file backup requires multiple tapes for one backup. You must label all the tapes you will need before you begin the backup. You should allow one 2400-foot, 6250-cpi tape for each disk.

To label tapes for a permanent file backup, follow these steps:

1. Mount a tape with a write ring inserted.
2. Bring up the B,O display.
3. Enter: X.MS(BLANKST,setname,n)

Replace *setname* with the set name Pmmdd, where mm is the month and dd is the day of the backup. For example, a tape that you use on July 12 would have the set name P0712.

Replace *n* with the number of disks (from 2 to 8).

On the B,O display, you will see the message CHECK \*E,P\* DISPLAY in the right-hand corner and the message REQUEST BLKTAPE,GE at a control point, next to a JSN.

4. Enter: ASSIGN,jsn,est.

Replace *jsn* with the JSN from the B,O display. Replace *est* with the EST number of the tape drive.

This assigns the tape to the job. The job writes the volume serial number (VSN) Pmmdd1 on the tape and generates a request for a new tape at the control point.

5. Enter: UNLOAD,est.

Replace *est* with the EST number of the tape drive.

This unloads the tape.

6. Remove the tape.
7. Write the VSN on an identification sticker and place the sticker on the tape.
8. Mount the next tape.

9. Enter: ASSIGN,*jsn*,*est*.

Replace *jsn* with the JSN from the B,O display. Replace *est* with the EST number of the tape drive.

This assigns the tape to the job. The job writes the VSN Pmmddn on the tape, where n is the volume number of the tape.

10. Enter: UNLOAD,*est*.

Replace *est* with the EST number of the tape drive.

This unloads the tape.

11. Remove the tape.

12. Write the VSN on an identification sticker and place the sticker on the tape.

13. If there are more tapes, you will see a request for a new tape at the control point. You should repeat steps 8-12 for each tape.

If this is the last tape, the following message appears at the control point:

REQUEST,OPER. BLANKST COMPLETE.

14. Enter: ASSIGN,*jsn*,2.

Replace *jsn* with the JSN from the B,O display.

This clears the message.

## Removing a Label from a Tape

You may want to remove a label from a tape to use the tape to create a deadstart tape. You should follow these steps:

1. Mount the tape with a write ring inserted.
2. Enter: X.DIS.

This takes you into the DIS program. In DIS, you can enter commands that you would normally enter at a terminal.

3. Enter: ASSIGN,*est*,TAPE,LB=KU,PO=W.

Replace *est* with the EST number of the tape drive.

This assigns a tape with a file name of TAPE. It is unlabeled (LB=KU) and in write mode (PO=W).

4. Enter: WRITEF,TAPE.

This removes the label from the tape.

5. Enter: DROP.

This drops the DIS program and returns you to the NOS displays.

6. Enter: UNLOAD,*est*.

Replace *est* with the EST number of the tape drive.

This unloads the tape.

7. Remove the tape.
8. Remove the identification sticker.

# Responding to a User's Request for a Tape

Users will request tapes by entering the REQUEST command or the LABEL command at their terminals. You should tell users to enter an UNLOAD command as soon as they are finished using the tape. Otherwise, a tape drive could continue to be assigned to a user's job even though the user is no longer using the tape drive.

When a user enters the REQUEST or LABEL command, you will see the message CHECK \*E,P\* DISPLAY in the right screen header and on the B,O display. You should follow these steps:

1. Bring up the E,P and E,T displays.

You will see the user's request on the E,P display.

2. Check the E,T display to see whether the tape drive is assigned to a job or available for use.
  - If a JSN is in the JSN column, the tape drive is assigned to a job. You can enter a DIAL command if you think the user is finished with the tape and has neglected to enter an UNLOAD command. (See Chapter 13, *Special Procedures*.)
  - If no JSN is in the JSN column and the VSN column contains any information, a tape is mounted on the tape drive. You should enter the UNLOAD command to unload the tape and make the tape drive available for use.
  - If no JSN is in the JSN column and no VSN is in the VSN column, no tape is mounted on the tape drive. The tape drive is available for use.
3. When the tape drive is available, mount a tape with a VSN and ring status that match the user's request on the E,P display.

The user's request will be erased from the E,P display. If the system is busy, it may take several minutes for this to happen.

4. When the user is finished with the tape drive, the VSN and JSN columns on the E,T display will be blank. You should remove the user's tape.

# Responding to a User's Request to Read an EDD Tape

If you have taken an express deadstart dump (EDD), you might want a service representative from Control Data to analyze the dump. The service representative would log in to a terminal and enter a request for the EDD tape.

You should tell the service representative to use the following command:

```
REQUEST,DUMP,GE,VSN=nn,LB=KU,PO=R,F=S.
```

Replace *nn* with the number of the dump. This number is on the identification sticker.

This requests a tape with a file name of DUMP, a density of GE (6250-cpi), and a VSN that corresponds to the number of the dump. The tape is unlabeled (LB=KU), in read mode (PO=R), and formatted in stranger format (F=S).

When the service representative enters the REQUEST command, you will see the message CHECK \*E,P\* DISPLAY in the right screen header and on the B,O display. You should follow these steps:

1. Bring up the E,P and E,T displays.

You will see the request on the E,P display.

2. Check the E,T display to see whether the tape drive is assigned to a job or available for use.
  - If a JSN is in the JSN column, the tape drive is assigned to a job. You can enter a DIAL command if you think the user is finished with the tape and has neglected to enter an UNLOAD command. (See Chapter 13, *Special Procedures*.)
  - If no JSN is in the JSN column and the VSN column contains any information, a tape is mounted on the tape drive. You should enter the UNLOAD command to unload the tape and make the tape drive available for use.
  - If no JSN is in the JSN column and no VSN is in the VSN column, no tape is mounted on the tape drive. The tape drive is available for use.

3. When the tape drive is available, mount the EDD tape with the VSN that matches the VSN in the request on the E,P display.
4. Enter: VSN,est,vsn.

Replace *est* with the EST number of the tape drive and *vsn* with the VSN of the tape (this matches the number of the dump).

The JSN of the request will appear in the JSN column of the E,T display. The VSN will replace the tape drive EST number in the VSN column.

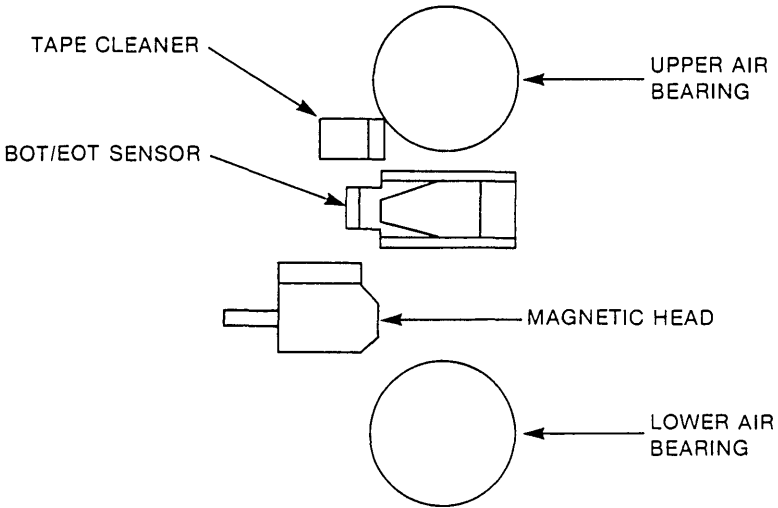
The request will be erased from the E,P display.

5. When the Control Data service representative is finished with the tape drive, the VSN and JSN columns on the E,T display will be blank. You should remove the EDD tape.

# Cleaning the Tape Drive

You should clean the tape drive after every eight hours of use to maintain high quality, trouble-free performance. Clean the following areas of the head assembly:

- Magnetic head
- BOT/EOT sensor
- Supply reel hub pads
- Tape cleaner
- Air bearings



In addition, you should clean the housing, tape deck, and lid as needed.

## **Cleaning Materials**

Use these materials to clean the tape drive:

Tape Transport Cleaner (P/N 95961030)  
or Isopropyl Alcohol (P/N 12210956)  
or Freon TF (P/N 12210068)

Caution: Avoid prolonged breathing of the vapor from the Tape Transport Cleaner. Avoid having it touch your skin or clothing. Use it in a well ventilated area.

Disposable Gloves (P/N 95962550)  
Foam Swabs (P/N 12218463)  
Two Lint-Free Cloths (P/N 94211400)

## **Method for Cleaning the Tape Drive**

1. Remove the 2-part cover from the head assembly by pulling it off.
2. Moisten one lint-free cloth with tape transport cleaner. Do not soak the cloth. Use the cloth to clean the magnetic head, air bearings, and supply reel hub pads.
3. Clean the magnetic head by wiping the recording surface of the head in the same direction that the tape moves.
4. Clean the two air bearings, including the foil, guide springs, and tape guides.
5. Clean the three supply reel hub pads.
6. Clean the inside of the 2-part cover of the head assembly.
7. Moisten a foam swab with tape transport cleaner. Use the swab to clean the BOT/EOT sensor and tape cleaner.
8. Clean the BOT/EOT sensor and reflective strips.
9. Clean the tape cleaner blades.
10. Place the 2-part cover on the head assembly.
11. With the second lint-free cloth, clean the tape deck, lid, and housing if needed.



## Installing Reflective Tape Markers

The tapes you use come with reflective markers to indicate the beginning of tape (BOT) and end of tape (EOT). These markers are placed 10 to 18 feet from the actual beginning or end of the tape on the side of the tape that is further from the hub.

If a marker becomes detached or if you shorten a tape leader to less than 10 feet because of damage, you must install a new marker. You should use markers that are 1.2 inches long and .2 of an inch wide. These markers have a reflective coating on one side and an adhesive coating on the other.

You should place the BOT marker at the edge of the tape that is further from the tape deck. Place the EOT marker at the edge of the tape that is nearer to the tape deck. Press firmly on the marker to be sure that it sticks tightly.

## Detecting Errors

If a fault code appears on the control panel, refer to the table inside the lid to correct the problem. Then press the RESET switch and the LOAD/REWIND switch.



---

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This chapter describes how to use the 533 printer or the faster 536 printer. These printers are usually equipped with either a 96-character band or a 64-character band. The 96-character band printer prints in upper and lower case. The 64-character band printer prints in upper case only and prints faster than a 96-character band printer of the same type.

If you have only one printer or if you have two printers with the same type of character band, you can use your printers as soon as you install NOS. If you have one 96-character band printer and one 64-character band printer, you must enter a forms code after each time you deadstart NOS to define the 96-character band printer. See the sections *Using the Printer Support Utility (PSU) Commands* and *Defining a Printer* in this chapter.

## Operating the Printer

The printer comes with instruction cards attached to the top of the printer, just under the plastic lid. These cards cover the following topics:

- Turning the printer on
- Turning the printer off
- Setting the paper length
- Adding paper
- Changing the ribbon
- Unjamming the printer

To open the lid, reach under the center area of the printer and pull the metal latch toward you.

To turn on the power switch for the printer, reach under the right-hand area of the printer and press the plastic switch.

Other information that you will need to maintain the printer is included on the instruction cards, except for setting the top of form.

# Setting the Top of Form

A form is a type of paper. For example, your site might use 8½ by 11 inch forms, 14 by 11 inch forms, letterhead forms or label forms. When you set the top of form, you tell the printer where to begin printing on each form. To set the top of form, follow these steps:

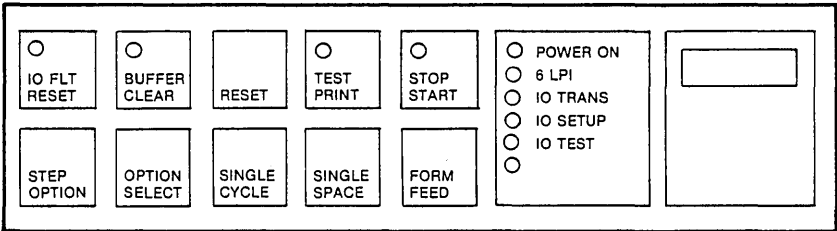
1. Turn on the power switch.

Reach under the right-hand area of the printer and press the plastic switch.

2. Turn the paper roller so that you line up the form's top perforation with the top of the ribbon.
3. Turn off the power switch.
4. Turn on the power switch.

This sets the top of form. When you press the **FORM FEED** switch, the paper will advance to the same relative position on the next form.

5. Press the **STOP/START** switch.



This makes the printer available for users. The indicator on the **STOP/START** switch will light up.

# Using the Printer Support Utility (PSU) Commands

To use the Printer Support Utility (PSU) commands, you must communicate with PSU. You do this by using the K display.

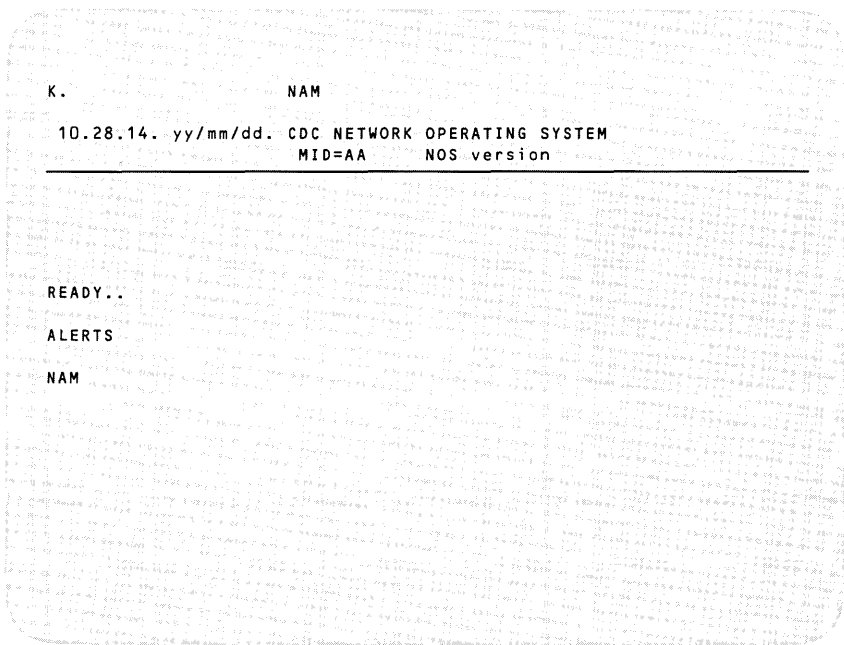
Follow these steps to use a PSU command:

1. If the indicator on the STOP/START switch is not lit up, press the STOP/START switch to turn on the printer.

The indicator on the STOP/START switch will light up.

2. Enter: K,NAM.

You will see the NAM K display.



3. Enter: K.ST.

You will see the NAM STATUS display.

```
K.                NAM
10.45.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                    MID=AA      NOS version
-----
NIN = 146 REG LVL = 3 NO OF APPLS = 6 MAX FL = 060000

APP      JSN      STATUS  I   NCN   AC   NSM   NDM   TIME UP
NVF      AAAX      100000  N   0     0    0    0    10.42.33
CS       AAAZ      100000  N   0     0    0    0    10.42.33
TVF      AABA      100000  N   0     0    0    0    10.42.33
NS       AAAY      100000  N   0     0    0    0    10.42.33
IAF      IAF       000000  N   0     0    0    0    10.42.37
PSU      AABE      600000  N   1     0    0    0    10.44.23

EST  HN   NSM   NHM   NLM   IVTSTAT  PRUSTAT  NPUREJ
ALERTS
NAM           ST
```

Note the JSN on the PSU line. In the example above, the JSN is AABE.

4. Enter: K,jsn.

Replace *jsn* with the JSN for PSU from the NAM STATUS display.

You will see the PSU display.

```
K.  PSU.                AABE

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                    MID=AA      NOS version
-----
***  PRINTER SUPPORT UTILITY ***

PRINTER  JSN    ID  FC  REP  PCT  MAX  STATUS
PRINT01  AACZ   0           12      ACTIVE
```

If you get the message JSN ROLLED, wait until PSU rolls in. When it rolls in, you will see the PSU display.



The columns on the display contain the following information:

<b>Column</b>	<b>Information</b>
PRINTER	The name of your printer. You will have one or two. The first printer is named PRINT01 and the second one, PRINT02.
JSN	The job sequence name of the file that is printing on the printer.
ID	The identification of the printer. This option is not used with this release of NOS.
FC	The forms code. If you assigned a forms code to a printer, it appears in this column.
REP	The number of copies left to be printed. REP stands for REPEAT COUNT.
PCT	The percentage of the file that has already been printed.
MAX	The maximum size of a file that the printer will print.
STATUS	The status of the printer, where:  IDLE means that the printer is not printing now.  WAIT means that the printer is starting or ending a job.  ACTIVE means that the printer is printing.  STOP means that you have halted printing with the STOP command.  OFF means that you have disabled the printer with the OFF or the DISABLE command.

5. If you want to see the PSU HELP display, which describes the commands, enter:

KK.

The PSU display will remain on the left screen and the PSU HELP display will appear on the right screen.

```
K.  PSU.                AABE

-----
PSU COMMAND             DESCRIPTIONS
-----
BKSPRU,PN,NN           BACKSPACE LISTING -NN- SECTORS
CONTINU,PN             RESUME PRINTING AFTER STOP
DISABLE,PN,BANNER      INHIBIT BANNER PAGES
.....PRINTER          REMOVE PRINTER FROM SERVICE
ENABLE,PN,BANNER       PERMIT BANNER PAGES
.....PRINTER          RETURN PRINTER TO SERVICE
END,PN                TERMINATE LISTING
FORM,PN,FC             ASSIGN FORM CODE TO PRINTER
MAXIMUM,PN,NN         IGNORE LENGTHY LISTINGS
OFF,PN                DISABLE PRINTER
ON,PN                 ENABLE PRINTER
REPEAT,PN,NN          ASSIGN REPEAT COUNT TO LISTING
RERUN,PN              RESTART LISTING LATER
SELECT,PN,JSN         PRINT FILE -JSN- NEXT
SKIPRU,PN,NN          FORWARD LISTING -NN- SECTORS
STOP,PN               HALT PRINTING UNTIL CONTINUE

WHERE  FC = ALPHANUMERIC FORM CODE
       JSN = JOB SEQUENCE NAME
       NN = DECIMAL NUMBER       XX = OCTAL NUMBER
       PN = PRINTER NAME
```

6. Enter: K.command

Replace *command* with a PSU command from the HELP display. See the next sections for a discussion of these commands. You may enter more than one command.

7. Press ERASE to clear K. from the command line.

You can now enter commands that bring up other displays. Later you can return to the PSU displays by entering KK.

## Defining a Printer

If you have two printers, you can define one of them so that files that have certain characteristics are routed to that printer. You can do this using one of two possible definitions:

- a printer that receives only files written in upper and lower case
- a printer that ignores lengthy listings

### **A Printer That Receives Only Files Written in Upper and Lower Case**

If one of your printers has a 64-character band and the other has a 96-character band, you must enter the forms code AS after each time you deadstart NOS to define the 96-character band printer as the printer that receives files written in upper and lower case. Use the following command:

```
K.FORM,pn,AS.
```

Replace *pn* with the name of the printer that has the 96-character band.

This defines the 96-character band printer as the one that will accept files written in upper and lower case. Users must add the options EC=A9 and FC=AS to the ROUTE command when they print these files. NOS will route these files to the 96-character band printer.

### **A Printer That Ignores Lengthy Listings**

If both your printers have the same type of character band, you can route short listings to one printer and long listings to the other. To do this, define one printer as the printer that ignores lengthy listings. Use the following command:

```
K.MAXIMUM,pn,nn.
```

Replace *pn* with the name of the printer. Replace *nn* with the maximum number of PRUs. A PRU is a unit of measurement. For files in upper case, one PRU contains up to 640 characters. For files in upper and lower case, one PRU contains up to 320 characters.

## Disabling a Printer

The `DISABLE` command allows a printer to finish printing the current file but prevents it from printing new files. To disable a printer, use the following command:

```
K.DISABLE,pn,PRINTER.
```

Replace *pn* with the name of the printer.

## Enabling a Printer

To return a disabled printer to service, use the following command:

```
K.ENABLE,pn,PRINTER.
```

Replace *pn* with the name of the printer.

# Changing the Forms Code

You might want to change the form on the printer to a different type of form. For example, you might want to change from 8½ by 11 inch forms to letterhead forms or label forms. To do this, you must first disable the printer. Then you can change the forms on the printer and change the forms code to allow the printer to print files with the new forms code.

To change the forms code, follow these steps:

1. Disable the printer.
2. Change the forms on the printer.

See the instructions on the cards attached to the printer.

3. Change the forms code. Use the following command:

```
K.FORM,pn,fc.
```

Replace *pn* with the name of the printer. Replace *fc* with a two-character forms code associated with the forms that are on the printer. You may use any two characters to describe a particular form. You should tell your users which forms codes you have associated with each form. The printer will print files that users have routed to the printer with that forms code.

The form you use most of the time (called the default form) does not need to have a forms code to identify it. To remove a forms code, use the following command:

```
K.FORM,pn.
```

4. Enable the printer.

## Moving a Job Up in Sequence

If a user has a rush job, you can move that job up in the printing sequence. Use the following command:

```
K.SELECT,pn,jsn.
```

Replace *pn* with the name of the printer. Replace *jsn* with the job sequence name of the job you have selected to print next.

You must allow that job to print before you can use the SELECT command again. Otherwise, the first job will lose its place in the printing sequence.

## Reprinting a File

If you want to reprint a file that is currently printing, use the following command:

```
K.RERUN,pn.
```

Replace *pn* with the name of the printer.

You would use this command if a printer malfunction caused an error in the printout.

## Stopping the Printing

If you want a printer to temporarily stop printing a file, use the following command:

```
K.STOP,pn.
```

Replace *pn* with the name of the printer.

You would use this command if you noticed an error caused by a printer malfunction. You could then backspace to a line that preceded the error and continue the printing.

## Backspacing in a File

To backspace to a line that precedes an error, use the following command:

K.BKSPRU,*pn*,*nn*.

Replace *pn* with the name of the printer. Replace *nn* with the number of PRUs. A PRU is a unit of measurement. For files in upper case, one PRU contains up to 640 characters. For files in upper and lower case, one PRU contains up to 320 characters.

The HELP display refers to the number of sectors. One sector equals one PRU.

## Resuming Printing After an Interruption

If you have used the STOP command to interrupt printing, you can resume printing with the following command:

K.CONTINU,*pn*.

Replace *pn* with the name of the printer.

## Making Multiple Copies

If you want multiple copies of a file, you can request copies from the console after the job has started printing. Use the following command:

K.REPEAT,*pn*,*nn*.

Replace *pn* with the name of the printer. Replace *nn* with the number of copies.

# Skipping Portions of a File

You can direct the printer to skip a portion of a file while the file is printing. You might use this command because you backspaced too far, or because you do not need a particular portion. To skip a section, use the following command:

```
K.SKIPRU,pn,nn.
```

Replace *pn* with the name of the printer. Replace *nn* with the number of PRUs. A PRU is a unit of measurement. For files in upper case, one PRU contains up to 640 characters. For files in upper and lower case, one PRU contains up to 320 characters.

The HELP display refers to the number of sectors. One sector equals one PRU.

# Eliminating Banner Pages

If you are printing on special forms such as checks or labels, you might want to eliminate banner pages. A banner page contains the date, time, service class, job name, family name, user name, and other identifying information about a job.

```
OPERATING SYSTEM = NQS 2      crtdat#      PRINTED = yy/mm/dd   hh.mm.ss
UJN                = AJLA      FAMILY       = CYBER        JOB ORIGIN   = INTERACTIVE
CREATING JSN     = ABNS      USER NAME  = STARSKY   SERVICE CLASS = INTERACTIVE

##### JJJJJJJJJJ LL       #####      #####      #?      #?      #?      #?      #?
#####      JJJJJJJJJJ LL       #####      #####      #?      #?      #?      #?      #?
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
##### JJ      LL       #####      #####      #?      #?      #?      #?      #?
##### JJ      LL       #####      #####      #?      #?      #?      #?      #?
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJ      JJ      LL       AA      AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJJJ JJJ LLLLLLLLLLL LL       AA      AA      AA      AA      AA      AA      AA      AA      AA
AA      AA      JJJJ LLLLLLLLLLL LL       AA      AA      AA      AA      AA      AA      AA      AA      AA
```

You can use the information on the banner page to identify printouts. The first four characters of the block letters are the user's unique identifier. You can use this identifier to return listings to the user. The last four characters are the print file's job sequence name (JSN).

To eliminate banner pages, use the following command:

```
K.DISABLE,pn,BANNER.
```

Replace *pn* with the name of the printer.



## Permitting Banner Pages

If you have eliminated banner pages, you can permit banner pages to be printed again with the following command:

```
K.ENABLE,pn,BANNER.
```

Replace *pn* with the name of the printer.

## Dropping a File

You can drop a file after it has started printing with the following command:

```
K.END,pn.
```

Replace *pn* with the name of the printer. PSU will erase the file.

To drop a file before it has started printing, use the NOS DROP command. Enter:

```
DROP,jsn,PR.
```

Replace *jsn* with the job sequence name. NOS will erase the file from the print queue.

A user can give the DROP command from a terminal.



# Shutting Down the System

---

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You can leave your system running 24 hours a day or you can shut it down from the end of one day to the beginning of the next. Shutting down the system includes the following steps:

1. Bringing down the subsystems NAM and IAF. The process of bringing down subsystems is called **idling** subsystems.
2. Assuring file integrity by idling the subsystem MAG and entering the CHECK POINT SYSTEM command
3. Turning off the power to the mainframe

If you want to back up all the permanent files, you must idle the subsystems NAM and IAF. If you leave these subsystems up, you will not back up any files that are attached in write mode to these subsystems.

Several hours before you plan to shut down the system, you can send the WARN message to remind users that you will shut down the system at a certain time. The WARN message goes to all interactive users. If they are not yet logged in, they will see the message when they log in. If they are already logged in, they will see the message the next time NOS prompts them for a command. To send the WARN message, enter:

```
WARN,text
```

Replace *text* with your message; for example:

```
NOS WILL SHUT DOWN TODAY AT 1645.
```

The text may not be more than 48 characters long. Spaces and punctuation marks count as characters.

# Idling the Subsystems NAM and IAF

To idle the subsystems NAM and IAF, follow these steps:

1. Look at the B,O display to see if NAM and IAF are active.

NAM and IAF are listed in the JSN column on the B,O display if they are active.

If NAM is active, proceed with step 2. If NAM is not active, go to step 11.

2. Enter: K,NAM.

This assigns NAM to the K display. The K display allows you to communicate with NAM.

You will see the NAM K display.

```
K.                NAM
10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                   MID=AA      NOS version
```

---

```
READY..
```

```
ALERTS
```

```
NAM
```

3. Enter: K.AP=CS

This tells the K display to use the Communications Supervisor (CS) application (AP). The CS application allows you to communicate with interactive users through the NPU.

Commands to the K display must begin with *K*.

You will see the CS display.

4. Enter: K.SEND,NPUS,MSG=text

The SEND command is a CS command. The SEND,NPUS command sends a message to each user in the network through the NPU. Users will see the message immediately.

MSG stands for message.

Replace *text* with your message; for example:

THE SYSTEM WILL SHUT DOWN AT 1645.

The text may not be more than 36 characters long. Spaces and punctuation marks count as characters.

5. Enter: K.\*

You will see the NAM K display.

6. Enter: K.AP=NVF

This tells the K display to use the Network Validation Facility (NVF) application.

NVF permits valid users to gain access to the network.

You will see the NVF display.

7. Enter: K.IDLE,HOST

The IDLE,HOST command is an NVF command. It prevents new users from logging in to the system. It allows users already in the system to have five more minutes in the system. It then brings down NAM.

The HOST is the computer.

8. Look at the T display to see if any users are still logged in. The T display lists users who are logged in to IAF.

If any users are listed, proceed with steps 9 and 10. If no users are listed, go to step 11.

9. Enter: DIAL,*jsn*,*text*

The DIAL command sends a message to the user who is assigned the job sequence name.

Replace *jsn* with the job sequence name for the user's job. Replace *text* with your text; for example:

THE SYSTEM IS CLOSED. PLEASE LOG OUT.

The text must not exceed 48 characters.

10. Wait until the T display no longer lists active users.

11. Enter: IDLE,IAF.

This brings down IAF.

You can back up all the permanent files at this point. See Chapter 9, *Maintaining Files*.

## Assuring File Integrity

To assure file integrity, you should idle MAG and enter the CHECK POINT SYSTEM command. Idling MAG allows you to be sure that no jobs have tapes assigned to them.

The CHECK POINT SYSTEM command rolls out all jobs and writes the system critical tables, which reside in central memory, to a checkpoint file on disk. If you do not enter the CHECK POINT SYSTEM command, you might lose permanent files when you deadstart the system.

To assure file integrity, follow these steps:

1. Enter: IDLE,MAG.

If no one has a tape drive assigned to a job, you will see MAG disappear from the B,O display. If someone is using a tape drive, MAG will finish the job but will prevent new jobs from being attached to the tape drive. However, since the level 1 deadstart will cause a job to lose its position on the tape, your site should set a policy of dropping jobs that have tapes still assigned to them when you shut down the system.

2. If MAG is still on the B,O display, check the E,T display for the JSN of the job attached to the tape drive. Enter:

DROP,*jsn*.

Replace *jsn* with the JSN of the job. This drops the job.

3. Enter: CHECK POINT SYSTEM.

You will see the message CHECKPOINT COMPLETE on the B,O. SYSTEM STATUS display.



# Turning Off the Power

As an optional step, you can turn off the power to the mainframe. Follow these steps:

1. Press **CTRL** - **G**.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press **CTRL** - **R**.

You will see the DEADSTART OPTIONS display.

3. Press **M**.

You will see the MAINTENANCE OPTIONS display.

4. Enter: OFF PWR.

You will see the message: ENTER POWER CONTROL PASSWORD.

5. Enter the power control password.

See Chapter 13, *Special Procedures*, for instructions on setting this password.

You will see the message: POWER DOWN INITIATED.

Then you will see the message: POWER IS OFF.

After 10 seconds you will see a blank screen.



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You should perform certain routine procedures to maintain the files on disk. These include:

- Checking the disks for available space
- Backing up (copying) files from disk to tape
- Loading files from tape to disk

NOS shows you a completion message when you have completed certain procedures. These messages are described in the instructions. If NOS tells you that a procedure has failed, see Chapter 11, *Interpreting Messages*.

The following sections describe the procedures.

## Checking Disk Levels

To keep your system running smoothly, you should make sure that each of the disks has at least 50 percent of its space available for new files. Otherwise, you run the risk of having a job require more disk tracks than the system has available. If this happens, you will have reached a track limit on a disk. NOS will show you the TRACK LIMIT error message on the A. OPERATOR display. (See the NOS displays in the appendix.) If NOS is using files on the affected disk, it cannot add information to the ends of those files.

To maintain 50 percent available space, you back up and purge old files every one or two months and back up and purge dayfiles every week. If you still do not have 50 percent of the space available, you should either add more disks or back up and purge these files more often.

You should check the disk levels once a week, just before you shut down the system. At that time, users will have returned temporary files, so these files will not be occupying disk space.

To see how much space you have left on your disks, follow these steps:

1. Enter: E,M.

You will see the E,M display.

2. Check to make sure that the number in the TRKS column for each disk is greater than 1456.

1456 is 50 percent of the total number of tracks.

If you have extended memory, it is represented as a disk with an EST number of 5. It is not a disk. You should not consider it when you are checking for disk tracks.

## Backing Up Files

You should copy the files on NOS from disk to tape at routine intervals to protect the system from losses in case a user accidentally erases a file on disk or in case a system malfunction causes the loss of files on disk.

The process of copying files to tape is called backing up files or dumping files.

## Types of Backups

There are several types of backups:

A **full backup** (or full dump) copies all the permanent files to tape. To do a full backup, you use the `DUMPALL` command.

An **incremental backup** (or incremental dump) copies the permanent files that have been modified since the last full backup. To do an incremental backup, you use the `DUMPMOD` command.

An **archival backup** (or archival dump) copies the permanent files that have not been used since a specified date and purges these files from the disks. To do an archival backup, you use the `DUMPOLD` command.

A **dayfile backup** (or dayfile dump) copies the dayfiles to tape. To do a dayfile backup, you use the `DUMPLOG` command. The `PURGE` option allows you to purge the files from disk.

To back up dayfiles, you must first copy the dayfiles to a permanent file. This process, called **terminating** the dayfiles, uses the `ENDLOG` command.

A **queue file backup** (or queue file dump) copies the input and print queues to tape. To do a queue file backup, you use the `DUMPQUE` command.

How often you back up your files depends on how users use the system. Generally, you might want to do an incremental backup once a day and a full backup once a week. You would do an archival backup every month or two to clear space for new files on your disks. You should not have to back up the queue files unless you are initializing a disk or have reached a track limit. Chapter 10, *Designing a Maintenance Schedule*, offers guidelines for scheduling maintenance.

The E,T and B,O displays are the displays you will need to use when you back up the files.

The methods for handling tapes are described in Chapter 6. Refer to that chapter for precise instructions on handling tapes.

The following sections describe how to back up the files.

## Full Backup

To do a full backup, you must idle the subsystems and make sure no batch jobs are running. Otherwise, NOS will not back up any files that are attached in write mode to the subsystems or jobs.

You will need a set of labeled tapes. The section *Labeling Tapes for a Permanent File Backup* in Chapter 6 gives instructions for labeling a set of tapes.

Follow these steps to do a full backup:

1. Idle the subsystems NAM and IAF.

See Chapter 8, *Shutting Down the System*.

2. Insert a write ring in the first backup tape and mount the tape.
3. Enter: X.MS(DUMPALL,setname)

The system copies the permanent files to tape.

Replace *setname* with the set name you used when you labeled the tapes.

4. When you see the MOUNT message on the E,T display, insert a write ring in the next tape and mount the tape.
5. Wait for the following message under the status column on the B,O display:

```
REQUEST,OPER. DUMPALL COMPLETE
```

6. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

7. Remove the backup tape.
8. You can either continue shutting down the system (see the section *Assuring File Integrity* in Chapter 8) or you can bring up the subsystems with the AUTO command. When you bring up the subsystems, you should check the printout that has the banner MS. It will list any files that were not backed up.

## Incremental Backup

You can do an incremental backup while users are working with their files. However, the system will not back up any files that are attached in write mode during the backup.

You will need a set of labeled tapes. The section *Labeling Tapes for a Permanent File Backup* in Chapter 6 gives instructions for labeling a set of tapes.

Follow these steps to do an incremental backup:

1. Insert a write ring in the first backup tape and mount the tape.
2. Enter: `WARN,text`

Replace *text* with a message of no more than 48 characters; for example:

```
RETURN FILES FOR BACKUP.
```

The `WARN` message goes to all interactive users. If they are not yet logged in, they will see the message when they log in. If they are already logged in, they will see the message the next time `NOS` prompts them for a command. You should allow users a few minutes to return their files.

3. Enter: `X.MS(DUMPMOD,setname)`

Replace *setname* with the set name you used when you labeled the tapes.

The system copies the permanent files that have been modified since the last full backup.



4. When you see the MOUNT message on the E,T display, insert a write ring in the next tape and mount the tape.
5. Wait for the following message under the status column on the B,O display:

REQUEST,OPER. DUMPMOD COMPLETE

6. Enter: ASSIGN,*jsn*,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

7. Enter: WARN.

This clears the WARN message.

8. Remove the backup tape.
9. Check the printout that has the banner MS. It will list any files that were not backed up.

## Archival Backup

You will need a set of labeled tapes. The section *Labeling Tapes for a Permanent File Backup* in Chapter 6 gives instructions for labeling a set of tapes.

To do an archival backup, follow these steps:

1. Insert a write ring in the first backup tape and mount the tape.
2. Enter: X.MS(DUMPOLD,setname,date)

Replace *setname* with the set name you used when you labeled the tapes.

Replace *date* with a date from 30 to 60 days before today's date. Use the format *yymmdd*.

3. Wait for the following message under the status column on the B,O display:

REQUEST,OPER. STOP OR PURGE

4. Enter: DAYFILE,jsn.

Replace *jsn* with the JSN that is on the same line as the message.

This brings up the DAYFILE display.

5. Check to make sure the date in the DUMPOLD message is correct.

- If the date is correct, enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This tells the system that you want to purge files.

The system copies the files that have not been used since the date you specified and purges them from the disk.

Wait for the following message under the status column on the B,O display:

```
REQUEST,OPER. DUMPOLD COMPLETE
```

- If the date is incorrect, enter: DROP,jsn.

Replace *jsn* with the JSN that is on the same line as the message.

This drops the job.

Wait for the following message under the status column on the B,O display:

```
REQUEST,OPER. DUMPOLD STOPPED
```

You should repeat the archival backup using the correct date.

6. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

7. Remove the backup tape.

8. Check the printout that has the banner MS. It will list all files that have been backed up.

## Dayfile Backup

To back up dayfiles, you must first copy the dayfiles to a permanent file. This process is called **terminating** the dayfiles.

To terminate the dayfiles, follow these steps:

1. Enter: X.MS(ENDLOG)

ENDLOG copies each of the preserved dayfiles to permanent files named DAYFILE, ACCOUNT, ERRLOG, and MAINLOG. If these permanent files exist, ENDLOG adds the preserved dayfiles to the existing permanent files.

Wait for the following message under the status column on the B,O display:

```
REQUEST,OPER. ENDLOG COMPLETE
```

2. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point.

To back up and purge the dayfiles, you will need a labeled tape. The section *Labeling a Tape for a User's Job, a Dayfile Backup, or a Queue File Backup* in Chapter 6 gives instructions for labeling a tape.

Follow these steps to back up and purge the dayfiles:

1. Insert a write ring in the backup tape and mount the tape.
2. Enter: X.MS(DUMPLOG,vsn,PURGE)

Replace *vsn* with the VSN you used when you labeled the tape.

The system copies the permanent files DAYFILE, ACCOUNT, ERRLOG, and MAINLOG to tape and purges them from the disk. The permanent files were created by the ENDLOG command.

3. Wait for the following message under the status column on the B,O display:

REQUEST,OPER. DUMPLOG COMPLETE

4. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

5. Remove the backup tape.

You can back up the dayfiles without purging them from the disk. To do this, replace step 2 with the following step:

2. Enter: X.MS(DUMPLOG,vsn)

Replace *vsn* with the VSN you used when you labeled the tape.

## Queue File Backup

You will back up the input and print queue files if you are planning to initialize the disks or you need to free some space because you have reached a track limit.

You will need a labeled tape. The section *Labeling a Tape for a User's Job, a Dayfile Backup, or a Queue File Backup* in Chapter 6 gives instructions for labeling a tape.

Follow these steps to back up the queue files:

1. Insert a write ring in the backup tape and mount the tape.
2. Enter: X.MS(DUMPQUE,vsn)

The system copies the queue files to tape and purges them from the disk.

Replace *vsn* with the VSN you used when you labeled the tape.

3. Wait for the following message under the status column on the B,O display:

```
REQUEST,OPER. DUMPQUE COMPLETE
```

4. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

5. Remove the backup tape.

## Loading Files

Loading files is the process of copying files from tape to disk. There are several occasions when you will need to load files.

For example, the person who runs the accounting program could load the ACCOUNT file to disk. If a user accidentally erases a disk file or wants to retrieve a file from the archive, you might be asked to load the backup copy of the file to disk. When you install or modify the system, you must load files to disk.

The following procedures describe how to load specific kinds of files.

## Loading All Permanent Files

If you have initialized a disk and need to reload the files or if you want to reload all files on an archive tape, follow these steps:

1. Bring up the E,T and B,O displays.
2. Mount the first tape from the set of backup tapes that you want to load.

If you are loading files from incremental and full backups, begin with the incremental backup.

3. Enter: X.MS(LOADF,setname)

Replace *setname* with the set name of the tape.

You will see messages on the B,O display indicating that LOADF is loading files.

4. When you see the MOUNT message on the E,T display, mount the next tape.

The entry in the VSN column is the VSN of the next tape.

If you have loaded files from the last tape of an incremental backup, LOADF requests the first tape from the previous full backup.

5. After the last tape, you will see the following message on the B,O display:

REQUEST,OPER. LOADF COMPLETE

6. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

7. Remove the backup tape.



## Loading a User's Files

If a user wants you to load a file from a previous backup or to load all the files from a previous backup, follow these steps:

1. Bring up the E,T and B,O displays.
2. Mount the first tape from the set of backup tapes that you want to load.
3. Enter: X.MS(LOADF,setname,username[,pf1][,pf2])

Replace *setname* with the set name of the tape. Replace *username* with the user name. Replace *pf1* with the name of the first file you want to reload. Replace *pf2* with the name of the second file you want to reload. You can reload up to two files each time you enter the LOADF command.

If you want to reload all of the user's files, do not use the pf option. LOADF will load all the files associated with that user name.

You will see messages on the B,O display indicating that LOADF is loading files.

4. When you see the MOUNT message on the E,T display, mount the next tape.

The entry in the VSN column is the VSN of the next tape.

If you have loaded files from the last tape of an incremental backup, LOADF requests the first tape from the previous full backup.

5. After the last tape, you will see the following message on the B,O display:

```
REQUEST,OPER. LOADF COMPLETE
```

6. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

7. Remove the backup tape.

## Loading Dayfiles

This procedure loads the ACCOUNT, DAYFILE, ERRLOG, and MAINLOG dayfiles.

To load the dayfiles, follow these steps:

1. Mount the dayfile tape.
2. At a terminal, log in to the IAF subsystem of NOS.

For information about logging in, see the *NOS 2 Reference Set, Volume 1, Introduction to Interactive Usage*.

You will see the slash (/) prompt.

3. Enter: SCREEN,terminal

Replace *terminal* with the characters that identify your type of terminal. For example, if you have a 721 terminal, enter:

```
SCREEN,721
```

You will see the slash (/) prompt.

4. Enter: MS(LOADLOG)

You will see the LOADLOG display.

```
                                LOADLOG

                                VOLUME SERIAL NUMBER:
LOAD ACCOUNT FILE.  ENTER YES OR NO:
LOAD DAYFILE FILE.  ENTER YES OR NO:
LOAD ERRLOG FILE.   ENTER YES OR NO:
LOAD MAINLOG FILE.  ENTER YES OR NO:

                                Specify values and press NEXT when ready

                                F5  HELP  F6  QUIT
```

The LOADLOG display has five fields. After you type in information in one field, **do not press** . You should press the tab key (

After you have typed in all the information, check to make sure it is correct and then press  to enter the information.

5. Type in: `vsn`

Replace *vsn* with the VSN of the dayfile tape.

6. Respond to the questions on the display to select the files you want to load.
7. Press .

You will see the message `LOADLOG COMPLETE`.

## Loading Queue Files

If you have initialized a disk or if you have backed up the queue files because you reached a track limit, you will need to load the queue files. Follow these steps:

1. Mount the queue file tape.
2. Enter: X.MS(LOADQUE,*vs*n)

Replace *vs*n with the VSN of the tape.

Wait for the following message on the B,O display:

REQUEST,OPER. LOADQUE COMPLETE

3. Enter: ASSIGN,*js*n,2.

Replace *js*n with the JSN that is on the same line as the message.

This clears the message and releases the control point. The tape will unload.

4. Remove the backup tape.



# Designing a Maintenance Schedule

Daily Tasks..... 10-1

Weekly Tasks..... 10-1

Monthly Tasks..... 10-1

Other Tasks..... 10-2

In order to keep your system running smoothly, you should perform certain routine maintenance tasks. These include backing up (copying) the permanent files to a tape, backing up the dayfiles to a tape, and checking the disk drives, tape drives, and printers. You can use the schedule below as a guide in designing your own maintenance schedule.

## Daily Tasks

- Terminate the dayfiles.
- Back up the modified files. (These are files that have been created or changed since the last full backup.)

## Weekly Tasks

- Check disk levels.
- Back up the dayfiles.
- Back up all the permanent files.

### **NOTE**

---

If you do not back up the dayfiles frequently, you will run out of disk space.

---

## Monthly Tasks

Back up files that have not been used for one or two months and purge these files from the disks.



## Other Tasks

- Clean head units on tape drives after every eight hours of use.
- Change the paper and ribbon on the printer.
- Label tapes.

For information on maintaining files and checking disk levels, see Chapter 9. For information on the equipment, see the individual chapter that discusses each piece of equipment.



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NOS displays messages to give you information about routine functions, to ask you to respond to requests, or to tell you if the system has a problem that needs your intervention.

These messages appear in the left and right screen headers and the screen trailer and on the B,O display. Messages that appear on the other NOS displays are discussed in the appendix. Messages that appear while you are deadstarting NOS are discussed in Chapter 12, *Solving Problems*.

This chapter is divided into two sections: a list of messages and instructions for responding to the messages.

## A List of Messages

The following list identifies the messages you would see in the screen headers and trailer and on the B,O display.

### **Left Screen Header**

ENGR  
STEP 47  
UNLOCK

### **Right Screen Header**

The job sequence name SYS or MAG precedes some of these messages.

CHECK \*E,P\* DISPLAY  
CHECK \*E,T\* DISPLAY  
CM FATAL ERROR  
CM SHUTDOWN IMMINENT  
CPU FATAL ERROR  
CPU SHUTDOWN IMMINENT  
CPUMTR ERROR EXIT  
ERROR ON ACTIVE DEVICE  
HUNG PP  
IOU FATAL ERROR

IOU SHUTDOWN IMMINENT  
MCH FATAL ERROR  
NO MONITOR RESPONSE  
POWER/ENVIRONMENT NORMAL  
PP HUNG  
REQUEST \*K\* DISPLAY  
SEE \*A,OPERATOR\*

## **Screen Trailer**

DISK BUSY  
F1 FOR UPPER  
F1 FOR LOWER  
F5 FOR UPPER  
F5 FOR LOWER  
INCORRECT ENTRY  
MTR BUSY  
PPU BUSY  
REPEAT ENTRY

## **B.O. SYSTEM STATUS Display**

CPU FAILURE - GO TO CONTINUE TESTING  
GO/DROP ESTnnn Cnn En Unnn ALnn DCnnnn  
REQUEST,OPER. procedure COMPLETE  
REQUEST,OPER. procedure FAILED

# Responding to the Messages

The following sections tell you what each message means and how to respond to the message. If you are instructed to use a special procedure, such as taking an express deadstart dump or initializing a disk, see Chapter 13, *Special Procedures*. If you are instructed to bring up a display, see the appendix for a discussion of the individual display.

## Left Screen Header Messages

**ENGR.** You gave the `ENABLE,ENGR` command to allow a Control Data service representative to run diagnostic tests. The word `ENGR` appears in the left screen header. See Chapter 13, *Special Procedures*, for more information on this procedure.

**STEP 47.** This message tells you that the system is in step mode. The system puts itself in step mode when it detects a main power failure or any other abnormal condition. All activity stops and the system does not process requests from the peripheral processors.

When the system puts itself in step mode, you will see other messages in the right screen header telling you of a problem with the system. You should check the sections describing those messages for instructions.

**UNLOCK.** You gave the `UNLOCK` command to unlock the console. This command allows you to use a set of powerful commands that you would not use for normal operations. To lock the console, enter:

`LOCK.`

## Right Screen Header Messages

**CHECK \*E,P\* DISPLAY.** You see this message because a user is requesting that you mount a tape. You should bring up the E,P display to determine what to do.

**CHECK \*E,T\* DISPLAY.** You see this message because a job requires an additional tape. You should bring up the E,T display to determine what to do.

**CM FATAL ERROR.** Central memory has detected a hardware error. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**CM SHUTDOWN IMMINENT.** This message indicates that either the temperature or the humidity has gone outside the normal range (from 15 degrees Celsius to 32 degrees Celsius for the temperature and from 20 percent to 80 percent for the humidity). When this happens, the system will shut itself down. You will see the message STEP 47 in the left screen header. You should follow these steps:

1. Make sure that no objects have been placed on top of the mainframe cabinet. These could obstruct the air vents.
2. Adjust the temperature or the humidity.

If they do not need adjusting, you should call your Control Data service representative.

3. Wait for the following message in the right screen header:

POWER/ENVIRONMENT NORMAL

4. Make sure that the tape drive, NPU, and printer have regained power.

5. Enter: UNLOCK.

You must unlock the console to take the system out of step mode. You will see the word UNLOCK in the left screen header.

6. Enter: UNSTEP.

This takes the system out of step mode.

7. Enter: LOCK.

This locks the console.

8. Enter: AUTO.

This brings up the subsystems that were idled when the system shut down.

**CPU FATAL ERROR.** While the CPU was executing a program, it detected a hardware error. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**CPU SHUTDOWN IMMINENT.** See the message *CM SHUTDOWN IMMINENT*.

**CPUMTR ERROR EXIT.** When the CPU monitor (CPUMTR), which is the portion of the system monitor that executes in the CPU, was executing code, the CPU detected a hardware or software error. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.



**ERROR ON ACTIVE DEVICE.** A disk has an error. You should bring up the E,M display to identify the error and determine what to do.

**HUNG PP. MTR,** which is the portion of the system monitor that resides in peripheral processor 0 (PP0), has detected an incorrect request from another PP. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**IOU FATAL ERROR.** The input/output unit (IOU) has detected an error. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**IOU SHUTDOWN IMMINENT.** See the message *CM SHUTDOWN IMMINENT*.

**MCH FATAL ERROR.** NOS has detected an error on the maintenance channel. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**NO MONITOR RESPONSE.** The display driver issued a request to the system monitor and did not receive a response within the expected time. You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**POWER/ENVIRONMENT NORMAL.** This message indicates that the power and environment are normal after a **SHUTDOWN IMMINENT** message. You might see this message if the temperature or humidity return to the normal range without your intervention. If this happens, follow steps 4 through 8 under the message *CM SHUTDOWN IMMINENT*.

**PP HUNG.** CPUMTR, which is the portion of the system monitor that executes in the CPU, has detected an incorrect request from a peripheral processor (PP). You should follow these steps:

1. Do an express deadstart dump.
2. Do a level 3 deadstart.
3. If the level 3 deadstart does not start the system, do a level 0 deadstart.
4. Call your Control Data service representative to report the error.

**REQUEST \*K\* DISPLAY.** A job is requesting your attention. Check the B,O display, where you will see the message repeated next to a JSN. Enter:

K,jsn.

Replace *jsn* with the JSN from the B,O display.

This brings up the K display. Follow the instructions on the display. If the K display was requested by the subsystem NAM, you will see the NAM K display. You should look at the ALERTS line for a message.

- If you see no additional information on the ALERTS line, you do not need to respond in any way.
- If you see the message CS, the Communications Supervisor has a request. You should tell NAM to ignore the request. Enter:

K.IG=CS

- If you see the message NS, the Network Supervisor has detected an error. You should call your Control Data service representative.
- If you see the message NVF, the Network Validation Facility has detected an error. You should call your Control Data service representative.

**SEE \*A,OPERATOR\*** When you see this message, you should bring up the A. OPERATOR display. The A. OPERATOR display contains messages that tell you about system conditions. Some of these conditions require your intervention and some do not.

## Screen Trailer Messages

**DISK BUSY.** NOS was not able to process a command because the disk was busy. You should wait for the message to clear.

**F1 FOR UPPER.** Press  to see the upper section of a display on the left screen.

**F1 FOR LOWER.** Press  to see the lower section of a display on the left screen.

**F5 FOR UPPER.** Press  to see the upper section of a display on the right screen.

**F5 FOR LOWER.** Press  to see the lower section of a display on the right screen.

**INCORRECT ENTRY.** NOS does not recognize the command you typed in. You can press  to erase the command and the message. Then you can enter the command correctly. If NOS still rejects the command, make sure you are using the command in the right circumstances.

**MTR BUSY.** While processing a command, NOS was not able to get the monitor (MTR) to perform a function because MTR was busy. Wait for the message to clear.

**PPU BUSY.** While processing a command, NOS was not able to get a peripheral processor (PP) to perform a function because all PPs were busy. You should wait for the message to clear.

**REPEAT ENTRY.** You pressed  before you finished typing in a command. NOS will retain the command on the screen so that you can execute it more than once. If you do not want to do this, press  to erase the command and the message.

## **B.O. SYSTEM STATUS Display Messages**

This section discusses highlighted messages that appear on the B,O display. You do not need to respond to messages that are not highlighted.

Highlighted messages that appear on the B,O display and in the right screen header are discussed in the section *Right Screen Header Messages* in this chapter.

**CPU FAILURE - GO TO CONTINUE TESTING.** A maintenance job has detected an error. You should follow these steps:

1. Enter: GO,jsn.

Replace *jsn* with the JSN that precedes the CPU FAILURE message.

2. If the test fails again, enter: DROP,jsn.

Replace *jsn* with the JSN that precedes the CPU FAILURE message.

The job will copy information about the failure to a print file. When the file prints, the name of the maintenance job (ALX, CSU, CT8, CU8, FF8, or MRG) appears in the block letters on the banner page.

3. Give the print file to your Control Data service representative.

**GO/DROP ESTnnn Cnn En Unn ALnn DCnnnn.** A Control Data service representative is assigning equipment for diagnostic tests.

If you want the service representative to proceed with the tests, enter the following command:

GO,jsn.

Replace *jsn* with the JSN that precedes the GO/DROP message.

If you do not want the service representative to proceed with the tests, enter the following command:

DROP,jsn.

Replace *jsn* with the JSN that precedes the GO/DROP message.

**REQUEST,OPER. procedure COMPLETE.** The procedure you were using succeeded. You should follow the steps under that procedure.

**REQUEST,OPER. procedure FAILED.** The procedure you were using failed. You should follow these steps:

1. Enter: DAYFILE,jsn.

Replace *jsn* with the JSN that is on the same line as the message.

The DAYFILE display shows you information that might help you determine the cause of the failure.

2. Enter: ASSIGN,jsn,2.

This produces a printout with the banner MS. Study the printout to determine the cause of the failure. Make the correction and repeat the procedure.







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Problems That Users Have.....	12-8

This chapter discusses problems for which you do not see a system message in a header or trailer or on the B,O display to alert you. It covers the following categories of problems:

- Problems while turning the power on
- Problems while turning the power off
- Problems while deadstarting NOS
- Problems while installing CIP or NOS
- Problems while printing files
- Problems while using tapes
- Problems that users have

Certain procedures are designed to take several minutes to complete. The time for these procedures is noted in the instructions. For other procedures, if you do not see an expected response within 60 seconds, you should first try the procedure again and then make any corrections that are recommended under the individual procedure (see below). If the problem continues either immediately or intermittently, you should call your Control Data service representative. Write down any error messages you see and save these for your representative to analyze.

This chapter assumes you are using the CYBER Supermini hardware and software that Control Data supplies. Before calling your Control Data service representative, make sure that your own procedures or applications are not causing the problem.

# Problems While Turning the Power On

**Problem:** You pressed **CTRL-G** and did not see the message OPERATOR ACCESS ENABLED.

**Response:** Make sure the 2-port mux key for port 0 is set in the DS & PWR ENABLED position. You should press the RESET button on the front of the console.

**Problem:** You pressed **CTRL-R** and saw the message POWER IS OFF. REMOTE POWER CONTROL DISABLED.

**Response:** The 2-port mux key for port 0 is set in the DS ENABLED position. Turn it to DS & PWR ENABLED.

**Problem:** You entered Y and saw the message POWER IS STILL OFF. POWER UP SEQUENCE TERMINATED.

**Response:** Power did not come on within 30 seconds. You should retry the procedure.

**Problem:** You see a blank screen.

**Response:** If this happens any time except when the power is off, you waited more than 10 seconds to enter the next command. You should repeat the sequence of commands, beginning with **CTRL-G**.

# Problems While Turning the Power Off

**Problem:** You pressed `CTRL-G` and did not see the message OPERATOR ACCESS ENABLED.

**Response:** Make sure the 2-port mux key for port 0 is set in the DS & PWR ENABLED position. You should press the RESET button on the front of the console.

**Problem:** You entered OFF PWR and saw the message POWER IS STILL ON.

**Response:** Power did not turn off within 30 seconds. You should repeat the sequence of commands, beginning with `CTRL-G`.

**Problem:** You entered your password and saw the message IMPROPER PASSWORD, TRY AGAIN.

**Response:** Enter your password again. Be careful to type it correctly.

**Problem:** You entered your password and saw the message OPERATOR ACCESS DENIED.

**Response:** You have entered the wrong password three times. You will not be able to use the console to turn off the power.

**Problem:** You see a blank screen.

**Response:** If this happens any time except when the power is off, you waited more than 10 seconds to enter the next command. You should repeat the sequence of commands, beginning with `CTRL-G`.

# Problems While Deadstarting NOS

**Problem:** You pressed **CTRL-G** and did not see the message OPERATOR ACCESS ENABLED.

**Response:** Make sure the 2-port mux key for port 0 is set in either the DS & PWR ENABLED or DS ENABLED position. You should press the RESET button on the front of the console.

**Problem:** You saw the message OPERATOR ACCESS ENABLED and then you saw a blank screen.

**Response:** You waited more than 10 seconds to press **CTRL-R**. You should repeat the sequence of commands, beginning with **CTRL-G**.

**Problem:** You pressed **CTRL-R** and saw the MAINTENANCE OPTIONS display with the message BAT FAIL. RE-ENTER ALL DS PROG at the bottom.

**Response:** The 2-port mux battery has failed. This battery supplies power to the 2-port mux when the power to the mainframe is turned off. You should have your Control Data service representative reset the 2-port mux.

**Problem:** You either pressed **S** on the DEADSTART OPTIONS display or entered S on the MAINTENANCE OPTIONS display and did not see the INITIAL OPTIONS display.

**Response:** The response depends on the cause of the problem. The following are possible causes:

- The disk does not have microcode loaded. You must coldstart the disk drive. (See Chapter 2, *Installing the System*.)
- You are not using deadstart program 3. You must get deadstart program 3. (See Chapter 13, *Special Procedures*.)
- The numbers in deadstart program 3 are incorrect. You must change these numbers. (See Chapter 13, *Special Procedures*.)
- CIP is not installed to disk 10. You must have it installed to disk 10. Call the person who installed CIP to make sure that CIP was installed to disk 10. The deadstart program assumes that CIP is installed to disk 10.
- You may have a problem with the disk hardware. Call your Control Data service representative.

**Problem:** You pressed A on the INITIAL OPTIONS display and did not see the A and B,O displays.

**Response:** Make sure the numbers in deadstart program 3 are correct. (See Chapter 13, *Special Procedures*.) If you still cannot deadstart your system from disk, you can deadstart your system from tape.

**Problem:** During a tape deadstart you see the message FORMAT UNIT FUNCTION REJECTED.

**Response:** You should coldstart the tape drive. (See Chapter 2, *Installing the System*.)

**Problem:** A tape deadstart fails to start the system and you do not see the message PARITY ERROR.

**Response:** Check to make sure you have done the following:

- Turned on the tape drive
- Coldstarted the tape drive
- Mounted the right tape
- Mounted the tape correctly
- Pressed the ON LINE switch

(See also the section *Problems While Using Tapes* in this chapter.)

**Problem:** A tape deadstart fails to start the system and you see the message PARITY ERROR.

**Response:** You should do the following:

- Clean the tape drive.
- Use a different tape drive. Enter the correct channel number for the new tape drive. (See the Installation Checklist in Chapter 2.)
- Try a different tape.

**Problem:** You saw the message: ENTER DATE YY/MM/DD.

**Response:** Enter the year, month, and day in the format yy/mm/dd.

**Problem:** You saw the message: ENTER TIME HH.MM.SS.

**Response:** Enter the hour, minute, and second in the format hh.mm.ss.

# Problems While Installing CIP or NOS

(See also *Problems While Deadstarting NOS* and *Problems While Using Tapes*.)

**Problem:** You are coldstarting the tape drive and the tape doesn't move.

**Response:** Make sure the numbers in deadstart program 2 are correct. (See Chapter 13, *Special Procedures*.) Also, make sure that the tape you have mounted is the CIP tape.

**Problem:** A command you entered while in the DIS program does not finish executing.

**Response:** Press the period key or enter the command again.

**Problem:** A command you entered while in the DIS program causes the following message to appear:

CCL320 - CORRECT option -- description

**Response:** The option you supplied is incorrect. The description tells you the values that are allowed. You should enter the command again with the correct values.

**Problem:** You entered the MERGE command and saw the message VERIFY ERRORS on the DIS A. JOB DAYFILE display.

**Response:** Enter the MERGE command again. If the message VERIFY ERRORS reappears, the tape may be faulty. Replace the tape with another blank tape and enter the MERGE command again.

**Problem:** You entered the COPYSYS command and saw the message VERIFY ERRORS on the A. SYSTEM DAYFILE display.

**Response:** Enter the COPYSYS command again. If the message VERIFY ERRORS reappears, the tape may be faulty. Replace the tape with another blank tape and enter the COPYSYS command again.

# Problems While Printing Files

**Problem:** A file doesn't move off the Q display.

**Response:** Compare the information on the PSU display with the information on the Q display. The file may not be printing for the following reasons:

- The forms code on the file does not match the forms code on a printer.
- The queue type of the file is not print.
- The logical identifier of the file is not blank.
- The destination of the file is not batch.
- The file size is larger than the maximum size you set for a printer.
- A file of higher priority is printing.

**Problem:** Nothing is printing although PSU shows a file to be printing.

**Response:** Check for a printer jam. (See the information cards attached to the printer.) See if the printer is out of paper.

If you stopped the printing, make sure you entered the CONTINU command.



## Problems While Using Tapes

**Problem:** You cannot assign a tape to a job.

**Response:** Compare the information on the E,P and E,T displays. Make sure the VSNs, label requests, and ring requests match. Make sure the tape is mounted correctly and that you have pressed the ON LINE switch.

**Problem:** A job aborts because it is unable to read or write to a tape.

**Response:** You should do the following:

- Tell the user to make sure the density and format of the request for a tape match the density and format of the tape. (You can mount the tape and check the E,T display to see the density and format of the tape.)
- Clean the tape drive.
- Try another tape.
- Try another tape drive.

## Problems That Users Have

**Problem:** A user cannot log in.

**Response:** Tell the user to make sure the baud rate and duplex settings on the terminal are correct.

**Problem:** A user cannot get into IAF.

**Response:** Bring up IAF. Enter:

AUTO.

**Problem:** A user is not getting a response from NOS.

**Response:** Check for system messages indicating a problem.



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Occasionally you might need to do a special procedure to solve a problem. This chapter contains instructions for the following special procedures:

- Doing an express deadstart dump (EDD)
- Initializing a disk
- Setting the date
- Setting the time
- Sending messages to users
- Communicating with a Control Data service representative
- Selecting a deadstart program
- Changing the numbers in a deadstart program
- Setting the power control password
- Setting the deadstart password
- Setting the 2-port mux key

## Doing an Express Deadstart Dump (EDD)

The express deadstart dump (EDD) records system messages and conditions. You should do an express deadstart dump whenever the system goes down unexpectedly. That way you will have a record that Control Data can use for analyzing the problem that caused the system to go down.

Follow these steps to do an express deadstart dump:

1. Mount a scratch tape on tape drive 60.

A scratch tape is any tape that you want to overwrite. It can be a blank tape or a previously used tape that is labeled or unlabeled. If it is labeled, the express deadstart dump will remove the label.

2. Press -.

Wait for the message: OPERATOR ACCESS ENABLED

3. Press -.

You will see the DEADSTART OPTIONS display.

The program selected will be the one you used most recently. If program 3 is not selected, see the section *Selecting a Deadstart Program* in this chapter.

4. After program 3 is selected, press .

You will see the INITIAL OPTIONS display.

5. Press .

You will see the UTILITIES display.

6. Press .

This selects the EXPRESS DEADSTART DUMP.

You will see the EXPRESS DUMP DEVICE TYPE display.

```
EXPRESS DUMP DEVICE TYPE - 0
```

```
1-66X
```

```
2-63X, 67X (1600 BPI)
```

```
3-63X, 67X (6250 BPI)
```

7. Enter: 3

This selects the 6250-cpi tape.

You will see the CHANNEL NUMBER prompt.

8. Enter: 6

This selects channel 6 for the tape drive.

You will see the EQUIPMENT NUMBER prompt.

9. Press  to bypass the EQUIPMENT NUMBER prompt.

You will see the UNIT NUMBER prompt.

10. Press .

This selects unit 0 for the tape drive.

You will see the EXPRESS DEADSTART DUMP = 00 prompt.

11. If this is the first express deadstart dump, enter: 1

If this is a subsequent dump, enter the appropriate number.

When you remove the tape, you should write this number on the sticker on the tape. You will use this number as the VSN for the tape if a Control Data service representative analyzes the tape.

You will see the REWIND/UNLOAD OPTIONS display.

REWIND/UNLOAD OPTIONS

Y - REWIND TAPE BEFORE DUMP.  
UNLOAD TAPE AFTER DUMP.

N - DO NOT REWIND OR UNLOAD  
TAPE.

(CR) - REWIND TAPE BEFORE DUMP.  
UNLOAD TAPE AFTER DUMP.

12. Press  Y  to select the first option.

You will see the CONTROLWARE DUMP OPTIONS display.

```
CONTROLWARE DUMP OPTIONS

DUMP = CH
      DUMP CONTROLWARE
      FROM SPECIFIED CHANNELS.

CLEAR = CH
      DO NOT DUMP CONTROLWARE
      FROM SPECIFIED CHANNELS.

(CR) = PROCEED WITH DUMP.

CONTROLWARE WILL BE DUMPED
FROM CHANNELS
```

13. If you suspect disk errors, enter:

DUMP=n

Replace *n* with the channel number for the disk. Repeat this step for each disk channel number.

To erase an incorrectly entered channel number, enter:

CLEAR=n

If you do not suspect disk errors, go to the next step.



14. Press .

You will see the message: EXPRESS DUMP IN PROGRESS.

This message stays on the screen for up to 5 minutes.

CIP copies the central memory, peripheral processor memory, and central processing unit status to tape.

15. Wait for the message: DUMP *n* COMPLETE.

The number *n* indicates the number you entered in step 11.

If you do not see this message, repeat the express deadstart dump using a different tape.

16. Remove the tape and write the number of the tape on the tape sticker. You may continue with whichever deadstart you had planned to use to start your system. You should report the problem to your Control Data service representative.

# Initializing a Disk

Initializing a disk erases the information on the disk and rewrites the label. The label defines the attributes associated with the disk.

You would initialize a disk to correct an error on the disk or to remove one group of users and add another.

To initialize a disk, follow these steps:

1. Bring up the E,M display.
2. Write down the number of the disk you plan to initialize.
3. Idle the subsystems NAM and IAF.

See Chapter 8, *Shutting Down the System*.

4. Back up the dayfiles, queue files, and the permanent files that have been changed since the last full backup.

See Chapter 9, *Maintaining Files*.

5. Idle MAG and enter the CHECK POINT SYSTEM command.
6. Do a level 0 deadstart to initialize the disk. Follow these steps:

- a. Press **CTRL** - **G**.

Wait for the message: OPERATOR ACCESS ENABLED

- b. Press **CTRL** - **R**.

You will see the DEADSTART OPTIONS display.

- c. Press **S**.

You will see the INITIAL OPTIONS display.

- d. Press **O**.

You will see the OPERATOR INTERVENTION display.

- e. Press .

You will see the \*P\* display.

- f. Enter: D=Y.

This tells NOS to display the CMRDECK later in the deadstart process.

- g. Press .

You will see messages showing that NOS is loading programs and running hardware tests. Then you will see the CMRINST display.

- h. Enter: NEXT.

You must type in the individual letters of the command N-E-X-T.

You will see the EQPINST display.

- i. Enter: INITIALIZE,AL,d1,d2,d3,...dn.

where: d1 is the EST number of the first disk drive

d2 is the EST number of the second disk drive

dn is the EST number of the last disk drive

This prepares NOS to initialize each disk. The initialization process writes a label on each disk. It erases all NOS files. It does not erase CIP files.

- j. Enter: GO.

You will see system messages. NOS initializes each disk. You will see the A and B,O displays.

7. Enter: X.MS(SETUP)

This sets up the procedures you will need for loading the queue files and permanent files.

Wait for the following message on the B,O display:

REQUEST,OPER. SETUP COMPLETE

8. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN from the B,O display.

This clears the message.

9. Load the queue files and all permanent files.

See Chapter 9, *Maintaining Files*.

10. Enter: X.ISF.

This prepares the validation files for system use.

11. Enter: AUTO.

This brings up the subsystems you idled and allows job scheduling to resume.

12. If you initialized disk 10, enter:

```
X.SYSGEN(COPYSYS,10,DISK)
```

This copies the system file to a deadstart file on disk 10 (the deadstart disk).

## Setting the Date

If for any reason you need to change the date recorded in the left screen header, follow these steps:

1. Enter: UNLOCK.

This unlocks the keyboard.

2. Enter: DATE.yy/mm/dd.

Replace *yy/mm/dd* with the year, month, and day in the format *yy/mm/dd*. This sets the new date.

3. Enter: LOCK.

This locks the keyboard.

## Setting the Time

If your site changes from standard time to daylight savings time, or if for any other reason you need to change the time recorded in the left screen header, follow these steps:

1. Enter: UNLOCK.

This unlocks the keyboard.

2. Enter: TIME.hh.mm.ss.

Replace *hh.mm.ss* with the hour, minute, and second in the format *hh.mm.ss*. This sets the new time.

3. Enter: LOCK.

This locks the keyboard.

## Sending Messages to Users

You can use two commands, the WARN command and the DIAL command, to send messages to interactive users.

The WARN command sends a message to all interactive users. If they are not yet logged in, they will see the message when they log in. If they are already logged in, they will see the message the next time NOS prompts them for a command. To use the WARN command, enter:

```
WARN,text
```

Replace *text* with your message. The text may not be more than 48 characters long. Spaces and punctuation marks count as characters.

The DIAL command sends an immediate message to the user who is assigned to a particular job sequence name (JSN). The T display tells you which users are assigned to which JSNs.

To use the DIAL command, enter:

```
DIAL,jsn,text
```

Replace *jsn* with the job sequence name for the user's job. Replace *text* with your text. The text may not be more than 48 characters long. Spaces and punctuation marks count as characters.

# Communicating with a Control Data Service Representative

On occasion you will want a Control Data service representative to have access to your system to perform maintenance work. The Remote Diagnostic Facility (RDF) allows the Control Data service representative to have access to your system through port 1 of the 2-port mux. You can bring up RDF with the following command:

RDF.

The Control Data service representative must log in within 15 minutes of your bringing up RDF.

RDF also allows the Control Data service representative to send you messages. These messages appear on the A. OPERATOR display in the format JSN=*jsn.text* or RDF=*jsn.text*. The message SEE \*A,OPERATOR\* appears in the right screen header.

To respond to a JSN message, enter:

CFO,*jsn.text*

Replace *jsn* with the JSN from the message. Replace *text* with your text. The text may not be more than 36 characters long.

To respond to an RDF message, enter:

DIAL,*jsn,text*

Replace *jsn* with the JSN from the message. Replace *text* with your text. The text may not be more than 48 characters long.

If you want the Control Data service representative to run diagnostic tests, you must put NOS in engineering mode. Follow these steps:

1. Enter: UNLOCK.

This unlocks the console.

2. Enter: ENABLE,ENGR.

This allows a Control Data service representative to run diagnostic tests. The ENGR message appears in the left screen header.

3. Enter: LOCK.

This locks the console.

When the Control Data service representative is finished running the diagnostic tests, you can take NOS out of engineering mode. Follow these steps:

1. Enter: UNLOCK.

This unlocks the console.

2. Enter: DISABLE,ENGR.

The Control Data service representative can no longer run diagnostic tests. The ENGR message disappears from the left screen header.

3. Enter: LOCK.

This locks the console.

## Selecting a Deadstart Program

You use the MAINTENANCE OPTIONS display to select a deadstart program. Press **[M]** on the DEADSTART OPTIONS display to bring up the MAINTENANCE OPTIONS display.

You can select a different deadstart program on the MAINTENANCE OPTIONS display in either of two ways:

- You can enter the command **GP n** to get a program, where *n* is the number of the program.
- You can press the space bar to go from one program to another. The system will cycle through all the deadstart programs, and then begin again with the first program.

After you have selected the deadstart program, enter: S.

You will see the INITIAL OPTIONS display. This step takes the place of the step *Press [S]* in the deadstart procedure.



# Changing the Numbers in a Deadstart Program

You can change all the numbers in a deadstart program, or just the numbers in certain rows. Follow these steps:

1. Decide whether you need to change all the numbers or only some of the numbers.

- If you need to change all the numbers, enter:

1+n  
nnnn

where:	1	is the number for the first row
	+	tells the system to increment the row number when you press <input type="text" value="NEXT"/>
		(To cancel automatic incrementing, press <input type="text" value="ERASE"/> after the row number appears.)
	nnnn	is the number that gives an instruction to the system

- If you need to change only some of the numbers, enter the changes for those numbers only. For example, to change the number in row 4, enter:

4  
nnnn

where:	4	is the number for the fourth row
	nnnn	is the number that gives an instruction to the system

2. Enter: SP n

This tells the system to store program *n* and erase the previous version of program *n*. Replace *n* with the number of the program you want to store.

# Setting the Power Control Password

You use the power control password when you turn off the power to the mainframe. After you install NOS, your site should change the password. Follow these steps:

1. Press `CTRL-G`.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press `CTRL-R`.

You will see the DEADSTART OPTIONS display.

3. Press `M`.

You will see the MAINTENANCE OPTIONS display.

4. Enter: PW PC nnnnnnnnnnnnnnn

Replace *nnnnnnnnnnnnnnnn* with a password of from 1 to 15 characters. The characters may be letters or numbers.

# Setting the Deadstart Password

The deadstart password is the password that a Control Data service representative uses to turn the power on and off from port 1 of the 2-port mux and to deadstart from port 1 of the 2-port mux. You should set the deadstart password for the Control Data service representative. Follow these steps:

1. Press **CTRL**-**G**.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press **CTRL**-**R**.

You will see the DEADSTART OPTIONS display.

3. Press **M**.

You will see the MAINTENANCE OPTIONS display.

4. Enter: PW DS nnnnnnnnnnnnnnnnn

Replace *nnnnnnnnnnnnnnnn* with a password of from 1 to 15 characters. The characters may be letters or numbers.

# Setting the 2-Port Mux Switch

The 2-port mux switch is in the upper left corner of the back of the mainframe. Each port has a four-position switch. You can set the switch to any position by turning the key. You can lock the switch in a position by removing the key. The following chart describes the positions of the key:

<b>Position</b>	<b>Description</b>
DISABLED	You cannot use the port.
MSG ONLY	You can use the port to run RDF.
DS ENABLED	You can use the port to deadstart the system and run RDF.
DS & PWR ENABLED	You can use the port to deadstart the system, turn the power on and off, and run RDF.



---

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You can upgrade your system in the following ways:

- By installing a new version of CIP
- By installing a new version of NOS
- By adding other software products to the system

The following sections describe how to upgrade your system.

## Installing a New Version of CIP

To install a new version of CIP, mount the new CIP tape on tape drive 60. Then follow these steps:

1. Press **CTRL**-**G**.

Wait for the message: OPERATOR ACCESS ENABLED

2. Press **CTRL**-**R**.

You will see the DEADSTART OPTIONS display showing program 1 selected.

3. Press **S**.

This executes the deadstart program.

You will see the CIP INITIAL OPTIONS display.

4. Press **B**.

You will see the BUILD DEADSTART DISK display.

```
                BUILD DEADSTART DISK

H      HELP
S      SHORT INSTALLATION
F      FULL INSTALLATION
U      UPDATE INSTALLATION
M      MANUAL OPERATIONS
```

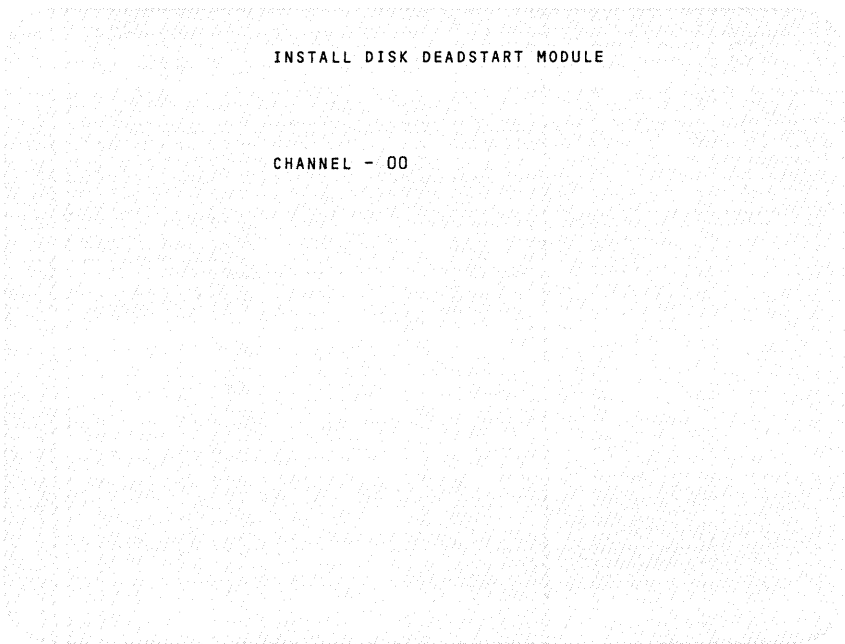
```
(CR) HELP
(BS) PREVIOUS DISPLAY
```

If you are installing CIP to disk 10, proceed with the following steps. If you are installing CIP to disk 14, go to step 9.

5. Press .

This selects the full update installation. It erases the CIP files but does not erase the NOS files nor the microcode you installed when you coldstarted the disk drive. It reserves space for CIP and installs all of CIP.

You will see the INSTALL DISK DEADSTART MODULE display.



6. Press .

This accepts the default channel 00.

You will see the EQUIPMENT - 0 prompt.

7. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.



8. Press `NEXT`.

This accepts the default control module 0 (the left digit) and unit 0 (the right digit).

You will see messages showing that CIP is loading programs; for example:

```
INSTALLING CTI TO DISK
INSTALLING SCD
INSTALLING MDD
```

This process takes up to 20 minutes. The last message is:

```
INSTALLATION COMPLETE
DEADSTART IS REQUIRED
```

CIP is now installed to disk 10.

If you have four or fewer disks, go to step 13. If you have more than four disks, repeat steps 1-4 to install CIP to disk 14. Then go to step 9.

9. Press `U`.

This selects the short update installation. It erases the CIP files but does not erase the NOS files nor the microcode you installed when you coldstarted the disk drive. It reserves space for CIP and installs most of CIP. It does not install some of the less frequently used MSL diagnostic tests.

You will see the `INSTALL DISK DEADSTART MODULE` display.

10. Enter: `nn`

Replace *nn* with the channel number of disk 14.

You will see the `EQUIPMENT - 0` prompt.

11. Press .

This accepts the default equipment 0.

You will see the UNIT - 00 prompt.

12. Enter: n0

Replace *n* with the control module number of disk 14.

You will see messages showing that CIP is loading programs; for example:

```
INSTALLING CTI TO DISK
INSTALLING SCD
INSTALLING MDD
```

This process takes up to 15 minutes. The last message is:

```
INSTALLATION COMPLETE
DEADSTART IS REQUIRED
```

CIP is now installed to disk 14.

13. Unload and remove the CIP tape.

# Installing a New Version of NOS

To install a new version of NOS, you need the NOS deadstart tape, the first NOS permanent file tape, and two 1200-foot, 6250-cpi blank tapes.

Installing a new version of NOS also installs any new products you ordered with the new version.

To install a new version of NOS, follow these steps:

1. Mount the new Control Data NOS deadstart tape on tape drive 60.
2. Bring up the E,P and B,O displays.
3. Enter: VSN,60,ODT.

ODT is the volume serial number (VSN) of the new Control Data deadstart tape.

4. Enter: X.SYSGEN(NEWNOS)

The NEWNOS procedure places the information from the deadstart tape in a file. It takes the existing system configuration and merges it with the information in the file.

On the E,P display, you will see a request for a tape with a VSN of NDT.

5. Remove the new Control Data deadstart tape.
6. Mount a 1200-foot, 6250-cpi blank tape with a write ring inserted on tape drive 60.

7. Enter: VSN,60,NDT.

This assigns a VSN of NDT to the blank tape. The blank tape will become the new deadstart tape.

The NEWNOS procedure copies the deadstart information and the system configuration to the new deadstart tape.

NOS rewinds the tape and verifies that the data on the tape matches the data on the disk. Then it rewinds the tape again.

The message VERIFY GOOD on the A. SYSTEM DAYFILE display indicates that the verification was successful. If you see the message VERIFY ERRORS, see Chapter 12, *Solving Problems*.

Wait for the following message on the B,O display:

```
REQUEST,OPER. NEWNOS COMPLETE
```

8. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message.

This clears the message and releases the control point.

9. Shut down NOS.

See Chapter 8, *Shutting Down the System*. Be sure to enter the CHECK POINT SYSTEM command.

10. Do a level 0 deadstart from the new deadstart tape.

Follow the steps for a level 0 deadstart from tape in Chapter 3, *Starting the System*.

11. Remove the tape.
12. Identify the tape as the new deadstart tape on the identification sticker.
13. Install the permanent files and the deadstart file on the deadstart disk.

See the section *Installing the Permanent Files and the Deadstart File* in Chapter 2. If you have ordered new products, they will be on the permanent file tapes.

14. Make a duplicate deadstart tape.

See the section *Making a Duplicate Deadstart Tape* in Chapter 2.

15. Change the passwords for the user names INSTALL and MANUALS.

See the section *Changing the Installation Passwords* in Chapter 2.

# Adding Software Products to the System

To add software products to the system or to replace existing ones, you need the new permanent file tapes and a 1200-foot, 6250-cpi blank tape. If you are adding products and also installing a new version of NOS, follow the steps under the section *Installing a New Version of NOS* above. If you are only adding products, follow these steps:

1. Mount the first permanent file tape on tape drive 60.

The first permanent file tape is the one that has the words *TPE 01 OF xx* on the identification sticker, where *xx* is the total number of permanent file tapes.

2. Bring up the E,P and B,O displays.
3. Enter: X.SYSGEN(PARTIAL,vsn)

Replace *vsn* with the media number. You will find this number on the identification sticker.

NOS reads the permanent file tape.

4. Depending upon what programs NOS finds on the tape, one of the following will occur:

- If NOS doesn't find programs that should go on a deadstart tape, it copies the permanent files to the disks. You will see messages on the B,O display.

Wait for the following message on the B,O display:

REQUEST,OPER. PARTIAL COMPLETE.

Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message. This clears the message and releases the control point.

You have finished adding products to the system. You should go to step 16.

- If NOS finds programs that should go on a deadstart tape, it merges those programs with the information in the deadstart file.

On the E,P display, you will see a request for a tape with a VSN of NDT.

You should proceed with step 5.

5. Mount a 1200-foot, 6250-cpi blank tape with a write ring inserted. This tape will become the new deadstart tape.

6. Enter: VSN,60,NDT.

The PARTIAL procedure merges the information in the deadstart file with the system configuration and copies it to the new deadstart tape.

7. If NOS requests the permanent file tape again, mount the permanent file tape.

NOS copies the permanent files to the disks.

Wait for the following message on the B,O display:

REQUEST,OPER. PARTIAL COMPLETE

8. Enter: ASSIGN,jsn,2.

Replace *jsn* with the JSN that is on the same line as the message. This clears the message and releases the control point.

9. If the new deadstart tape is not mounted, mount the new deadstart tape.

10. Shut down NOS.

See Chapter 8, *Shutting Down the System*. Be sure to enter the CHECK POINT SYSTEM command.

11. Do a level 0 deadstart from the new deadstart tape.

Follow the steps for a level 0 deadstart from tape in Chapter 3, *Starting the System*.

This process copies the new deadstart tape to a new system file. The new system file replaces the old system file.

12. Remove the tape.

13. Identify the tape as the new deadstart tape on the identification sticker.

14. Enter: X.SYSGEN(COPYSYS,10,DISK)

This copies the system file to a deadstart file on the deadstart disk (EST number 10).

15. Make a duplicate deadstart tape.

See the section *Making a Duplicate Deadstart Tape* in Chapter 2.

16. Change the passwords for the user names INSTALL and MANUALS.

See the section *Changing the Installation Passwords* in Chapter 2.







# Appendix: The NOS Displays

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# Appendix: The NOS Displays

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## A. SYSTEM DAYFILE

A. **SYSTEM DAYFILE** shows commands and messages for all jobs, including messages about user errors and hardware errors.

You use this display for solving problems. In case the system goes down, it shows the messages that preceded the system failure.

```
A. SYSTEM DAYFILE.
10.00.34. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                    MID=AA      NOS version
-----
09.43.15. AAARC.  ENDW, LOOP.
09.43.15. AAARC.  WHILE, (R1.NE.0), LOOP.
09.43.15. AAARC.  REWIND, NDTFIL1, NDTFIL2.
09.43.15. AAARC.  NETLOG.
09.43.15. AAARC.  MLTF, NORMAL TERMINATION.
09.43.15. AAARC.  IFE, FILE(NDTFIL2, (.NOT BOI).AND.MS). REN
                    AME, NDTFIL1=NDTFIL2.
09.43.15. AAARC.  BEGIN, ROLL, PROCS, R2+B.
09.43.15. AAARC.  ROLLOUT, 1130B.
09.49.19. AAAZB.  CATALOG COMPLETE.
09.53.15. AAARC.  REVERT.MLTFPROC/ROLL.
09.53.15. AAARC.  ENDW, LOOP.
09.53.15. AAARC.  WHILE, (R1.NE.0), LOOP.
09.53.15. AAARC.  REWIND, NDTFIL1, NDTFIL2.
09.53.15. AAARC.  NETLOG.
09.53.15. AAARC.  MLTF, NORMAL TERMINATION.
09.53.15. AAARC.  IFE, FILE(NDTFIL2, (.NOT.80I).AND.MS). REN
                    AME, NDTFIL1=NDTFIL2.
09.53.15. AAARC.  BEGIN, ROLL, PROCS, R2+B.
09.53.15. AAARC.  ROLLOUT, 1130B.
09.54.13. AAASB.  REWIND, LGO.
```

Using the information in the first row, the following description explains the information in the columns.

<b>Keyword</b>	<b>Description</b>
09.43.15	Time.
AAAR	Job sequence name (JSN). This is the name of a job. Subsystems have 3-character JSNs.
C	Service class. This class determines priority in job scheduling.
ENDW,LOOP.	Command or message. Messages that are longer than one line continue on the next line.

## A. ERROR LOG

A. **ERROR LOG** reports hardware status. You can check this display to look for the source of a hardware problem. The **ERRLOG ALERT** message on the A. OPERATOR display sometimes directs you to the A. ERROR LOG display.

```

A.  ERROR LOG.

14.55.56. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                    MID=AA      NOS version
-----
14.15.38. AABLS.  UCLP, 00, T1012,      0.052KLNS.
14.15.55. AAAOS.  UCLP, 00, T1012,      0.96KLNS.
14.16.13. AAAIS.  UCLP, 00, T1012,      0.100KLNS.
14.16.26. AABAN.  UCLP, 00, T1012,      0.104KLNS.
14.16.44. AAAUN.  UCLP, 00, T1012,      0.104KLNS.
14.16.55. IAF X.   RDF INITIATED.
14.17.06. IAF X.   RDF CARRIER LOST.
14.17.30. NAM X.   UCLP, 00, T1012,      0.243KLNS.
14.18.07. AABMN.  UCLP, 00, T1012,      0.208KLNS.
14.19.50. IAF X.   RDF INITIATED.
14.19.59. AABWT.  MAINTENANCE ACCESS BY UN = PORT1.
14.20.31. AABXN.  MAINTENANCE ACCESS BY UN = NETOPS.
14.45.43. AABZS.  MAINTENANCE ACCESS BY UN = NETOPS.
    
```

Using the information in the first row, the following description explains the information in the columns.

<b>Keyword</b>	<b>Description</b>
14.15.38	Time.
AABL	Job sequence name (JSN). This is the name of a job. Subsystems have 3-character JSNs.
S	Service class. This class determines priority in job scheduling.
UCLP, 00, T1012, 0.052KLNS.	Message.

# A. JOB DAYFILE

A. **JOB DAYFILE** shows the commands and messages related to a particular job. The job must be executing for it to have a dayfile. If the job is in an input or output queue, it is not executing. If you enter a **DAYFILE** command for a job that is not executing, you will see the message **JSN NOT FOUND**. If an executing job has temporarily left central memory, the dayfile will show the message **JSN ROLLED**.

```
A.  JOB DAYFILE.          AABL  
  
10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
                MID=AA      NOS version  
-----  
10.24.04.NOS  
10.24.24.GET,NOS.  
10.24.25.NOS,PACKVZ  
10.25.06.ATTACH,OPL=NPL/UN=LIBRARY.  
10.25.09.ATTACH,SYSB=FNOSTXT/UN=LIBRARY.  
10.25.10.IFE,OT.EQ.BCO,BATCH.  
10.25.10.ENDIF,BATCH.  
10.25.20.RETURN,NOS.
```

Using the information in the first row, the following description explains the information in the columns.

<b>Keyword</b>	<b>Description</b>
10.24.04	Time.
NOS	Command or message. Messages that are longer than one line continue on the next line.

# A. OPERATOR

**A. OPERATOR** contains messages indicating abnormal system conditions. Also, Control Data service representatives use this display to send messages to the operator when they are doing maintenance work.

```
.....
A. OPERATOR DISPLAY.
10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
MID=AA NOS version
-----
NUMBER MESSAGE TEXT.
-----
10 TRACK LIMIT
ENTER *LOG,NUMBER.* WHEN PROBLEM HAS BEEN CORRECTED.
JSN = AABR - WHAT TIME DOES THE SYSTEM GO DOWN.
ENTER *CFO,JSN.MESSAGE.* TO RESPOND.
```

The following description explains the columns:

Column	Description
NUMBER	The number that is associated with a message.
MESSAGE TEXT	A descriptive message that identifies the problem. These messages indicate system conditions. The messages will stay on the display until you clear them with the following command:

LOG,n.



Replace *n* with the number associated with the message. If the LOG command does not clear the message, that means that the condition is persisting. You can try the command later.

You will see the following messages:

**2 = QUEUED FILE TABLE FULL.** There are too many jobs in the input/output queue. Check to make sure the printer is operating properly. If the printer is down, back up the queue files and reload them when the printer is up.

**3 = EXECUTING JOB TABLE FULL.** NOS has reached the maximum number of jobs that it can execute at that moment. This message tells you why some users are not getting an immediate response. NOS is designed to operate with this table full. The problem clears up by itself.

**4 = DAYFILE LENGTH EXCEEDED.** NOS has detected that the length of a dayfile has exceeded a set length. You should terminate the dayfiles. Otherwise, you will have very long dayfiles.

**5 = ERROR LOG LENGTH EXCEEDED.** NOS has detected that the length of a dayfile has exceeded a set length. You should terminate the dayfiles. Otherwise, you will have very long dayfiles.

A long dayfile can also result if a hardware error fills up the error log. You should bring up the A. ERROR LOG display to see if the same error message is repeated several times. Call your Control Data service representative if you have this problem.

**6 = ACCOUNT FILE LENGTH EXCEEDED.** NOS has detected that the length of a dayfile has exceeded a set length. You should terminate the dayfiles. Otherwise, you will have very long dayfiles.

**7 = MAINLOG LENGTH EXCEEDED.** NOS has detected that the length of a dayfile has exceeded a set length. You should terminate the dayfiles. Otherwise, you will have very long dayfiles.

**10 = TRACK LIMIT.** NOS cannot write a file to a particular disk because there are not enough tracks on that disk. You should follow these steps:

1. Send a WARN message to users, telling them to purge or return unused files. (See Chapter 13, *Special Procedures*.) If this solves the problem, the message will disappear from the B,O display. Use the LOG command to erase the message from the A. OPERATOR display. If this doesn't solve the problem, proceed to the next step.
2. Do an archival backup.
3. Check the E,M display. You should have at least 400 tracks on each disk.
4. If you need more tracks, back up the dayfiles.
5. Check the E,M display to see if you have 400 tracks on each disk.
6. If you need more tracks, back up the queue files.
7. If the problem is frequent, call Control Data for other strategies.

**12 = CHANNEL DOWNED BY SYSTEM.** NOS has detected a problem with a channel. Call your Control Data service representative.

**13 = ERRLOG ALERT.** NOS has detected a hardware error. You should check the A. ERROR LOG display.

**JSN = jsn.text.** A Control Data service representative has sent you a message. To respond to the message, see Chapter 13, *Special Procedures*.

**RDF = jsn.text.** See the message *JSN = jsn.text* above.

## B,A. SYSTEM STATUS

**B,A. SYSTEM STATUS** is used for solving problems. If you think the system is frozen, you can check the CPU column on this display. The letter A, which indicates which job is active in the CPU, should move constantly from job to job.

B,A. SYSTEM STATUS.

CP	JSN	SC	EJT	PR	SCPR	FL	FLE	CPU	STA
1	IAF	X	2	76	7776	404	0	X	
2	NAM	X	1	77	7776	267	0	X	
3	AAGE	B	130	30	4004	300	0	I	
4	AAGD	B	131	30	4004	6	0	X	
5									
6									
7	AADR	T	64	30	7000	410	0	X	
10									
11									
12	AADH	T	52	30	7000	204	0	A	
13	AAEO	S	113	30	7000	156	0	I	
14	AAGF	B	132	30	4004	300	0	I	
15									
16									
17									
20	AAFV	B	121	30	4004	300	0	I	
21	AAFZ	B	123	30	4004	26	0	I	
22									
23	MAG	X	6	76	7776	22	0	X	
24	SYS	S	0	100	0	0	200		

The following information describes the columns:

<b>Column</b>	<b>Description</b>
CP	Control point. This is a section in memory. Each job that is executing in central memory is assigned to a control point.
JSN	Job sequence name. This is the name of a job. Subsystems have 3-character JSNs.
SC	Service class. The service class determines priority in job scheduling.

EJT	Executing job table. NOS uses this table to keep track of jobs that are executing. The numbers indicate the order of entry in the table.
PR	CPU priority from 0 to 77. A higher number indicates a higher priority.
SCPR	Scheduling priority from 0 to 7777. A higher number indicates a higher priority. SYS has the highest priority, subsystems have the next highest priority, user jobs have the next highest priority, and maintenance jobs have the lowest priority.
FL	Field length. This number indicates how much field length NOS is currently using.
FLE	Extended memory field length. This number indicates how much extended memory field length NOS is currently using.
CPU	CPU status: A = job is using CPU 0. B = job is using CPU 1 (if you have two CPUs). I = job is waiting for a response from a peripheral processor. W = job is waiting to use the CPU. X = job is waiting to use the CPU.
STA	Status: I = subsystem idle. You idled the subsystem but a user is still using the subsystem.

# B,O. SYSTEM STATUS

**B,O. SYSTEM STATUS** shows commands and messages. You use this display to see requests from the system and from users.

```
B,O. SYSTEM STATUS.

CP      JSN      STATUS
1      IAF      NETWORK CONNECTED.
2      NAM
3
4
5      AAAA  CT8  SMM V4.0-0.
6
7      AAAH  CMU  SMM V4.0-0.
10     AAAF  FS8  SMM V4.0-0.
11
12     AAAE  CU8  SMM V4.0-0
13     AABT  PSU  VERSION 1.0.
14     AAAC  CSU  SMM V4.0-0.
15     AAAB  ALX  SMM V4.0-0.
16
17
20
21     AAAC  MRG  SMM V4.0-0.
22
23     MAG  MAGNET.
24     SYS  CHECKPOINT COMPLETE.
```

The following information describes the columns:

<b>Column</b>	<b>Description</b>
CP	The control point. This is a section in memory. Each job that is executing in central memory is assigned to a control point.
JSN	Job sequence name. This is the name of a job. Subsystems have 3-character JSNs.
STATUS	Commands and messages. You should respond to highlighted messages. These are discussed in Chapter 11, <i>Interpreting Messages</i> .

# E,A. EQUIPMENT STATUS

E,A. EQUIPMENT STATUS shows you which equipment is turned on or off and which identifying numbers are associated with the equipment.

## E,A. EQUIPMENT STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

EST	TYPE	STAT	JSN	EQ	UN	CHANNELS
0	RD	ON		1	22	0
1	DS	ON		7	0	10
2	NE	ON		0	0	0
3	TE	ON		0	0	0
4	TT	ON		0	0	0
5	DE	ON		0	0	0
10	DD	ON		0	0	0 20
11	DD	ON		0	1	0 20
12	DD	ON		0	12	0 20
13	DD	ON		0	13	0 20
40	RM	ON	IAF	0	1	15
50	NP	ON	NAM	7	12	7
60	NT	ON		0	0	6
70	CM	ON		0	0	0 20
71	CM	ON		1	0	0 20

The following information describes the columns:

Column	Description
EST	Equipment status table number. Each piece of equipment has a unique EST number.
TYPE	Device type. This identifies a type of equipment. RD, NE, TE, and TT are pseudo device types that the system uses internally. DS is the operator's console (display console). DE is the extended memory. DD is a disk drive. RM is the 2-port mux. NP is the NPU. NT is a tape drive. CM is a control module.

STAT	Status of the equipment: ON = available for use OFF = not available for use DWN = available only to the Control Data service representative
JSN	Job sequence name of the job to which the equipment is assigned.
EQ	Equipment number.
UN	Unit number. For disk drives, the unit number is a combination of the control module number and the unit number. The left digit is the control module number. The right digit is the unit number.
CHANNELS	Channel numbers.



# E,M. DISK STATUS

E,M. DISK STATUS shows you how NOS is using the disk.

E,M. DISK STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

EST	TYPE	STATUS	FILES	TRACKS	ERROR
5	DE	-----S-----	-----	513	
10	DD	S-----F-----G	-----T	2027	
11	DD	-----C--F-----	-----T	1376	
12	DD	-----F-----	-----T	2426	
13	DD	-----F-----	-----T	1243	

The following information describes the columns:

Column	Description
EST	Equipment status table number. Each piece of equipment has a unique EST number.
TYPE	Device type. This identifies a type of equipment. DE is the extended memory. DD is a disk drive.
STATUS	Status of the equipment: S = The location of the system file. C = The disk is requesting a check point. I = The disk is being initialized.

- A = Alternate system device. The disk contains a subset of programs that NOS uses frequently.
- F = CIP is installed on this disk.
- D = The deadstart file is on this disk.
- P = You are using the permanent file utility to back up or load files.
- G = The system checkpoint file is on this disk.

## FILES

Types of files that can reside on each disk:

- S = Secondary rollout. Jobs that have fewer than 32,000 words in central memory can roll out to this disk.
- T = Temporary files can reside on this disk.

## TRACKS

Number of tracks left on a disk.

## ERROR

Error code:

**CA** (checkpoint abort). NOS was not able to transfer system information from central memory to the disk. You should follow these steps:

1. Initialize the disk.
2. Load permanent files from the most recent backup.

**DW** (down). You have given the **DOWN** command to allow a Control Data service representative to perform maintenance on a disk.

**EI** (error idle). NOS has detected an error on the disk. You should follow these steps:

1. Initialize the disk.
2. Load permanent files from the most recent backup.

**IN** (initialize disk). You have entered the **INITIALIZE** command to initialize a disk. This code will disappear after the disk is initialized.

**LE** (label error). Either you installed a new disk and have not yet initialized it, or a system malfunction destroyed the label on a disk. You should follow these steps:

1. Initialize the disk.
2. Load permanent files from the most recent backup.

**LK** (linkage error). NOS has detected an error in the table that keeps track of the different portions of a file that are stored in various places on the disk. You should follow these steps:

1. Initialize the disk.
2. Load permanent files from the most recent backup.

**NR** (not ready). The disk is not spinning and is therefore not ready to be used. This happens after you give the CHECK POINT SYSTEM command. It could also indicate that the disk is malfunctioning. You should use the AUTO command to spin up the disk.

**OF** (off). You have entered the OFF command to turn off a disk and prevent new files from being assigned to the disk. You might do this at the direction of a Control Data service representative if a disk is malfunctioning.

**VE** (validation error). NOS has detected a discrepancy between the system information in central memory and the system information on disk. You should follow these steps:

1. Initialize the disk.
2. Load permanent files from the most recent backup.

# E,P. RESOURCE REQUESTS

**E,P. RESOURCE REQUESTS** shows jobs that are waiting to be assigned to a tape drive. After they are assigned, they disappear from the display unless NOS reports a problem in the STATUS column.

E,P. RESOURCE REQUESTS.

10.28.14. yy/mm/dd.		CDC NETWORK		OPERATING SYSTEM		
		MID=AA		NOS version		
JSN	EQ	PN/VSN	USERNAM	RING	LAB	STATUS
AABV	GE	***060	LIZ	OUT	--	NT060
AABK	GE	P07121	BONNIE	IN	YES	RING CONFLICT

The following information describes the columns:

<b>Column</b>	<b>Description</b>
JSN	This is the job sequence name of the job requesting a tape.
EQ	Density of the tape the job requests: GE = 6250 characters per inch PE = 1600 characters per inch
PN/VSN	Volume serial number of the tape.

USERNAM	User name of the job.
RING	<p>Ring status. This indicates if a job specifies a write ring for the tape:</p> <p>IN = A job specifies a write ring.</p> <p>OUT = A job specifies that the ring be omitted.</p> <p>-- = A job does not specify whether to include a ring.</p>
LAB	<p>Label. This indicates if a job requires a labeled tape:</p> <p>YES = The job requires a labeled tape.</p> <p>-- = The job does not require a labeled tape.</p>
STATUS	<p>Status messages, preceded by NTest, where NT indicates a 9-track tape drive and est identifies the tape drive:</p> <p><b>CAN'T ACCESS DATA.</b> The tape label has a security code which prevents the user from reading the tape.</p> <p><b>MOUNT.</b> The job requires multiple tapes and is ready for the next tape. You should mount the next tape in the series.</p> <p><b>NEEDS LABEL.</b> The job requires a labeled tape, but the tape that is mounted is unlabeled. You should mount the tape that matches the VSN in the VSN column.</p> <p><b>RING CONFLICT.</b> Either a user has requested a tape with a write ring and the tape mounted lacks a write ring, or a user has requested a tape without a write ring and the tape mounted has a write ring. You should check the RING column and insert or remove the ring.</p> <p><b>WRONG VSN.</b> The VSN on the tape mounted is different from the VSN on the tape the user requested. You should mount the tape that matches the VSN in the VSN column.</p>

# E,T. TAPE STATUS

**E,T. TAPE STATUS** identifies a tape that is on a tape drive. It shows you if a tape drive is assigned to a job. It also shows a status message if you need to mount a tape for a job that requires multiple tapes.

```
E,T. TAPE STATUS.
10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
MID=AA NOS version
EST VSN DEN RING FMT JSN STATUS REEL MODE
NT060 6250 IN IDLE 1 AS
```

The following information describes the columns:

<b>Column</b>	<b>Description</b>
EST	Equipment status table number. Each piece of equipment has a unique EST number. The EST number is preceded by NT, which indicates a 9-track tape drive.
VSN	Volume serial number of the tape. Also, if the tape is unlabeled, the word UNLABELED appears here.

DEN	Density of the tape mounted: 6250 characters per inch = GE 1600 characters per inch = PE
RING	Ring status. This shows IN if a write ring is in and is blank if the write ring is out.
FMT	Format. This shows the format of the data on the tape.
JSN	You will see a job sequence name if the tape drive is assigned to a job.
STATUS	This shows status messages:  <b>DOWN.</b> Either you have given the DOWN command to run diagnostic tests or MAG has detected a hardware error. You should check the A. ERROR LOG display for a message from MAG and call your Control Data service representative.  <b>IDLE.</b> No tape is mounted on the tape drive.  <b>LOADPT.</b> The tape is mounted and at the BOT reflective marker (load point).  <b>MOUNT.</b> The job requires multiple tapes and is ready for the next tape. You should mount the next tape in the series.  <b>NOTRDY.</b> The tape is rewinding.  <b>READY.</b> The job is reading or writing on the tape.  <b>ROLLED.</b> The job that was assigned to the tape drive is rolled out of central memory. The job will eventually roll back in.
REEL	This shows which tape in a series is mounted.
MODE	This field will indicate AS for information recorded in ASCII.

# Q. QUEUE STATUS

Q. QUEUE STATUS lists the jobs in the input, print, and wait queues.

```
Q. QUEUE STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
MID=AA NOS version
```

JSN	SC	QP	QT	FSI	LID	DS	ID	FC	EC
SYS	S	0	IN	0					
AACQ	S	7064	PR	2		BC		AS	A9
AABK	B	4000	IN	1	M06				
AACR	S	7034	PR	1		BC			
AACA	T	6037	WT	5		BC			
AACD	B	4000	IN	1	M06				
AACB	T	6036	WT	1		BC			
AACC	B	6032	WT	3		BC			

The following information describes the columns:

Column	Description
JSN	Job sequence name. This is the name of a job. Subsystems have 3-character JSNs.
SC	Service class. This class determines priority in job scheduling.
QP	Queue priority. The numbers range from 0 to 7777. A higher number indicates a higher priority.



QT	Queue type: IN = Input PR = Print WT = Wait
FSI	File size index. This shows the relative size of the file. Larger numbers indicate larger files.
LID	Logical identifier for the destination. This shows which mainframe a file will go to.
DS	Destination of print file: BC = batch (will be printed locally) RB = remote batch (will be printed at a remote printer)
ID	Identification for print files. Users can use the ID to send a file to a printer with the same ID.
FC	Forms code for print files. Users can use the forms code to send a file to a printer with the same forms code.
EC	External characteristics for print files. This describes the type of print train required for the file. A9 indicates a file written in upper and lower case.

# Q,IN. QUEUE STATUS

Q,IN. QUEUE STATUS lists the jobs in the input queue. See the Q. QUEUE STATUS display for a description of the columns.

```
Q,IN.  QUEUE STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
                    MID=AA      NOS version
-----
JSN   SC      QP      QT      FSI      LID   DS      ID      FC      EC
-----
SYS   S        0      IN      0
AABK  B     4000      IN      1      M06
AACD  B     4000      IN      1      M06
```

# Q,PR. QUEUE STATUS

**Q,PR. QUEUE STATUS** lists the jobs in the print queue. See the **Q. QUEUE STATUS** display for a description of the columns.

Q,PR. QUEUE STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

JSN	SC	QP	QT	FSI	LID	DS	ID	FC	EC
AACQ	S	7064	PR	2		BC		AS	A9
AACR	S	7034	PR	1		BC			

# Q,WT. QUEUE STATUS

Q,WT. QUEUE STATUS lists the jobs in the wait queue. See the Q. QUEUE STATUS display for a description of the columns.

Q,WT. QUEUE STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

JSN	SC	QP	QT	FSI	LID	DS	ID	FC	EC
AACA	T	6037	WT	5		BC			
AACB	T	6036	WT	1		BC			
AACC	B	6032	WT	3		BC			

# R. ROLLOUT STATUS

**R. ROLLOUT STATUS** lists the jobs that have been rolled out, as well as jobs that are executing in central memory. NOS has temporarily halted processing for the rolled out jobs and has removed them from central memory. You use this display to track jobs and to see how busy the system is.

R. ROLLOUT STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

JSN	SC	EJT	ST	LR	SCPR	FL	FLE
SYS	S	0	EX				
AABK	S	1	RS		131		
MAG	X	3	EX				
AABR	S	4	EX				
IAF	X	6	EX				
AABV	S	7	RO	*	2006	15	0
AABW	S	10	EX				

The following information describes the columns:

Column	Description
JSN	Job sequence name. This is the name of a job. Subsystems have 3-character JSNs.
SC	Service class. This class determines priority in job scheduling.

**EJT** Executing job table number. NOS uses this table to keep track of jobs that are executing. The numbers indicate the order of entry in the table.

**ST** Status column:

**DO** (disabled roll out). This is an interactive job that is waiting for the next command from a user.

**ER** (error on rollout). NOS detected a disk error while trying to roll the job in to central memory. NOS will not finish executing this job. The user will have to run this job again.

**EX** (executing). The job is executing in central memory.

**IN** (pre-initial job step). The job has just left the input queue and is waiting to execute for the first time.

**IO** (interactive rollout). The job has been rolled out to send data to the terminal.

**MG** (waiting for MAG). A user job has requested a tape and MAG is not up. You should enter the AUTO command to start MAG.

**PF** (waiting for permanent file). A user job has attempted to attach to a permanent file that is not yet available.

**RO** (scheduler rollout). A user job has used up its allotted time in memory. NOS has rolled it out to make room for higher priority jobs.

**RS** (waiting for resource). A user job is waiting for a tape to be mounted.

**SC** (waiting for service class change). A user has asked NOS to change the service class associated with a job. The service class is full and NOS is waiting for a job in that service class to terminate to make room for the user's job.

**SI** (SCP rollin). NAM has requested an application to be rolled in.

**SO** (SCP rollout). NAM has requested an application to be rolled out.

**SU** (suspended rollout). A job is waiting for a user to log in to recover it.

**TE** (extended time event). A job is rolled out to wait for a system resource.

**UA** (utility active). A user job has requested a permanent file that resides on a disk that is being backed up.

**LR** Locked rollout. An asterisk indicates that you gave a rollout command for this job.

**SCPR** Scheduling priority. If the status column shows **TE**, the number indicates the amount of time before the job will roll in.

Otherwise, the number indicates the scheduling priority.

**FL** Field length. The amount of central memory the job needs before it can roll in.

**FLE** Extended field length. The amount of extended memory the job needs before it can roll in.

# T. INTERACTIVE STATUS

T. INTERACTIVE STATUS shows the user names of interactive users that are logged in to the system.

```
T. INTERACTIVE STATUS.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
MID=AA NOS version

TOTAL USERS = 47 ACTIVE USERS = 14

CONN USER JSN WARN CONN USER JSN WARN
3 SUSAN AAEK
4 RICHARD AACC *
5 DEBORAH AACF
6 DONALD AACD
7 RUSSELL AACE
10 JAMES AACH
11 DANIEL AACG
12 KENNETH AACJ *
13 JANICE AACI
14 KATE AACK
15 BONNIE AACN
16 LIZ AAAL
```

The following information describes the columns:

<b>Column</b>	<b>Description</b>
TOTAL USERS	Number of users who have logged in since you brought up IAF.
ACTIVE USERS	Number of users who are logged in.
CONN	Connection number.
USER	User name.
JSN	Job sequence name of the user's terminal session.
WARN	WARN message. An asterisk in this column indicates that you sent a WARN message but that the user has not yet received it.



# Z. DIRECTORY

Z. DIRECTORY describes the NOS displays.

## Z. DIRECTORY.

10.28.14. yy/mm/dd. CDC NETWORK OPERATING SYSTEM  
MID=AA NOS version

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A	DAYFILES. (A, A,, A,OPERATOR. A,ERROR LOG. A,ACCOUNT FILE. DAYFILE,JSN.)
B	SYSTEM STATUS.
C,D	CENTRAL MEMORY. FIVE GROUPS OF FOUR.
E	EQUIPMENT STATUS. (E,A. E,C. E,M. E,P. E,T.)
F,G	CENTRAL MEMORY. FOUR GROUPS OF FIVE.
H	SYSTEM FILES.
I	BIO STATUS.
J	JOB STATUS.
K	CPU PROGRAMMABLE.
L	CMR BUFFERS.
M	EXTENDED MEMORY.
O	TAF STATUS. (O,SCP. O,TLD. O,TST.)
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Q	QUEUE STATUS. (Q,. Q,IN. Q.PL. Q,PR. Q,PU. Q,WT.)
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# INDEX

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## CYBER Supermini Operations 60459850 A

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