60459310

CONTROL DATA CORPORATION

NOS VERSION 2
OPERATOR/ANALYST HANDBOOK

CDC® COMPUTER SYSTEMS:
CYBER 170
CYBER 70
MODELS 71, 72, 73, 74
6000

DSD COMMAND INDEX

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REVISION RECORD

REVISION	DESCRIPTION
A	Manual released; reflects NOS 2.0 at PSR level 562. NOS Version 2 is the successor product to NOS
(04-26-82)	Version 1. Documentation of the File Name Table reorganization is included. Support of models 825,
	835, and 855 is documented along with the support of the 819 disk subsystem. TAF autorecovery,
	enhancements to the TAF K displays, independent shared device multimainframe capability, and further
	extensions of the channel and equipment control commands are also documented.
B	Manual revised to reflect NOS 2.1 at PSR level 580. New features include support of Remote
(01-27-83)	Diagnostic Facility (RDF), Remote Host Facility (RHF), Network operating commands, and NAM initial-
	ization. Support of models 815, 865, and 875 is documented. Because extensive changes are made,
	change bars and dots are not used and all pages reflect the latest revision level. This edition
	obsoletes all previous editions.

Publication No.
60459310

REVISION LETTERS I, O, Q, S, X AND Z ARE NOT USED

Address comments concerning this manual to:
Control Data Corporation
Publications and Graphics Division
4201 North Lexington Avenue
St. Paul, Minnesota 55112

or use Comment Sheet in the back of this manual.

LIST OF EFFECTIVE PAGES

New features, as well as changes, deletions, and additions to information in this manual, are indicated by bars in the margins or by a dot near the page number if the entire page is affected. A bar by the page number indicates pagination rather than content has changed.

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This manual contains information necessary to establish and control operation of a CONTROL DATA® Network Operating System (NOS) Version 2 and is intended for use by the central site (system) operator. NOS was developed by Control Data Corporation to provide network capabilities for interactive and transaction processing, in addition to local and remote batch processing on CDC® CYBER 170 Computer Systems Models 171, 172, 173, 174, 175, 176, 720, 730, 740, 750, 760, 815, 825, 835, 855, 865, and 875; CDC CYBER 70 Computer Systems Models 71, 72, 73, and 74; and 6000 Computer Systems.

AUDIENCE AND ORGANIZATION

This manual contains two parts: part I contains information needed by an operator involved in a normal production environment; part II contains information needed by a site analyst involved in system support and troubleshooting system problems. For both parts, you are assumed to be familiar with the CYBER 170, CYBER 70, or 6000 Computer System installed at your site and with local site procedures on system operation.

Part I is written for the production operator who is responsible for normal operations and is not involved in problem troubleshooting except as directed by a site analyst. This part is written in a mix of conversational and reference formats to facilitate an introduction to NOS. If you have either limited or no previous NOS experience, you are encouraged to read part I from beginning to end.

Part II is written for the site analyst and assumes the analyst has much more experience with NOS. A substantial amount of the information in this part requires that you be thoroughly familiar with the subject and its application with respect to system operation.

All information in part I is also contained in part II but not necessarily in the same format. Generally, information in part II is presented in reference manual format to aid in quick access and retrieval of information. Part II provides more background information and information that could seriously affect operation of the system. Also documented are guides to aid you in troubleshooting system problems and utility programs.

Since the job requirements of the system operator may vary from one installation to another, this manual should be used in conjunction with established policies and procedures provided by the installation.

CONVENTIONS

Extended memory for the model 176 is large central memory extended (LCME). Extended memory for models 815, 825, 835, and 855 is unified extended memory (UEM). Extended memory for models 865 and 875 is a combination of unified extended memory (UEM) and extended core storage (ECS) or extended semiconductor memory (ESM). Extended memory for all other NOS computer systems is either extended core storage (ECS) or extended semiconductor memory (ESM).

In this manual, the term extended memory refers to all forms of extended memory unless otherwise noted. However, in the context of a multimainframe environment or distributive data path (DDP) access, models 176, 815, 825, 835, and 855 are excluded.

References to sections are in the same part unless otherwise specified.

Programming information for the various forms of extended memory can be found in the COMPASS Reference Manual and in the appropriate computer system hardware reference manual. Hardware descriptions of the various forms of extended memory can be found in the following manuals.

Control Data Publication	Publication Number
Extended Semiconductor Memory (ESM) Hardware Reference Manual	60455990
CYBER 70 Computer System 7030 Extended Core Storage Volume 3 Reference Manual	60347100
7030-1XX Extended Core Storage II 6642-2 Distributive Data Path Hardware Reference Manual	60430000

RELATED PUBLICATIONS

Control Data publishes a Software Publications Release History of all software manuals and revision packets it has issued. This history lists the revision level of a particular manual that corresponds to the level of software installed at the site.

The following manuals contain additional information about NOS that may prove useful to you.

Control Data Publication	Publication Number
COMPASS Version 3 Reference Manual	60492600
CYBER 70 Computer System 7030 Extended Core Storage Volume 3 Reference Manual	60347100
CYBER 70 Model 71 Computer System Hardware Reference Manual	60453300
CYBER 70 Model 72 Computer System Hardware Reference Manual	60347000
CYBER 70 Model 73 Computer System Hardware Reference Manual	60347200
CYBER 70 Model 74 Computer System Hardware Reference Manual	60347400
CYBER 170 Computer Systems Models 171 through 175 (Levels A,B,C) Model 176 (Level A) Hardware Reference Manual	60420000
CYBER 170 Computer Systems Models 720, 730, 740, 750, and 760 Model 176 (Level B/C) Hardware Reference Manual	60456100
CYBER 170 Computer System Model 825 Hardware Reference Manual	60469350
CYBER 170 Computer System Models 835 and 855 Hardware Reference Manual	60469290
CYBER 170 Model 825 Hardware Operator's Guide	60469370
CYBER 170 Computer System Models 835 and 855 Hardware Operator's Guide	60458390
CYBER 170 Computer Systems Models 865 and 875 Hardware Reference Manual	60458920
Extended Semiconductor Memory (ESM) Hardware Reference Manual	60455990

Control Data Publication	Publication Number
Network Products Message Control System Version 1 Reference Manual	60480300
Network Products Network Access Method Version 1 Network Definition Language Reference Manual	60480000
NAM Version 1/CCP Version 3 Reference Manual	60499500
Network Products Remote Batch Facility Version 1 Reference Manual	60499600
TAF Version 1 Reference Manual	60459500
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6000 Series Computer Systems Hardware Reference Manual	60100000
7030-1XX Extended Core Storage II 6642-2 Distributive Data Path Hardware Reference Manual	60430000
7155 Disk Storage Subsystem Operator Maintenance Guide	60456650
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TOTAL-CDC Reference Manual	76070300

DISCLAIMER

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.

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APPENDIXES

INTRODUCTION 1

The Network Operating System (NOS) is a program executing in a Control Data computer. Each program that executes is called a job. NOS is compiled and prepared for execution by site analysts during an installation procedure. You, as the system operator, start NOS executing through a process called deadstart. After NOS is executing, you monitor, track, and direct the flow of user jobs and jobs created by NOS for users. This monitoring, tracking, and directing is done by watching displays presented by the system and entering commands to the system from the console keyboard.

Most of the actual operation of NOS is automatic. NOS automatically controls the scheduling, allotting, and assigning of time, access, and system resources to jobs as they enter, execute, and leave the system. This control is done using limits and priorities set by site analysts during the installation procedure. Do not change these limits or priorities except at the direction of a site analyst. Changing these limits and priorities greatly affects how efficiently your system operates.

NOS provides five types of job processing. Each type of processing provides a different means of entering a job into the system. The five types are the following.

- Deferred batch processing — Jobs are entered from an interactive terminal or another batch job to the batch queue for processing; their output is sent to user-specified peripheral equipment or remote batch locations.
- Interactive terminal processing — Jobs are entered from, and output is sent to, an interactive terminal.
- Local batch processing — Jobs are entered and processed at the central site using only the central site peripheral equipment attached to the computer.
- Remote batch processing — Jobs are entered from remotely located terminals such as the CDC 200 User Terminals, CDC 731-12/732-12/734 Remote Batch Terminals, or CDC CYBER 18-05 Remote Batch Terminals. The jobs are processed at the central site and output is sent back to the remote terminal.
- Remote host processing — Jobs are transferred back and forth between local and remote host mainframes. The remote host facility and network access devices (NADs) link hosts through a loosely coupled network (LCN).

OPERATOR/SYSTEM COMMUNICATION

NOS and jobs executing under NOS control communicate with you by displaying information on the system console screen. You respond to the information and direct responses to the job by typing instructions on the console keyboard. Figure I-1-1 illustrates the console keyboard on a CYBER 170 Computer System.

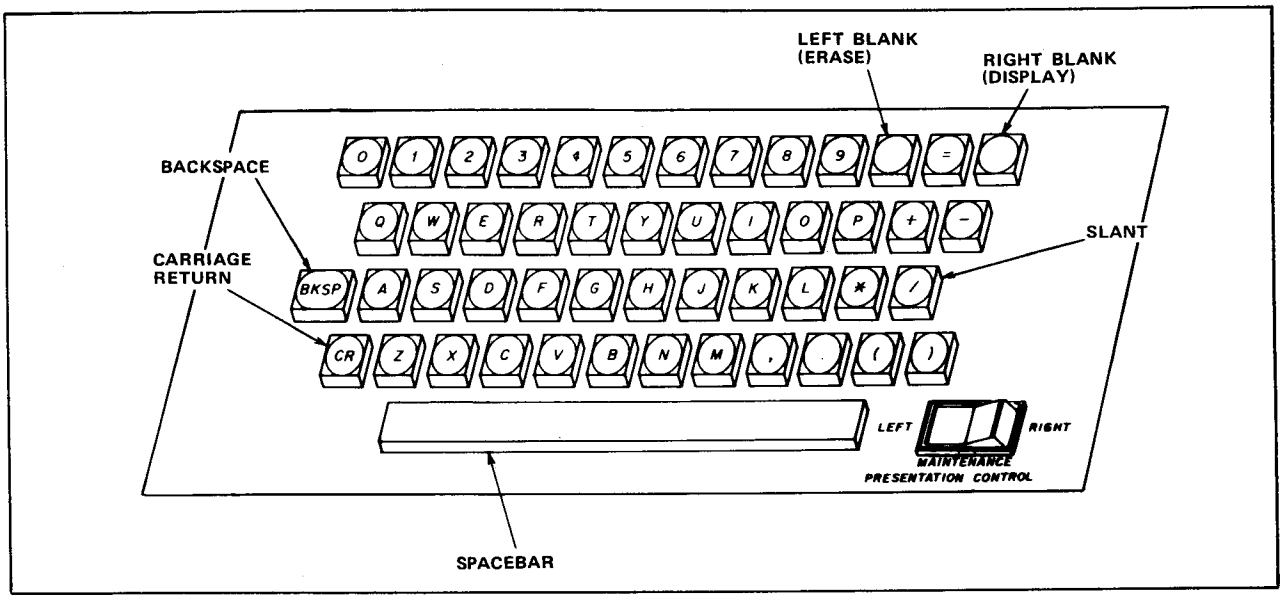

Figure I-1-1. Console Keyboard

OPERATING THE KEYBOARD

Your commands to the system are built and held in a special area called a buffer. To build a command, press the appropriately lettered keys on the keyboard. As each key is pressed, the corresponding letter appears at the lower left corner of the console screen. When you have completed the entry of a command, pressing the carriage return (CR) key signals the operating system to act on your command.

PRESENTATION CONTROL Switch

The location on the console screen of the information displays the system presents is controlled by the use of the PRESENTATION CONTROL switch, located at the right of the space bar. This switch allows selection of a left screen display only, a right screen display only, or both left and right screen displays of reduced size on a split screen. When in the LEFT position, only those displays referred to in the following sections as left screen displays appear. When the switch is in the RIGHT position, only those referred to as right screen displays appear. A split screen showing both the left and right displays appears when the switch is in the middle or MAINTENANCE position. If a 6612 dual screen display console is used, there is no PRESENTATION CONTROL switch on the keyboard. Displays appear as requested on either the left or right screens. Section 4 contains information on calling the various displays to the console screen.

Error Messages

After you press the CR key to indicate a command is complete, the command is processed and erased from the screen. If the system must wait for a resource to become available (such as a channel), or if the command was not acceptable, one of the following messages may appear above the command (refer to appendix B for a complete listing of error messages).

ILLEGAL ENTRY†	Command was not recognized. Correct or reenter the command.
DISK BUSY†	System is waiting for a program to be loaded from a mass storage device before processing the command.
PPU BUSY†	System is waiting for a peripheral processor (PP) to be assigned before processing the command.
MTR BUSY†	System is waiting for the PP monitor program to complete a job before processing the command.

If a message remains for more than a few seconds, clear the entry by pressing the erase key or by repeatedly pressing the backspace key. Try the command again. If the message appears again, contact a site analyst.

DSD/DIS COMMANDS

Two NOS programs, DSD and DIS, allow communication between you and the operating system. DSD and DIS maintain current displays of system and job status as well as processing commands you type at the keyboard. DSD is the system display program; information on the various displays pertains to all jobs in the system. Under DSD, the normal operating mode, you can communicate with the system or any of the jobs under system control. Once a job begins execution, you can respond to job requests for equipment assignment (or other actions), modify system parameters, or stop execution permanently or temporarily.

DIS is the job display program; the various displays show data from a single job only. DIS is used most often by site analysts. Part II, section 8, details procedures for using DIS. Use DIS only when specifically directed to by a site analyst.

DSD Command Syntax

Each DSD keyboard entry is contained on a single line and ends with a period. Each command must be in all capital letters with no extra spaces included. In most DSD commands, when there is more than one parameter, you must enter the parameters in the order shown (order dependent). When a parameter is required, the DSD command is not acceptable to the system without the parameter. For optional parameters, if you do not specify the parameters, NOS supplies a value called a default.

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†If the message is preceded by LOG -, the command has been executed but not yet recorded in the system dayfile.

Some DSD commands allow messages, parameters, or subcommands to appear after the period. For example, in K.CH=32,26 the DSD command is K. and the subcommand CH=32,26 appears after the period.

DSD Command Entry

As you enter characters from the keyboard, DSD checks the accumulated entry for a match against the table of possible commands. When DSD has received enough characters to recognize the command, it automatically fills in the remaining portion of the command. In general, DSD fills in the rest of the command after three to five characters have been entered. If a character entered is not recognized as part of a valid command, it is rejected and not displayed. When you press the carriage return (CR) key, the command is examined to see if it is valid. If the command is acceptable, the system processes the command and clears the keyboard entry. If the command is not acceptable, an error message appears above the entry. Press either the erase (left blank) key to clear both the entry and the error message, or the backspace (BKSP) key to delete only the last character displayed and the error message. Press the BKSP key repeatedly to delete the entry to the position of the error and enter the correction.

Command Entry Example

The following example illustrates how DSD monitors the keyboard entry and matches the entry to the table of commands.

> To request the system to display the error log dayfile on the left console screen, the appropriate DSD command is A,ERROR LOG. Begin by typing A. DSD checks this input but cannot recognize the command since other commands also begin with the letter A. Then enter the comma (,). Because other commands also begin with these characters, DSD still cannot recognize the command. However, when you enter E, the command becomes unique and DSD fills in the remainder of the entry on the display (RROR LOG.).

DISPLAY SCREEN PAGING

Many DSD displays have more information to present than fits on one display screen. To display this information, DSD uses a concept called paging. Paging is presenting one screenful of information and waiting until you signal for more information.

When DSD presents a display that has more information than fits on one screen, the first page is presented and the message

```
MORE
```

appears in the lower left corner of the console screen.

The keyboard character used to advance to the next page (or roll back to the previous page) depends on whether you called the display as a left screen display or a right screen display. If the display was called as a left screen display, advance to the next page by pressing the + key (plus) and roll back to the previous page of the display by pressing the - key (minus). If the display was called as a right screen display, advance to the next page by pressing the (key (opening parenthesis) and roll back to the previous page by pressing the) key (closing parenthesis).

Some DSD displays provide an index number in the header information for the display. This index value tells you if you are on the first page of the display or some other page. The value of this index varies from display to display. Each display that has an index field is described in section 4.

SPECIAL CHARACTERS

The keys listed in table I-1-1 have special uses in DSD in addition to their uses within commands. Some of these special characters have been previously explained. This table provides a complete list of all special characters and the action they initiate.

Table I-1-1. Special Characters (Sheet 1 of 2)

Key Identifier	Name	Action Initiated
*	Asterisk	Alternates display control between DSD and DIS each time the key is pressed.
+	Plus	Advances the left screen display to the next screen of information when more than one screen of information is available.
-	Minus	Rolls back the left screen display to the previous screen of information when more than one screen of information is available.
(	Opening parenthesis	Advances the right screen display as described for + (plus) character.
)	Closing parenthesis	Rolls back the right screen display as described for - (minus) character.
/	Slant	Advances the left screen memory displays by the value in the lower 18 bits of the first word displayed.
CR	Carriage return	Initiates processing of an entered command. If CR is pressed before the command is entered, the repeat entry mode is set and the message REPEAT ENTRY is displayed on the error message line of the left screen. The command entered is processed but not erased after completion. That command is reprocessed each time the CR key is pressed. To clear the repeat entry mode, press the left blank (erase) key.

Table I-1-1. Special Characters (Sheet 2 of 2)

Key Identifier	Name	Action Initiated
none	Left blank	Clears the current keyboard entry and clears the error message (if one exists).
none	Right blank	Advances the left screen display sequence established by the SET command (refer to section 4).
BKSP	Backspace	Deletes the last character displayed and clears the error message (if one exists).

SYSTEM OPERATION

The NOS Version 2 operating system allows you to track a job wherever the job is in the system. NOS does this tracking using a unique identifier, two tables, and several DSD displays. The unique identifier is called a job sequence name (JSN). The tables used are the queued file table (QFT) and the executing job table (EJT). The DSD displays used are the job status, rollout, and active job queues displays.

JOB TRACKING

Figures 1-2 through 1-5 show how you can track a local batch job as it moves through the system. Information shown in the displays relevant to the example is unshaded.

When a job starts executing, the system recognizes the job as a new job, assigns a JSN, and creates an entry in the QFT for the job. Its name is placed in a list that contains all jobs waiting to be processed, called the input queue. During the time the job is in the input queue, you can track it by looking at the Q,IN. display. Figure I-1-2 shows how the job (named AADF) appears on the Q,IN. display.

```
                                Q

Q,IN.                  FREE= 613.  ADDRESS= 24326.  INDEX=   0.

 JSN   SC  QFT     QP      QT   LID  DS    ID     FC     EC

AABR   B    11.   212.     IN   MQE
AADF   B    14.   172.     IN
AADM   B    17.   100.     IN   MQG
```

Figure I-1-2. Input Queue (Q,IN.) Display

The job remains in the input queue until the system schedules it to central memory. As the job is moved to central memory, the system moves information and the JSN from the QFT to an entry in the EJT. The QFT entry is then cleared. When the job is scheduled to central memory it is assigned to a control point. A control point is an area in central memory where the system maintains all the information needed to control a job during execution. The number of control points determines the number of jobs that can be in central memory at any moment. Site analysts determine the number of control points allowed in your system when the system is installed.

During the time the job is scheduled to central memory, you can track it by looking at the B display. Figure I-1-3 shows how the job appears on the B display.

```
                                B

CPU0 = AABQ                        0000  DDDD DDDD EDDD  DDDD DDDD DDDD
CPU1 = AAAS                              ----2 ----- 1---  ---- ----- ----
  CM =  377.                               2
 UEC =  400.   FREE PPS= 16.

    FREE EJT = 547.

CP  JSN SC  EJT PR  SPR     FL C   STATUS

 1  IAF  X   23 76 2000    223 W   NETWORK CONNECTED.
 2  NAM  X   11 75 7000    700 W   LINE  L17   ,EN,17,A1,NODE3.
 3  TAF  X   24 75 2000     43 W*  REQUEST *K* DISPLAY.
 4       NEXT
 5       NEXT
 6       NEXT
 7       NEXT
 10      NEXT
 11  AAAS B   30 30 7700     35 B   BEGIN(PRPFU,C)
 12  AADF B   25 30 7700    700 W   EDITING COMPLETE.
 13      NEXT
 14  AABQ R   44 30 7700    700 A   ASSEMBLING TAF
 15  MAG  X    6 76 7000     17 X   RECOVERY COMPLETE.
 16  BIO *X   16 30 7000      2     IDLE.
 17  RBF  X    7 74 7700     36 X   NETON ACCEPTED.
 20  SYS  S    0       0      0     CHECKPOINT COMPLETE.

TAF. REQUEST *K* DISPLAY.
```

Figure I-1-3. Job Status (B) Display

Periodically, as the job uses up its allotted time in central memory, the job is placed in a rolled out state. Normally in this rolled out state the job is waiting its turn to be rescheduled back to central memory. During the time the job is rolled, you can track it by looking at the R display. Figure I-1-4 shows how the job appears on the R display.

```
                                R

                                        ADDRESS= 21226.  INDEX=   0.

  JSN   SC    EJT     SPR    RO-FL    RO-FLE     ST

 AABB   B     20.    1234.    114.       10.     RO
 AABC   T     22.                                RS
 AADF   B     25.                                RO
 ACBC   S     27.                                SO
```

Figure I-1-4. Rollout (R) Display

The process of central memory assignment and rollout continues until the job runs out of commands to process or the job is dropped by you from the system console. At this time the EJT entry is cleared, file OUTPUT is sent to the line printer queue, and the job is terminated. Figure I-1-5 shows how file OUTPUT appears on the print queue (Q,PR.) display.

```
                                Q

 Q,PR.                  FREE= 613.  ADDRESS= 24326.  INDEX=   0.

  JSN  SC   QFT     QP     QT     LID   DS    ID   FC     EC

 AABR  B     11.   212.   PR     MQE   BC                A9
 AACA  B     12.   172.   PR     MQG   BC          AC
 AADF  B     24.   100.   PR           BC
```

Figure I-1-5. Print Queue (Q,PR.) Display

During the time the job is executing, or when it terminates, the job can create files. These files are placed in various queues for printing on a line printer, punching on a card punch, or plotting on a line plotter. As each file is placed in a queue, the queued file is assigned a new JSN and an entry is made for it in the QFT. These queued files created by the job can be tracked on the various active job queues displays.

There is no easy way to track which new JSNs were created by your original job. As far as the system is concerned, each new QFT entry is a separate job. Contact a site analyst for information on tracking new JSNs (using the QFTLIST utility).

The QFT entries for files queued by your job remain until the appropriate subsystem selects them for processing. When the subsystem completes the processing of these files, the QFT entries are removed and your job and all jobs created by it are now gone from the system.

The previous example is for a local batch job. Jobs that enter the system by another method may or may not appear on the above displays. Every job, however, follows the same basic path through the system.

SYSTEM STRUCTURE

To better understand how the tracking works, a closer look at the job sequence name, the queued file table and the executing job table is needed.

Job Sequence Name (JSN)

The JSN is a three- or four-letter identifier that allows you and the system to track the job as it is processed through the system.

Every job and every queued file has a JSN. The three-letter JSNs are fixed in value and reserved for subsystems. The following list gives all of the defined three-letter JSNs and the subsystems they designate.

JSN	Subsystem
BIO	Batch Input/Output
CDC	CYBER Database Control System (CDCS)
IAF	Interactive Facility
MAG	Magnetic Tape Subsystem
MAP	Matrix Array Processor
MCS	Message Control System
MSS	Mass Storage System
NAM	Network Access Method
RBF	Remote Batch Facility
RDF	Remote Diagnostic Facility
RHF	Remote Host Facility
SYS	Operating system (CPUMTR)
TAF	Transaction Facility

The four-letter JSNs are assigned sequentially by the system. Every time an operating system reload is performed, the JSN is set to AAAA. The first job is assigned this JSN. The second job is assigned AAAB, and so on to ZZZZ. The next JSN after ZZZZ is AAAA and the sequence repeats. There are 456 976 possible names for jobs and queued files before a JSN repeats. The next JSN available for assignment is listed in the first few lines (called a header) of all left-screen DSD displays.

Queued File Table (QFT)

The QFT is a table with an entry for every job in one of the following queues.

Queue	Description
Input	List of jobs waiting to start execution.
Plot	List of files waiting to be plotted on a line plotter.
Print	List of files waiting to be printed on a line printer.
Punch	List of files waiting to be punched on a card punch.
Wait	List of files waiting for user action.

Each entry contains system information needed to identify, locate, and provide characteristics about the job. The entire QFT is presented by DSD on the Q,. display (refer to section 4 for more information on this display).

Executing Job Table (EJT)

The EJT is a table with an entry for every job that is in central memory or is rolled out. Each entry contains system information needed to identify, locate, and provide characteristics about the job. This information comes from the QFT as the job first comes to central memory. A job remains in the EJT as long as it is scheduled to central memory or is in a rolled out state (waiting for scheduling to central memory).

PREPARING FOR DEADSTART

Deadstart is the process that makes the system (the mainframe, peripheral devices, and operating system software) ready to process jobs. Most of this process is automatic and does not require operator action. Most of your involvement in deadstart is in preparing the system for deadstart. To do this, you must know about the classification of your deadstart and how to start the deadstart process.

DEADSTART CLASSIFICATIONS

There are several ways of classifying deadstarts. The most global is coldstart and warmstart. Coldstart is the procedure used to deadstart the system when the tape and disk controllers do not have controlware loaded, or when you want to reload the controlware. This part of the manual assumes all coldstart deadstarts are done by or at the direction of site analysts. Refer to part II, section 2, for a complete description of coldstart.

Warmstart is the most common way to deadstart. A warmstart assumes the tape and disk controller controlware is loaded and executing correctly. All further discussion of deadstarting in this part of the manual assumes a warmstart.

You can also classify deadstarts by type and level.

Type of Deadstart

There are two types of deadstarts; initial deadstarts and recovery deadstarts. Initial deadstarts are when only preserved files are recovered (permanent files, queued files, and the system dayfiles). Recovery deadstarts are when preserved files and some portion of a previous operating environment are recovered.

Initial deadstarts are usually performed at the beginning of a specific time period (such as day, week, or month), or when the system halts because of an error condition and cannot correctly complete a recovery deadstart. An initial deadstart tests all of central memory (except on models 815, 825, 835, and 855), PP memory, and initializes hardware. This destroys all traces of what was in the system and requires that the operating system be reloaded.

Recovery deadstarts are usually done when you are bringing the system back after some planned interruption or when the system halted due to an error condition without destroying the contents of central memory. Always attempt a recovery deadstart first when the system halts due to an error condition. Only when a recovery deadstart fails is an initial deadstart required.

Deadstart Levels

The most restrictive way to describe a deadstart is by its level. There are four levels of deadstart, numbered 0 through 3. Level 0 deadstarts are initial deadstarts. Levels 1, 2, and 3 are recovery deadstarts.

Levels 1 and 2 deadstarts are recovery deadstarts, but they must be used with caution. Levels 1 and 2 deadstarts are usually for bringing back the system after maintenance has been performed or some non-NOS operating system has been running in the mainframe. Attempt a level 1 or 2 deadstart only at the direction of a site analyst. Do not attempt a level 1 or 2 deadstart to recover the system if a level 3 deadstart fails.

Unless otherwise noted, the terms initial deadstart and level 0 deadstart are identical. Similarly, the terms recovery deadstart and level 3 deadstart are identical.

Deadstart File

Site analysts take materials provided by CDC and, through a process called installation, build a deadstart file. The deadstart file contains the programs that make up the operating system and its products (COBOL, FORTRAN, COMPASS, and so forth). The deadstart file is a compiled and linked set of binary programs ready to be loaded into central memory and can be either on a reel of magnetic tape or on a disk pack. Deadstart is the process by which you load the deadstart file.

THE DEADSTART PROCESS

The deadstart process, in very simple terms, is a two part process; prepare the mainframe for deadstart, and initiate the deadstart. Preparing the equipment includes verifying that power is on in all the peripherial devices, mounting the deadstart file if it is on tape or a removable disk pack, and setting the deadstart panel. Initiating deadstart includes signaling the computer to begin execution of the deadstart panel, monitoring the deadstart, and intervening with any additional information requested by the system.

Setting the Deadstart Panel

Each mainframe has a panel of switches arranged to represent bits in successive PP memory words. (Models 815 and 825 do not have a physical panel but do have a logical equivalent in the initial display presented on the system console screen.) Figure I-1-6 illustrates the deadstart panel for models 835 and 855. Figure I-1-7 illustrates the deadstart screen for models 815 and 825. Figure I-1-8 illustrates the deadstart panel for CYBER 170 Computer Systems (except models 815, 825, 835, and 855). Figure I-1-9 illustrates the deadstart panel for CYBER 70/6000 Computer Systems.

Each row of switches represents a 12-bit PP instruction. By setting these switches in a particular pattern you create the instructions necessary to deadstart. Each time you signal the system to begin deadstart, these instructions are copied into PP memory and executed. These instructions load the very first program on the deadstart file (called the bootstrap program). This program loads the next program on the deadstart file, and so on until the entire operating system is loaded.

Site analysts should supply you with a paper showing the deadstart panel setting for your system. You must verify that the panel is set correctly before signaling deadstart to begin. Part II, section 2, contains illustrations of the various deadstart panel settings and the descriptions of all variable fields that need to be filled in for your system.

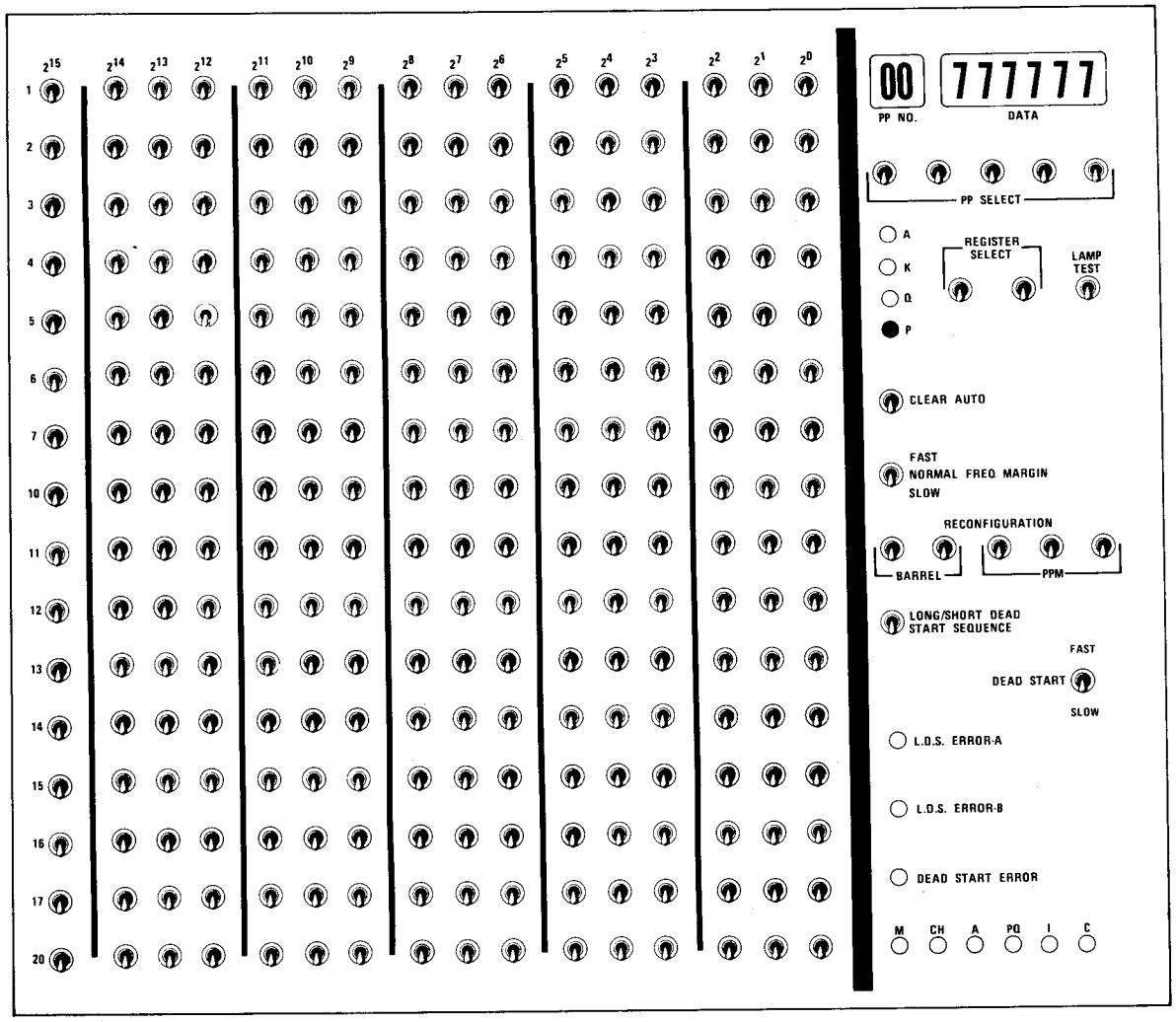
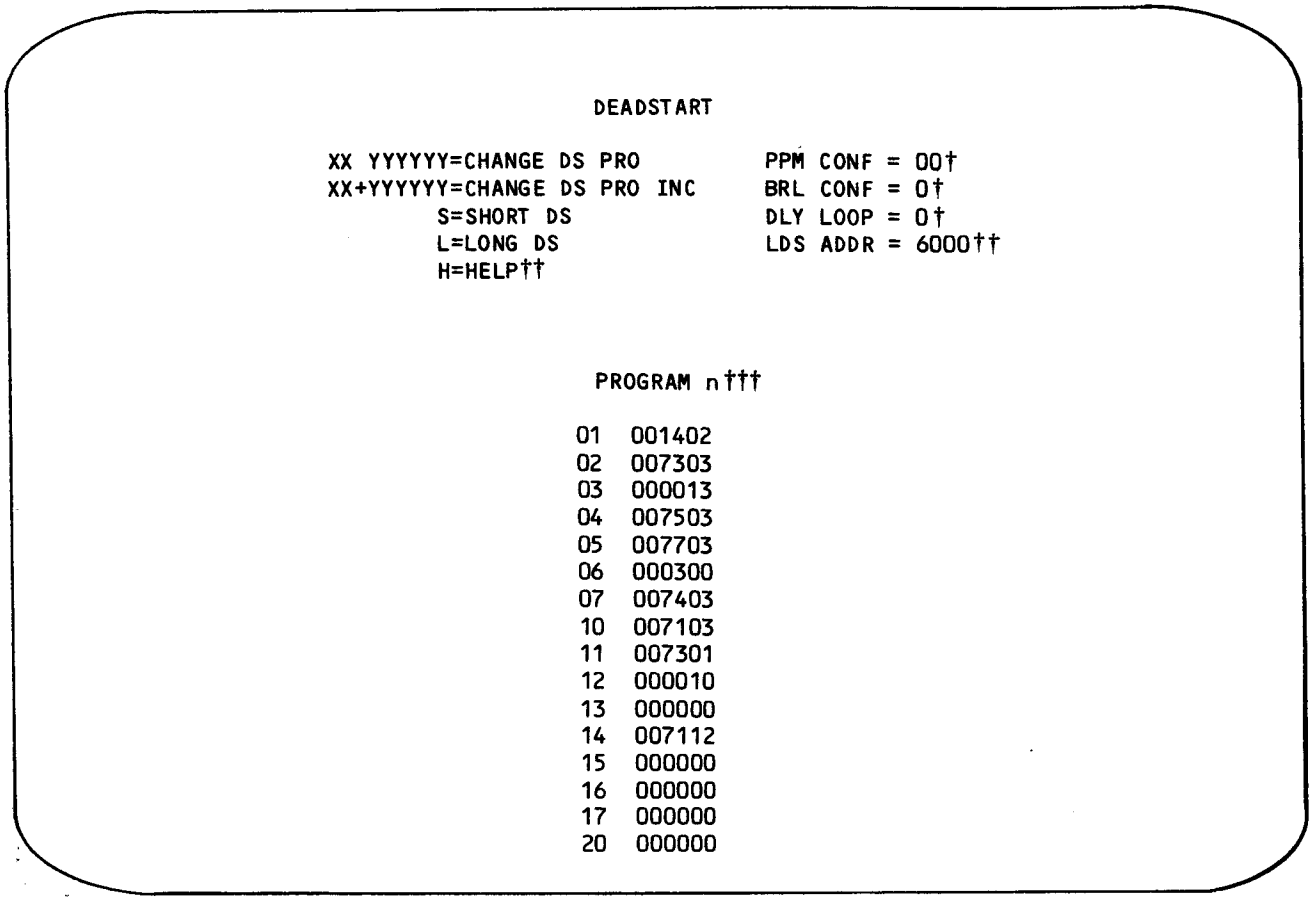


Figure I-1-6. CYBER 170 Models 835 and 855 Deadstart Panel



†Refer to appendix I for explanation of these entries.
††Refer to the CYBER 170 Model 825 Hardware Operator's Guide for explanation of these entries.
†††n is the number of the most recently used deadstart program number; the program contents are those most recently used to deadstart.

Figure I-1-7. Initial Deadstart Display for Models 815 and 825

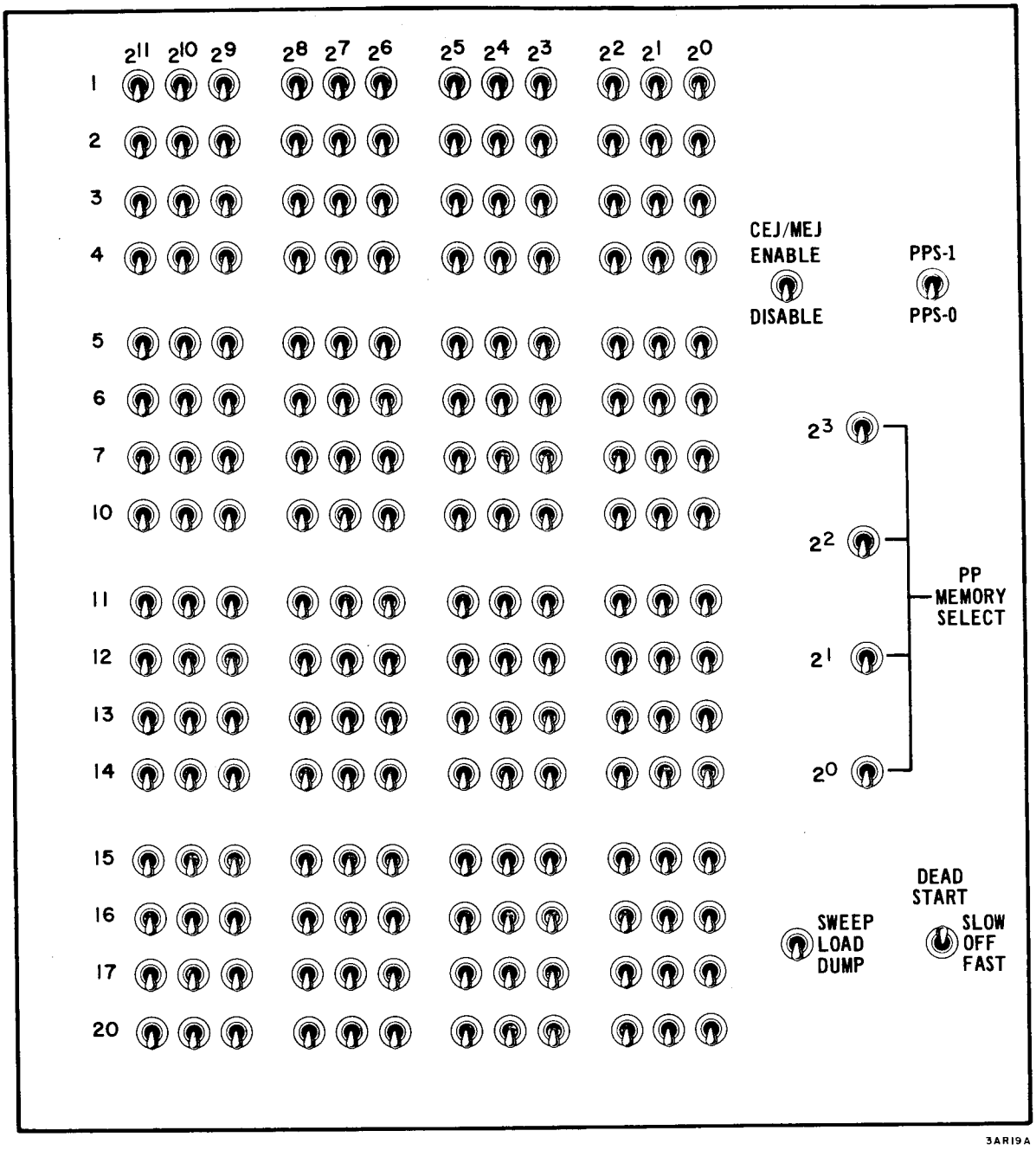


Figure I-1-8. CYBER 170 Computer Systems (Except Models 815, 825, 835, and 855) Deadstart Panel

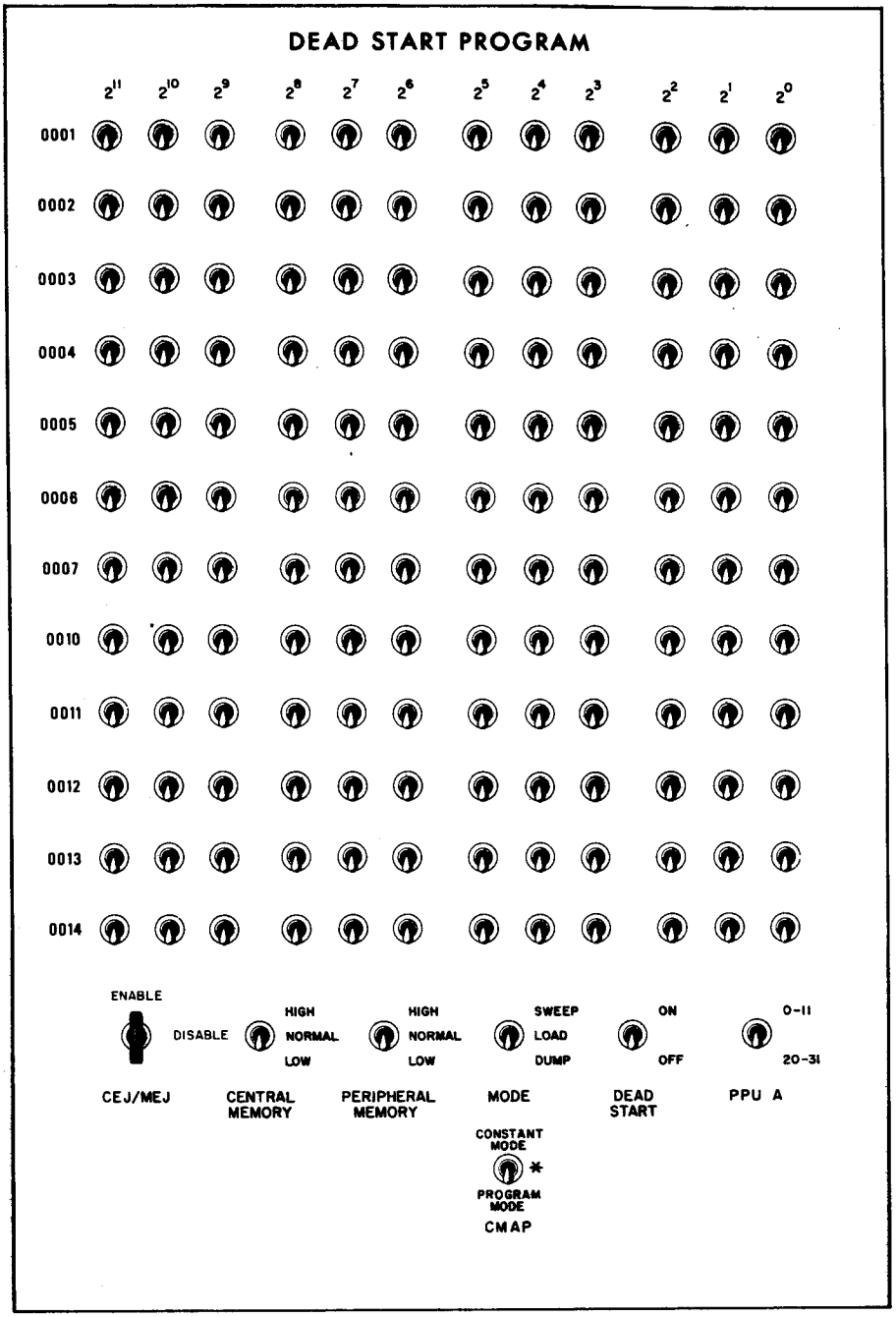


Figure I-1-9. CYBER 70/6000 Computer Systems Deadstart Panel

If you verified that the deadstart panel settings are as documented, but still feel the settings are wrong, contact a site analyst for help.

NOTE

On models 835 and 855, the four leftmost switches of each row must be in the down position. The system does not operate correctly if any of these switches are set in the up position. Similarly, on models 815 and 825, the first two digits of each row in the deadstart program must be zero. This corresponds to switches being in the down position.

Signaling the Deadstart

The last step in the deadstart process is signaling the system to begin deadstart. This is done by pressing the deadstart button. The deadstart button is located just below the bottom center of the display console screen.

You should always use this button to deadstart the system. This button sends one deadstart pulse no matter how long you hold the button down. This is important because multiple rapid deadstart signals can cause problems with certain tape and disk controllers.

After you press the deadstart button, the deadstart process proceeds by itself. This process and the options available to you and the points where you can intervene are fully explained in section 2.

DEADSTART 2

Deadstart is the process that makes the system operational and ready to process jobs. System deadstart requires that you intervene occasionally. You initiate the deadstart process by pressing the deadstart button on the console. This executes the PP program set on the deadstart panel.

For models 815 and 825, pressing the deadstart button brings the initial deadstart display to the console screen. The deadstart program is then entered or retrieved.

This manual assumes that a deadstart file exists and meets site configuration requirements. The deadstart file is on a reel of magnetic tape or a disk pack and contains the programs necessary to establish the operating system and its products (BASIC, FORTRAN, COMPASS, and so forth) on the system equipment.

In general, the procedure you use most often to deadstart is warmstart. Warmstart from mass storage or a CDC 667/669 Magnetic Tape Unit is possible after the disk controller or tape controller to be used is loaded with the proper controlware and the controlware is functioning. Warmstart is always possible from CDC 677/679 Magnetic Tape Units.

WARMSTART PROCEDURE SUMMARY

Figure I-2-1 illustrates the warmstart procedure. Figure I-2-2 shows the sequence of displays presented during a level 0 deadstart. Detailed information concerning all phases of the deadstart process are contained in part II, section 2.

The following steps summarize the procedures necessary to perform warmstart from a 66x/67x magnetic tape unit, an 844 disk unit, or an 885-11/12 disk unit. Use this as a checklist during warmstart.

If you are deadstarting a model 825, switch the order of steps 3 and 4. For more complete information, refer to Warmstart Procedure for Models 815 and 825 later in this section.

1. Ensure that required mass storage devices are available and that they have packs mounted.
2. Mount the deadstart tape or pack (refer to section 5).
3. Set the deadstart panel for warmstart (refer to Setting the Deadstart Panel for a Warmstart in this section).
   a. Select the correct deadstart level.
   b. Select the correct CMRDECK.
4. Press the deadstart button.
5. Select the correct CTI options.
6. Modify the CMRDECK (if required and the correct bit is set on the deadstart panel). Type GO when modifications are complete and if there are no APRDECK or IPRDECK changes.

7. If APRDECK changes are required, type NEXT as many times as needed to locate the desired APRDECK. After modifying the APRDECK, type GO if there are no changes to the IPRDECK.

8. If IPRDECK changes are required, type IPR. to proceed to the beginning of the IPRDECK. After modifying the IPRDECK, type GO to continue with the deadstart.

9. Initialize the system (refer to Initializing the System in this section).

   a. Enter the date.

   b. Enter the time.

   If a wall clock chip is present in your hardware, the system automatically reads the date and time from the chip.

10. Wait for file recovery and library directory generation to complete.

11. Initiate job processing (refer to Initiating Job Processing) by typing AUTO or MAINTENANCE if job processing was not initiated automatically during IPRDECK processing.

12. Respond to CYBERLOG displays (if required by your site).

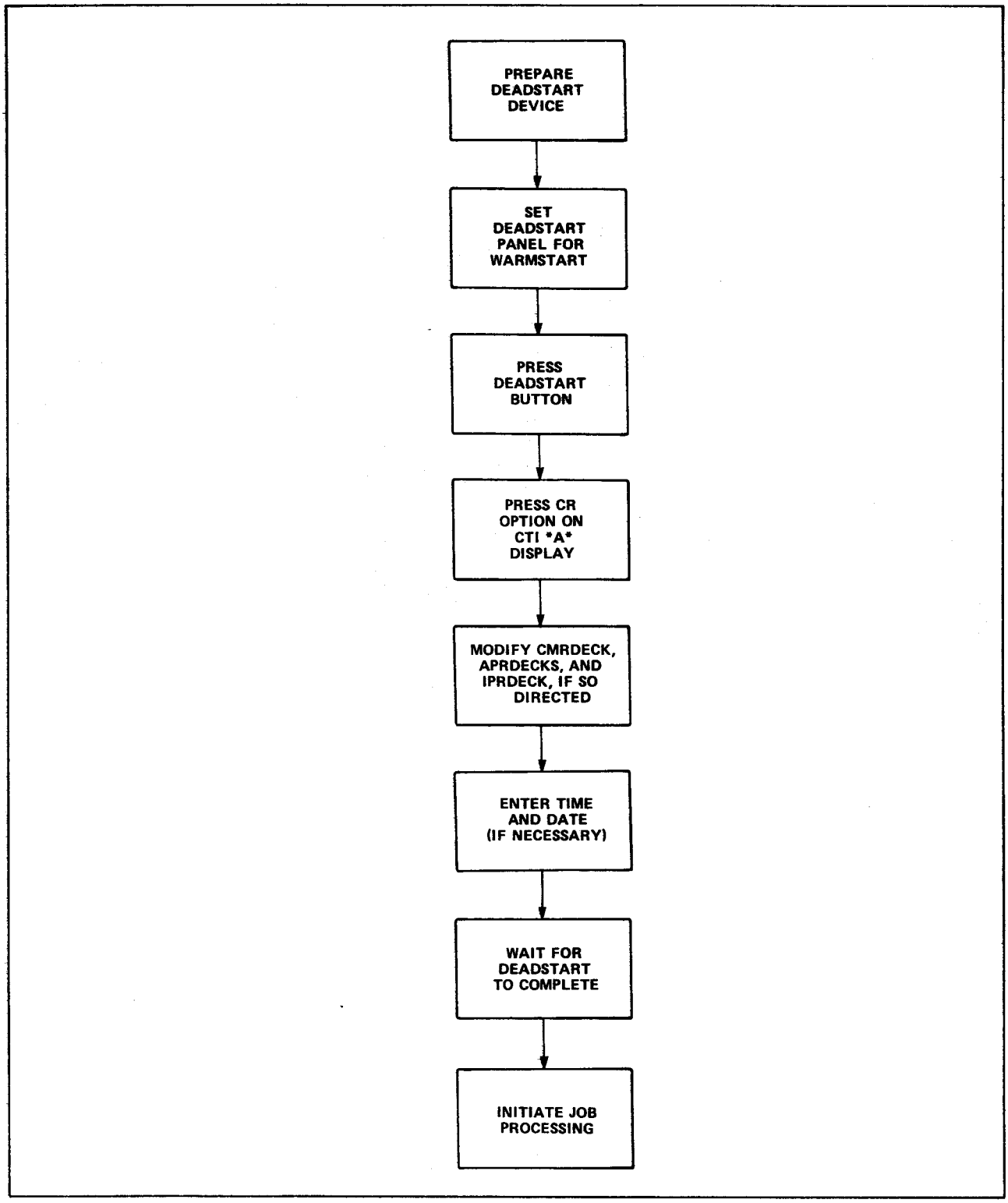


Figure I-2-1. Typical Warmstart Sequence

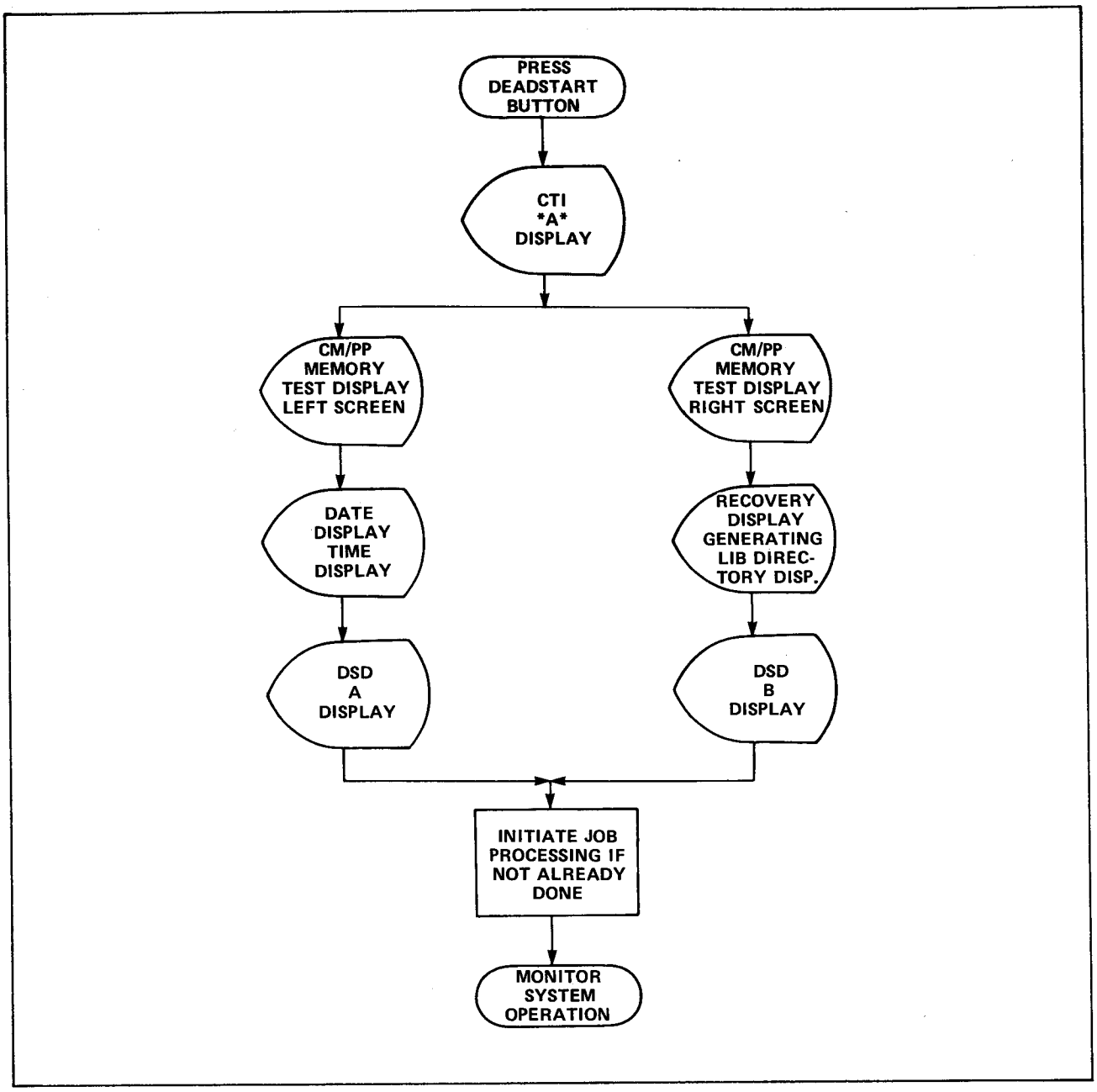


Figure I-2-2. Warmstart Display Sequence (Except Models 815 and 825)

SETTING THE DEADSTART PANEL FOR A WARMSTART

The deadstart device on which the deadstart tape or disk pack is mounted, its associated controller, and the channel used to access this equipment are identified by setting the switches shown in the unshaded area of the deadstart panels illustrated in figures I-2-3, I-2-4, and I-2-5.

There are two types of warmstart panel settings: one for a deadstart device connected to a channel with a PP and the other for a deadstart device connected to a channel without a PP. There are two panel settings when the deadstart device is connected to a channel with a PP because CYBER 70/6000 deadstart panels have fewer rows of switches.

Each switch on the deadstart panel represents a binary number (1 means the switch is set in the up position, 0 means the switch is set in the down position). Three switches grouped together form an octal digit (a number from 0 through 7). Four octal digits form a numeric code for a PP instruction to the computer. You set instructions on the deadstart panel by converting an instruction into an octal number code and that code to a binary number. You then set the row of switches that corresponds to that instruction.

For models 835 and 855, you must set the four leftmost bit positions for each row to 0 (down). They are not shown in figures I-2-3 and I-2-5.

Refer to Setting Word 13 in this section for detailed information on word 12 (for CYBER 70 and 6000 Computer Systems) and word 13 parameters.

Site analysts provide the actual settings for each row of switches on the deadstart panel. The following descriptions of the panel settings are provided only for information and to allow you to check the deadstart panel settings if you have deadstart problems.

	Binary				Octal
1	001	100	000	010	1402
2	111	011	0tt	ttt	73tt
3	000	000	001	111	0017
4	111	101	1tt	ttt	75tt
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	000	000	000	000	0000
13	rrr	ppp	xxx	xxx	rpxx†
14	000	000	000	000	0000
15	000	000	000	000	0000
16	000	000	000	000	0000
17	000	000	000	000	0000
20	111	001	001	010	7112

†The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure I-2-3. CYBER 170 Computer Systems Panel Settings for Warmstart from Channel with a PP (For Example, Channel 1, 2, or 11)

	Binary				Octal
1	001	100	000	010	1402
2	111	011	0tt	ttt	73tt
3	000	000	001	011	0013
4	111	101	1tt	ttt	75tt
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	rrr	ppp	xxx	xxx	rpxx†
13	000	000	000	000	0000
14	111	001	001	010	7112

†The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure I-2-4. CYBER 70 and 6000 Computer Systems Panel Settings for Warmstart from Channel with a PP (For Example, Channel 1, 2, or 11)

	Binary				Octal
1	000	000	000	000	0000
2	000	000	000	000	0000†
3	000	000	000	000	0000†
4	111	101	1tt	ttt	75tt†
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	000	000	000	000	0000
13	rrr	ppp	xxx	xxx	rpxx††
14	000	000	000	000	0000

†If a 6681 data channel converter is the first equipment on the channel, or if it precedes the deadstart device controller, words 2, 3, and 4 must be set as follows:

	Binary				Octal
2	111	101	1tt	ttt	75tt
3	111	111	0tt	ttt	77tt
4	010	001	000	000	2100

††The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure I-2-5. Panel Settings for Warmstart from Channel with No PP (For Example, Channel 0, 12, or 13)

Descriptions of the deadstart panel parameters follow.

Notation	Description
tt ttt	Channel number used to access the deadstart equipment.
eee	Controller number to which the deadstart unit is connected.
ddd ddd ddd	Deadstart function; depends on device type as follows: 010 11u uuu 66x tape units. 001 01u uuu 677 tape units at 800 cpi and 679 tape units. 011 01u uuu 677 tape units at 556 cpi. 011 uuu uuu 844 or 885-11/12 disk units. u uuu or uuu uuu represents the physical unit number on which the deadstart tape or disk pack is mounted.
rrr	Deadstart level.
ppp	Deadstart parameters.
xxx xxx	CMRDECK number.

SETTING WORD 12 (MODELS 815, 825, 835, AND 855)

For models 815, 825, 835, and 855, two unique fields exist in word 12 of the deadstart program. They allow you to enter the model type that HIVS/MSL 150 uses and to select extended deadstart testing. The switches that represent these fields are shown in the following illustration. The switches are set on the deadstart panel for models 835 and 855 or are entered as octal values through the models 815 and 825 consoles.

sss — Specifies the model type as follows:

Model Type	Mainframe
001	815,825
010	835
011	855

You must set these bits correctly for HIVS/MSL 150 use. If you set the bits to any other configuration, the model type set is not valid and the following message appears.

ERROR - NOT ON LIBRARY

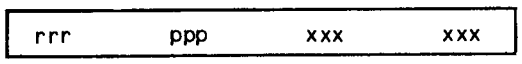
f — Specifies the extended deadstart sequence option. If you set this bit and have the LONG/SHORT DEADSTART SEQUENCE switch on the deadstart panel set to the up (long) position, the system loads and executes the extended deadstart sequence (EDS). If this bit is not set or if the LONG/SHORT DEADSTART SEQUENCE switch is set to the down (short) position, the extended deadstart sequence does not occur.

When this bit is set, parts of PP memories are destroyed. Refer to the description of the E option in Utilities (*U*) Display in part II, section 2, for more information.

The rest of word 12 can be set for other maintenance purposes (refer to the applicable hardware operator's guide for more information).

SETTING WORD 13

Three unique fields exist in word 13 (word 12 on CYBER 70 and 6000 Computer Systems) of the deadstart program allowing you to select the CMRDECK, the deadstart parameters, and the level of deadstart. The switches that represent these fields are shown in the following illustration. The switches are set on the deadstart panel for all models except models 815 and 825; and are entered as octal values through the model 815 or 825 console.



rrr — Specifies the level of deadstart.

ppp — Specifies the deadstart parameters.

xxx xxx — Specifies the CMRDECK number.

SELECTING THE DEADSTART LEVEL

You can select one of four levels of deadstart by setting bits 11, 10, and 9 in word 13. The switches that represent this field of bits are shown in the unshaded area:

Value of rrr (Bits 11 - 9)	Description
000	Indicates an initial or level 0 deadstart. The system is loaded from the deadstart file. This is not considered a recovery deadstart although permanent files, queued files, and system dayfiles are recovered automatically unless those file types are initialized by the CMRDECK entry, INITIALIZE (refer to Modifying the CMRDECK in part II, section 2). These files are recovered on all levels of system deadstart. Level 0 deadstart is normally specified under the following conditions. • For the first deadstart following a period in which the system was either inoperative or used for purposes other than NOS operations. • When a system malfunction occurred and other levels of system deadstart prove ineffective. If it is necessary to redeadstart the system (for example, due to system malfunction), it is recommended that you attempt a level 3 recovery deadstart. If you select level 0, the system is reloaded from the deadstart file. All central memory (except on models 815, 825, 835, and 855)† and PP contents are destroyed by the memory confidence test.
001	Indicates a level 1 recovery deadstart, in which the system, all jobs, and all active files are recovered from checkpoint information on mass storage. Refer to part II, section 2, for more information on level 1 deadstarts.
010	Indicates a level 2 recovery deadstart, in which all jobs and active files are recovered from checkpoint information on mass storage. No attempt is made to recover the system. Refer to part II, section 2, for more information on level 2 deadstarts.
011	Indicates a level 3 recovery deadstart in which all jobs, permanent files, active files, and the system, with the exception of the library directory, are recovered from central memory tables. The library directory is recovered from mass storage.

†Central memory and extended memory are not destroyed on models 815, 825, 835, and 855 unless the I option is selected on the CTI *A* display or the V option is selected from the *0* display [refer to Operator Intervention (*0*) Display in part II, section 2, for more information].

Value of rrr (Bits 11 - 9)	Description
	A level 3 deadstart is the only level that preserves the contents of central memory. In order to avoid inadvertent destruction of central memory contents when a level 3 deadstart is intended, it is recommended that you always select level 3 on the deadstart panel. If you need a deadstart level other than 3, you can specify the level by changing the *P* display (refer to part II, section 2, for more information). You must issue a CHECK POINT SYSTEM command prior to deadstart to prevent loss of system library modification (SYSEDIT) information. Normally you perform level 3 recovery deadstart following an equipment malfunction (for example, channel or PP hung), providing central memory and mass storage remain intact. Unless you can determine that central memory is no longer reliable, you should attempt a level 3 recovery following a malfunction. If level 3 recovery fails, you must perform a level 0 deadstart.

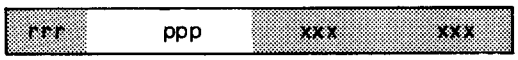
NOTE

Attempting a level 1 or 2 recovery deadstart after a level 3 deadstart fails does not correctly recover system activity and can endanger system and permanent file integrity. You must perform a level 0 deadstart.

For additional information concerning levels of deadstart, refer to Preparing for System Restart in this section and Preparing for Recovery Deadstart in part II, section 2.

SELECTING THE DEADSTART PARAMETERS

You can select deadstart parameters to control miscellaneous deadstart functions by setting bits 8 through 6 in word 13. The switches that represent this field of bits are shown in the unshaded area:



ppp Specifies miscellaneous deadstart functions. Refer to table I-2-1.

Table I-2-1. Deadstart Parameters Switch Settings

Bit Number	Switch Position	Description
8	Down	Reserved for future use.
7 = 0	Down	Indicates that the system does not save the contents of PP0 in central memory when it performs an express deadstart dump.
7 = 1	Up	Indicates that the system attempts to save the original contents of PP0 in central memory when it performs an express deadstart dump. This is done only if a free block of central memory is available. A free memory block is field length beyond the first 10000_8 words which is not assigned to a subsystem. If no free block of central memory is available, the original contents of PP0 cannot be saved.
6 = 0	Down	Indicates that the CMRDECK is not displayed during deadstart.
6 = 1	Up	Indicates that the CMRDECK is displayed during all levels of deadstart.

SELECTING THE CMRDECK

The CMRDECK contains the equipment configuration to be used for system operations. Up to 64 CMRDECKs (numbered 0 through 77_8) can be included on the deadstart file. You select one of the CMRDECK equipment configurations when the system is deadstarted.

NOTE

You can select the CMRDECK only during a level 0 (initial) deadstart. For a level 1, 2, or 3 (recovery) deadstart, you must use the CMRDECK selected during the most recent level 0 deadstart. Refer to Selecting the Deadstart Level earlier in this section for information concerning the levels of deadstart.

The number of the selected CMRDECK is indicated by setting the switches (bits 5 through 0) shown in the unshaded area:

xxx xxx Specifies the CMRDECK number (0 through 77_8) to be used.

For example, if CMRDECK number 26_8 is selected, the corresponding switches on the deadstart panel are set as follows:

```
rrr ppp 010 110
```

0 indicates switch is in down position; 1 indicates switch is in up position. You can also specify the CMRDECK from the console keyboard by using the *P* display (described in part II, section 2). Values entered from the *P* display have precedence over those specified on the deadstart panel.

WARMSTART PROCEDURE FOR MODELS 815 AND 825

The procedure to warmstart models 815 and 825 is similar to other CYBER 170 Computer Systems except that the models 815 and 825 do not have a deadstart panel. The warmstart programs represented by the deadstart panel switch settings on a model 835 or 855 are entered through the model 815 or 825 console keyboard as octal numbers. Warmstart programs for the models 815 and 825 are identical to those for models 835 and 855 except where specifically noted.

Pressing the deadstart button on the console of a model 815 or 825 brings up the initial deadstart display (refer to figure I-1-7). If the warmstart program is already stored in the microprocessor, retrieve it by typing

```
GP n
```

where n is the number (0 through 3) of the stored program. You can change individual instructions in a program, such as unit number or other parameters, as outlined below. These changes are not retained across deadstarts unless the new program is stored as outlined later in this section.

If the correct warmstart program is not stored or a new program is to be entered and stored, the program must be entered as octal numbers equivalent to the switch settings on the deadstart panel of other mainframes.

Enter the warmstart program represented by the switch settings shown in the related deadstart panel figure for your configuration by typing

```
xx yyyyyy
```

where xx is the octal row number of the deadstart instruction and yyyyyy is the octal number equivalent of the actual instruction. When you enter a 6-digit instruction, the first two digits of the instruction must be zeros. However, leading zeros in both the octal row number and the instruction need not be entered. For example, if the row number was 03 and the instruction was 000017 you could enter

```
3 17
```

and get the same setting as entering

```
03 000017.
```

If you want the system to automatically increment the octal row number, the entry after which the increment is to occur is

```
xx+yyyyyy
```

where the + character indicates that the system is to automatically increment the octal row number. When the automatic increment is in effect, the system displays the next location after accepting the previous entry. Only the next instruction need be entered.

To cancel the automatic incrementing, press the left blank (erase) key after the octal row number appears.

To store a new program or a modified program, type

```
SP n
```

where n is the number (0 through 3) of the program to be stored. If a program is already stored at the specified number, the new program replaces the old stored program.

After entering or retrieving the desired warmstart program, type

```
S
```

followed by a CR for a short deadstart sequence, or

```
L
```

followed by a CR for a long deadstart sequence.

When power is applied to a model 815 or 825 mainframe, the microprocessor automatically retrieves the warmstart program stored as program number 3 and initiates a long deadstart sequence. If you want this feature, store the warmstart program for your configuration as program number 3. If you do not want this feature, store the first word of program 3 as 000300. This instruction puts the program in PP0 into a loop. No deadstart activity occurs and no displays appear on the screen. You must press the deadstart button to bring up the initial deadstart display. You can then retrieve or enter the warmstart program you wish and select the short or long deadstart sequence.

INITIATING THE DEADSTART PROCESS

Initiate the deadstart process by pressing the deadstart button on the display console.

Deadstart proceeds automatically until you are required to initialize the system or until an error is encountered (refer to Initializing the System in this section).

You can monitor deadstart progress on the console display screens (refer to figure I-2-2). If errors are encountered during deadstart, a descriptive message is displayed on the right console screen, and deadstart halts. Refer to Deadstart Error Troubleshooting at the end of this section for more information and possible corrective actions.

If the left display screen is replaced by an error display, a fatal error occurred. Deadstart halts. Refer to appendix B for a description of the error messages and appropriate action.

CTI INITIAL OPTIONS (*A*) DISPLAY

The initial options (*A*) display appears first. From the *A* display, you instruct the system to proceed with automatic system deadstart or select additional options.

The *A* display provides the following options (figure I-2-6).

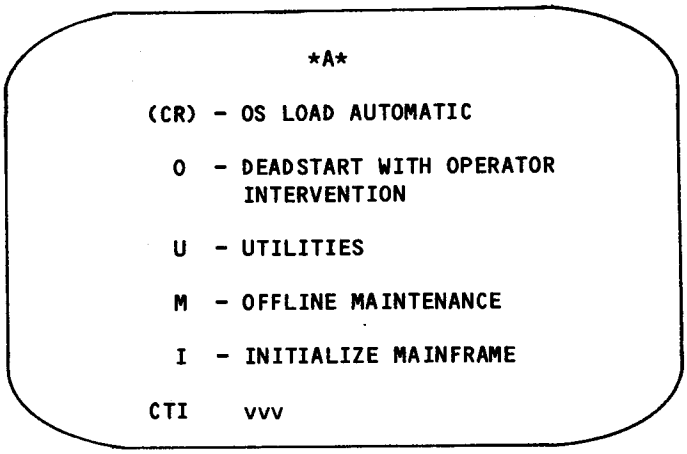


Figure I-2-6. CTI Initial Options (*A*) Display

Option	Description
(CR)	OS load automatic. Press CR to load the operating system with no intervention on your part. You cannot select additional options after this entry. Refer to OS Load Automatic (CR) Display in this section for detailed information.
0	Deadstart with operator intervention. Select this option to display the operator intervention (*0*) display (described in part II, section 2).
U	Utilities. Select this option to display the utility (*U*) display (described in part II, section 2).
M†	Off-line maintenance. Select this option to initiate the off-line maintenance tests. For models 815, 825, 835, and 855, refer to the appropriate hardware operator's guide for more information. For all other CYBER and 6000 Computer Systems, consult a customer engineer for more information.
I††	Initialize mainframe. Select this option when long deadstarting after power has been off in the mainframe or after maintenance activity was performed. When you select this option, the message **ALL MAINFRAME MEMORIES WILL BE INITIALIZED FOR OS LOAD.** appears at the bottom of the display. Select another option to continue with the deadstart.

The current version of CTI (vvv) is indicated at the bottom of the *A* display.

†The off-line maintenance display always appears when you are deadstarting from tape. When you are deadstarting from disk, this display appears only if the maintenance software library (MSL) is available at your site. Consult a customer engineer for more information.
††Appears only when deadstarting a model 815, 825, 835, or 855.

OS LOAD AUTOMATIC (CR) DISPLAY (ALL COMPUTER SYSTEMS EXCEPT MODELS 815, 825, 835, AND 855)

When you press CR, CTI checks the status and control (S/C) register,† tests PP memory, and on level 0 deadstarts tests central memory. On level 3 deadstarts, the system bypasses central memory testing to preserve central memory contents.

The current address being tested for each processor is displayed on the left screen. Any memory data errors are displayed on the right screen. The information displayed varies depending on the system being used.

The CYBER 170 Computer Systems (except models 815, 825, 835, and 855) left screen shows the current S/C register† (00 or 01) and the respective bit (0000 through 0313) being tested. If this register testing completes with no errors detected, CTI clears this line from the display. At this point PP and central memory testing begins. The PP number and PP data address being checked, the central memory address being checked, and the value of the P register are given by the running display. The right screen shows the PP being checked, any PP or central memory data errors, and any S/C register† errors (figure I-2-7).

The CYBER 70 Computer Systems left screen displays the same information as the CYBER 170 Computer Systems, except that the interlock register and its bit are shown in place of the S/C register† and bit. The right screen shows the PP being tested and any PP or central memory data errors (figure I-2-8).

The 6000 Computer Systems left screen displays the PP number, the PP and central memory address being tested, and the P register. The right screen shows the PP being tested and any PP or central memory data errors (figure I-2-9).

If the system detects any errors, it adds an explanatory message to the right display and stops processing. Otherwise, NONE appears on the line below each header.

A PP or central memory data error message has the following format:

```
ADDRESS
EXPECTED DATA
ACTUAL DATA
DIFFERENCE
```

Additional information appears after each entry.

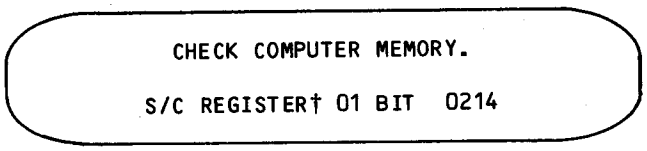
When there is an S/C register† error, the following message appears at the bottom of the left screen.

```
DEADSTART ABORTED - FATAL ERRORS.
```

The actual error message appears on the right screen and has the following format:

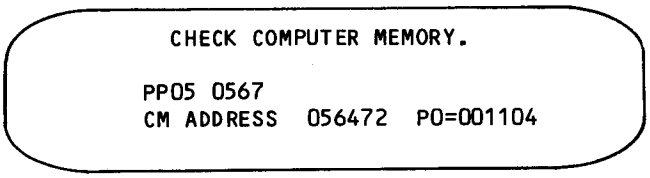
```
            word 16
            ‾‾‾‾
SC-0-2††  yyyy yyyy  yyyy  yyyy  yyyy.
SC-0-1††  yyyy yyyy  yyyy  yyyy  yyyy  yyyy.
SC-0-0††  yyyy yyyy  yyyy  yyyy  yyyy  yyyy.
                                      ‾‾‾‾
                                      word 0
```

†For models 865 and 875, S/C registers are maintenance registers.
††For models 865 and 875, SC is replaced by MR.

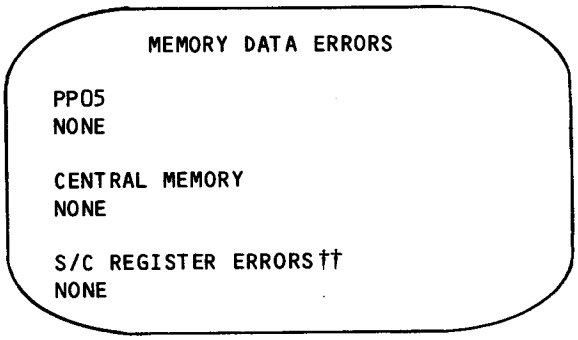


†For models 865 and 875, S/C registers are maintenance registers.

Left Screen During S/C Register Testing



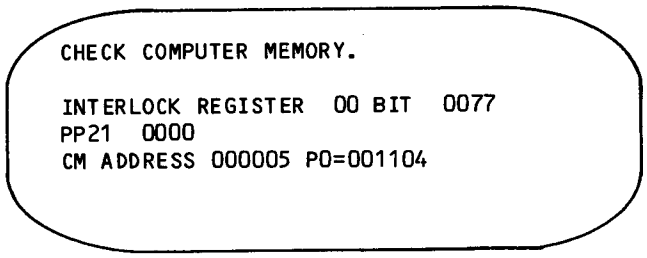
Left Screen During PP and CM Testing



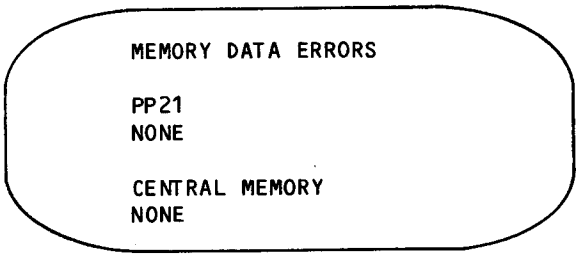
††For models 865 and 875, the message MAIN. REG. ERRORS appears.

Right Screen

Figure I-2-7. CYBER 170 Computer Systems (Except Models 815, 825, 835, and 855) Memory Check

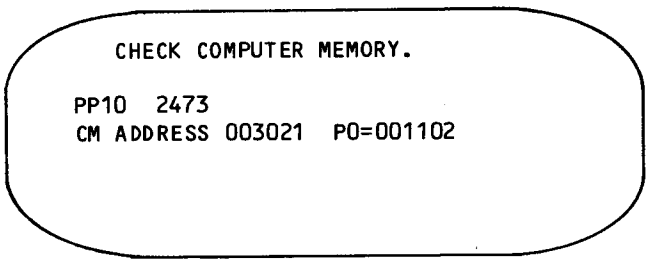


Left Screen

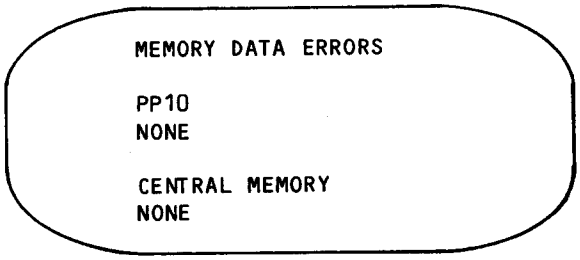


Right Screen

Figure I-2-8. CYBER 70 Computer Systems Memory Check



Left Screen



Right Screen

Figure I-2-9. 6000 Computer Systems Memory Check

yyyy is the contents of a word in the S/C register;† word 0 is at the lower right, and word 16 is at the upper left. Appearing below the S/C register† contents are text explanations of the error bits currently set. If the message

```
SECDED DOUBLE - QUADRANT n , CSUxxx.
```

appears, the system has detected a double bit memory error. Contact a site analyst if CTI presents this display.

Following these explanations, the contents of the channel 36 S/C register,† if it exists, appear in similar format with 1 replacing 0 in the m field of SC-m-n.†† Finally, the explanation of the channel 36 error bits currently set appears. Overflow from the left display appears on the right screen with an information message indicating the overflow.

If problems occur during PP memory testing, the following messages appear.

```
PROCESSOR NOT RESPONDING
FATAL ERROR - DEADSTART ABORTED
```

Inform a site analyst.

OS LOAD AUTOMATIC (CR) DISPLAY (MODELS 815, 825, 835, AND 855)

When you press CR, the system searches for the hardware initialization verification sequence (HIVS) on disk. You must have HIVS loaded on a disk to deadstart models 815, 825, 835, and 855. If you are deadstarting from tape or from a disk that does not have HIVS, the system requests the disk that contains HIVS. The following lines appear:

```
ENTER LOCATION
OF MSL/HIVS DEVICE
CHANNEL - cc
```

cc is the channel number of the deadstart device. Enter the channel number of the disk containing HIVS and press CR. The following line appears:

```
EQUIPMENT - e
```

e is the equipment number of the deadstart device. Enter the equipment number of the disk containing HIVS and press CR. The following line appears:

```
UNIT - uu
```

uu is the unit number of the deadstart device. Enter the unit number of the disk containing HIVS and press CR.

---

†For models 865 and 875, S/C registers are maintenance registers.
††For models 865 and 875, SC is replaced by MR.

The system uses HIVS to build the operating environment for models 815, 825, 835, and 855. To do this, HIVS loads the environment interface (EI) to central memory, loads the microcode to the central processor control store, and establishes the operating environment. As these things happen the following messages flash on the left screen:

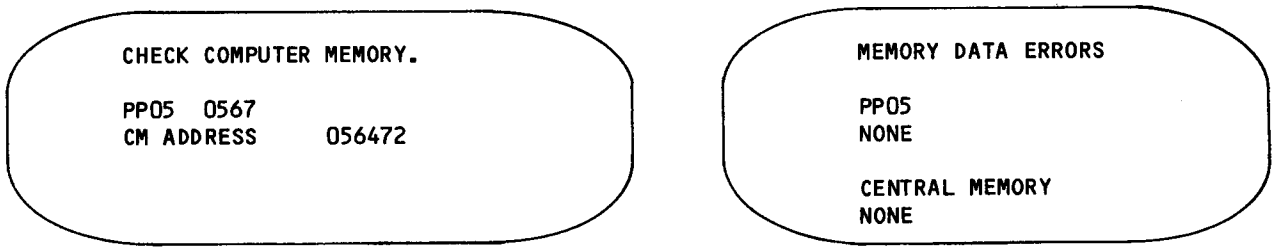
```
LOADING EI
LOADING MICROCODE
ESTABLISHING ENVIRONMENT
```

Central memory confidence testing is only done when the V option is selected on the *O* display or the I option is selected on the CTI *A* display before a system load is performed. Refer to Operator Intervention (*O*) Display and Hardware Initialization (I) Option in part II, section 2, for more information.

After the operating environment is built, the messages are cleared and the system loads the PP memory confidence tests. This test verifies the ability of PP memory to hold simple data patterns.

The left console screen displays the address being tested for each processor. It shows the PP number and the PP data address being checked (figure I-2-10).

The right console screen shows the PP being checked and any PP memory errors (figure I-2-10).



Left Screen

Right Screen

Figure I-2-10. Models 815, 825, 835, and 855 Memory Check

If problems occur during PP memory testing, the following messages appear.

```
PROCESSOR NOT RESPONDING
FATAL ERROR - DEADSTART ABORTED
```

Inform a site analyst.

If the system detects a maintenance register bit set indicating a fatal error, the following message appears on the left screen:

```
DEADSTART ABORTED - FATAL ERROR

eeee    rrrr   =cc cc cc cc cc cc cc cc
        rrrr   =cc cc cc cc cc cc cc cc
        rrrr   =cc cc cc cc cc cc cc cc
eeee    rrrr    bb-bb - tttt
```

Notation	Description
eeee	Name of the hardware that has the error.

Name	Hardware
In	Input/output unit.
Mn	Central memory.
Pn	Central processing unit.

n is 1, 2, or 3 depending on the particular hardware configuration.

rrrr	Register name.
cc	Register content in hexadecimal notation.
bb	Bit number in decimal notation.
tttt	Text explanation of the error.

SYSTEM CONFIGURATION

The system configuration is the identification and grouping of peripheral devices used by the mainframe. These peripheral devices include disk drives, tape drives, line printers, controllers, network processing units, and so forth. The identification and grouping of these devices is defined in three types of files on the deadstart file; the CMRDECK, the APRDECKs, and the IPRDECK.

SYSTEM DEFINITION

The CMRDECK, APRDECKs, and IPRDECK files together define the system configuration and set the initial operating system limits and priorities. Contact a site analyst for more information on the actual structure and function of each of these files.

Each of these files can exist in many versions on the deadstart file. You specify which CMRDECK to use during a level 0 (initial) deadstart. (On level 3 deadstarts, the CMRDECK specified during the last level 0 deadstart remains in effect.) Some entries in the CMRDECK require an APRDECK. Each entry in the CMRDECK requiring an APRDECK specifies which APRDECK it needs. If an APRDECK is not specified, a default APRDECK (usually APRDECK 0) is supplied. One of the entries in the CMRDECK is a command that specifies which IPRDECK is required for this particular system configuration. Thus, by specifying a particular CMRDECK you also select the unique combination of APRDECKs and IPRDECK needed to deadstart the system.

All of these files are prepared by site analysts during the installation process. You do not interact with these files unless there is an error or you elect to display the CMRDECK during deadstart. You control when the CMRDECK is displayed during deadstart by the setting of bit 6 in word 13 of the deadstart panel (refer to Setting Word 13 earlier in this section).

If the display CMRDECK switch is set in the up position, the system halts after CTI has completed and displays the CMRDECK. The CMRDECK, the APRDECKs, and the IPRDECK can be viewed and changed according to instructions from your site analyst.

If the display CMRDECK switch is set in the down position, the CMRDECK instructions are carried out as set up in the file, unless there is an error in the CMRDECK (or IPRDECK). If an error is discovered, the system halts until you enter a correction and tell the system to continue.

SYSTEM CONFIGURATION CHANGES

Occasionally, because of problems developing in hardware or a mistake at installation time, you may need to modify the CMRDECK, an APRDECK, or the IPRDECK. Do not make changes to these files except at the direction of a site analyst.

When you are directed to make changes, you must start by displaying the CMRDECK. This is done by setting the display CMRDECK switch (bit 6 in word 13 of the deadstart panel) or by selecting the D=Y option on the CTI *P* display (refer to part II, section 2, for more information on this display). After you set bit 6, you press the deadstart button, select the OS Autoload (CR) option on the CTI *A* display, and, after CTI finishes testing and initializing, the system stops and presents an instruction display called CMRINST. When the CMRINST display is presented, you can view the CMRDECK, go to the APRDECKs, go directly to the IPRDECK, or continue the automatic system load. For viewing the CMRDECK or making changes to the CMRDECK, refer to Modifying the CMRDECK. For viewing the APRDECKs or making changes to the APRDECKs, refer to Modifying the APRDECK. For viewing the IPRDECK or making changes to the IPRDECK, refer to Modifying the IPRDECK. To continue with the automatic system load, type

```
GO.
```

and press CR.

Modifying the CMRDECK

All valid CMRDECK entries are defined in the CMRINST display. Several of the entries listed are assigned system default values. These values are assumed if the entries do not appear in the CMRDECK being used. To view the contents of the CMRDECK being used, press the right blank key (rightmost blank key on top row of console keyboard); refer to figure I-1-1. The CMRINST display is returned by pressing the right blank key again. The display alternates each time the right blank key is pressed. If either the CMRDECK or CMRINST overflows two screens, the display can be advanced by pressing the + key.

Modify the CMRDECK by entering the appropriate changes or additions from the console keyboard as directed by your site analyst. These entries can be made while either CMRDECK or CMRINST is being displayed. Each console entry supersedes the value currently specified in the CMRDECK (or default value in CMRINST).

Refer to the NOS 2 Installation Handbook for complete information concerning all CMRDECK entries.

NOTE

The modified CMRDECK remains in effect only until the next deadstart is performed. Changes to the CMRDECK are not recovered for the next deadstart.

If it is necessary to modify a specific APRDECK or the IPRDECK, refer to Modifying the APRDECK or Modifying the IPRDECK in this section. Otherwise, to indicate that all modifications to the CMRDECK, APRDECKs, and IPRDECK are complete, type

```
GO.
```

and press CR.

Modifying the APRDECK

After completing all CMRDECK modifications or if no CMRDECK modifications are needed, you can modify the default APRDECK, the APRDECK for a specific equipment, or the IPRDECK being used. If no changes need to be made to any APRDECK, but you do need to modify the IPRDECK, refer to Modifying the IPRDECK in this section.

The APRDECK contains entries reserving areas of mass storage that are not usable (flaws). The APRDECK used can vary from equipment to equipment. One of the parameters specified when an equipment is defined in the CMRDECK is the APRDECK number that applies to that equipment. The default (APRDECK 0) is selected if this parameter is not specified.

To modify an APRDECK while the CMRDECK or CMRINST is being displayed, type

```
NEXT.
```

and press CR. The APRINST display is presented. It describes all the acceptable APRDECK entries. Enter the changes or additions to the APRDECK from the console keyboard as directed by your site analyst.

If there are no changes to the APRDECK displayed, type

```
NEXT.
```

and press CR to go to the next APRDECK. Repeat this process until the appropriate APRDECK is displayed or until you have changed all APRDECKs needing changes.

After all APRDECK modifications are complete, you can skip to the IPRDECK (either the default IPRDECK defined during system installation or the IPRDECK specified by the IPD command in the CMRDECK) by typing

```
IPR.
```

and pressing CR. You can refer to Modifying the IPRDECK in this section for more information. If there are no IPRDECK modifications, you can type

```
GO.
```

and press CR to indicate that changes to the CMRDECK, APRDECKs, and IPRDECK are complete.

Modifying the IPRDECK

The IPRDECK contains installation parameters that describe the mode of system operation. IPRDECK modification is seldom required during deadstart since nearly all IPRDECK commands are also valid DSD commands that make the same changes during normal system operation. Generally, installation parameters changed during normal operations (with DSD commands or by modifying the IPRDECK) are retained only across a level 3 recovery deadstart. All valid DSD commands used in a normal production environment are described in section 3.

After typing

```
IPR.
```

and pressing CR when all the CMRDECK or APRDECK modifications are complete or after repeatedly typing NEXT. to step through all the APRDECKs, the instruction display entitled IPRINST appears on the console screens. This display defines all valid IPRDECK entries. Most of these entries are also valid DSD commands. To view the contents of the IPRDECK being used, press the right blank key (figure I-1-1). The display alternates each time the right blank key is pressed. If either the IPRDECK or IPRINST overflows two screens, you can advance the display by pressing the + key.

Enter the appropriate changes or additions from the console keyboard as directed by your site analyst. These entries can be made while either IPRINST or the IPRDECK is being displayed. A console entry supersedes the value currently specified in the IPRDECK.

NOTE

Changes to the IPRDECK are retained only for a level 3 (recovery) deadstart.

To indicate that changes to the CMRDECK, APRDECKs and/or IPRDECK are completed, type

```
GO.
```

and press CR. The automatic system loading continues with the system initialization displays.

SYSTEM LOADING AND INITIATING

When the system configuration has been established, the system library of programs is either loaded from the deadstart file or is recovered from mass storage. Job processing is then initiated either automatically from information in the IPRDECK or manually when you enter the command.

DEADSTART FILE LOAD/RECOVERY

If you are performing a level 0 (initial) deadstart, the system library is automatically loaded from the deadstart file to one or more mass storage devices. The name of each system library program is also displayed on the right console screen as it is being loaded. This allows you to monitor deadstart progress. Figure I-2-11 shows a typical system load display.

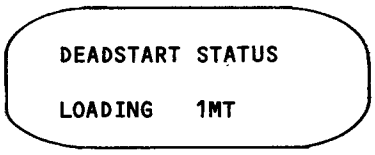


Figure I-2-11. System Load Display

If you are performing a level 3 (recovery) deadstart, the system library is not reloaded. It is recovered from mass storage. Central memory tables such as the system file name table (system FNT), executing job table (EJT), queued file table (QFT), equipment status table (EST), and track reservation table (TRT) are recovered from central memory for level 3 deadstarts. Additional information may be recovered from the link device if you are part of an extended memory multimainframe configuration. Figure I-2-12 shows a typical system recovery display. For level 3 deadstarts, the deadstart file is rewound and is not accessed again until another deadstart operation is performed.

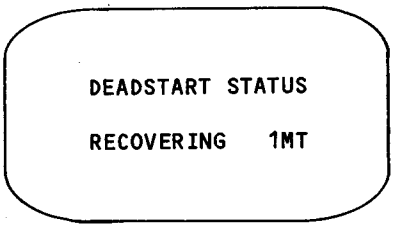


Figure I-2-12. System Recovery Display

If a deadstart error occurs, a message appears on the right console screen and, depending upon the nature of the error, deadstart processing may halt. Refer to Deadstart Error Trouble Shooting later in this section for more information and possible corrective actions.

INITIALIZING THE SYSTEM

Each time a system deadstart is performed, it is necessary to initialize the system. Essentially, this consists of entering the current date and time. The system uses the date and time (updated every second) for dayfile messages and for permanent file catalogs and directories for files being accessed. It is important to enter the correct date and time in order to accurately maintain these system records.

When the system loading (or recovery) phase of deadstart is about to begin, the system checks for the presence of a wall clock chip in your hardware configuration. If the chip is present, the date and time are automatically read from the chip. If the chip is not present, the one-line message in figure I-2-13 appears in the center of the left console screen and requests entry of the current date.

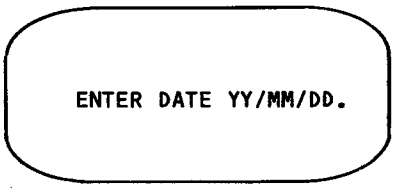


Figure I-2-13. Date Initialization Request

Type the current date, followed by CR, in the following format.

yy/mm/dd.

yy Year; 00 through 99.

mm Month; 01 through 12.

dd Day; 01 through 31.

When the system accepts the date entry, it displays the request for entry of the current time as shown in figure I-2-14.

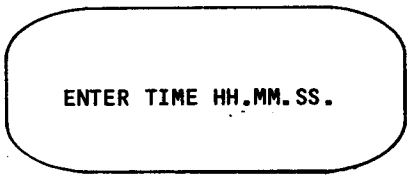


Figure I-2-14. Time Initialization Request

Type the current time, followed by CR in the following format.

hh.mm.ss.

hh Hour; 00 through 23.

mm Minute; 00 through 59.

ss Second; 00 through 59.

If the deadstart file loading (or recovery) is not completed when the time entry is made, the DSD commands listed in the IPRDECK are displayed on the lower portion of the left console screen. The commands are not executed, however, until the file loading is completed and the system library directory is generated.

INITIATING JOB PROCESSING

If a level 3 (recovery) deadstart is being performed, the system recovers all jobs and active files and automatically resumes normal job processing.

If a level 0 (initial) deadstart is being performed, the system automatically initiates job processing only if the commands are in the IPRDECK. To initiate job processing when the automatic resumption is not in the IPRDECK, type either

AUTO. or MAINTENANCE.

and press CR.

Following entry of the AUTO or MAINTENANCE command during a level 0 (initial) deadstart, the deadstart sequencing process begins. Deadstart sequencing causes job processing to be suspended until all system files in the default family are initiated. To initiate a family other than the default, enter the command

```
X.ISF,FM=family.
```

family Name of alternate family of devices.

Normal job processing begins after the deadstart sequencing job completes. If the AUTO command is entered, the subsystems enabled in the IPRDECK are automatically assigned to control points.

The MAINTENANCE command performs the same function as the AUTO command. Additionally, it assigns several maintenance routines, according to mainframe type, to available control points and runs them as normal jobs. These are CPU or central memory test routines designed to detect hardware errors. The routines display error messages either in the status field on the B display (refer to section 4) or in the system error log.

To display the error log, type

```
A,ERROR LOG.
```

You should monitor these routines from time to time. If a maintenance routine displays an error message indicating a hardware malfunction occurred, contact a customer engineer. It is recommended that these programs be run at all times. The maintenance programs do not severely affect system performance. Descriptions of the maintenance routines are in the On-Line Maintenance Software Reference Manual.

INITIATING CYBERLOG

The CYBERLOG utility gathers information on system performance for use by site analysts. CYBERLOG gathers the information from operator responses after deadstart is complete. The information gathered is on the number and type of service interruptions, the elapsed and lost time from the interruption, and the level of severity or impact of each interruption.

At installation time CYBERLOG can be installed so it is automatically initiated for all subsequent deadstarts. Refer to the NOS 2 Installation Handbook, section 2, for further information.

If CYBERLOG is not automatically initiated, you can initiate it when desired by typing

```
X.CYBRLOG.
```

When CYBERLOG appears at a control point, a request message on the B display asks you to assign the K display to the CYBERLOG job. Type

```
K,jsn.
```

jsn Job sequence name of CYBERLOG.

RESPONDING TO CYBERLOG DISPLAYS

The CYBERLOG displays request data about the event that causes the system to be down or degraded. Your selection of the event type, scheduled or unscheduled, determines the path through the displays. The data requested for the two event types are:

Scheduled Event	Unscheduled Event
Reason	Reason
Elapsed time	Component
	Elapsed time
	Lost time
	Impact

Event Type

The initial display (figure I-2-15) requests the type of event being recorded. Enter 0 for a scheduled event and 1 for an unscheduled event.

In the resulting reason display, the item you select appears on the line labeled EVENT TYPE, and the next list of options appears on the bottom.

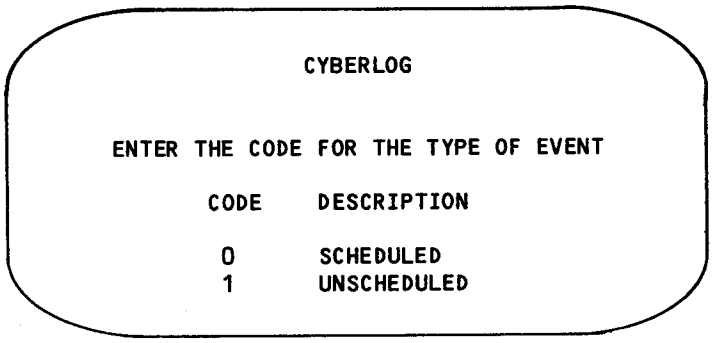


Figure I-2-15. CYBERLOG Display for Type of Event

Reason

After you identify the type of event that occurred, a display appears that asks you to identify the reason for the event. The specific display depends on the type of event (figure I-2-16 or I-2-17).

For a scheduled event, enter the code that corresponds to the reason. On the resulting elapsed-time request display, the item you select appears on the line labeled REASON.

```
                    CYBERLOG

        EVENT TYPE:  SCHEDULED

    ENTER THE CODE FOR THE REASON FOR THE EVENT

        CODE    DESCRIPTION

         0      BEGINNING OF NORMAL DAY
         1      HARDWARE RECONFIGURATION
         2      SOFTWARE RECONFIGURATION
         3      MAINTENANCE
         4      OTHER
```

Figure I-2-16. CYBERLOG Reason for Scheduled Event Display

For an unscheduled event, select the reason. In the resulting display, the item you select appears on the line labeled REASON. Selecting 0, 1, 2, or 3 leads to a display that requests the component causing the failure. Selecting 4 (UNKNOWN) causes a branch to the elapsed time request display.

NOTE

Exact information is required. If you do not know the reason for the event, enter the code for UNKNOWN.

```
                    CYBERLOG

        EVENT TYPE:  UNSCHEDULED

        ENTER THE CODE FOR REASON FOR EVENT

        CODE    DESCRIPTION

         0      OTHER
         1      HARDWARE
         2      SOFTWARE
         3      COMMUNICATIONS
         4      UNKNOWN
```

Figure I-2-17. CYBERLOG Reason for Unscheduled Event Display

Component

After you enter the reason for an unscheduled event, a display appears that asks you to identify the component that caused the event. The specific display that appears depends on the reason you entered (figure I-2-18, I-2-19, I-2-20, or I-2-21). Enter the code of the component that caused the failure. The component you select appears on the line labeled COMPONENT on the resulting elapsed-time request display.

NOTE

Exact information is required. If you do not know the component causing the failure, enter the code for UNKNOWN.

```
                CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      OTHER

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE        DESCRIPTION

  0         OTHER
  1         TEMP - HUMIDITY
  2         ELECTRICAL
  3         POWER SUPPLY
  4         PROCEDURAL
  5         UNKNOWN
```

Figure I-2-18. CYBERLOG Component Request Display (Reason OTHER)

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      HARDWARE

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE       DESCRIPTION

  0        OTHER
  1        CPU
  2        PPU/CHANNEL
  3        MEMORY
  4        EXTENDED MEMORY
  5        TAPE SUBSYSTEM
  6        DISK SUBSYSTEM
  7        MASS STORAGE SUBSYSTEM
  8        UNKNOWN
```

Figure I-2-19. CYBERLOG Component Request Display (Reason HARDWARE)

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      SOFTWARE

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE       DESCRIPTION

  0        OTHER
  1        OPERATING SYSTEM
  2        COMPILER/ASSEMBLER
  3        APPLICATION PROGRAMS
  4        DATA MANAGEMENT
  5        UNKNOWN
```

Figure I-2-20. CYBERLOG Component Request Display (Reason SOFTWARE)

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      COMMUNICATIONS

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE       DESCRIPTION

  0        OTHER
  1        SUBSYSTEM HARDWARE
  2        HOST SOFTWARE
  3        LINE ADAPTER
  4        MODEM
  5        SUBSYSTEM SOFTWARE
  6        UNKNOWN
```

Figure I-2-21. CYBERLOG Component Request Display (Reason COMMUNICATIONS)

Elapsed Time

After you either enter the reason for a scheduled event or enter the component causing the failure for an unscheduled event, a display appears that asks you to record the amount of time that has elapsed since the event occurred (figure I-2-22).

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      HARDWARE

COMPONENT:   DISK SUBSYSTEM

ENTER THE ELAPSED TIME SINCE THE SYSTEM WAS FULLY OPERATIONAL
IN THE FORM

      HH.MM
```

Figure I-2-22. CYBERLOG Elapsed-Time Request Display

Enter the elapsed time in hours and minutes in the format shown. The range of values for hours is 0 through 99 and the range of values for minutes is 00 through 59. A leading zero is not required for hours, but is required for minutes. A period is required to delimit the hours from the minutes. The time you enter appears on the line labeled ELAPSED TIME in the resulting display.

Lost Time

After you enter the elapsed time for an unscheduled event, a display appears that asks you to enter the length of time during which the system or part of the system was down or degraded (figure I-2-23). For scheduled events the field is set to 00.00.

```
                    CYBERLOG

EVENT TYPE:     UNSCHEDULED

REASON:         HARDWARE

COMPONENT:      DISK SUBSYSTEM

ELAPSED TIME:   03.15

ENTER THE TIME LOST IN THE FORMAT:

      HH.MM
```

Figure I-2-23. CYBERLOG Lost-Time Request Display

Enter the lost time in hours and minutes in the format shown. The same restrictions in format apply as in the elapsed-time entry.

Impact

After you enter the lost time for an unscheduled event, a display appears that asks you to identify the impact of the event (figure I-2-24). Enter the code for degraded if the system resources were reduced; enter the code for down if the system resources were unavailable. The item you select appears on the line labeled IMPACT on the resulting edit display.

```
                    CYBERLOG

EVENT TYPE:     UNSCHEDULED

REASON:         HARDWARE

COMPONENT:        DISK SUBSYSTEM

ELAPSED TIME:   03.15

LOST TIME:        03.15

ENTER THE CODE FOR THE IMPACT OF THE EVENT

CODE          DESCRIPTION

 0              DEGRADED
 1              DOWN
```

Figure I-2-24. CYBERLOG Request for Impact Display

Edit

After you make all the entries, you have an opportunity to change any of your responses (figure I-2-25). By entering the number that now precedes each line with an entry, that line is blanked; subsequent lines that depend on the blanked line are removed from the display. Those choices are then presented again.

To add a comment to an entry, type

```
CYB, comment.
```

The maximum length of the comment (excluding CYB, and the period) is 35 characters. The system inserts the word COMMENT on the display before the comment (figure I-2-25).

```
                              CYBERLOG

0 EVENT TYPE: UNSCHEDULED

1 REASON: HARDWARE

2 COMPONENT:  DISK SUBSYSTEM

3 ELAPSED TIME: 03.15

4 LOST TIME:  03.15

5 IMPACT: DEGRADED
  COMMENT CYB, THIS IS A SAMPLE COMMENT LINE.

TO CHANGE ANY LINE, ENTER THE LINE NUMBER

TO WRITE CURRENT MESSAGE AND REPEAT FOR NEW MESSAGE,
ENTER "NEXT"

TO EXIT, ENTER END

TO WRITE A COMMENT, ENTER *CYB,* FOLLOWED BY NO MORE
THAN 35 CHARACTERS, TERMINATED BY A PERIOD.
```

Figure I-2-25. Sample Completed CYBERLOG Entry

After completing edit entries, enter NEXT or END to transfer the data to the error log dayfile. If you enter NEXT, the CYBERLOG program transfers the data to the error log dayfile and restarts from the beginning to allow a different event to be recorded. If you enter END, the CYBERLOG program terminates after the message is written to the error log dayfile.

PREPARING FOR SYSTEM RESTART

Sometimes during system operation an uncorrectable error occurs that prevents further system activity. Often the situation can be corrected by deadstarting the system and recovering prior activity. The success of such a recovery depends upon the severity of the problem and the extent to which system information is destroyed.

If you are deadstarting in a multimainframe environment, refer to appendix E, Multimainframe Operation.

During a level 0 (initial) deadstart, the system verifies the length of preserved files. If a length error is detected, the system reads the disk chain to determine the correct length of the file, issues a message to the B display, and stops recovery of the device. To alter the end-of-information (EOI) for the file and proceed with recovery, enter

```
GO,SYS.
```

To terminate recovery of the device, enter

```
PAUSE,SYS.
```

The following topics provide general information concerning each level of system deadstart and recommended steps of preparation.

CAUTION

Before attempting any level of deadstart, examine the current status codes listed for each mass storage device in the mass storage status (E,M.) display. Delay deadstart if status code C (checkpoint requested) appears for any device. When the system has processed the request, status code C is cleared (maximum of 30 seconds). Refer to section 4 for complete information concerning the mass storage status (E,M.) display. Failure to observe this caution can result in the loss of permanent file information.

LEVEL 3 RECOVERY DEADSTART

Usually you perform a level 3 recovery deadstart following an equipment malfunction (for example, channel or PP hung), providing the system remains intact. However, unless you can determine that central memory is no longer intact, attempt a level 3 recovery deadstart before a level 0 deadstart. This is recommended because system activity, as it existed at the time of the malfunction, can best be recovered by performing a level 3 recovery deadstart. Only PP memory confidence testing occurs during a level 3 recovery deadstart; central memory is not affected.

Requests for device checkpoint are retained over a level 3 recovery. Therefore, if a system malfunction prevents a device checkpoint from being done, the checkpoint is processed after level 3 recovery is successfully completed. If a level 3 recovery fails, contact a site analyst for help in determining if the device checkpoint requests completed successfully or not.

A level 3 recovery deadstart is impossible after:

- An attempted checkpoint recovery (level 1).
- An aborted level 0 (initial) deadstart.
- The MREC utility (refer to part II, section 6) has been run for the machine to be deadstarted while in multimainframe mode.

It is recommended that you stop system activity prior to beginning the system deadstart procedure (that is, before pressing the deadstart button). To accomplish this, enter the following DSD commands.

- ONSW,IAF,1. Notifies the interactive subsystem to enter all users into recovery state when the subsystem is terminated. This and the following command are necessary only if the interactive subsystem is active.
- STOP,IAF. Drops the interactive subsystem.
- CHECK POINT SYSTEM. Provides for termination of job processing and for writing the contents of central memory tables to mass storage. For a complete description of this process, refer to the CHECK POINT SYSTEM command in section 3.
- UNLOCK. Necessary only if console is currently locked.
- STEP. Prevents the system from processing PP requests. This stops all central memory I/O operations. You should enter the STEP command after all device checkpoints are completed. Examine the mass storage status (E,M.) display to determine if all checkpoint status requests are complete.

LEVEL 1 RECOVERY DEADSTART

Usually you perform a level 1 recovery deadstart to resume normal processing following maintenance procedures. The system, all jobs, and all active files are recovered from checkpoint information on mass storage. Refer to part II, section 2, for more information on level 1 recovery deadstarts.

LEVEL 2 RECOVERY DEADSTART

Usually you perform level 2 recovery deadstart in system test situations; it is not recommended for the normal production environment. Refer to part II, section 2, for more information on level 2 recovery deadstarts.

LEVEL 0 INITIAL DEADSTART

Use level 0 or initial deadstart in cases where a recovery deadstart is not possible. This is a complete or initial load from the deadstart file. Only preserved files, which includes permanent files, queued files, and system dayfiles, are recovered (preserved files are recovered on all levels of system deadstart). Because memory confidence testing destroys the contents of central memory (except on models 815, 825, 835, and 855) and PPs, all memory dumps must be completed before deadstart begins.

NOTE

If the machine is the first machine being deadstarted in a multimainframe environment, you must enter a PRESET command (refer to the NOS 2 Installation Handbook for description).

DEADSTART ERROR TROUBLESHOOTING

If no display appears after you press the deadstart switch, perform the following steps as needed. After each step, press the deadstart switch to see if the problem has been eliminated.

For deadstart from tape:

1. If the unit select switch on the deadstart tape unit is not on (tape does not move), check the channel, controller, and unit selections on the deadstart panel to ensure they are set correctly.

2. If the unit select switch is on, the correct unit was selected; however, check word 11 of the deadstart panel to ensure it is set correctly.

3. Ensure that a 7-track tape is not mounted on a 9-track drive or vice versa. Also, ensure that a deadstart tape with density of 6250 cpi is not mounted on a tape unit which does not support that density.

4. Ensure that the deadstart tape is an I-mode unlabeled tape.

5. Ensure that the card reader and tape unit (667 or 669 only) are not on the same channel and that the card reader is not on a channel with a PP. Also, ensure that two or more units do not have the same physical unit number.

6. If still no display appears after activating the deadstart switch, inform a site analyst. There might be a parity error on one of the first records of the deadstart tape or the magnetic tape controller might have detected a channel parity error on a CYBER 170 Computer System.

For deadstart from disk:

1. Ensure that the disk is spinning, the READY light is on, and the SELECT light is on.

2. Ensure that the disk has the CTI module loaded.

3. Ensure that the deadstart panel is set correctly.

4. Select an alternate channel.

5. If still no display appears after activating the deadstart switch, inform a site analyst. There might be a parity error on one of the first records of the deadstart file or the disk controller might have detected a channel parity error on a CYBER 170 Computer System.

For a proper understanding of the problems that can occur during deadstart, you should be familiar with several basic concepts. For example, because most errors that occur involve mass storage devices, you should be familiar with their use in the system. Each mass storage device has a label that contains descriptive information about its contents. For certain levels of recovery deadstart, this information must be consistent with corresponding information either contained in central memory or provided through deadstart procedures. Conflicts can result in the system issuing deadstart error messages. An attempt is made to recover all mass storage devices defined in the EST during all levels of system deadstart. The specific recovery function performed depends upon the level of deadstart selected.

Refer to appendix B for information concerning all deadstart messages.

OPERATION UNDER DSD CONTROL 3

After the system has been deadstarted successfully, the NOS routine DSD begins executing automatically. DSD displays system information at the system console. The commands in this section allow you to monitor and direct the system through the program DSD. You enter the DSD commands to provide optimum performance and reliability for users.

There are five general categories of DSD commands available for this purpose.

- System control — Maintains system integrity in a normal production environment.
- Subsystem control — Schedules a subsystem to a control point or terminates a current subsystem.
- Peripheral equipment control — Controls the peripheral equipment available to the system.
- Job processing control — Provides added control over job scheduling and processing.
- Dayfile — Dumps the system, account, or error log dayfile to a specified device.

Although all DSD commands are generally available, many of them are seldom used in a normal production environment. Many DSD commands are used only by site analysts for maintenance or debugging purposes. The information in this section pertains to commands necessary in a normal production environment. For a complete list of the DSD commands refer to part II, section 3.

When unusual problems arise, do not attempt corrective action. Consult a site analyst to determine corrective action. Attempts to correct a system problem can often destroy information required to eliminate repetition of the problem.

Since the commands that follow are arranged according to function rather than alphabetically, use the alphabetical command index inside the front cover for a quick page reference.

SYSTEM CONTROL COMMANDS

The following DSD commands control the operating system as well as the subsystems which run under the system. Several of these commands are typically used only by the site analyst for debugging purposes when the system is in an abnormal state. You may use others frequently to maintain system integrity in a normal production environment.

AUTO.

Calls specific subsystems to control points and initiates job processing. The IPRDECK used at deadstart time determines which subsystems are activated by default. However, you can disable any of those subsystems not currently assigned to a control point or enable others through the use of the DISABLE and ENABLE commands. You can also call or remove individual subsystems to or from a control point independent of the AUTO command by using the Subsystem Control Commands described later in this section. For additional information concerning the AUTO command, refer to Initiating Job Processing in section 2.

CHECK POINT SYSTEM.

Provides for termination of job processing and writes the contents of central memory tables to mass storage. This command is typically entered in preparation for recovery deadstart. If the recovery deadstart is to be made from a tape unit, at least one tape unit must be available (not assigned to a job) before you issue this command.

The following sequence of operations takes place:

1. A sense switch is automatically set that causes all IAF subsystem users to be placed in detached job status. When all users are in detached job status, the IAF subsystem is dropped and the checkpoint continues.

2. All job scheduling is inhibited. (This has the same effect as if the IDLE command was entered.)

3. All user jobs are rolled out. All of these jobs are recovered on a level 1 or level 2 recovery.

4. The system moves the system dayfile buffers maintained in CMR to disk.

5. All subsystems except the magnetic tape subsystem (MAG) are aborted.

6. MAG is rolled out when no other jobs are active. The rolling out of MAG allows recovery of all tape files associated with jobs rolled out if the tapes are not repositioned prior to the level 1 or level 2 recovery.

7. The system is left in an idle state. Normal processing may be continued with an AUTO command. If this is done, no attempt should be made to later perform a level 1 or level 2 recovery unless another checkpoint command is performed.

During the processing of the checkpoint, the message

PROCESSING CPn.

is issued at the system control point indicating which control point is currently being processed (n is the control point number). Most of the checkpoint process must be performed in a serial manner so that occasionally one control point number may be displayed for a period of time. This is especially true of the IAF subsystem if many users were active when you issued the checkpoint command.

Under certain circumstances the checkpoint routine is not able to properly abort a job (such as one that has NOEXIT selected and is a subsystem or special system job). If such a job continues processing after the checkpoint routine has aborted it, you must abort the job for the checkpoint to continue.

A more desirable approach to this situation is to ensure that jobs such as PFDUMPs are finished prior to the checkpoint. For additional information concerning the CHECK POINT SYSTEM command, refer to Preparing for System Restart in section 2.

DATE.yy/mm/dd.

Changes the current system date. Unlock the console before entering this command (refer to UNLOCK command).

yy Year; 00 through 99.

mm Month; 01 through 12.

dd Day; 01 through 31.

DISABLE,op,cp.
or
ENABLE,op,cp.

Disables or enables option op. cp is an optional control point assignment you can specify when op is a subsystem. If cp is specified for a subsystem, the control point assignment replaces any IPRDECK control point assignment. If cp is not specified, whatever IPRDECK assignment was made remains in effect. If the format DISABLE,op,0. or ENABLE,op,0. is used, any IPRDECK control point assignment is cleared and any available control point is used for the subsystem when you enter the next AUTO or MAINTENANCE command.

If you enter the ENABLE command and op is currently enabled, the system ignores the command. The system also ignores the DISABLE command if you enter it and op is already disabled. If you enter multiple commands for the same parameter op, the last command entered is the valid command. The system ignores all other previous commands.

The ENABLE or DISABLE command does not initiate or drop a subsystem when you enter the command. Instead, it determines if the specified subsystem is to be assigned to a control point upon entry of the next AUTO or MAINTENANCE command. In addition, a currently active subsystem (assigned to a control point) is not dropped by entering the DISABLE command followed by AUTO or MAINTENANCE. You must enter the IDLE,sub. command to drop an active subsystem.

op is one of the following options.

BIO

Enables or disables the batch input/output subsystem.

CDC

Enables or disables the system control point version of the CDCS data management subsystem.

FILE STAGING

Enables or disables the staging of MSF resident permanent files to disk. Disabling FILE STAGING causes job attempts to access MSF resident files to be aborted. If the MSSEXEC is running, enabling FILE STAGING allows MSF resident files to be staged to disk when accessed.

IAF

Enables or disables interactive facility subsystem. IAF always runs at control point 1.

LOGGING

Enables or disables logging of dayfile messages intended for systems analysts concerned with program efficiency.

MAG

Enables or disables magnetic tape subsystem.

MAP

Enables or disables the matrix algorithm processor subsystem.

MASTER MSS

Enables or disables master mainframe mode for MSS processing. When MSS is brought to a control point, the MSSEXEC program runs if master mainframe mode is enabled. The MSSSLV program runs if master mainframe mode is disabled. This entry has no effect unless MSS processing is activated.

MCS

Enables or disables the message control system subsystem.

MS VALIDATION

Enables or disables automatic verification of mass storage tables. This command cannot be used unless the MS VALIDATION option has been selected in the IPRDECK used at deadstart. The validation which occurs for each level of recovery deadstart is described in part II, section 2, Preparing for Recovery Deadstart.

MSS

Enables or disables the mass storage subsystem.

NAM

Enables or disables the network access methods subsystem.

PRIVILEGED RDF

Enables or disables privileged mode of the remote diagnostic facility.

RBF

Enables or disables the remote batch facility subsystem.

RESIDENT RDF

Enables or disables resident mode of the remote diagnostic facility. When enabled, RDF remains active regardless of maintenance terminal activity. When disabled (the default condition), RDF becomes inactive if a period of 15 minutes expires with no maintenance terminal activity. If RDF becomes inactive, you must reactivate RDF with the RDFffff. command to allow maintenance terminal activity to resume.

RDF

Enables or disables the remote diagnostic facility. RDF always runs at control point 1.

RHF

Enables or disables the remote host facility subsystem.

STM

Enables or disables the interactive stimulator.

TAF

Enables or disables the transaction facility subsystem.

IDLE.

Prevents any new jobs from being scheduled to a control point but does not terminate the jobs currently assigned. If a job is rolled out while this command is in effect, it is not scheduled back to a control point until the AUTO or MAINTENANCE command is entered. When the BIO subsystem is idle, it is terminated.

K.ccc...ccc.

Allows entry of data ccc...ccc in the user- or system-defined CPU buffer for control when the K display is active. Refer to part II, section 6, for more information concerning the K display.

LOCK.

Locks the console keyboard. This command prevents entry of restricted commands (refer to UNLOCK command for list of restricted commands). All other DSD commands can be entered when the console is locked. The console is normally locked when the system is being used in a production environment.

MAINTENANCE.

This command performs the same functions as the AUTO command but additionally starts several maintenance routines. Refer to Initiating Job Processing at the end of section 2 for more information concerning this command.

TIME.hh.mm.ss.

Changes the current system time. Unlock the console before entering this command (refer to UNLOCK command).

hh Hour; 00 through 23.
mm Minute; 00 through 59.
ss Second; 00 through 59.

UNLOCK.

Unlocks the console keyboard. When this command is active, the message UNLOCKED appears in the header of the left screen display. Although all DSD commands can be entered when the console is unlocked, the following commands are restricted to entry only when the console is unlocked.

DATE.yy/mm/dd.

STOP,sub.

TIME.hh.mm.ss.

UNLOAD,eq. (eq specifies a nonremovable shared mass storage device)

Always lock the console when the system is being used in a production environment.

X.name.
or
X.name(parameters)

Calls a system program or utility specified by name to an available control point. If parameters are to be passed to the program, the second form of the command is used where (parameters) specifies the parameters. In both the first and second form of the command, the field length specified in the library for the command is used. If no field length is specified in the library, a value of $60\ 000_8$ is assumed. Only the first 38 characters following X. are used.

SUBSYSTEM CONTROL COMMANDS

The commands that follow provide control over which subsystems are to be used. When a system deadstart is performed, parameters specified in the IPRDECK determine which subsystems initially are available. Scheduling other subsystems to a control point or terminating a current subsystem depends on your action.

When a subsystem is scheduled to a specific control point, any job currently assigned to that control point is rolled out if it is not another subsystem or special system job. However, if the job cannot be rolled out, the command used to call the subsystem would not be valid. In this case, either terminate the job (if the subsystem required that control point) or specify another control point on the ENABLE command. Under normal circumstances, do not terminate the job unless you have received specific instructions to do so.

You can use the following subsystem commands to schedule a subsystem to a control point when it was not brought up by the last AUTO or MAINTENANCE command. A complete description of each of these commands and their sense switch settings is located in part II, section 3.

Command†	Subsystem
BIO.	Central site batch input/output.
CDCffff.	CYBER Database Control System.
IAFffff.	Interactive facility.
MAGffff.	Magnetic tape.
MAPffff.	Matrix Algorithm Processor.
MCSffff.	Message control system.
MSSffff.	Mass storage subsystem.
NAMffff.	Network access method.
RBFffff.	Remote batch facility.
RDFffff.	Remote diagnostic facility.
RHFffff.	Remote host facility.
STMffff.	Interactive stimulator.
TAFffff.	Transaction facility.

The following commands allow you to control the execution of any of the previously mentioned subsystems.

IDLE,sub.

Sets idledown status for subsystem sub. Any acceptable three-letter subsystem name can be specified. The subsystem terminates when idledown conditions are met. MAG terminates when no tapes are assigned. MSS terminates when no requests are outstanding and no MSS utilities are connected. BIO terminates when no active equipments remain. For all other subsystems, there are no idledown conditions; they terminate immediately. The system does not initiate new activity, such as assigning tapes and beginning print jobs, when idledown status is set. It is recommended that you use this command for terminating all subsystems.

†The characters ffff are optional; if required, installation personnel must supply the one to four alphanumeric characters to be used.

STOP,sub.

Drops (terminates) the subsystem sub. Any acceptable three-letter subsystem name can be specified. Unlock the console to enter this command. This command can cause termination errors in the subsystem being dropped. It is recommended you use this command only under the direction of a site analyst. The IDLE,sub. command does the same thing without the termination errors.

Refer to the System Control Commands AUTO, ENABLE, DISABLE, and MAINTENANCE in part II, section 3, for additional information concerning subsystem control.

PERIPHERAL EQUIPMENT CONTROL COMMANDS

The commands described in this category provide overall control of the peripheral equipment available to the system.† You should become familiar with the following DSD displays which are closely associated with the use of these and other commands described throughout this section.

- Equipment status table (E,A.) display.
- Mass storage status table (E,C. and E,M.) displays.
- Tape status (E,T.) display.
- Resource mounting preview (E,P.) display.
- BIO status (I) display.

A complete description of each of these displays is given in section 4.

ASSIGN,jsn,eq.

Assigns equipment defined by EST ordinal eq (normally a tape unit) to the job with job sequence name jsn. This command is entered in response to a flashing REQUEST message. Use of this command for assignment of a tape unit should not normally be required because tape assignment is performed automatically when a volume serial number (VSN) is specified in the job request. However, if a VSN is not specified in the job request for a labeled or unlabeled tape, the REQUEST message appears at the job's control point (on B display), and the ASSIGN command must be entered to assign a tape unit to the job.

BKSP,eq,rr.

Backspaces rr_8 logical records on the print file for the BIO equipment defined by EST ordinal eq. When rr is not specified, the default is 1 record.

BKSPF,eq,ff.

Backspaces ff_8 files on the print file for the BIO equipment defined by EST ordinal eq. When ff is not specified, the default is 1 file.

†Operation of peripheral equipment is described in section 5.

BKSPRU,eq,ss.

Backspaces ss_8 physical record units (PRUs) on the print file for the BIO equipment defined by EST ordinal eq. The PRU count, ss, must be specified. There is no default setting. Printing resumes at the beginning of a line.

CONTINUE,eq.

Resumes printing on BIO equipment defined by EST ordinal eq.

CP,eq,id.

Assigns a numeric identifier id to the BIO card punch defined by EST ordinal eq. The value of id can range from 00 to 67_8. Only those files in the punch queue with an identifier equal to id are directed to card punch eq.

CR,eq,id.

Assigns a numeric identifier id to the card reader defined by EST ordinal eq. The value of id can range from 00 to 67_8. All subsequent jobs loaded from card reader eq are assigned the identifier id.

END,eq,rc.

Terminates current operation on BIO equipment defined by EST ordinal eq. If eq defines a line printer or card punch, BIO assigns the next available file to that equipment. If eq defines a card reader that is actively reading cards when the END command is entered, the job terminates at the last card read. The next card is treated as the beginning of a new job. If another card deck follows the end-of-information card (multipunch 6/7/8/9), it is processed normally.

The rc parameter cancels a portion of the repeat count specified for that equipment by the REPEAT command. For example, if the current operation on equipment eq had been set to be repeated five times (operation performed six times), entering a value of 4 for rc would only permit the operation to be performed twice. If the repeat count is zero, this command performs the END operation once.

MOUNT,eq,P.

Clears local unload (L) and global unload (N) status for a mass storage device and reactivates the device. The device is defined by EST ordinal eq (examine the E,A. display to determine the EST ordinal).

When you specify P in the MOUNT command for an independent shared device in a multimainframe environment, the system presets the device with EST ordinal eq. The preset (P) option can be specified only on the first mainframe to access the device.

If the device defined by EST ordinal is not a mass storage device, the MOUNT command is ignored and the following message appears on the left console screen.

ILLEGAL EQUIPMENT.

If the device is shared in a multimainframe environment and another mainframe has an unsatisfied initialize request pending for that device, the MOUNT command is ignored and the following message appears at the system control point on the job status (B) display.

INITIALIZE PENDING ON THIS DEVICE.

OFF,eq.

Logically turns off the line printer, card reader, or card punch defined by EST ordinal eq. This command allows you to logically remove a device from the operating environment. Examine the E,A. display to determine the EST ordinal and current status (ON or OFF) of the device.

NOTE

Verify that the correct EST ordinal is specified before entering this command. Do not enter this command for any device other than a line printer, card reader, or card punch unless specifically directed to do so by a site analyst. Serious performance problems may result if this command is entered for any other device.

ON,eq.

Logically turns on the line printer, card reader, or card punch defined by EST ordinal eq. This command allows you to activate a device currently having OFF status in the EST. Examine the E,A. display to determine the EST ordinal and current status (OFF or ON) of the device.

REPEAT,eq,rc.†

Repeats the current operation on the BIO equipment defined by EST ordinal eq the number of times specified by rc. The maximum value that can be entered for rc is 77_8.

REPRINT,eq,pr.†

Terminates current operation on the BIO printer equipment defined by EST ordinal eq and reenters the job in the print queue with a queue priority specified by pr00 (service class minimum $\leq$ pr00 $\leq$ service class maximum). If pr is not specified, the service class default priority is assigned.

REPUNCH,eq,pr.†

Terminates current operation on the BIO card punch equipment defined by EST ordinal eq and reenters the job in the punch queue with a queue priority specified by pr00 (service class minimum $\leq$ pr00 $\leq$ service class maximum). If pr is not specified, the service class default priority is assigned.

†When the current BIO operation is repeated, maximum line and card limits are reinitialized prior to printing or punching of the file being processed. User control limits apply individually to each output file copy produced.

SCRATCH,eq.

Declares the tape mounted on an unassigned magnetic tape unit, defined by EST ordinal eq, to be a scratch tape. This command enables a tape to be available to satisfy scratch VSN requests and still be assigned by its original VSN. Thus, the VSN defined on the tape (in VOL1 label) is not redefined as scratch although the VSN will appear as SCRATCH on the tape status (E,T.) display.

Scratch status is retained for only one job assignment. This allows a tape to be used for scratch purposes on a temporary basis. For example, a job requests a tape mounted on the tape unit defined in this command by specifying the current VSN for that tape in the request. The tape is then assigned to the job as a scratch tape (the original VSN is retained and not made scratch). When that job releases the tape, SCRATCH status is cleared, and unless this command is entered again, that tape would not be assigned as a scratch tape in future requests. To determine if SCRATCH status is in effect for a tape, monitor the tape status (E,T.) display.

SKIP,eq,rr.

Skips forward rr_8 logical records on the print file for the BIO equipment defined by EST ordinal eq. When rr is not specified the default is 1 record.

SKIPF,eq,ff.

Skips forward ff_8 files on the print file for the BIO equipment defined by EST ordinal eq. When ff is not specified the default is 1 file.

SKIPRU,eq,ss.

Skips forward ss_8 PRUs on the print file for the BIO equipment defined by EST ordinal eq. All parameters must be specified; there are no default settings. The PRU count, ss, is limited to 10_8 PRUs (the current buffer size) plus the number of PRUs remaining in the buffer. If the buffer was empty, ss would be limited to 20_8 PRUs.

STOP,eq.

Stops printing on the BIO equipment defined by EST ordinal eq.

SUPPRESS,eq.

Suppresses automatic printer carriage control on the BIO line printer defined by EST ordinal eq. This command stops the page eject function on the line printer to provide a continuous listing for the current job.

UNLOAD,eq.

Physically unloads a tape or logically removes a removable mass storage device from the operating system. The device to be unloaded is defined by EST ordinal eq (examine the E,A. display to determine the EST ordinal). Also, in a multimainframe environment, the UNLOAD command must be issued if another mainframe wants to initialize a shared mass storage device, whether the device is removable or nonremovable (refer to the INITIALIZE command in part II, section 3).

Magnetic tape units: Examine the tape status (E,T.) display before entering the UNLOAD command to determine if the tape to be unloaded is currently assigned to a job. If the tape is not currently assigned, entering this command physically unloads the specified tape. If a tape is currently assigned to a job, it cannot be unloaded. If this is attempted, the UNLOAD command is ignored and the following message appears on the left console screen.

UNIT NOT AVAILABLE

Mass storage devices: The UNLOAD command is valid for any shared mass storage device in a multimainframe environment for the purpose of initialization. Otherwise, the command is valid only for removable devices. (Only removable devices can be physically removed by unloading.)

NOTE

If a nonremovable shared mass storage device is to be specified, the console must be unlocked (refer to UNLOCK command).

After entering the UNLOAD command, monitor the mass storage status (E,M.) display. Execution of this command immediately causes local unload (L) status to appear in the STATUS field for that device. While L status is displayed, no new users are permitted to access files on the device. A user currently accessing files on the device can continue while at least one direct access file from the device is attached to the job. When the user count is zero and there are no checkpoint requests pending, one of the following two actions occurs.

- If the device is removable and the L status is set in all machines accessing the device, global unload (N) status is displayed. This indicates you can now physically dismount that device.

NOTE

If a situation occurs such as a DI-2 family mounted on two DI-1's, only the first DI-1 shows global unload status.

- If an initialize is pending on the device and all other machines accessing the device have L status set, the initialization proceeds. However, initialization cannot take place if the device has been unloaded.

NOTE

A device should be physically dismounted only if global unload status (N) is displayed on all machines accessing the device.

If a removable pack is dismounted before the N status is displayed, the following may occur.

- Mass storage device status errors.
- Permanent file errors when pack is remounted at some later date.
- If another pack has been mounted, accesses made by a previously attached user may destroy information on the new pack or the user may retrieve information from the new device which he is not necessarily privileged to access. Mass storage device status errors are also possible in this situation.

NOTE

If the Mass Storage Subsystem (MSS) is active, it must be idled before unloading a removable family pack which has MSS files. After dismounting the family pack, MSS can be initialized again.

VSN,eq,.

Declares the tape mounted on an unassigned magnetic tape unit, defined by EST ordinal eq, to be a scratch tape. This command is similar in function to the SCRATCH command in that it enables a tape to be available to satisfy scratch VSN requests. However, if the tape is labeled and a write function is performed, the VSN specified in the VOL1 label is rewritten as a scratch VSN, destroying the original VSN and making the tape available for future scratch VSN requests. The VSN also appears as SCRATCH on the tape status (E,T.) display.

If the tape mounted on the tape unit defined by EST ordinal eq is a labeled tape, has already had a VSN assigned by console command, or has not yet been checked for a label by the MAG subsystem, this command is ignored. The message

ILLEGAL ENTRY

appears on the left console screen. To change a VSN previously assigned by this command, clear the first VSN by entering

VSN,eq.

eq EST ordinal of the tape unit.

You can then enter the following command to establish a new VSN for the tape:

VSN,eq,vsn.

vsn New VSN.

VSN,eq,vsn.†

Assigns VSN vsn to an unassigned magnetic tape unit defined by EST ordinal eq. This command allows you to specify a one- to six-character VSN for a mounted, unlabeled tape so it may be assigned and referenced automatically. For example, when a job specifies a VSN in the request for an unlabeled tape, an entry for that job appears in the resource mounting preview display (E,P.). This display indicates the job sequence name of the job; the type of tape unit, 7-track (MT) or 9-track (HD, PE, or GE), on which the tape is to be mounted; the required VSN; user name of the job, and the required write ring status (IN or OUT). If the correct tape is not currently mounted, mount the tape on an available unit (ensuring that track type and write ring status are correct), ready the unit, and enter this command. The system equates the VSN entered by you with that specified by the job and assigns the tape automatically upon demand.

If the tape mounted on the tape unit defined by EST ordinal eq is a labeled tape, has already had a VSN assigned by console command, or has not yet been checked for a label by the MAG subsystem, this command is ignored. The message

ILLEGAL ENTRY

appears on the left console screen. To change a VSN previously assigned by this command, clear the first VSN by entering

VSN,eq.

eq EST ordinal of the tape unit.

The command

VSN,eq,vsn.

vsn New VSN.

can then be entered.

If a job specifies a VSN in the request for a labeled tape, assignment occurs automatically, without your intervention, unless the correct tape is not mounted. In this case, an entry is formed in the resource mounting preview (E,P.) display which describes the tape to be mounted. When the tape is mounted and the tape unit made ready, assignment occurs automatically without additional intervention by you. For multireel files, automatic tape assignment occurs only if the tape units on which the tapes are mounted are similar and on the same channel(s). That is, if the first reel of the file is on a 669 tape unit on channels 13 and 33, all subsequent reels must be on a 669 unit on channels 13 and 33. When assigning tapes, models 679-2, 679-3, and 679-4 drives (800/1600-cpi) are similar. Also models 679-5, 679-6, and 679-7 drives (1600/6250-cpi) are similar.

†Special characters cannot be entered using this command. If a special character is encountered in vsn, the VSN entered is truncated at the character preceding the special character.

If two or more unassigned tapes having identical VSNs are mounted on units of the same track type, the flashing message

REQUEST,dt,vsn

appears on the B display. The dt field is either the device type MT or the density requirement HD, PE, or GE; vsn is the VSN required.

You must assign one of the tapes using the ASSIGN command. If the duplicate VSNs are SCRATCH, the resource executive routine assigns one automatically.

NOTE

It is not possible to specify a VSN of SCRATCH with this command since only six characters may be used to define a VSN. To define a scratch tape (used to satisfy scratch VSN requests), refer to the description of the SCRATCH command.

JOB PROCESSING CONTROL COMMANDS

Under normal circumstances, the system automatically performs job processing. The following commands provide an added measure of control over job processing.

SCHEDULING CONTROL COMMANDS

The following job control commands affect scheduling and execution of jobs in the system. These commands are normally used only by the site analyst although you may also be required to use them periodically. However, do not enter these commands unless specifically directed to do so. Improper use of these commands can drastically hamper job flow as well as system performance. In certain cases, jobs may be lost.

ROLLIN,jsn,L.

Allows the job defined by job sequence name jsn to be scheduled to an available control point. If L is entered, the job cannot be selected by the scheduler for roll out.

ROLLOUT,jsn,sd.

Removes the currently executing job with job sequence name jsn and makes it a rolled out job. A subsystem cannot be rolled out. sd is the number of scheduler intervals before the job can be scheduled again. The acceptable range for sd is between 0 and 7777_8. If sd is not present or is zero the job is not scheduled back to a control point automatically. That is, your action is required to return the job to a control point. This can be done by using the ROLLIN command.

The amount of time required for one job scheduler interval is initially set in the IPRDECK but may be changed via the DELAY command (JS parameter) described in part II, section 3. Normally, it is a 1-second interval.

DROP,jsn,qt,ujn.

Drops the job with job sequence name jsn from the queue qt where it currently resides. You can optionally specify a one- to seven-character user job name, ujn, after the queue type. If jsn and ujn are both specified, they must identify the same job. If only one is specified, that one determines which job is dropped.

If no jsn or ujn is specified, all jobs in the specified queue type are dropped. If the queue type is not specified, the default is the executing queue.

The DROP command cannot be used to terminate a subsystem.

The queue type is one of the following.

qt	Queue Type
ALL	All jobs and queued files.
EX	Only jobs in the executing queue (including the rolled out jobs).
IN	Only jobs in the input queue.
PL	Only jobs in the plot queue.
PR	Only jobs in the print queue.
PU	Only jobs in the punch queue.
TT	Only jobs in the wait queue.

NOTE

Do not enter this command unless specifically told to do so. Jobs are lost when this command is entered.

KILL,jsn.

Drops the job with job sequence name jsn from the executing job table (EJT) without exit processing. This command is useful for terminating jobs which loop in an exit processing sequence when the DROP command is used. The KILL command cannot drop a subsystem.

NOTE

Before pressing CR, check to ensure that the correct job sequence name has been specified.

RERUN,jsn.

Terminates the job with job sequence name jsn, then reruns the job from the beginning. The job must be in rerun status as set by the RERUN command or macro.

EXECUTING JOB CONTROL COMMANDS

The following job control commands are used to respond to a job currently in the executing job table.

CFO,jsn.ccc...ccc.

Sends a message ccc...ccc (36 characters maximum) from the operator to the job with job sequence name jsn. The job to which the message is sent must be ready to receive the message. Contact a site analyst for more information on preparing a job to receive a CFO command.

COMMENT,jsn.ccc...ccc.

Enters comment ccc...ccc (49 characters maximum) in the dayfile for the job with job sequence name jsn.

GO,jsn.

Clears the pause bit of the job with job sequence name jsn. A job may set the pause bit if an error is encountered or if an operator response is required. If jsn is not specified, the command applies to the system control point.

OFFSW,jsn,s_1,s_2,...,s_6.

Turns off sense switch s_i ($1 \leq s_i \leq 6$) of the job with job sequence name jsn. Refer to Subsystem Control Commands in part II, section 3, for definition of sense switches that can be set for the BIO, IAF, and TAF subsystems.

ONSW,jsn,s_1,s_2,...,s_6.

Turns on sense switch s_i ($1 \leq s_i \leq 6$) of the job with job sequence name jsn. Refer to Subsystem Control Commands in part II, section 3, for definition of sense switches that can be set for the BIO, IAF, and TAF subsystems.

PAUSE,jsn.

Sets the pause bit of the job with job sequence name jsn. If jsn is not specified, the command applies to the system control point.

INTERACTIVE JOB CONTROL COMMANDS

The following job control commands apply only to jobs belonging to the interactive service class. The IAF subsystem must be active at control point 1.

DIAL,jsn,ccc...ccc.

Sends message ccc...ccc (48 characters maximum) to terminal currently assigned to the job with job sequence name jsn. Examine the T display (refer to section 4) to determine the appropriate job sequence name. The message is sent to the terminal immediately except when output is being sent to the terminal. In that case, the message follows the output data.

WARN,ccc...ccc.

Sends message ccc...ccc (48 characters maximum) to all terminals currently logged into the system. The message is received at a terminal upon completion of the current command or at the end of a job step. Each subsequent terminal to log in also receives this message. This continues until either a new message is entered or the message is cleared (refer to following command). In addition, the current message also appears at the IAF subsystem control point on the B display.

When sent to an interactive terminal, the message ccc...ccc is always preceded by the statement

```
hours.minutes.seconds  WARNING
```

giving the time when you entered the WARN command.

For example, if you enter

```
WARN,SYSTEM SHUTDOWN AT 1500.
```

the following information would be transmitted to all terminals.

```
hours.minutes.seconds  WARNING
SYSTEM SHUTDOWN AT 1500.
```

This command is typically used to notify interactive users of an interruption in service or system shutdown.

WARN.

Clears message entered by the WARN,ccc...ccc. command. Unless this command is entered, the existing message (if any) continues to be transmitted to each new terminal that logs into the system.

DAYFILE COMMANDS

The system saves messages in five types of dayfiles.

Account dayfile.

Binary maintenance log dayfile.

Error log dayfile.

Job dayfile.

System dayfile.

The account dayfile keeps a record of all resources charged to a job. This dayfile can be used for customer billing and other accounting purposes. The binary maintenance log dayfile records the information used in Control Data maintenance in binary format. The error log dayfile records system error messages, such as disk errors. Job dayfiles keep entries for individual jobs. The system dayfile keeps a history of all commands for all jobs processed.

The following commands dump the account, error log, or system dayfile to a system-defined mass storage device. The resultant mass storage file is put in the output queue for printing. The system automatically prints the job dayfile at the end of the job's output. The binary maintenance log dayfile is designed to be processed through an interpreter program, and therefore is normally dumped to tape or disk.

Refer to section 4 for descriptions of dayfile displays as well as additional information on dayfile messages and commands.

Command	Description
X.AFD.	Requests that account dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing. Because of the large volume of the printed output, verify with a site analyst that the entire file is to be printed before entering this command.
X.DFD.	Requests that system dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing. Because of the large volume of the printed output, verify with a site analyst that the entire file is to be printed before entering this command.
X.ELD.	Requests that error log dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing. Because of the large volume of the printed output, verify with a site analyst that the entire file is to be printed before entering this command.

DSD DISPLAYS 4

You communicate with the system through the console keyboard. The system provides information about job and system status through displays on the console screens. Data entered from the keyboard is also displayed. You can request a permanent record, called a system dayfile, of all system/console communication.

The major display program is the system display, controlled by the DSD program. DSD controls the console displays. The primary functions of DSD are:

- Maintain a current display of system status.
- Process keyboard entries from the operator.

At the console keyboard, you can perform the following:

- Assign equipment.
- Exercise control over job scheduling and execution.
- Initiate utility programs.
- Select displays.

The CYBER 170 Computer Systems console keyboard contains a PRESENTATION CONTROL switch which allows you to display a left screen display only, a right screen display only, or both the left and right screen displays on a split screen. Refer to section 1 for a description of the PRESENTATION CONTROL switch.

DISPLAY SELECTION

Select any of the DSD displays with the console command

xy.

where x and y represent the letter designation of the displays.

Display x appears on the left screen and display y appears on the right. If x and y are identical, both screens display the same information.

The following displays are available under DSD. Only those displays usually needed in a normal production environment are described in this section.

Display	Description
A	Dayfile. Chronological history of system operations. There are five subdisplays.
B	Job status. Current status of all jobs assigned to control points.

Display	Description
E	Equipment status. Status of peripheral devices. There are five subdisplays.
I	BIO status. Status of central site unit record devices.
J	Executing job status. Status of the specified job sequence name.
K	CPU programmable. Dynamic operator/CPU communication.
L	CMR buffer interface programmable. System utility interface communication.
Q	Queue status. Status of active input and output queues in the queued file table. There are six subdisplays.
R	Rolled out job status. Status of all executing jobs that the system has rolled out.
T	IAF status. Status of interactive users.
Z	Directory. List of the letter designators and descriptions of all DSD displays.

You can specify a sequence of DSD displays that you want displayed on the left screen. To preselect the left screen display sequence, enter the DSD command

SET,ssss.

ssss Letters designating any four of the DSD displays listed. Four display identifiers must be specified. Usually you specify four different displays although any four valid screen identifiers are accepted by DSD.

After you enter this command, you can press the right blank key to cause the first display specified to appear on the left console screen. Pressing the right blank key again selects the second display. Each time you press the right blank key, the next display in the specified sequence appears on the left console screen.

DISPLAY SCREEN HEADERS

Standard system headers appear on each of the display screens. Any display can appear on the left or the right screen and, therefore, can have a left screen or a right screen header. Figures I-4-1 and I-4-5 illustrate the left and right screen headers, respectively. All other displays illustrated in this section are shown without a header.

The left screen header provides the following information.

- Time and date (specified by the DSD TIME and DATE commands) in the form hh.mm.ss. and yy/mm/dd.
- System name (specified by the NAME entry in CMRDECK).
- Next job sequence name to be assigned represented by a four-character sequence ranging from AAAA to ZZZZ.
- Machine identification (MID) used to identify this mainframe in a multimainframe environment.

- Console status (either UNLOCK or blank). Refer to section 3 for a description of the LOCK and UNLOCK commands.
- System modification status (either DEBUG or blank).
- Monitor step mode (either STEP or blank).
- Engineering mode (either ENGR or blank).
- Syntax loading status (99 if syntax loading is disabled, blank if enabled).
- System version.

The right screen header provides the following information.

- Job sequence name to which the CPU is assigned, IDL if the CPU is not assigned to a control point, OFF if the CPU was turned off at deadstart time, or PRG if the CPU is assigned to the system control point.
- Pseudo A register contents.
- Status of the channels.
- Amount of central memory and user extended memory which is unassigned.
- Number of available PPs.

In addition, at the bottom of the right screen, any subsystem at a control point requiring operator attention is listed along with a short message.

DAYFILE (A) DISPLAYS

The system saves five types of dayfiles and an operator action display. The system dayfile contains the system history. The account dayfile keeps the accounting record for further processing (for example, customer billing). The error log dayfile records system error messages, such as disk errors. Job dayfiles record the operations of each job. The binary maintenance log dayfile records information used in Control Data maintenance. You cannot display the binary maintenance log dayfile. The operator action display lists system error conditions that require corrective action by you under the supervision of an analyst or by the site analyst.

The system adds dayfile messages to one or more of the dayfiles when:

- The system processes a command or a system action occurs which is not in direct response to a command (such as an error message).
- The system detects an error.
- A user enters a comment either via a COMMENT command, an OPMSG command, or a MESSAGE macro.
- A user at an RDF terminal enters an RM=message command.
- You enter a message at the console.

Messages on the A display appear in the following formats.

System dayfile messages:

```
time.jsn sc.message.
```

Account dayfile messages:

```
time.jsn sc.activity,additional information.
```

Error log dayfile messages:

```
time.jsn sc.message.
```

Job dayfile messages:

```
time.message.
```

Operator action messages (one of the following forms):

```
error number  message
```

or

```
JSN=jsn
message
```

or

```
RTN=jsn
message
```

where jsn is the job sequence name of the job where the message originated, and sc is a one-character code for the job's service class [refer to the Executing Job Status (B) display later in this section for a list of the acceptable service class codes].

The time is the time of day as the message was issued. The time is followed by the three- or four-character job sequence name of the job associated with the message. The job sequence name is followed by a one-character service class designator, sc, and the message itself. As a job is processed, messages are sent to the dayfile by PP programs or central memory programs.

The activity given in account dayfile messages is a unique four-character identifier which defines a particular activity. The purpose of this field and the additional information which follows it is to record system usage and provide a means of accurately billing users. Complete descriptions of account file activity messages can be found in the NOS 2 System Maintenance Reference Manual.

Each command executed, including the Job command, is entered into the dayfile. You can observe a dayfile:

- On the console screen (A display), the file is moved up the display screen as messages are generated.
- At the end of a job's printed output, all dayfile messages associated with that job are printed. However, interactive users must request the dayfile listing by issuing a command from their terminal.

SYSTEM DAYFILE (A,. OR A.) DISPLAY

To bring the system dayfile to the console display, enter the following command.

A,. or A.

A,. displays the system dayfile without starting the display from the start of the dayfile buffer. A. displays the system dayfile starting the display from the start of the dayfile buffer (with roll).

Figure I-4-1 illustrates the system dayfile display.

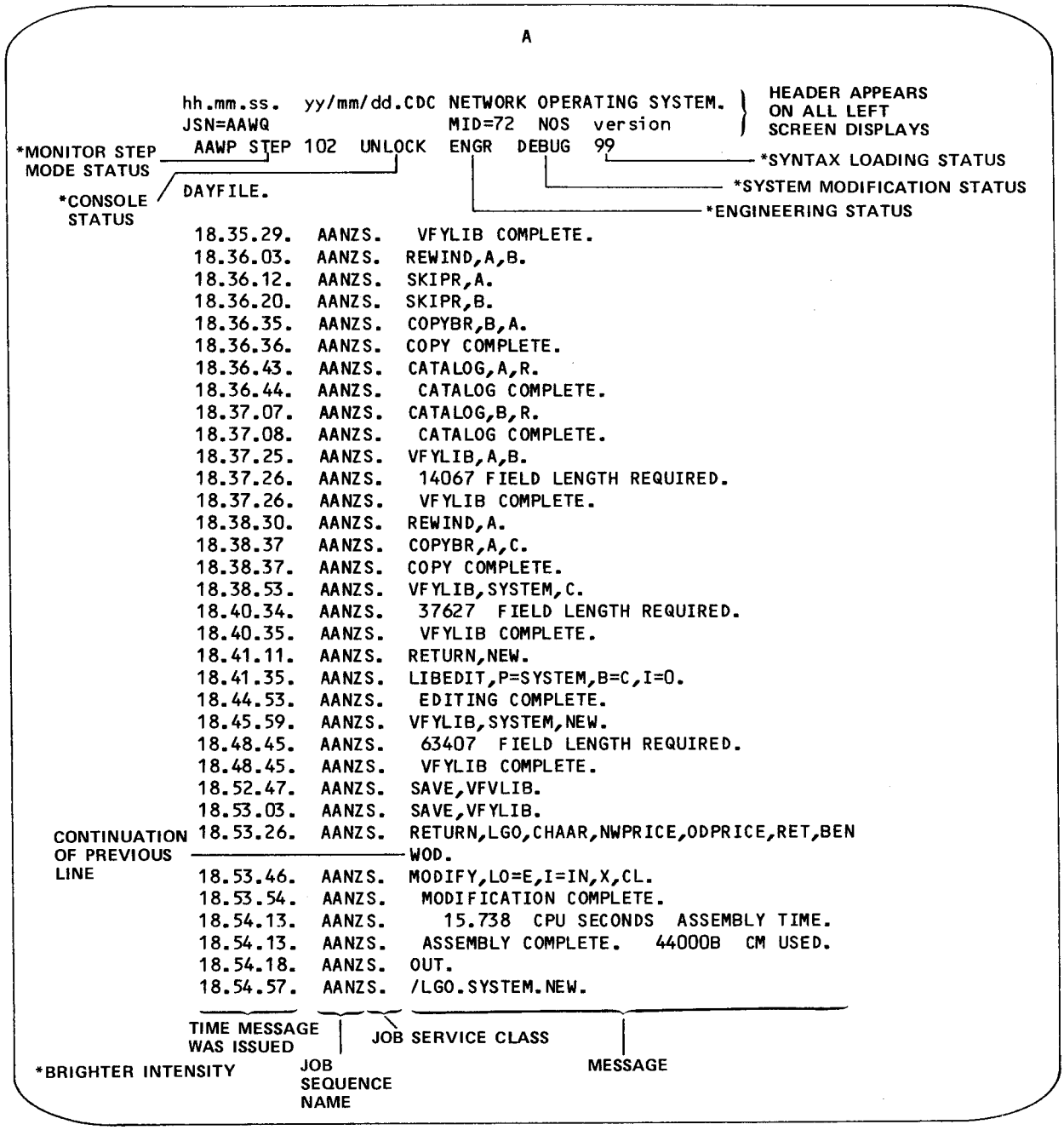


Figure I-4-1. System Dayfile (A,. or A.) Display

ACCOUNT DAYFILE (A, ACCOUNT) DISPLAY

To bring the account dayfile to the console display, enter the following command.

```
A,ACCOUNT FILE.
```

Figure I-4-2 illustrates the account dayfile display.

```
                A


        ACCOUNT FILE.

         16.43.53.  DFTES. APPN.
         16.43.59.  AACIT. UECO,        0.652KCHS.
         16.43.59.  AACIT. UECI,        0.200KCHS.
         16.43.59.  AACIT. UEPF,        0.160KUNS.
         16.43.59.  AACIT. UEMS,        6.120KUNS.
         16.43.59.  AACIT. UECP,       15.100SECS.
         16.43.59.  AACIT. AESR,       16.715UNTS.
         16.44.15.  DFTES. UEPF,        0.004KUNS.
         16.44.15.  DFTES. UEMS,        0.104KUNS.
         16.44.15.  DFTES. UECP,        0.420SECS.
         16.44.15.  DFTES. AESR,        1.000UNTS.
         16.44.20.  AAAQT. SPCT, INPUT.
         16.44.36.  AANRS. UCLP, 23,          0.102 KLNS.
         16.44.39.  AAMYS. UCLP, 22,          0.256 KLNS.
         16.44.42.  DFTES. UCLP, 23,          0.256 KLNS.
         16.45.27.  AAAQT. SPGT, COMSSCP, , .
         16.45.42.  AACIB. UCLP, 23,          1.472 KLNS.
         16.45.44.  AACIB. UCLP, 22,          1.472 KLNS.
         16.46.37.  AAAQT. UCCO,        4.096KCHS.
         16.46.44.  AAAQT. UECO,        0.099KCHS.
         16.46.44.  AAAQT. UECI,        0.139KCHS.
```

Figure I-4-2. Account Dayfile (A,ACCOUNT FILE.) Display

ERROR LOG DAYFILE (A, ERROR LOG) DISPLAY

To bring the error log dayfile to the console display, enter the following command.

```
A,ERROR LOG.
```

Figure I-4-3 illustrates the error log dayfile display.

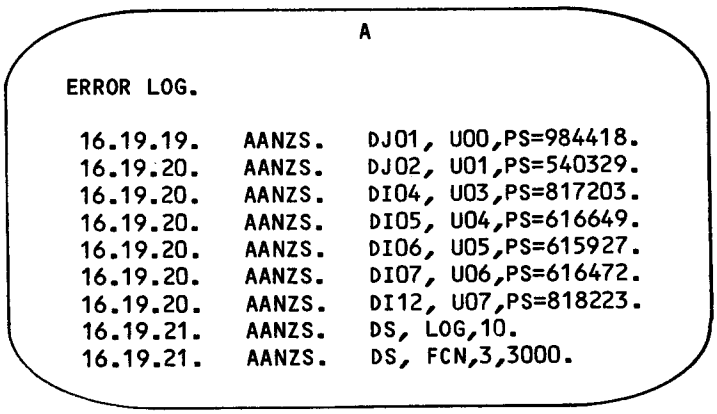


Figure I-4-3. Error Log Dayfile (A,ERROR LOG.) Display

OPERATOR ACTION (A, OPERATOR) DISPLAY

Certain system errors cause the brighter intensity message

```
SEE *A,OPERATOR*
```

to appear in the upper right corner of the right screen of the console display. When you enter the command

```
A,OPERATOR.
```

the display in figure I-4-4 is presented.

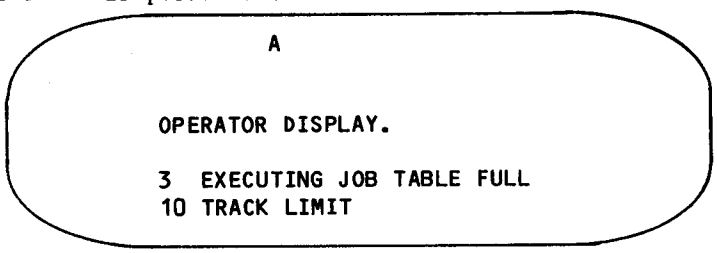


Figure I-4-4. Operator Action (A,OPERATOR) Display

Each entry on this display has the following format.

```
en   message
```

en — Error number.

message — Text of the error message.

After you take corrective action, the right screen notification and the message are cleared by entering the following command.

```
LOG,en.
```

The variable en is the error number on the operator action (A,OPERATOR) display.

If you attempt to clear the message before corrective action is taken, the message immediately reappears.

JOB DAYFILE (DAYFILE, JSN) DISPLAY

To bring the dayfile of the particular job to the console display, enter the following command.

```
DAYFILE,jsn.
```

jsn Job sequence name of the particular job you want to examine.

The job dayfile is displayed only if the job is at a control point.

EXECUTING JOB STATUS (B) DISPLAY

DSD displays the status of executing jobs. Figure I-4-5 illustrates the executing job on status (B) display. The number of control points is specified at deadstart time (27 maximum). The system adds one control point to the number specified and dedicates it to system use.

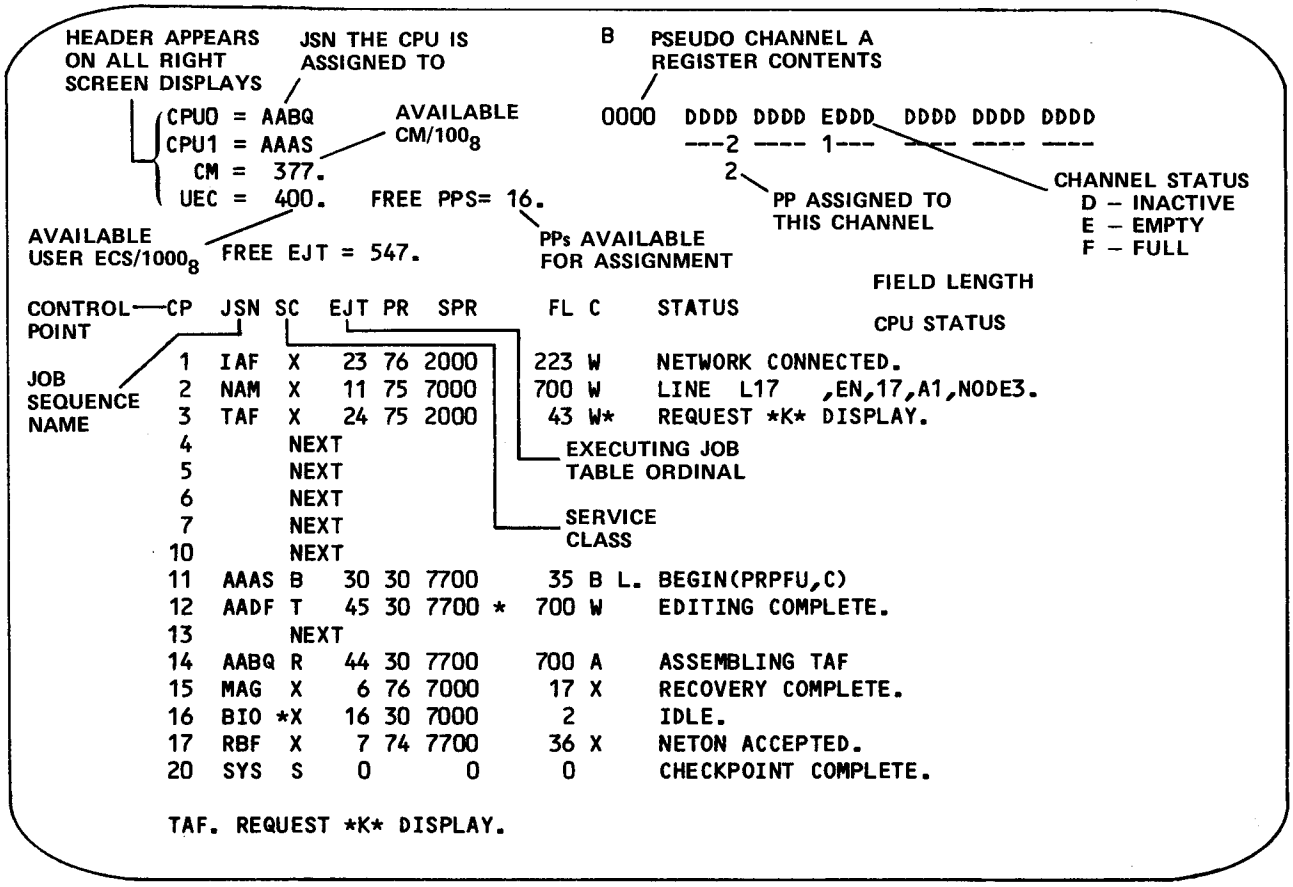


Figure I-4-5. Executing Job Status (B) Display

The first line of the B display is as follows.

```
FREE EJT=num.
```

num is the octal number of currently unassigned executing job table entries. If num is zero, the system cannot start a new job until a currently executing job completes, freeing an executing job table entry.

An executing job entry appears in the following format.

```
cp   jsn   *   sc   ejt   pr   spr   *   fl   c   *   L.   status
```

cp — Control point number. A job is assigned to a control point when it is residing in central memory.

jsn — Job sequence name assigned by the system to uniquely identify the job. The job sequence name consists of a three- or four-character identifier.

* — If present, the subsystem idle flag is set.

sc — Service class. A one-character mnemonic for the service class of the job. The mnemonic and their meanings are as follows.

- B Local batch
- C Communication
- D Detached interactive
- M Maintenance
- N Network supervisor
- R Remote batch
- S System
- T Interactive
- X Subsystem

ejt — The executing job table (EJT) ordinal of the job. This ordinal uniquely identifies the job to the system.

pr — CPU priority (the job priority for the CPU).

spr — Scheduling priority (use the scheduling priority to control the scheduling of the job from the queues).

* — If present, job has extended memory field length assigned.

fl — Field length/100_8 of job being processed.

c — CPU status:

- blank CPU not in use at this control point.
- A Job using CPU 0.
- B Job using CPU 1 (dual CPU systems only).
- I Job is in auto recall (waiting for completion of system request: I/O tape, and so forth).
- W Job waiting for CPU.
- X Job is in recall.

* — If present, subcontrol points are active at this control point.

L. If present, the job has been locked in at the control point with the ROLLIN,jsn,L. command. The job is not rolled out until you enter the ROLLOUT command.

status First 30 characters of the message area for the job. Messages requiring your intervention, commands being processed, and error messages are displayed here. If a message requires your action, it may be periodically intensified by the system.

EQUIPMENT STATUS (E) DISPLAY

The E display lists the status of peripheral equipment. The type of information supplied varies according to the subdisplay specified.

Command	Display
E,. or E,A.	Equipment status table (EST).
E,C.	Mass storage configuration.
E,M.	Mass storage status.
E,P.	Resource mounting preview.
E,T.	Tape status.

EQUIPMENT STATUS TABLE (E,. OR E,A.) DISPLAY

The equipment status table display lists the status of all devices in the equipment status table (EST). The first line of the E,. or E,A. display contains the table name, the central memory address where the EST begins, and an index EST ordinal. If the index field is zero the first page of the display is being presented. If the index field contains a nonzero number, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or - key on left screen displays, or the (key or) key on right screen displays.

The index EST ordinal is not necessarily the first EST ordinal presented on that page of the display. Rather, it is the lowest possible EST ordinal that is allowed on that page.

If the display screen is full and more equipment entries remain to be displayed, the message

MORE

appears at the bottom of the display.

Figure I-4-6 illustrates the equipment status display.

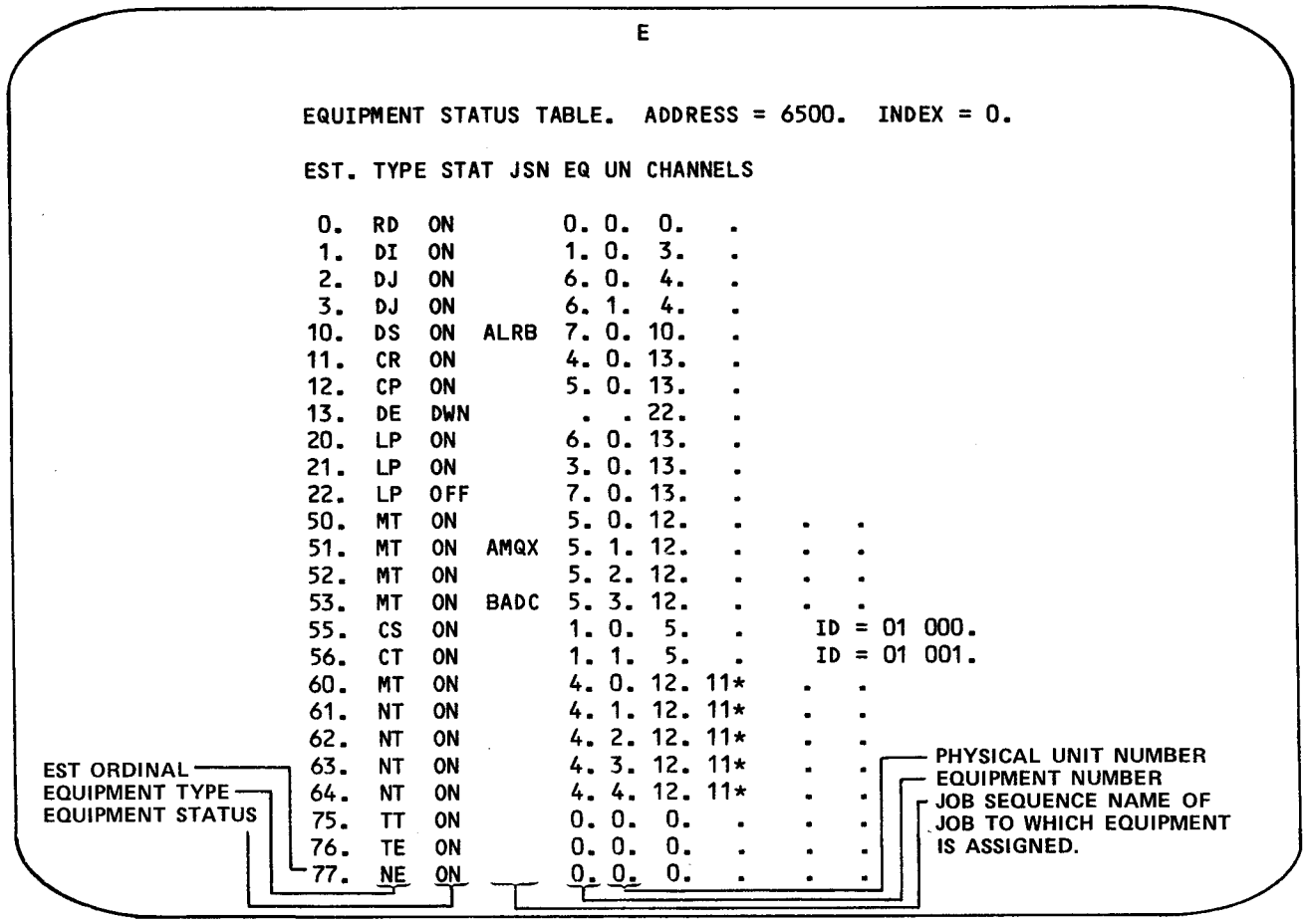


Figure I-4-6. Equipment Status (E,. or E,A.) Display

Each entry in the display appears in the following format.

est type stat jsn eq un channels

est	EST ordinal.
type	Device type.
stat	Equipment status (ON, OFF, or DWN†).
jsn	Job sequence name.
eq	Equipment number.
un	Unit number (serves as ID code for unit record devices).
channels	Channel(s) on which equipment is available.

†DWN is DOWN status. An equipment cannot be logically turned ON when in DWN status.

A job sequence name precedes the equipment number in each entry if that piece of equipment is assigned to a job. An asterisk (*) instead of a period (.) following the channel number entry indicates that the channel is down. The identifier code (un parameter) provides a method of grouping peripheral devices when a site has several units. Output from a job read in through a card reader with identifier un can only be directed to a device with the same identifier. Changing the identifier code via the ROUTE command can direct program output to a special printer. The following device types can appear in the second column of the equipment status display.

CP	415 Card Punch.
CR	405 Card Reader.
CS	MSS Cartridge Selector.
CT	MSS Cartridge Transport.
DB	885-42 Disk Storage Subsystem (full-track).†
DE	Extended memory.
DI	844-21 Disk Storage Subsystem (half-track).
DJ	844-41/44 Disk Storage Subsystem (half-track).
DK	844-21 Disk Storage Subsystem (full-track).
DL	844-41/44 Disk Storage Subsystem (full-track).
DM	885-11/12 Disk Storage Subsystem (half-track).
DP	Distributive data path to extended memory.
DQ	885-11/12 Disk Storage Subsystem (full-track).
DS	Console display.
DV	819 Disk Storage Subsystem (single-density).
DW	819 Disk Storage Subsystem (double-density).
LP	Any line printer.
LR	580-12 Line Printer.
LS	580-16 Line Printer.
LT	580-20 Line Printer.
MT	Magnetic Tape Drive (7-track).
NC	380-170 Network Access Device.
NQ	NPU Entry for NPS Stimulation.
NP	255x Network Processing Unit.

†Not applicable for models 815, 825, 835, and 855.

NT Magnetic Tape Drive (9-track).

RM Two-part multiplexer (models 815, 825, 835, 855, 865, and 875).

TT Internal stimulation device.

The system creates the following device types at deadstart for internal use. Physical hardware does not exist for this equipment. The device types appear in the second column of the equipment status display along with the real device types.

NE Null equipment (equipment number 77_8).

RD Used for on-line reconfiguration of mass storage (equipment number 0).

TE Tape equipment (equipment number 76_8).

TT Used for assignment of terminal files (equipment number 75_8).

MASS STORAGE CONFIGURATION (E,C.) DISPLAY

The mass storage configuration display shows the current configuration of mass storage devices in the system. Figure I-4-7 illustrates the mass storage configuration display.

```
                                    E

E,C   MASS STORAGE CONFIGURATION

EST     TYPE    CHAN        FM/PN-UN     IAM    DAM     DN     UNITS

 1.     DJ      26. 32.     SYST72       377    377     1.     6
 2.     DJ      26. 32.     SYST72         0      0     2.     7
 3.     DJ      26. 32.     SYST72         0      0     3.     1
 4.     DI      26. 32.     PACK8C       377    377     0.     2
 5.     DI      26. 32.                    0      0     0.     3
 6.     DI      26. 32.                    0      0     0.     4
 7.     DI      26. 32.     SYS172       377    377    40.     5
11.     DP      30.         SYS172         0      0    10.     0
```

Figure I-4-7. Mass Storage Configuration (E,C.) Display

Each line in the display appears in the following format.

```
est  type  chan  fm/pn-un  iam  dam  dn  units
```

est — EST ordinal.

type — Device type.

- DB — 885-42 Disk Storage Subsystem (full-track).†
- DE — Extended memory.
- DI — 844-21 Disk Storage Subsystem (half-track).
- DJ — 844-41/44 Disk Storage Subsystem (half-track).
- DK — 844-21 Disk Storage Subsystem (full-track).
- DL — 844-41/44 Disk Storage Subsystem (full-track).

†Not applicable for models 815, 825, 835, and 855.

DM 885-11/12 Disk Storage Subsystem (half-track).

DP Distributive data path to extended memory.

DQ 885-11/12 Disk Storage Subsystem (full-track).

DV 819 Disk Storage Subsystem (single-density).

DW 819 Disk Storage Subsystem (double-density).

chan Channels.

fm/pn-un Family name/packname-user name.

iam Indirect access file mask.

dam Direct access file mask.

dn Device number.

units List of units which are defined in the CMRDECK.

MASS STORAGE STATUS (E,M.) DISPLAY

The mass storage status display provides detailed status information about all mass storage devices. Figure I-4-8 illustrates the mass storage status display.

```
                                        E


E,M  MASS STORAGE STATUS
 SRST=      7777.
EST.    TYPE        STATUS          FILES      TRKS     FAMC     DAFC

 1.      DJ      S-------------- --------T    2624.      0.       0.
 2.      DJ      S---------F---- --------T    2624.      0.       0.
 3.      DJ      -M--------F---- --------T    3137.      0.       0.
 4.      DI      --R-----X-FD--- ---------     503.      0.       0.
 5.      DI      --RU----------- ---------    3140.      0.       0.       NR
 6.      DI      --RU----------- ---------    3140.      0.       0.       NR
 7.      DI      ---------OF---- ---------    1101.     13.       5.
11.      DP      -------A------- ---------       7.      0.       0.       OF
```

Figure I-4-8. Mass Storage Status (E,M.) Display

The secondary rollout threshold (SRST=nnnn), as set by site analysts at the time your system was installed, is displayed on the first line after the name of the display.

Each entry in the display appears in the following format.

```
est   type   status   files   trks   famc   dafc
```

est EST ordinal.

type Device type:

- DB 885-42 Disk Storage Subsystem (full-track).†
- DE Extended memory.
- DI 844-21 Disk Storage Subsystem (half-track).
- DJ 844-41/44 Disk Storage Subsystem (half-track).
- DK 844-21 Disk Storage Subsystem (full-track).
- DL 844-41/44 Disk Storage Subsystem (full-track).
- DM 885-11/12 Disk Storage Subsystem (half-track).
- DP Distributive data path to extended memory.
- DQ 885-11/12 Disk Storage Subsystem (full-track).
- DV 819 Disk Subsystem (single-density).
- DW 819 Disk Subsystem (double-density).

status Status conditions. Any combination of conditions can exist. The following codes are listed in the order in which they appear on the display.

- S System resides on this device.
- M Device is shared by more than one mainframe.††
- R Device is removable.
- U Device is unavailable.
- L Device is in local unload status and, therefore, not available for permanent file access.
- C Checkpoint requested for specific device. Ensure that C status is not present before dismounting a removable device, issuing an OFF command to logically remove a device, or attempting to perform deadstart.
- Q Outstanding I/O requests exist.

---

†Not applicable for models 815, 825, 835, and 855.

††If a device is shared by two or more mainframes (status M), the mainframe identification flashes on the far right of the screen as the mainframe accesses the shared device.

I Initialization requested or format is pending.

A Alternate system device.

X Device is an auxiliary permanent file device.

O Catalog track overflowed.

F CTI is installed on the device.

D System deadstart file is installed on the device.

* Reconfiguration is requested.

N Device is in global unload status (all machines sharing the device have it in local unload status). Do not physically remove a pack unless N status is displayed on all machines sharing the device.

P A permanent file utility is active.

files Types of files which are allowed on this device. Any combination of types can exist. The following codes are listed in the order in which they appear on the display.

S Secondary rollout.

B LGO.

L Local.

P Primary.

D User dayfile.

R Rollout.

O Output.

I Input.

T Temporary.

trks Number of tracks available on device.

famc Number of jobs in that device's family.

dafc Number of direct access files attached.

If an error is detected, the system displays (and periodically intensifies) an error code following the dafc field. The following error codes can appear during normal production and usually do not require contacting a site analyst for instructions on correcting the error condition indicated.

LE Label error (unrecognizable label).

NR Not ready.

OF Device has OFF status.

PN Duplicate pack name exists.

The following error codes indicate more serious system or equipment errors. Contact a site analyst for more information on correcting the error condition.

CA	Checkpoint abort (unable to checkpoint device).
CE	Configuration error (active device has one of the packs mounted or defined incorrectly).
CS	The size of permanent file catalogs on the device is incorrect for the current system.
DN	Device number conflicts with that of another device in the family.
DW	Device status is DOWN.
EI	Error idle status has been set for the device as a result of some error.
FF	Family ordinal table is full.
IL	Incorrect label (the label on an active device is incorrect).
IN	Device has initialize status set (only if set via deadstart).
LK	Error in TRT linkage detected when recovering permanent files. No recovery possible. Can occur only when introducing removable devices after deadstart.
TL	Length of device's TRT entry is in error; no recovery possible.
UM	Sum of the device masks for family does not equal 377_8.
VE	Error status set in MST because of failure during mass storage table validation.

RESOURCE MOUNTING PREVIEW (E,P.) DISPLAY

The preview display identifies the tapes and packs needed to satisfy user's requests. In order for this display to be selected, the magnetic tape subsystem (MAG) must be executing.

Figure I-4-9 illustrates the preview display.

```
                                    E

RESOURCE MOUNTING PREVIEW.

  JSN    EQ   PN/VSN  USERNUM RING LABEL STATUS

  AAAN   PE   TEST  =  USER123 IN   YES   MOUNT
  AABG   MT   5037     UI10    IN   YES   MT60 RING CONFLICT
  AABK   MT   A        TTEST   - -
  AABQ   HD   TAPE1B=  AJL25   OUT  YES
```

Figure I-4-9. Resource Mounting Preview (E,P.) Display

Each line in the display appears in the following format.

jsn eq pn/vsn usernam ring label status

jsn Job sequence name of the job the equipment is assigned to.

eq Resource type:

DB	885-42 Disk Storage Subsystem ($1 \leq i \leq 3$) (full-track).†
DIi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$) (half-track).
DJi	844-41/44 Disk Storage Subsystem ($1 \leq i \leq 8$) (full-track).
DKi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$) (half-track).
DLi	844-41/44 Disk Storage Subsystem ($1 \leq i \leq 8$) (full-track).
DMi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$) (half-track).
DQi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$) (full-track).
DV	819 Disk Storage Subsystem (single-density).
DW	819 Disk Storage Subsystem (double-density).

†Not applicable for models 815, 825, 835, and 855.

GE Magnetic tape unit (6250-cpi, 9-track).

HD Magnetic tape unit (800-cpi, 9-track).

MT Magnetic tape unit (7-track).

PE Magnetic tape unit (1600-cpi, 9-track).

pn/vsn One- to six-character volume serial number of the required tape or one- to seven-character pack name of the required pack. The pn/vsn is obtained from the user's command.†

usernam User name of job.

ring Magnetic tape ring enforcement (if any):

IN Write enable required (ring in).

OUT Write disable required (ring out).

-- No ring enforcement.

label Magnetic tape label requirements (if any):

YES A labeled tape is required.

-- No label is required.

status Operator message indicating an error condition (refer to message's entry in appendix B) or a MOUNT request. If MOUNT appears in this field, the next volume of a multireel file should be mounted. Subsequent reels of a multireel file must be mounted on a drive of similar type and on the same channel(s) as the first reel of the file. That is, if the first reel of a file is on a 669 tape unit on channel 13 and 33, all subsequent reels must be on a 669 unit on channels 13 and 33. For purposes of reel swapping, models 679-2, 679-3, and 679-4 drives (800/1600-cpi) and models 679-5, 679-6, and 679-7 drives (1600/6250-cpi) are considered different drive types.

†If the user's VSN request is in the form VSN,file=vsn1=vsn2; or LABEL,file=vsn1=vsn2; the E,P display will display the first volume serial number (vsn1) as the VSN of the tape which is requested. An equal sign (=) appears as the seventh character of the VSN field. If tape with VSN of vsn2 is subsequently mounted, the system will assign it to the job, but assignment may not be immediate. The maximum delay is the time a job is rolled out waiting for a specific VSN (approximately 2 minutes). To avoid this delay, roll the job in using the ROLLIN command (refer to ROLLIN command in section 3).

TAPE STATUS (E,T.) DISPLAY

The tape status display summarizes the status of all magnetic tape units in the system. If the display screen is full and more equipment entries remain to be displayed, the message

```
MORE
```

appears at the bottom of the display. Page through the display to view all equipment entries. Refer to section 1 for more information on paging displays.

Figure I-4-10 illustrates the tape status display.

```
                                    E

EST    VSN          DEN     RING   FMT          JSN     STATUS

NT50   ****50       1600                                IDLE
       UNLABELED                   REEL=          1     MODE=
NT51   ****51       1600    IN     SI           AABJ    LOADPT
       UNLABELED                   REEL=          1     MODE=AS
MT52                800                                 IDLE
```

Figure I-4-10. Tape Status (E,T.) Display

Each entry appears in the following format.

```
est     vsn     den     ring     fmt     jsn     status
        fileid                   reel             mode
```

est Identifies the equipment being used:

- MTuu 7-track; uu is the EST ordinal.
- NTuu 9-track; uu is the EST ordinal.

vsn Volume serial number of the mounted tape. The E,T display shows a VSN of ****uu when the tape does not contain a recognizable label. The uu portion of the display is the EST ordinal.

den Density (cpi):

- 200 200-cpi (implies 7-track).
- 556 556-cpi (implies 7-track).
- 800 800-cpi (7- or 9-track).
- 1600 1600-cpi (implies 9-track).
- 6250 6250-cpi (implies 9-track).

ring Ring status (IN if the write enable ring is in; blank if the ring is out).

fmt Data format:

- F Foreign.
- I Internal.
- L Long block stranger.
- S Stranger.
- SI System internal (NOS/BE system default format).

jsn Job sequence name of the job to which the tape unit is assigned.

status Status of the tape unit:

- READY Unit is ready.
- IDLE Unit is idle.
- LOADPT Tape is positioned at load point.
- ROLLED Job using tape unit has been rolled out.
- DOWN Unit has been logically removed from the operating environment via the DOWN command, or by the magnetic tape executive when it detects a hardware error in the unit.
- NOTRDY Unit is not ready or is rewinding.
- MOUNT Indicates that next reel† should be mounted. Reel to be mounted may be identified by VSN, or if tape is unlabeled, by reel number.

fileid File identifier obtained from tape label. No column heading is displayed for this field; it is the first field in the second line of the entry and appears under the vsn field.

reel Reel number currently in use or reel to be mounted if MOUNT status is set. No column heading is displayed for this field although the characters REEL= identify its position in the second line of the entry.

mode Conversion mode of mounted tape. If tape is not assigned, this is the conversion mode of labels. If the tape is assigned, this is the conversion mode of labels and coded data. No column heading is displayed for this field although the characters MODE= precede the value for cv in the second line of the entry. Values for conversion mode are:

- Blank No conversion (unlabeled and not assigned).
- BC BCD (7-track).

†All subsequent reels of a labeled multireel file must have the same characteristics as the first reel of the file; that is, they must be labeled (at the same density), they must be the same track type, and they must have the same conversion mode.

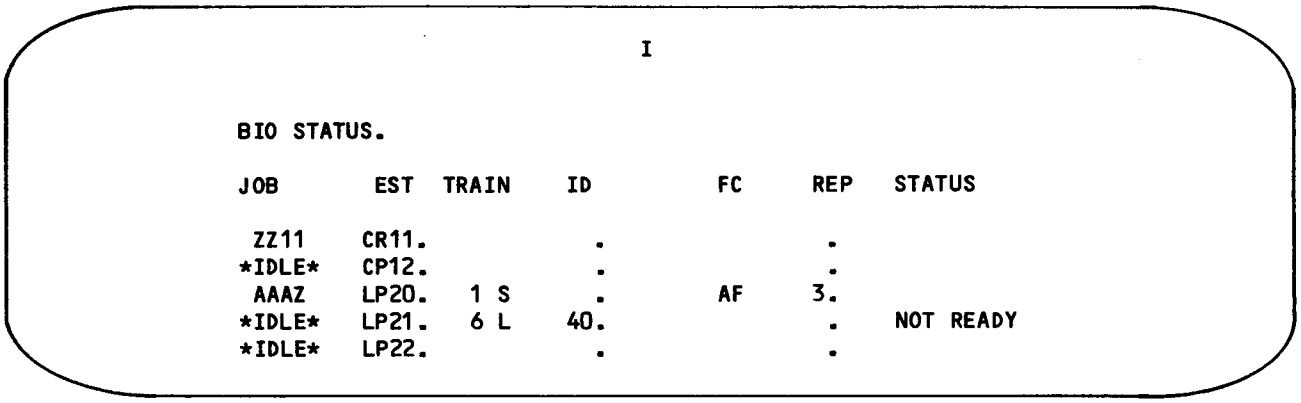
AS ASCII (9-track).

EB EBCDIC (9-track).

BIO STATUS (I) DISPLAY

The I display shows the status of BIO unit record devices.

Figure I-4-11 illustrates the BIO status (I) display.



```
                                   I

BIO STATUS.

JOB       EST   TRAIN    ID        FC     REP   STATUS

 ZZ11    CR11.             .               .
*IDLE*   CP12.             .               .
 AAAZ    LP20.   1 S       .        AF     3.
*IDLE*   LP21.   6 L     40.                .    NOT READY
*IDLE*   LP22.             .               .
```

Figure I-4-11. BIO Status (I) Display

Each entry is in the following format.

jsn est train id fc rep status

jsn Job sequence name of the job using the device. Card reader names, however, are of the form ZZeq where eq is the EST ordinal of the card reader. *IDLE* if no job is using the equipment.

est Peripheral equipment (mnemonic and EST ordinal); for example:

CR11 Card reader, equipment 11.

CP12 Card punch, equipment 12.

LP20 Line printer, equipment 20.

Refer to the EST display description for a list of all equipment mnemonics.

train Print train on the specified printer ($0 \leq$ print train ≤ 7) and the paper size on the specified printer. S specifies short paper and L specifies long paper (refer to NOS 2 System Maintenance Reference Manual for more information on short and long paper).

id Equipment ID ($0 \leq id \leq 67_8$).

fc Two-character alphanumeric forms code assigned to the line printer or card punch.

rep Repeat count (refer to the REPEAT command in section 3).

status Equipment status (for example, NOT READY; NOT READY status can be caused by pressing the STOP button on the device).

At the BIO control point (B display), a message appears whenever a device is active. The message appears as:

n BUFFERS ACTIVE

n Number of buffers reserved in BIO's field length.

JOB STATUS (J) DISPLAY

The J display shows the status of a specific job executing at a control point. To bring the J display to the console screen, type

J,jsn.

where jsn is the job sequence name of the specific job you wish to examine. If jsn is not specified, the screen is cleared.

If you specify a job sequence name of a job that is not at a control point (for example, a job in the print queue or a job that is rolled out), the message

JSN NOT FOUND

appears on the left display screen.

The job sequence name of the job the J display is assigned to appears at the top of the screen next to the display designator (for example, J ABCD).

In addition to the status, any equipments assigned exclusively to the job are listed by EST ordinal, message 1 and message 2 from the control point area are displayed, and the current commands buffer is shown, allowing you to anticipate future job requirements.

Figure I-4-12 illustrates the job status (J) display.

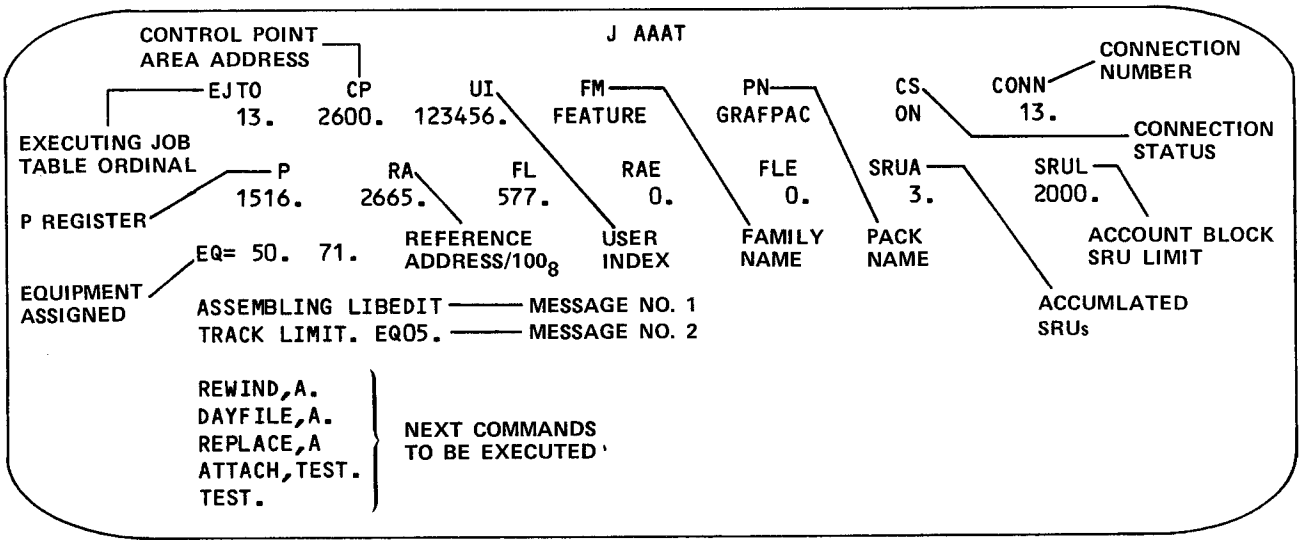


Figure I-4-12. Job Status (J,jsn) Display

The status portion of the J display has the following format.

```
ejto   cpaddr   ui   fm   pn   cs   conn
paddr   ra   fl   rae   fle   srua   srul
```

ejto	Executing job table orinal.
cpaddr	Control point area address.
ui	User index.
fm	Current family name.
pn	Current pack name.
cs	Connection status (interactive jobs only).
conn	Connection number (interactive jobs only).
paddr	P address.
ra	Reference address.
fl	Central memory field length.
rae	Extended memory reference address.
fle	Extended memory field length.
srua	System resource units accumulator (estimated).
srul	System resource units account block limit.

CENTRAL PROGRAMMABLE (K) DISPLAY

Using the K display, a job at a control point can place information on the console screen and receive information from the keyboard.

The K display is job oriented. The job sequence name the K display is assigned to appears at the top of the screen next to the display designator. Normally, these displays are used for utility programs.

The job first issues a request message on the B display, asking you to bring up the K display. You respond by typing

```
K,jsn.
```

where jsn is the job sequence name of the requesting job.

DSD then accepts information from the keyboard and passes it on to the job requesting the K display. Each piece of data entered at the keyboard must be in the following format:

K.commandstring.

commandstring is any input (command, data, or parameter) that is defined by the job as valid input.

If more than 50 characters are entered in commandstring, the message

LINE TOO LONG.

appears on the screen. DSD does not accept the entry until commandstring is shortened.

CENTRAL MEMORY BUFFER (L) DISPLAY

Using the L display you can run utility programs to format data similar to DSD displays.

NOS supports the following L display utilities.

Utility	Description
FOTD	Display family ordinal table (FOT). Displays all the family names known to the system and the corresponding family ordinals.
LIDOU	Display LID table. Displays the destination logical identifiers listed in the LID table and allows you to add, delete, or modify entriews in the LID table.
QDSPLAY	Display the contents of a file in the queued file table (QFT). Displays the contents of a queued file listed in the queued file table.
SUBSYST	Display subsystem information. Displays information about all the subsystems supported by NOS.

When you enter the name of the desired utility, the system automatically assigns the L display to the utility.

After you call a specific utility, if input is required, the system automatically supplies the prefix L. Commands are then entered in the following format.

L.commandstring.

commandstring is any input (command, data, or parameter) that is defined by the job as valid input.

ACTIVE JOB QUEUES (Q) DISPLAYS

The Q displays show the status of the specified queue or the entire queued file table. The appropriate Q display is called when you enter

```
Q,qt.
```

where qt is one of the following queue types.

qt	Display Called
blank	All entries in the queued file table.
IN	Input queued file entries.
PL	Plot queued file entries.
PR	Print queued file entries.
PU	Punch queued file entries.
WT	Error or terminal wait files.

Figure I-4-13 illustrates the queued file table (Q,.) display and figure I-4-14 illustrates the print queue (Q,PR.) display.

```
                                   Q

Q, .                          FREE= 613.  ADDRESS= 24326.  INDEX=   0.

 JSN   SC QFT      QP       QT  LID   DS   ID   FC   EC

SYS    S    0.      0.      IN
AABR   B    1.    212.      PR  MQE   BC   4.        A9
AACA   R    2.    172.      PR  MQG   RB   7.
AACB   T    4.    100.      PU        BC             PH
```

Figure I-4-13. Queued File Table (Q,.) Display

```
                                   Q

Q,PR.                         FREE= 613.  ADDRESS= 24326.  INDEX=   0.

 JSN   SC QFT      QP       QT  LID   DS   ID   FC   EC

AABR   B    1.    212.      PR  MQE   BC             A9
AACA   B    2.    172.      PR  MQG   BC
AADB   B    4.    100.      PR        BC        AC
```

Figure I-4-14. Print Queue (Q,PR.) Display

If the display screen is full and more queued file table entries remain to be displayed the message

```
MORE
```

is displayed at the bottom of the screen. The additional entries are brought to the screen by paging the display. Refer to section 1 for information on paging displays.

All the Q displays have a header line with the following format.

```
name  FREE=num.  ADDRESS=addr.  INDEX=ind.
```

name — Name of the Q display (Q,.; Q,IN.; Q,PU.; Q,PR.; Q,PL.; Q,WT.).

num — Octal number of unassigned QFT entries. If this field is zero, the system cannot create any new queued files until an entry becomes available (for example, when a queued print file completes printing and is removed from the system).

addr — Central memory address where the queued file table begins.

ind — The lowest QFT ordinal that can be displayed on this page of the display. If this field is zero, the system is presenting the first page of the display. If this field is nonzero, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or the - key on left screen displays; or the (key (opening parenthesis) or the) key (closing parenthesis) on right screen displays to view all pages of the particular queue display.

Each entry on a Q display has the following format.

```
jsn   sc   qfto   qp   qt   lid   ds   id   fc   ec
```

jsn — Job sequence name of the file in the queue.

sc — Service class of the job. Refer to the Executing Job Status (B) Display earlier in this section for a list of the various service class mnemonics.

qfto — Queued file table ordinal of the job.

qp — Queue priority.

qt — Queue type (IN, PU, PR, PL, WT).

lid — Destination logical identifier.

ds — Destination (output files only).

- BC Local batch.
- RB Remote batch.

id — File identification (output files only).

fc — Forms code (output files only).

ec External characteristics (print and punch queue types only).

Punch Codes

Code	Description
PH	System default; set at installation time.
SB	System binary.
80	80 column.
26	026.
29	029.
AS	ASCII.

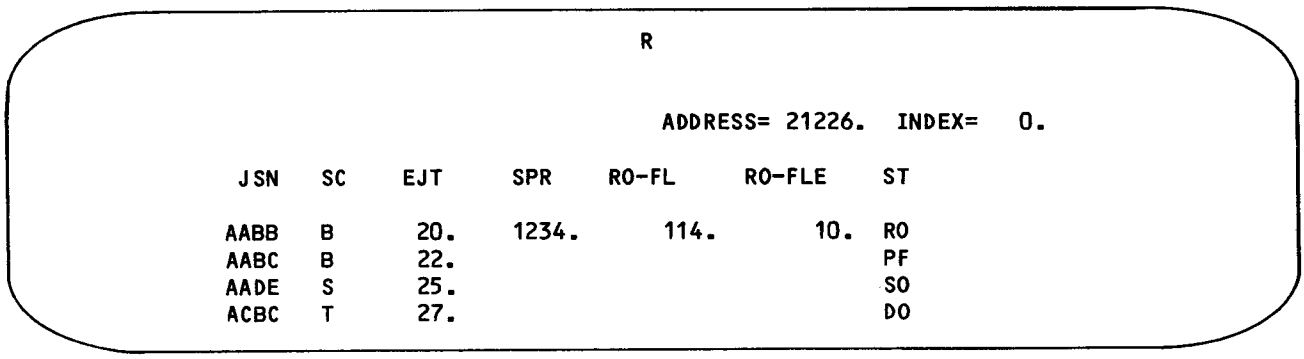
Print Codes

Code	Description
A4	NOS/BE; same as A6.
B4	NOS/BE; same as B6.
A6	ASCII graphic 63/64-character set.
B6	CDC graphic 63/64-character set.
A9	ASCII graphic 95-character set.

ROLLOUT (R) DISPLAY

The R display shows the current status of the executing job table entries that have been rolled out for any reason.

Figure I-4-15 illustrates the Rollout (R) display.



```
                                R

                                        ADDRESS= 21226.  INDEX=   0.

 JSN   SC    EJT     SPR     RO-FL     RO-FLE    ST

AABB   B      20.    1234.     114.        10.   RO
AABC   B      22.                              PF
AADE   S      25.                              SO
ACBC   T      27.                              DO
```

Figure I-4-15. Rollout (R) Display

If more entries remain to be displayed when the screen is full, the message

MORE

appears at the bottom of the screen. To view these entries, page through the display.

The first line of the R display contains the central memory address (ADDRESS=addr) where the executing job table begins and an index (INDEX=ind) executing job table ordinal. If the index field is zero, the first page of the display is being presented. If the index field contains a nonzero number, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or - key on left screen displays or the (key or) key on right screen displays.

Each entry has the following format.

jsn sc ejt spr rfl rfle st *

jsn Job sequence name of the executing job table entry.

sc Service class of the executing job table entry.

ejt Executing job table ordinal of the executing job table entry.

spr Scheduling priority of the executing job table entry.

rfl Rollin central memory field length divided by 100_8.

rfle Rollin extended memory field length divided by 1000_8.

st Job status.

st	Description
BS	Waiting for binary maintenance log size exceeded condition to clear.
CI	Waiting for CPD initiation.
CT	Waiting for CPD termination.
DO	Disabled rollout.
DS	Waiting for system dayfile size exceeded condition to clear.
EJ	Waiting for executing job table full condition to clear.
ER	I/O error on rollout.
ES	Waiting for error log size exceeded condition to clear.
FN	Waiting for system file name table full condition to clear.
FO	Waiting for family ordinal table full condition to clear.
IN	Preinitial job step.
IO	Interactive rollout.
LD	Waiting for L display input.
MG	Waiting for MAG subsystem initiation.
MS	Waiting for MSS subsystem initiation.
PF	Waiting for permanent file.
QF	Waiting for queued file table full condition to clear.
RH	Waiting for RHF subsystem initiation.
RO	Scheduler rollout.
RS	Waiting for resource.
SI	SCP rollin.
SO	SCP rollout.
SU	Suspended rollout.
TE	Extended time event.
TL	Waiting for track limit condition to clear.
TO	Timed/event rollout.
UA	Utility active.

* If present, it indicates the job was rolled out when you entered a ROLLOUT command. To clear this condition use the ROLLIN command (refer to section 3 for more information).

IAF STATUS (T) DISPLAY

The T display shows the status of interactive users.

Figure I-4-16 illustrates the IAF status (T) display.

```
                                    T

IAF STATUS.                TOTAL=    62. ACTIVE =   5. INDEX=   2.

CONN   USER     JSN  WARN          CONN   USER     JSN  WARN

   2. MSIE63    CCDB
   3. BCC3722   ABBF
   4. TDK7      CCFC   *
   7. FAMB62    CCGI
  13. JOBUN     BTMA
```

Figure I-4-16. IAF Status (T) Display

The first line of the T display contains the number of successful logins since the IAF subsystem was activated (TOTAL=), the number of currently active users (ACTIVE=), and a connection number index (INDEX=ind). If this index field is 2, the first page of the display is being presented. If this index field is some other number, a different page of the display is being presented.

The number presented in the index field is not necessarily the first connection number presented on that page of the display. Rather, it is the lowest possible connection number that could be displayed on that page.

Each entry is in the following format.

conn user jsn *

conn Connection number.

user User name.

jsn Job sequence name assigned to this session.

* If present, this indicates the user has not received the last warning message (refer to WARN,ccc...ccc. command in section 3).

DIRECTORY (Z) DISPLAY

The Z display lists all the displays available under DSD control. Figure I-4-17 illustrates the directory (Z) display.

```
                                    Z

DIRECTORY

A       DAYFILES (A. A,. A,OPERATOR A,ERROR LOG
                  A,ACCOUNT DAYFILE,JSN)
B       EXECUTING JOBS
C,D     CM, 5 GROUPS OF 4
E       EQUIPMENT STATUS (E,A  E,C  E,M  E,P  E,T)
F,G     CM, 4 GROUPS OF 5
H       SYSTEM FILES
I       BIO
J       JOB DISPLAY
K       CM PROGRAM BUFFER
M       ECS
O       TAF (O,SCP  O,TLD  O,TST)
P       PP STATUS
Q       QUEUED FILES (Q,. Q,IN Q,PU Q,PL Q,PR Q,WT)
R       ROLLED JOBS
S       SYSTEM CONTROL INFORMATION
T       IAF
U       INSTALLATION USE
V       INSTALLATION USE
W       CPUMTR/MTR QUEUES
Y       MONITOR FUNCTIONS
```

Figure I-4-17. Directory (Z) Display

Many of the displays listed in the Z display are used by site analysts in maintaining the system and have no use during normal production operations. Contact a site analyst before using, entering, or altering data in any display not documented in this section.

All on-line peripheral equipment runs under the control of NOS. To determine the equipment status table (EST) ordinal and current status (ON or OFF) of a device, examine the Equipment Status Table (E,A.) Display (refer to section 4 for more information on this display). A device must be logically ON before it can be used by NOS. Refer to the description of the ON command in section 3 to logically turn on a device.

405 CARD READER OPERATION

Once the MAIN POWER switch on the card reader is lighted, load and start the reader as follows:

1. Set guide edge of input feed hopper and output stacker for length of card. Narrow half of each tray may be removed, turned end-for-end, and reassembled as necessary.

2. Load cards into hopper, placing column 1 at right as cards face entrance of read station.

3. Check input wall of secondary and main output stackers. If standard cards are used, hinged card-stopping blocks should be positioned to form a flush surface at each input wall. If short cards are used, hinged block assemblies must be pivoted to protrude from wall surfaces of each stacker.

4. At feed hopper, set card-stopping pin to protrude from faceplate if short cards are used; turn pin in clockwise direction to form flush wall if long cards are used.

5. If short cards are to be read, press 51 COLUMN switch until it lights.

6. To check operation:

   a. If MAN is not lighted on AUTO/MAN switch, press switch to place equipment in manual mode.

   b. If STOP is not lighted on RUN/STOP switch, press switch so that STOP lights.

   c. Press MOTOR POWER switch. Light should turn on and input hopper should begin vibrating.

   d. Press READY switch until it lights.

   e. Press SINGLE PICK switch to cause first card to be read and transferred to output stacker. No light exists. If card does not move properly, check read station for an obstruction.

   f. Press MOTOR POWER to stop vibrators and replace card in input hopper.

7. To allow cards to be read:

   a. Press RUN/STOP so that RUN lights, if necessary.

b. Press AUTO/MAN so that AUTO lights.

c. Press MOTOR POWER so that it lights.

d. Press RELOAD MEMORY. It does not light.

e. Press READY until it lights.

The switches and indicators on the reader (figure I-5-1) are explained in the following paragraph. They differ slightly depending upon the type of controller (3649 or 3447). The controllers are an integral part of the card reader equipment.

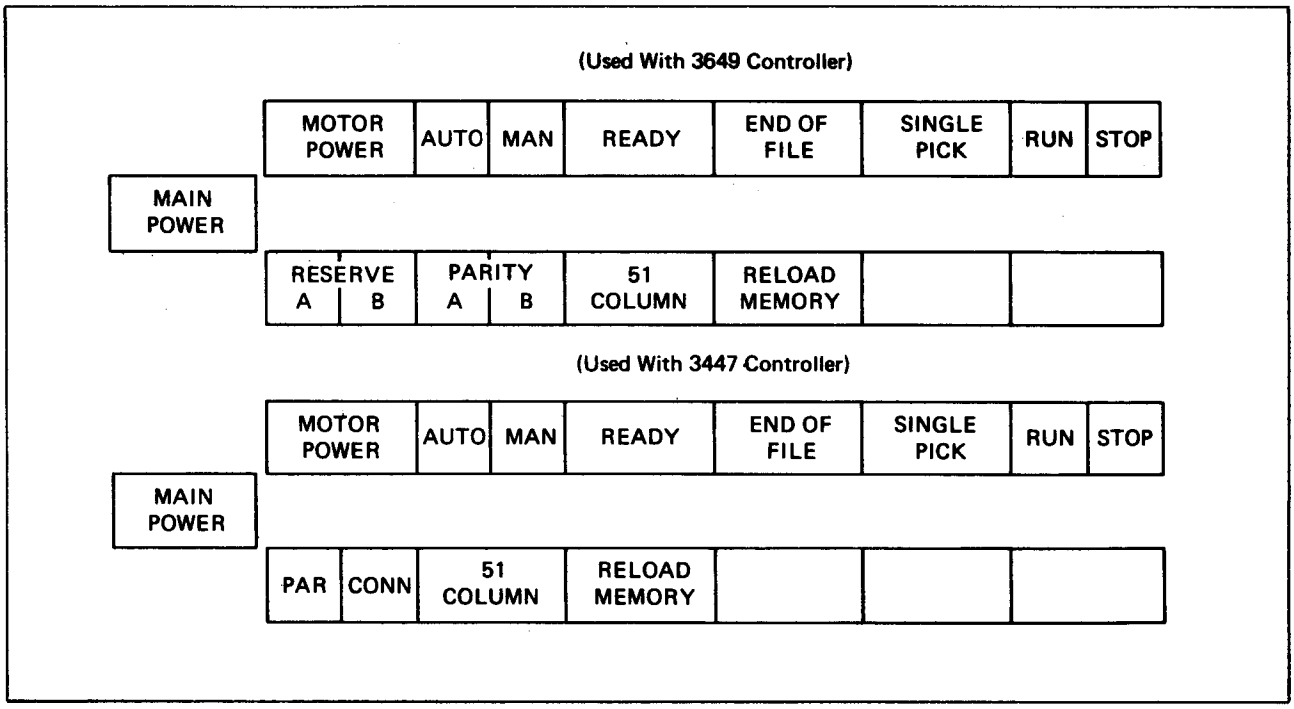


Figure I-5-1. Card Reader Switches

MAIN POWER

Controls all primary power and turns on the photocell light source. It is lighted when power is on. It must be on before subsequent operations are effective.

MOTOR POWER

Controls power to the drive motors, the vacuum-pressure system, and the hopper-stacker vibrators. It must be on before the READY status is effective. It is lighted when on.

AUTO/MAN

Selects manual or program controlled modes of operation. The switch must be in the AUTO position when the reader is to be controlled by the system. Change switch position to MAN to disable system control and allow you to cycle cards manually.

READY

The switch lights to indicate the ready condition. When the switch is pressed, the first card is read into buffer memory. Thereafter, the reader is under system control. If the input hopper is empty, error conditions exist on the device, the output stacker is not closed or it is full, a not ready condition exists.

END OF FILE

Causes the reader to generate an end-of-file status bit after the last card in the input tray is read. It lights when set. If the last card in the input tray is not the last card in the file being read into the system, this switch should be off. Currently not used by NOS. Included for compatibility with previous systems.

SINGLE PICK

Cycles a single card through the reader when the AUTO/MAN switch is in MAN position. It does not light.

RUN/STOP

The card feed may be controlled manually when the AUTO/MAN switch is in MAN position. The set side is lighted.

RESERVE A/B (3649 Controller only)

One side lights as one of the two converters attached to the controller reserves reader access.

PARITY A/B (3649 Controller only)

This light appears only when a parity error occurs during the transmission of a connect or function code. An error message will appear on the console screen.

PAR/CONN (3447 Controller only)

Similar to the RESERVE and PARITY switches of the 3649 Controller in that one side lights for a parity error and the other when the reader is connected to the controller channel.

51 COLUMN

Allows short (51-column) cards to be read. It is lighted when set.

RELOAD MEMORY

Feeds data from a new card into card reader memory buffer when pressed, providing AUTO/MAN is in AUTO. It does not light. It should be pressed prior to each READY.

Inside the right front door are several lights that indicate malfunction. If FEED/FAIL is lighted, a card is not acceptable or a card jam exists. Lifting the read station panel will expose the card guides. The PRE-READ and COMPARE lights indicate that the pre-read and read stations do not interpret a card identically. If the card reader stops during operation, examine the BIO (I) display to determine the action to take. The action can involve rereading one or several cards. If the card reader stops at the end of a batch job, check the I display to ensure that there were no errors on the last card.

415 CARD PUNCH OPERATION

The 415-30 card punch (figure I-5-2) contains the 3446 controller in the same cabinet. The controller for the 415 card punch, 3644 or 3446, is in a separate cabinet. It has the equipment number switch that establishes the equipment number for the punch in the EST display. With the exception of the lights mentioned in the following paragraph, controller switches are the responsibility of the customer engineer.

Once the MAIN POWER and MOTOR POWER switches on the card punch are lighted, operation is initiated as follows:

1. Place cards face down in input hopper with row 9 toward rear.
2. Check that chip box and output stacker are not full.
3. Advance two cards into the punch and read stations by pressing the SINGLE PICK switch twice.
4. Check the controller equipment. If either the NOT READY or FAIL TO FEED light is on, cards have not advanced into the punch and read stations.

The card punch is then ready for operation.

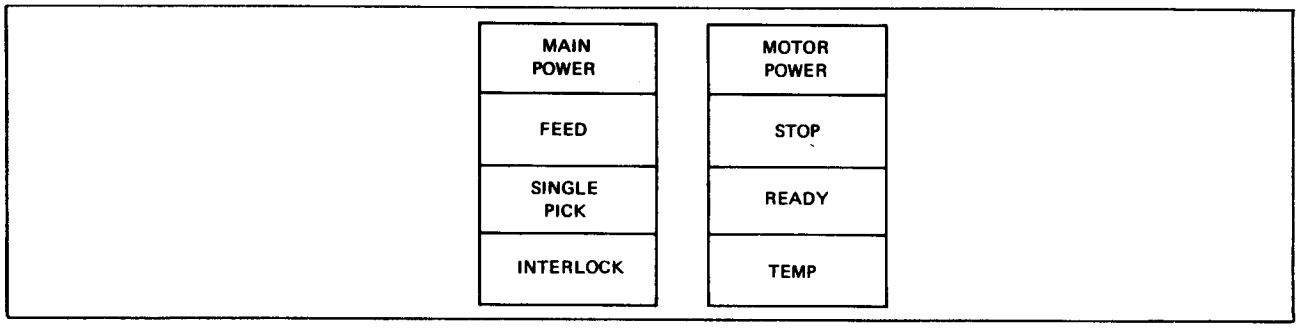


Figure I-5-2. 415 Card Punch Switches

Switches on the card punch have the following functions.

MAIN POWER

This switch applies power to the cooling fans and the power supplies. It is lighted when power is on.

MOTOR POWER

This switch applies power to the punch motor. It is lighted when power is on.

FEED

This indicator lights when a card jam exists. A message CPuu NOT READY appears at the console. Call a customer engineer to remove the jammed card.

STOP

This switch causes the punch to become not ready. It lights when pressed to stop system control.

SINGLE PICK

This switch advances cards one station in the input hopper-punch-read-output cycle. It lights until the advance is complete.

READY

This switch clears punch logic and puts it in automatic mode for system control. It lights when the punch is in a ready condition. If it does not light when pressed, conditions such as feed failure and full output stack should be examined and corrected.

INTERLOCK

This switch lights if the head panel, hood panel, or right door is open. All should be closed during operation.

TEMP

If this light is on, the temperature of the punch exceeds operation requirements. Consult a customer engineer.

A toggle switch at the top of the output stacker automatically turns off the card punch when the stacker is full. Reset the switch when cards are removed from the stacker.

580 LINE PRINTER OPERATION

The 580 line printer includes both the printer and controller in one cabinet. Operator manual controls on the back duplicate three switches on the front to facilitate removing paper. Figure I-5-3 shows configuration of the 580 Line Printer switches.

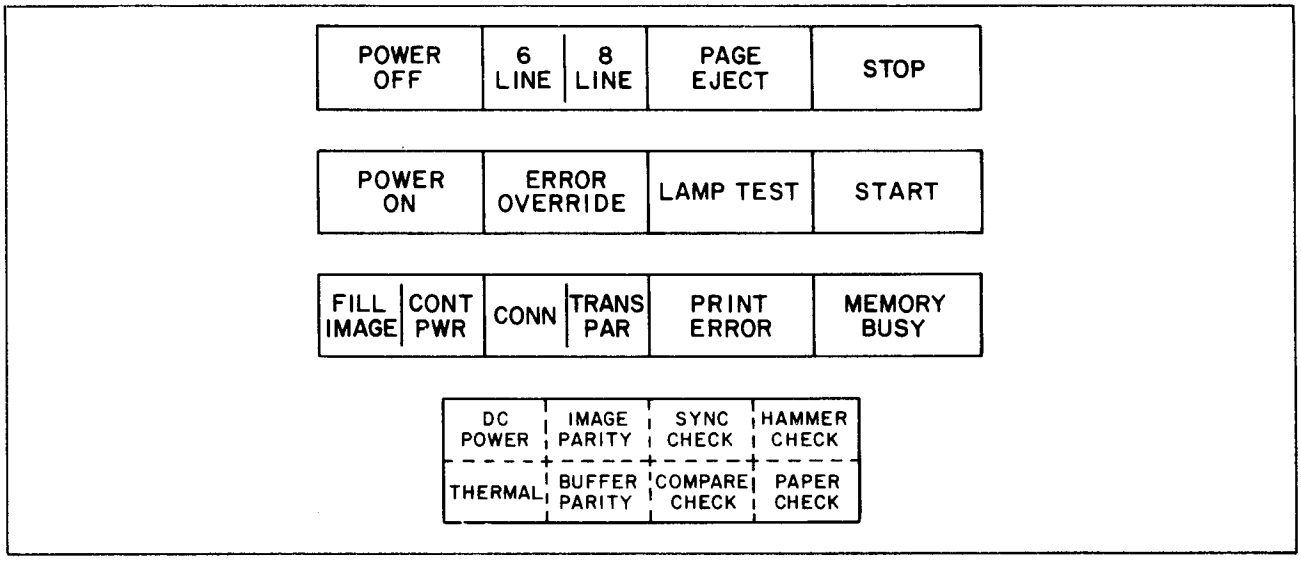


Figure I-5-3. 580 Line Printer Switches

When the POWER ON switch is lighted indicating power to the printer, control operation with the following switches.

POWER OFF

Turns off power supply.

6 LINE | 8 LINE

Pressing alternates between 6 and 8 line-per-inch spacing. One-half of the indicator is illuminated, depending on which spacing mode you select.

PAGE EJECT

Under manual control, advances paper to top of form as determined by format loop control.

STOP

Stops printer control.

LAMP TEST

Pressing causes all lamp indicators on the control panels to light.

START

Readies printer (lighted when selected).

The remaining indicators light when the condition specified has occurred.

FORMAT (CARRIAGE CONTROL) TAPE LOADING

1. Press the POWER HOOD switch to raise hood.
2. Loosen the tape spool and slide it toward the drive hub.
3. Place the format tape on the drive hub and in the space between the reader and the lamp housing. The coincidence lines on the format tape must be aligned with the scribe lines on the drive hub and the arrows on the tape must point toward the back of the printer.
4. Place the format tape over the tape spool, slide the tape spool down the slot until there is 1/8-inch slack in the format tape loop.
5. Tighten the tape spool.

PAPER LOADING

To load paper into the 580 printer:

1. Press POWER HOOD switch on left side of cabinet to raise hood.
2. Remove old paper supply with PAGE EJECT switch.
3. Open front printer gate.
4. Open pressure plate on upper and lower left and right tractors.
5. Raise paper vertically from supply box and place into upper and lower paper tractors. Ensure that header page will always be an inner page (that is, page is visible when output is laid flat) by placing inner fold at front edge of printer's paper bail assembly. Close all four pressure plates.
6. Close front panel securely.
7. Press PAGE EJECT four times and manually feed the forms over the paper bail and into the stacker exit rollers.
8. In back of printer, press PLATFORM DOWN switch to lower forms platform.
9. Press PAGE EJECT to observe that forms fold properly and are correctly aligned.
10. Press PLATFORM UP switch and observe that forms fold and fit properly as platform rises.

To load forms of a different width or thickness:

1. Move tractors to approximate position by loosening the tractor locking knob and sliding tractors until aligned. Tighten locking knob.
2. Place forms in upper left paper tractor and close tractor door.
3. Place forms in lower left paper tractor and close tractor door.
4. Place forms in upper right paper tractor and close tractor door.
5. Place forms in lower right paper tractor and close tractor door.
6. Slide the two right tractors to adjust the horizontal paper tension. Forms should not buckle (too loose) and the tractor pins should not deform the holes (too tight). Tighten the tractor locking knobs on the right hand tractors.
7. Close the forms alignment scale against the paper. The scale indicates print column location and the top of the ribbon shield indicates the bottom of the next line of print.
8. Adjust the horizontal position control to align the forms with the proper print columns.
9. Place the forms lock control in the manual position and adjust the manual forms advance control to align forms vertically to the top of forms position.

10. Place the forms lock control in the auto position, relatch the forms alignment scale to the print gate, and the print gate to the print head.

11. Press PAGE EJECT three times and manually feed the forms over the paper bail and into the stacker exit rollers.

12. In back of printer, press PLATFORM DOWN switch to lower forms platform.

13. Press PAGE EJECT to observe that forms fold as originally folded, that multipart forms do not separate, and that the forms are properly aligned to the forms scales.

RIBBON CHANGE

1. Press the POWER HOOD switch on left side of cabinet to raise hood.

2. Press POWER OFF switch.

3. Unlatch print gate and swing away from the print head.

4. Unlatch ribbon cover and swing away from the print gate.

5. Unlatch line finder and swing away from the print gate.

6. Grasp the ribbon rolls with the left hand on the upper roll and the right hand on the lower roll.

7. Push the rolls toward the hinged end of the print gate; lift the upper roll up and off the spool and the lower roll down and off the spool.

8. Pass the left hand over, behind, and then under the print gate and remove the ribbon.

9. After the new ribbon is unwrapped, grasp one roll in the left hand and the other roll in the right hand.

10. Approaching print gate from the latch end, hold right hand in front of lower ribbon spools. Pass ribbon roll in left hand under, behind, and over the print gate bringing it to the upper ribbon spools.

11. Press ribbon roll in left hand against the upper ribbon spool on the hinged end of the print gate and press the roll in right hand against lower ribbon spool.

12. Ease the ribbon rolls into place against the ribbon spools on the latch end of the print gate ensuring that the drive keys on the ribbon spools fit into the slots in the ribbon rolls.

13. Rotate upper ribbon roll to take up slack.

14. Latch linefinder and ribbon cover to print gate and close print gate.

15. Press POWER ON switch.

580 LINE PRINTER PROGRAMMABLE FORMAT CONTROL INITIALIZATION

1. Press POWER ON switch.
2. Press PAGE EJECT switch. The printer controller advances to the next 6/8 lines per inch (LPI) coincident point. The tractors physically advance accordingly.
3. Press POWER HOOD switch on left side of cabinet to raise hood.
4. Open front printer gate.
5. Open pressure plate on upper and lower left and right tractors.
6. Raise paper vertically from supply box and place into upper and lower paper tractors. Close all four pressure plates.
7. Close front panel securely.
8. Align paper to top of form by pressing the PAGE EJECT switch, causing the paper to advance to subsequent 6/8 LPI coincidence points as required. Paper thus positioned will be at top of form when the system loads a PFC array before a job is printed.
9. Close the forms alignment scale against the paper. The scale indicates print column location and the top of the ribbon shield indicates the bottom of the next line of print.
10. Adjust the horizontal position control to align the forms with the proper print columns.
11. Place the forms lock control in the manual position and adjust the manual forms advance control to align forms vertically to the top of forms position.
12. Place the forms lock control in the auto position, relatch the forms alignment scale to the print gate, and the print gate to the print head.
13. Press START switch.

NOTE

This initialization procedure assumes that the first code loaded into the PFC buffer will be top of forms (format level 1).

BIO loads the PFC buffers at the start of each print file. Prior to loading a PFC array, pressing the PAGE EJECT switch advances the paper to the next 6/8 LPI coincident point. After a PFC array has been loaded into the printer, pressing PAGE EJECT causes an entire form to be ejected.

MAGNETIC TAPE UNITS

NOS supports unit models 667 and 677 for 1/2-inch, 7-track magnetic tape and models 669 and 679 for 1/2-inch, 9-track tape.

All models show a unit number at the top of the cabinet (right side of the controls on a 667 or 669 unit, left side of the controls on a 677 or 679 unit) which ranges from 0 to 17 and is used to identify the unit. The unit number of a 667 or 669 tape unit is set using the select switch labeled UNIT NO/HOLD REL located beside the unit number display. Each unit that is on should have a unique number but once this switch is set, it can be ignored during operation. It is not possible to change unit numbers on 677 or 679 tape units.

NOTE

Do not change unit numbers on 667 or 669 tape units when the magnetic tape subsystem is being used.

The system and the operator identify a unit by its EST ordinal as shown in the E display. Installations usually configure the system so the last digit of an ordinal for a tape drive is the same as the unit select switch setting, making it easier to equate the two.

On-line operation of tape units is controlled and synchronized with system demands by an associated tape control unit. Power up and autothread/autoload operations are facilitated by front panel controls and indicators located at the top front of the tape unit. Controls for 667/669 and 677/679 tape units differ slightly as described in the following two sections.

If a magnetic tape unit is currently assigned to a job, it cannot be unloaded. Examine the tape status (E,T.) display to determine if the magnetic tape unit is currently assigned to a job. If it is not, entering the UNLOAD command causes the tape to unload. Refer to the description of UNLOAD in section 3.

667 AND 669 TAPE UNITS

The functions of the switches and indicators on the 667/669 tape unit (figure I-5-4) are described below. Switches with alternate actions are described in terms of (1) first and (2) second action.

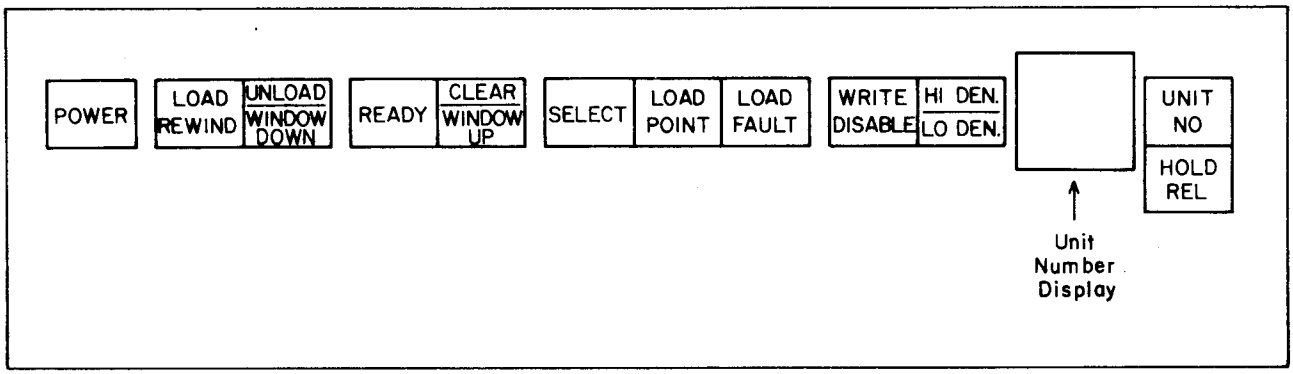


Figure I-5-4. 667/669 Tape Unit Operator Control Panel

POWER

(1) Activates power circuits, places tape unit in a power-up status, and lights indicator. (2) Deactivates power circuits, places tape unit in a power-down status, and turns off indicator light.

LOAD REWIND

(1) Initiates load operation (reel-to-reel contact, thread and set loops). (2) When unit is off-line, initiates rewind to loadpoint operation.

UNLOAD/WINDOW DOWN

Initiates unload operation by rewinding leader length onto right reel.

READY

Places tape unit under system control via tape control unit. Light indicates unit is in ready status awaiting system activity. Light extinguishes when a fault condition is detected.

CLEAR/WINDOW UP

When tape unit is on-line, negates READY condition and stops tape motion. When unit is off-line, stops tape motion and clears fault condition. Light comes on when loop fault is detected.

NOTE

Do not use this control during system operation.

SELECT

No switch function. Light comes on when tape unit is selected by tape control unit.

LOAD POINT

No switch function. Illuminates when loadpoint marker or end of tape marker is detected, depending upon tape motion direction.

LOAD FAULT

No switch function. Indicates a fault occurred during load procedure.

WRITE DISABLE

No switch function. Illuminated, it indicates the absence of a write enable ring in the right tape reel. Disables the write circuitry and conditions the tape unit to accept only read functions.

HI DEN/LO DEN

No switch function. HI DEN illuminates in phase mode for 9-track tapes or in 800-cpi NRZI mode for 7-track tapes. LO DEN illuminates in 800-cpi NRZI mode for either 9- or 7-track tapes or for 556-cpi NRZI mode for 7-track tapes.

Unit Number Display

Shows tape unit number in octal numbers, 00 to 17.

UNIT NO/HOLD REL

Two-position rocker switch used to assign tape unit number. Pressing UNIT NO causes that portion of the switch to light, indicating that a hold status is being sent to the tape controller unit. Numbers shown on the unit number display advance until UNIT NO is released. Pressing HOLD REL removes the hold status on the tape unit; the indicator light turns off.

677 AND 679 TAPE UNITS

The functions of the switches and indicators on the 677/679 tape unit (figure I-5-5) are described below. Switches with alternate actions are described in terms of (1) first and (2) second action.

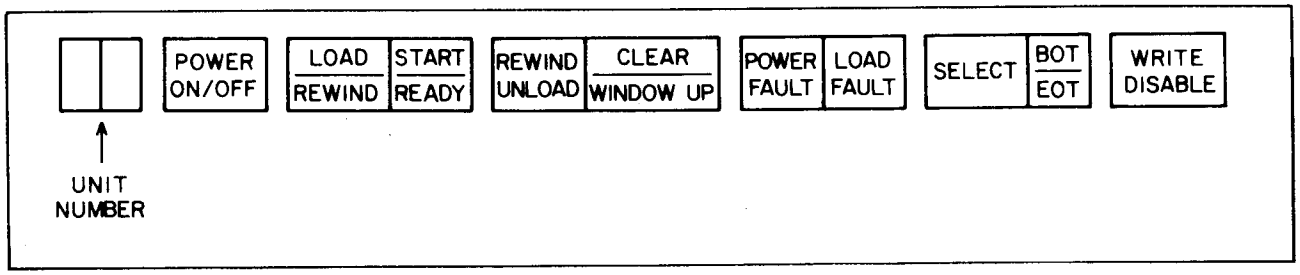


Figure I-5-5. 677/679 Tape Unit Operator Control Panel

POWER ON/OFF

(1) Activates power circuits, places tape unit in power-up status, and lights indicator. (2) Deactivates power circuits, places tape unit in a power-down status, and turns off indicator light.

LOAD/REWIND

(1) Initiates load operation (reel-to-reel contact, thread and set loops). (2) When unit is loaded but not ready, initiates rewind to loadpoint operation.

START/READY

Places tape unit under system control via tape control unit. Light indicates unit is in ready status awaiting system activity. Light extinguishes when a fault condition is detected.

REWIND UNLOAD

If the unit is loaded but not ready, the tape is rewound to BOT and the tape unit is unloaded. If present, the cartridge closes. The reel latch and window open.

If the unit is not loaded or a fault has been detected, the window lowers.

CLEAR/WINDOW UP

When tape unit is on-line, pressing this switch negates READY condition and stops tape motion. If the tape unit is off-line and the window is down, pressing this switch raises the window. Load check is reset if applicable.

NOTE

Do not use this control during system operation.

POWER FAULT/LOAD FAULT

No switch function. Indicates a power fault occurred or a fault occurred during the load procedure.

SELECT

No switch function. Light comes on when tape unit is selected by tape control unit.

BOT/EOT

No switch function. Illuminates when loadpoint marker or end of tape marker is detected, depending upon tape motion direction.

WRITE DISABLE

No switch function. Illuminated, it indicates the absence of a write enable ring in the right tape reel. Disables the write circuitry and conditions the tape unit to accept only read functions.

TAPE UNIT OPERATION

All tape units can handle cartridge-contained tape reels or standard 10-1/2-inch supply reels. Smaller noncartridge reels can be used, but they must be threaded manually. The take-up reel on left side is a vacuum hub assembly permanently attached to the tape unit.

When a load sequence is initiated, the cartridge-contained tape reel programs the tape unit to thread tape and load loops into the vacuum columns automatically. Internal delays control the timing of the load/thread operation. If a fault is detected during a load attempt or if a successful load is not achieved, one automatic retry is executed. At the expiration of the automatic load attempt, the tape unit automatically stops and lowers the power window. When standard reels are used, the automatic retry is inhibited and operator action is required.

The power window of the tape unit is activated by control logic circuits and is raised or lowered in response to LOAD and UNLOAD commands initiated by you. Initially, when the POWER switch is pressed, the window lowers, allowing access to the tape deck. An interlock protection switch prevents power window operation when the front access door is open.

REEL INSTALLATION

Prior to operating the tape unit, review thoroughly the description of control switches and indicators. The following operating instructions apply to all 667/669 and 677/679 tape units unless specifically noted.

Standard (Noncartridge) Reel

1. Power up unit by pressing POWER switch. POWER light illuminates and the window lowers.

2. Install write-enable ring within inner surface cutout of reel if write operation is to be performed. The write-enable ring is to be installed only if a write operation is to be performed. Valuable data stored on the tape must be protected by removing the write ring when read only operation is to be performed.

3. Place reel onto right hub. Ensure that reel is fully seated against hub face.

4. Manually rotate reel hub clockwise until several inches of tape leader extend along inner surface of tape chute.

Cartridge-Loaded Reel

1. Perform steps 1 and 2 as for standard reel.

2. Orient cartridge reel on hub so that locating notches in cartridge retainer and chute assembly align with keys on outer rim of cartridge. Ensure that actuator rod fits into recess of cartridge latch.

3. Press cartridge into place on hub; seat firmly against hub face.

LOAD/THREAD

Operator action, such as pressing LOAD/REWIND switch, initiates a load/thread operation. The cartridge actuator rotates clockwise until the cartridge is brought to the full open position. Observe the following points for either cartridge or standard reels.

1. Tape proceeds along tape feed path and enters the left vacuum reel enclosure.
2. Left reel rotates clockwise until load point marker is detected. Reel motion then ceases.
3. Tape is drawn immediately into loop columns and drops below AR and AL sensors.
4. Motion stops when load point marker is correctly positioned.

READY STATUS

At completion of load/thread sequence, the tape unit is placed in ready status if the READY (667/669) or START READY (677/679) switch on the front panel of the tape unit has been pressed. The indicator illuminates, followed by the SELECT light, indicating receipt of an on-line callup by the system.

REWIND

The LOAD/REWIND switch rewinds a tape to load point when the tape unit is off-line. It is not necessary to use this switch during normal operation, since the operating system controls tape movements.

UNLOAD AND REEL REMOVAL

The REWIND/UNLOAD switch rewinds and unloads a tape when the tape unit is off-line. It is not necessary to use this switch during normal operation, since the operating system controls tape movements. The operator command UNLOAD,eq. logically unloads a tape that is physically loaded but not in use.

After unload is initiated, the tape rewinds at high speed until the load point marker is detected. A downshift to normal operating speed occurs at load point detection. The leader length unwinds completely from the left onto the right reel and simultaneously, the cartridge closes and the power window lowers. The automatic hub, if applicable, releases the right tape reel for removal from the tape deck area.

EMERGENCY STOP

Operator action of the CLEAR switch terminates the operation in progress. Switch activation is effective in either off-line or on-line mode. Pressing the CLEAR switch one time, while in rewind mode, causes the unit to down shift to normal tape speed; 200, 150, or 100 inches per second. A second activation terminates the rewind operation and causes the tape movement to stop.

REFLECTIVE MARKERS

The load point and end-of-tape markers are placed near the beginning and end of the tape to enable sensing of the usable portion of the tape by the photocells. Adhesive material on one side of reflective material secures the markers to the tape. Vaporized aluminum deposited on the material creates a highly reflective surface.

The markers, approximately 1.2 inches long and 0.2 inch wide, are placed on the uncoated side of the tape. The uncoated side is the underside of the tape when mounted on the tape deck. The end-of-tape marker is placed on the edge of the tape nearest the tape deck; the load point is placed on the outer edge of the tape. The 667/669 tape unit is capable of loading tapes with load point markers located up to 40 feet from the beginning of the tape. The 677/679 tape unit is capable of loading tapes with load point markers located up to 26 feet from the beginning of the tape. Recommended distance is 10 to 18 feet.

819 DISK STORAGE UNIT OPERATION

The function of the six switches and indicators on the 819 Disk Storage Unit are described as follows. Switches with alternate actions are described in terms of (1) first and (2) second action.

START

(1) starts the spindle rotating and loads heads; indicator light comes on. (2) stops the spindle rotation and unloads the heads; indicator light turns off.

READY

This indicator light comes on when the disk unit is ready for operation.

FAULT

This indicator light comes on when the disk unit detects a unit fault.

MAINTENANCE

This indicator light comes on when the disk unit is in maintenance mode (off-line).

TEMP

This indicator light comes on when the temperature in the unit exceeds the safe operating temperature.

1/0

The 1 lights when the disk unit is reserved by the controller on access 1. The 0 lights when the disk unit is reserved by the controller on access 0.

Besides these switches and indicators, you can also use the lockout channel toggle switches located on the lower right inside of the rear door.

LOCKOUT CHAN 0

When in the up position, this switch disables the controller/disk unit interface designated as 0.

LOCKOUT CHAN 1

When in the up position, this switch disables the controller/disk unit interface designated as 1.

By toggling these switches the controller/disk unit reservation is cleared.

844 DISK STORAGE UNIT OPERATION

To ready an 881 or 883 disk pack on the 844 Disk Storage Unit:

1. Press the main cover latch and lift the main cover of the unit. Remove the base of the pack container so that the pack is held only by its cover.

2. Using its cover as a handle, place the disk pack slowly over the spindle until it engages the spindle drive unit. Turn the disk pack cover clockwise to a full stop position. At this point, the cover is released from the pack and can be lifted off.

3. Close the main cover making sure that it latches. If the cover is not securely latched, the dust cover interlock remains open and prevents power application.

4. Press the START switch to apply power to the unit. When the disk pack is at operating speed, the READY indicator lights. The disk storage unit is now ready for operation.

Before unloading an 881 or 883 disk pack from the 844 Disk Storage Unit, examine the mass storage status (E,M.) display. A disk pack can be physically unloaded only if the global unload status (N) is displayed on all machines accessing the disk pack. Refer to the description of UNLOAD in section 3.

To unload:

1. Press START switch to turn off indicator light and stop unit.

2. When disk pack has stopped spinning, press main cover latch and lift main cover.

3. Place a disk pack cover over loaded disk pack so that it engages spindle. Turn counterclockwise until spindle clicks, and lift cover and disk pack from unit. Replace base of pack container.

885 DISK STORAGE UNIT OPERATION

The functions of the switches and indicators on the 885 Disk Storage Unit (figure I-5-6) are described as follows. Switches with alternate actions are described in terms of (1) first and (2) second action.

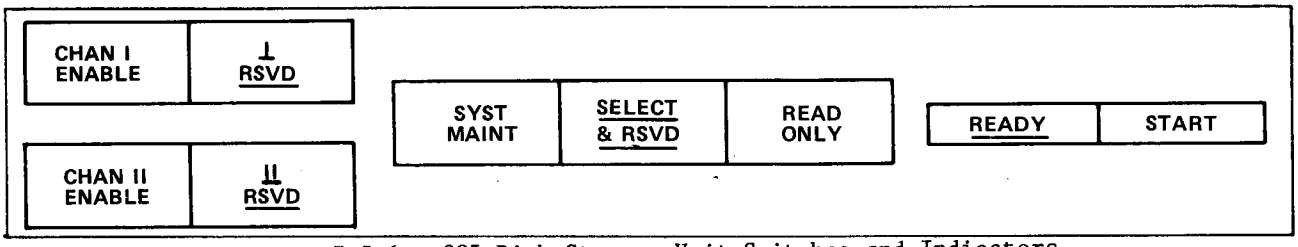


Figure I-5-6. 885 Disk Storage Unit Switches and Indicators

CHAN I ENABLE
or
CHAN II ENABLE

(1) Enables communication between drive and controller attached to associated drive channel; lights indicator. (2) Disables communication between drive and controller attached to associated drive channel; turns off indicator light.

I
RSVD
or
II
RSVD

No switch function. Lights when controller reserves associated drive channel.

SYST
MAINT†

(1) Enables fault checking and manual seek tests; lights indicator. (2) Disables fault checking and manual seek tests; turns off indicator light.

SELECT
& RSVD

No switch function. Lights when reserved drive channel is active.

READ
ONLY

(1) Disables write logic within drive and lights indicator. (2) Enables write logic within drive and turns indicator light off.

READY

No switch function. Lights when disk pack reaches operating speed and drive is on track.

START

(1) Applies power to drive motor and lights indicator. (2) Removes power from drive motor and turns indicator light off.

For additional information, refer to the 7155 Disk Storage Subsystem Operator Maintenance Guide.

†This switch is used for maintenance only.

DISPLAY CONSOLE (CYBER 170 COMPUTER SYSTEMS) OPERATION

The console panel (figure I-5-7) contains the DEAD START button and controls affecting the appearance of displayed information.

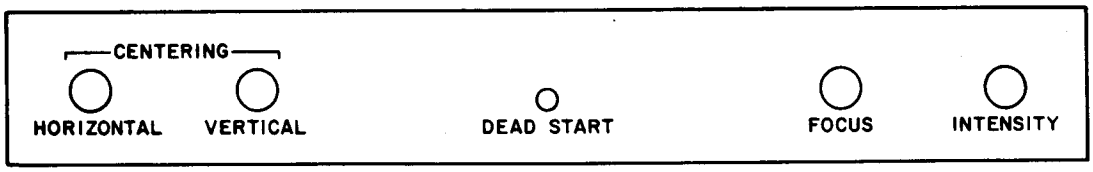


Figure I-5-7. Console Panel

The following controls allow you to change the characteristics of displayed characters.

CENTERING

Varies horizontal and vertical position of display.

FOCUS

Changes clarity in center areas of display.

INTENSITY

Varies brightness of display.

Located on the lower-right side of the console keyboard is the PRESENTATION CONTROL rocker switch. It is labeled LEFT, RIGHT, and MAINTENANCE to allow you to specify a single left screen display (LEFT), a single right screen display (RIGHT), or the normal setting, a split screen display containing a left and a right display (MAINTENANCE).

6612 DUAL SCREEN DISPLAY CONSOLE (CYBER 70 AND 6000 COMPUTER SYSTEMS) OPERATION

Controls on a panel below the display screens (figure I-5-8) allow you to change the characteristics of displayed characters.

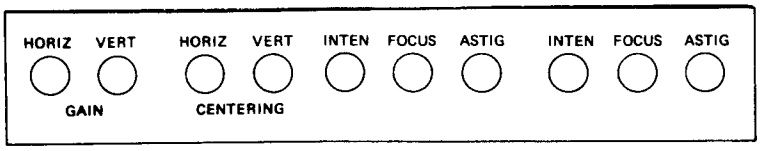


Figure I-5-8. Display Controls

Controls to the left affect both screens:

GAIN

Varies width (HORIZ) or height (VERT) or area of display.

CENTERING

Varies horizontal and vertical position of display.

The sets of three knobs affect the right and left screens individually.

INTEN

Varies brightness of display.

FOCUS

Changes clarity in center areas of display.

ASTIG

Changes clarity at edges of display.

PROCEDURE TO INITIALIZE LOCAL 255x NETWORK PROCESSING UNIT (NPU)

Following a failure of the network processing unit (NPU), you can downline load the local NPU with the communications control program (CCP) operating system. The following procedure assumes the autostart module-cassette (SAM-C) is not available and is not defined on the local NPU. If SAM-C exists, the procedure for downline loading the local NPU is the same as described in the next section for initializing a remote NPU.

1. Set the ports (CLA addresses) to the correct settings as described in the CCP Diagnostic Handbook.

2. Set power switch (PWR) to ON on the loop multiplexer circuit card.

3. Set the CLA ON/OFF switches to CLA ON on the CLA circuit card.

4. Verify that the local console (if present) is in the normal ON state.

5. Press the MASTER CLEAR switch to stop the NPU.

Once the host detects the NPU has stopped, it starts to dump and to reload the NPU. The host is notified when the downline load has successfully completed. The host then configures the NPU terminals and system operation begins.

If the downline load is unsuccessful, the host requests and receives a dump of the NPU memory, micromemory, and file 1 registers. After the dump, the host attempts to reload the NPU.

This discussion applies to manually loading the local NPU. You can initialize both a local and a remote NPU automatically by first loading the SAM-C cassette and then setting the ENABLE/DISABLE switch to ENABLE.

PROCEDURE TO INITIALIZE REMOTE 255x NETWORK PROCESSING UNIT (NPU)

The remote 255x network processing unit (NPU) is downline loaded from the local 255x NPU with the communications control program (CCP) operating system. Use the following procedure:

1. Place system autostart module-cassette (SAM-C) containing system autostart module-program (SAM-P) in cassette deck.

2. Press MASTER clear switch.

3. Set REMOTE/LOCAL switch to REMOTE.

4. Press CASSETTE REWIND switch.

5. Press DEADSTART button.

After a short timeout, the remote NPU reads the cassette and begins the loading process.

This discussion applies to manually loading the remote NPU. You can initialize both a local and a remote NPU automatically by first loading the SAM-C cassette and then setting the ENABLE/DISABLE switch to ENABLE.

Do not remove the SAM-P cassette. It must remain in place and enabled to automatically dump and reload the NPU in case of a failure. Power to the cassette deck is turned off when the remote NPU is not operating.

MASS STORAGE FACILITY

The mass storage facility (MSF) includes mass storage adapter (MSA), mass storage transport (MST), and cartridge storage unit (CSU) hardware components. Operation of MSF proceeds under computer control, but your action is required to add cartridges to or remove cartridges from the CSU. Figure I-5-9 illustrates a CSU, and figure I-5-10 illustrates an input/output drawer.

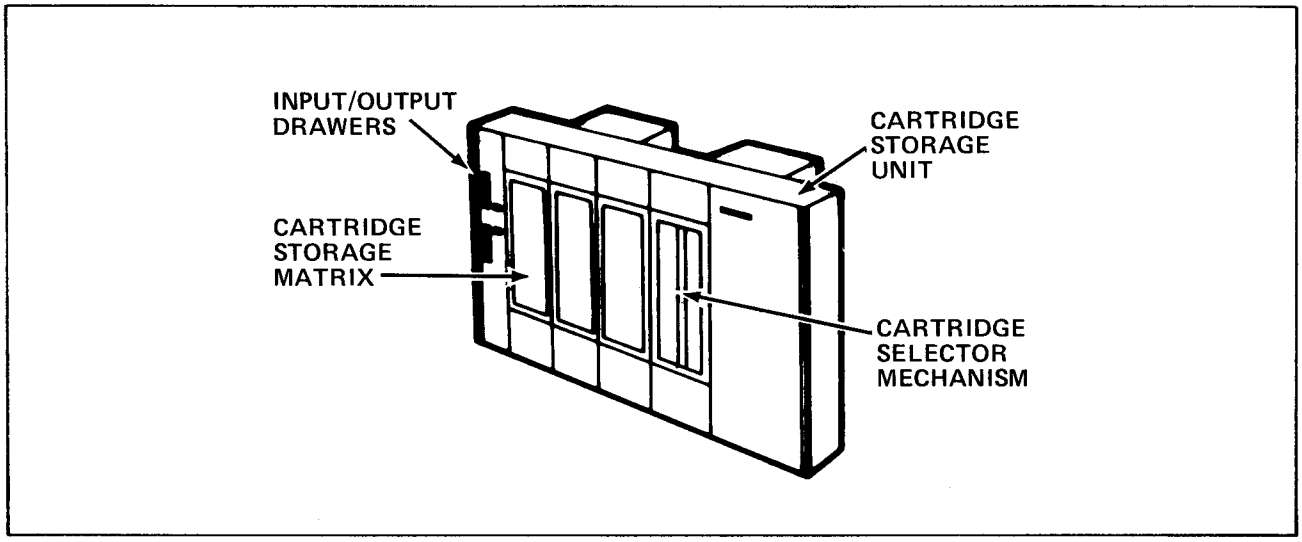


Figure I-5-9. Cartridge Storage Unit

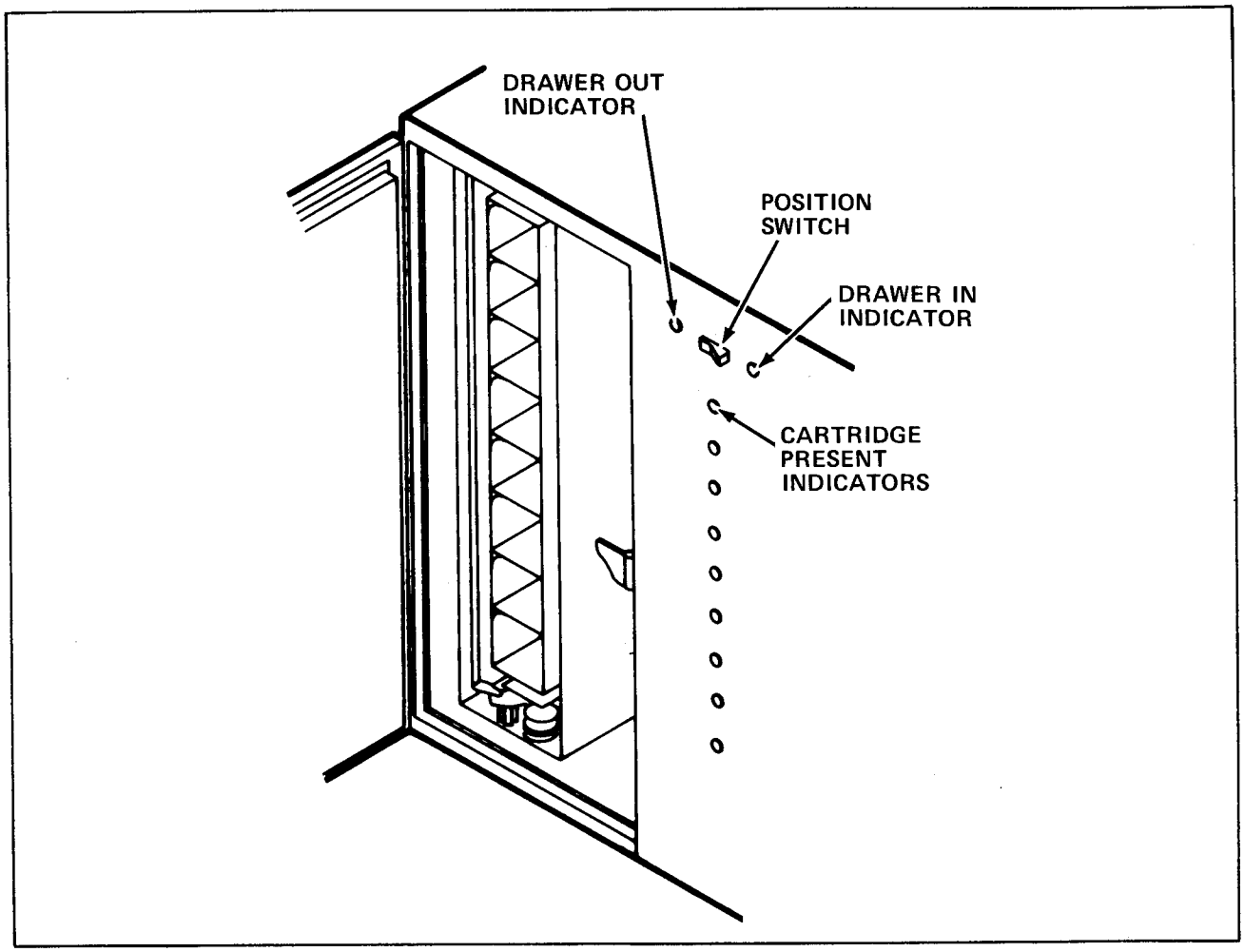


Figure I-5-10. Input/Output Drawer

ADDING CARTRIDGES

To add cartridges to the CSU, perform the following steps:

1. Press the OUT portion of the position switch of the input (upper I/O) drawer. When the drawer OUT indicator lights, unlock and open the door.

2. Insert individual cartridges into the correct slots of the input drawer or remove the empty octapack and insert a new octapack that contains the desired cartridges. To remove the octapack, press down on the release lever located directly under the octapack and pull on the bottom portion of the octapack. When a cartridge is properly aligned, it can be placed easily into its slot. Ensure that it is pushed in as far as it can go.

3. Close and lock the door. Press the IN portion of the position switch of the input drawer. The drawer cannot be moved in unless the door is shut securely. When the drawer IN indicator lights, the inserted cartridges can be accessed under computer control.

REMOVING CARTRIDGES

1. Press the OUT portion of the position switch of the output (lower I/O) drawer. When the drawer OUT indicator light, unlock and open the door.

2. Remove the cartridges individually or remove the octapack (refer to the procedure described in Adding Cartridges). Insert an empty octapack.

3. Close and lock the door. Press the IN portion of the position switch of the output drawer.

INTRODUCTION 1

The Network Operating System (NOS) provides five types of job processing.

- **Deferred batch processing** — Jobs are entered from an interactive terminal or another batch job to the batch queue for processing; their output can be routed to user-specified peripheral equipment or remote batch locations.
- **Interactive terminal processing** — Jobs are entered from an interactive terminal.
- **Local batch processing** — Jobs are entered at the central site and the system processes them using only the central site peripheral equipment attached to the computer.
- **Remote batch processing** — Jobs are entered from remotely located CDC 200 User Terminals, CDC 731-12/732-12/734 Remote Batch Terminals, or CDC CYBER 18-05 Remote Batch Terminals.
- **Remote host processing** — Jobs are transferred back and forth between local and remote host mainframes. The remote host facility and network access devices (NADs) link hosts through a loosely coupled network (LCN).

NOS can operate on many different hardware configurations. Refer to the NOS 2 Installation Handbook for general information concerning system configurations.

OPERATOR/SYSTEM COMMUNICATION

Both NOS and the programs running under NOS use the display screen to bring information to your attention. You can respond to or instruct the operating system by entering information via the console keyboard.

Two NOS routines, DSD and DIS, provide the interface between the console hardware and other system software. They maintain a current display of system or job status and process commands you type at the keyboard. DSD is the system display routine; information pertaining to all jobs appears on the screen. DIS is the job display routine; the screen shows data from a single job only. DSD has control of the console until you initiate DIS.

At all times DSD occupies peripheral processor number 1 (PP1), one of the 7 to 20 peripheral processors in the system. PP0 always contains the system monitor routine MTR which oversees system activities. DIS resides in a PP assigned by the system at the time it is called.

Under DSD, the normal operating mode, you can communicate with the system or any of the jobs under system control. Once a job begins execution, however, you can only respond to job requests for equipment assignment or other actions, change priority or field length, or stop execution permanently or temporarily.

In contrast, DIS operating mode provides more control of job execution. You can advance each command in the job one at a time, or use the auto-advance mode to advance each command. Since you can add commands from the keyboard, the job need not execute exactly as it entered the system. Commands to DIS include those that allow changes in register contents shown in the exchange package, as well as those that control such items as field length or time limit.

You can use the DIS capability for entering commands to perform utility tasks or dump permanent files. DIS is used most often by system analysts. Section 8 details procedures for using DIS.

OPERATING THE KEYBOARD

Figure II-1-1 shows the keyboard on a CYBER 170 Computer System console. The PRESENTATION CONTROL switch, located to the right of the spacebar, allows selection of a left screen display only, a right screen display only, or both left and right screen displays of reduced size on a split screen. When in the LEFT position, only those displays referred to in the following sections as left screen displays appear. Only those referred to as right screen displays appear when the switch is in the RIGHT position. A split screen showing both the left and right displays appears when the switch is in the middle or MAINTENANCE position. If a 6612 dual screen display console is used, the requested displays appear simultaneously on the left and right screens, respectively; there is no PRESENTATION CONTROL switch on the keyboard.

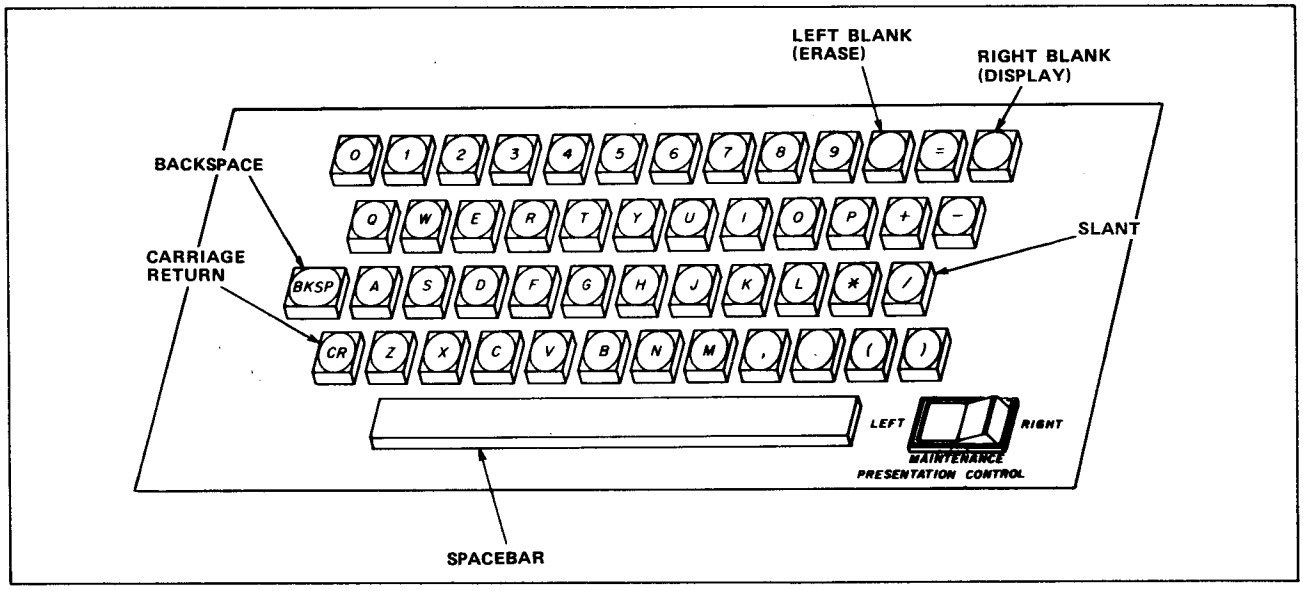


Figure II-1-1. Console Keyboard

Each keyboard entry to DSD is a single line usually ending with a period. As you enter characters from the console, the system displays the accumulated entry on the lower left portion of the left display screen. When you press the carriage return (CR) key, a command is examined for legality. If acceptable, the system processes the command and clears the keyboard entry. If the command is not acceptable, an error message appears above the entry. Then press either the erase key (left blank key) which clears both the command entered and the error message, or the backspace (BKSP) key which deletes only the last character displayed. Use the BKSP key to delete the entry to the position of the error and enter the correction.

You can use the keyboard to initiate jobs, control equipment assignments, and monitor job progress. DSD processes keyboard entry of commands as follows: as you type each character at the console, DSD checks the accumulated entry for a match against the table of possible commands. When DSD has received enough characters to recognize the command, it automatically fills in the remaining portion of the command. In general, DSD fills in the rest of the command after three to five characters have been entered. If the character entered is not within the legal range, or not recognized as part of a legal command, it is rejected and not displayed.

Example:

To request that the error log dayfile be displayed on the left console screen, the appropriate DSD command is A,ERROR LOG. Begin by typing A. DSD checks this input but cannot recognize the command since other commands also begin with the letter A. Then enter the comma (,). Because other commands also begin with these characters, DSD still cannot recognize the command. However, when you enter E, the command becomes unique and DSD fills in the remainder of the entry on the display (RROR LOG.).

After the keyboard entry is completed, press the CR key. DSD checks the command and begins processing if it is found to be acceptable. If the command is processed successfully, it is erased from the display screen. However, if DSD must wait for a resource to become available (such as a channel), or if the command was not acceptable, one of the following messages is displayed above the command.

ILLEGAL ENTRY	Command not recognized by DSD. Correct or reenter the command.
DISK BUSY	DSD is waiting for an overlay to be loaded from a mass storage device.
PPU BUSY †	DSD is waiting for a PP to be assigned so that it can process a command.
MTR BUSY†	DSD is waiting for a response from the system.

If such a message persists for any length of time, terminate the entry by pressing the erase or BKSP key.

† If the message is preceded by LOG -, the command has been executed but not yet logged in the system dayfile and/or error log (refer to section 3, DSD Commands).

SPECIAL CHARACTERS

In addition to the command entries, the keys listed in table II-1-1 have special meaning to DSD.

Table II-1-1. Special Characters

Key Identifier	Name	Action Initiated
*	Asterisk	Alternates display control between DSD and DIS each time the key is pressed.
+	Plus	Advances the left screen display to the next screen of information when more than one screen of information is available. For the memory displays (C, D, F, G, and M), a + (plus) advances the addresses displayed by 40 octal locations.
-	Minus	Decrements the left screen display to the previous screen of information when more than one screen of information is available. For the memory displays (C, D, F, G, and M), a - (minus) decrements the addresses displayed by 40 octal locations.
(	Opening parenthesis	Advances right screen display as described for + (plus) character.
)	Closing parenthesis	Changes right screen display as described for - (minus) character.
/	Slant	Advances left screen memory display by the value in the lower 18 bits of the first word displayed.
CR	Carriage return	Initiates processing of an entered command. If CR is pressed before the command is entered, the repeat entry flag is set; message REPEAT ENTRY is displayed on the error message line of the left screen. The subsequent command entry is processed but is not erased after completion. That command is processed each time CR is pressed. To clear the repeat entry mode, press the left blank (erase) key.
none	Left blank	Clears current keyboard entry and any resultant error messages.
none	Right blank	Advances the left screen display sequence established by SET,ssss command (refer to section 4).
BKSP	Backspace	Deletes last character displayed and clears error message (if one exists).

DEADSTART 2

Deadstart is the process that makes the system operational and ready to process jobs. System deadstart requires that you intervene occasionally. You initiate the deadstart process by momentarily activating the deadstart switch. The recommended procedure is to press the deadstart button on the console. This executes the PP program set on the deadstart panel.

For models 815 and 825, pressing the deadstart button brings the initial deadstart display to the console screen. The deadstart program can then be entered or retrieved.

This manual assumes that a deadstart file exists and meets site configuration requirements. The deadstart file is on a reel of magnetic tape or a disk pack and contains the programs necessary to establish the operating system and its products (such as BASIC, FORTRAN, COMPASS, and so forth) on the system equipment. The same deadstart file can be used for any supported equipment configuration.

There are two deadstart procedures: coldstart and warmstart. Coldstart is the procedure used to deadstart the system when the tape and disk controllers do not have controlware loaded. Warmstart is the procedure used when controlware is loaded and executing correctly.

In general, the procedure you use most often to deadstart is warmstart. Warmstart from mass storage or a CDC 667/669 Magnetic Tape Unit is possible after the disk controller or tape controller to be used is loaded with the proper controlware, and the controlware is functioning. Warmstart is always possible from CDC 677/679 Magnetic Tape Units.

Before you perform warmstart, three preliminary procedures might be required:

1. Coldstart.

   Loads the tape and/or disk controlware to their respective controllers.

2. Loading the CTI module to disk.

   Loads the common testing and initialization (CTI) module to disk. This procedure enables you to perform warmstart from mass storage and to run the off-line maintenance system. Refer to the NOS 2 Installation Handbook for more information.

3. Loading the HIVS module to disk.

   Loads the hardware initialization and verification software (HIVS) module to disk. This procedure enables you to run the HIVS tests at deadstart time. Refer to the NOS 2 Installation Handbook for more information.

If a coldstart is required, you must do it before any other procedure. For the models 815, 825, 835, and 855, you must have HIVS resident on disk before deadstarting the operating system. Loading the HIVS module (for all computer systems except models 815, 825, 835, and 855) and loading the CTI module to disk are optional procedures. Each site determines whether the features enabled by the procedures are desired. Refer to the NOS 2 Installation Handbook for the procedures necessary to install HIVS and CTI modules to disk.
A detailed description of the coldstart procedures follows (if you do not require this information, skip to Warmstart Procedure Summary in this section).

NOTE

Attempts to perform deadstart from mass storage could be unsuccessful in configurations with shared access to controllers and drives. Conflicts can arise in both single and multiple mainframe configurations. In a multimainframe configuration, if another mainframe reserved the controller or drive, deadstart delays momentarily until the reservation is released. In a single mainframe configuration, if another channel reserved the drive, deadstart is unsuccessful. In this case, set the deadstart panel for the other channel.

COLDSTART PROCEDURE SUMMARIES

The coldstart procedures load the tape and disk controllers with controlware. The tape controlware can be loaded from a card reader or a tape unit depending on the type of controller.

The CDC 7021 Tape Controller for a 667/669 tape unit requires controlware loaded from a card reader. The CDC 7152 Tape Controller requires controlware loaded from either a card reader or a tape unit.

The CDC 7054 and 7154 Disk Controllers require controlware loaded from a card reader. The controlware for a CDC 7152 Disk Controller and the CDC 7155 Disk Controller (CDC 844-41/44 and 885-11/12 Disk Storage Units) can be loaded from either a card reader or a disk unit.

Summaries of the procedures needed to perform a coldstart follow. These procedures apply to all mainframes except models 815 and 825. For models 815 and 825, refer to Coldstart Procedure for Models 815 and 825 later in this section. Use the appropriate summary as a checklist during deadstart. Detailed descriptions of all procedures in the deadstart process are provided throughout the remainder of this section.

This manual assumes that power is applied on all required equipment, and that the equipment is functioning properly. If at any time the system loses power or the equipment fails, consult the site analyst or customer engineer.

COLDSTART OF TAPE CONTROLLERS FOR 667 OR 669 TAPE UNITS

Coldstart is necessary when subsequent deadstarts are from 667 or 669 magnetic tape units, if the controlware has not yet been loaded to the controller. The coldstart procedure contains a special program that reads the tape controller controlware, loads it to the controller, and then loads the deadstart tape.

Use the warmstart procedure after the controlware is loaded and functioning properly. After a coldstart from a card reader, the system loads the deadstart tape automatically; use a warmstart for subsequent deadstarts only. However, after a coldstart from a tape unit, you must perform a warmstart to load the system deadstart tape.

After a successful coldstart, it is advised that you immediately reset the deadstart panel for a warmstart (except for models 815 and 825, refer to Setting the Deadstart Panel for a Warmstart).

After initial loading of the controlware, there is no reason to perform a coldstart again, if the tape subsystem is operating correctly.

Coldstart 7021/7152 Tape Controller from Card Reader

The following steps summarize the procedures necessary to coldstart a 7021 or 7152 tape controller from a card reader. Use this as a checklist during coldstart. Ensure that the card reader and the tape unit on which the deadstart tape is to be mounted are on different channels. The card reader must be on a channel without a peripheral processor (PP) (for example, channel 12 or 13).

1. Ensure that required mass storage devices have packs mounted and/or are available.
2. Mount the deadstart tape (refer to appendix D).
   a. Ensure that the write enable ring is not on the reel.
   b. Mount the tape and ready the unit.
3. Set the deadstart panel† for a coldstart from a card reader (refer to figure II-2-5 later in this section). Set the mode switch to LOAD.
4. Press the deadstart button.
5. Insert card deck†† in the card reader and activate card reader as follows:
   a. Press MOTOR POWER.
   b. Select AUTO MODE.
   c. Press RELOAD MEMORY.
   d. Press READY.
6. Continue with the deadstart process by selecting CTI options [refer to CTI Initial Options (*A*) Display later in this section].

---

†For models 815 and 825, refer to Coldstart Procedure for Models 815 and 825.
††For detailed information on the controlware deck, refer to NOS 2 Installation Handbook.

Coldstart 7152 Tape Controller from Tape Unit

The following steps summarize the procedures necessary to coldstart a 7152 tape controller from a 669 tape unit (coldstart of a 7152 tape controller from a 667 tape unit is not possible). Use this as a checklist during coldstart. Ensure that the 669 tape unit is set to a unit number between 10 and 17. The unit must be on a channel without a PP (for example, channel 12 or 13).

1. Mount controlware tape on the tape unit to be specified on the deadstart panel (refer to appendix D).

   a. Ensure that the write enable ring is not on the reel.

   b. Mount the tape and ready the unit.

2. Set the deadstart panel for a coldstart from tape unit (figure II-2-6). Set the mode switch to LOAD.

3. Press the deadstart button. No display appears on the console. Unloading of the controlware tape indicates the controlware was loaded successfully.

4. Perform a warmstart to complete the deadstart operation.

COLDSTART OF DISK CONTROLLERS FOR 844 or 885-11/12 DISK UNITS

Coldstart is necessary when deadstarting from 844 or 885-11/12 disk units, if the controlware is not yet loaded to the controller. The coldstart procedure contains a special program that reads the disk controller controlware, loads it to the controller, and then loads the deadstart file.

The procedure Coldstart 7054/7154/7152/7155 Disk Controller from Card Reader loads all disk controllers. If the maintenance software library (MSL) is available at your site, the procedure Coldstart 7152/7155 Disk Controller from Disk Unit loads the 7152 and 7155 disk controllers.

Use the warmstart procedure after the controlware is loaded and functioning properly. After a coldstart from a card reader, the system loads the deadstart tape automatically; use a warmstart for subsequent deadstarts only.

After a successful coldstart, it is advised that you immediately reset the deadstart panel (screen for models 815 and 825) for a warmstart (refer to Setting the Deadstart Panel for a Warmstart later in this section).

After initial loading of the controlware, there is no reason to perform a coldstart again, if the disk subsystem is operating correctly.

Coldstart 7054/7154/7152/7155 Disk Controller from Card Reader

The following steps summarize the procedures necessary to coldstart a disk controller from a card reader. Use this as a checklist during coldstart. Ensure that the card reader and the disk unit on which the deadstart device is mounted are on different channels. The card reader must be on a channel without a PP (for example, channel 12 or 13).

1. Ensure that required mass storage devices have packs mounted and/or are available.
2. Mount the deadstart disk unit if using an 844 disk unit (refer to appendix D for operating instructions).
3. Set the deadstart panel† for a coldstart from a card reader using 844 or 885-11/12 disk units (figure II-2-7). Set the mode switch to LOAD.
4. Press the deadstart button.
5. Insert card deck†† in card reader and activate card reader as follows:
   a. Press MOTOR POWER.
   b. Select AUTO MODE.
   c. Press RELOAD MEMORY.
   d. Press READY.
6. Continue with the deadstart process by selecting CTI options (refer to CTI Initial Options (*A*) Display in this section).

Coldstart 7152/7155 Disk Controller from Disk Unit

If controlware is loaded on a disk unit,††† use this procedure to perform deadstart. The following steps summarize the procedures necessary to perform coldstart from a disk unit. Use this as a checklist during coldstart.

1. Ensure that required mass storage devices have packs mounted and/or are available.
2. Mount the deadstart disk unit if using an 844 disk unit (refer to appendix D).
3. Set the deadstart panel† for coldstart from a disk unit (figure II-2-8). Set the mode switch to LOAD.
4. Press the deadstart button.
5. Continue with the deadstart process by selecting CTI options [refer to CTI Initial Options (*A*) Display in this section].

---

†For models 815 and 825, refer to Coldstart Procedure for Models 815 and 825.
††For detailed information on the controlware deck, refer to NOS 2 Installation Handbook.
†††For more information on loading controlware to the disk, contact a customer engineer.

COLDSTART PROCEDURE FOR MODELS 815 AND 825

The procedures to coldstart various controllers for models 815 and 825 are similar to those for other CYBER 170 Computer Systems except that the models 815 and 825 do not have a deadstart panel. The coldstart programs represented by the deadstart panel switch settings on the models 835 or 855 must be entered through the models 815 or 825 console keyboard as octal numbers. Coldstart programs for the models 815 and 825 are identical to those for models 835 and 855 except where specifically noted.

In the various coldstart procedures described in this section, pressing the deadstart button on the console of the models 815 and 825 brings up the initial deadstart display shown in figure II-2-1. If the coldstart program is already stored in the microprocessor, retrieve it by typing

```
GP n
```

where n is the number (0 through 2) of the stored program. You can change individual instructions in a program, such as unit number or other parameters, as outlined below. These changes are not retained across deadstarts unless the new program is stored as outlined later in this section.

If the correct coldstart program is not stored or a new program is to be entered and stored, the program must be entered as octal numbers equivalent to the switch settings on deadstart panels for other models.

Enter the coldstart program represented by the switch settings shown in the related deadstart panel figure for your configuration by typing

```
xx yyyyyy
```

where xx is the octal row number of the deadstart instruction and yyyyyy is the octal number equivalent of the actual instruction. When you enter a 6-digit instruction, the first two digits of the instruction must be zeros. However, leading zeros in both the octal row number and the instruction need not be entered. For example, if the row number was 03 and the instruction was 00 1014 you could enter

```
3 1014
```

and get the same setting as entering

```
03 001014.
```

If you want the system to automatically increment the octal row number, the entry after which the increment is to occur is

```
xx+yyyyyy
```

where the + character indicates that the system is to automatically increment the octal row number. When the automatic increment is in effect, the system displays the next location after accepting the previous entry. Only the next instruction need be entered.

To cancel the automatic incrementing, press the left blank (erase) key after the octal row number appears.

To store a new program or a modified program, type

```
SP n
```

where n is the number (0 through 2) of the program to be stored. If a program is already stored at the specified number, the new program replaces it.

After entering or retrieving the desired coldstart program, type

```
S
```

followed by a CR to coldstart the controller.

SETTING THE DEADSTART PANEL FOR A COLDSTART

The deadstart panel (for all models of the CYBER 170 Computer System except models 815, 825, 835, and 855) contains a 16-by-12 matrix of toggle switches (figure II-2-2). The matrix rows are numbered from 1 through 20_8. The CYBER 70 and 6000 Computer Systems deadstart panel (figure II-2-3) contains a 12-by-12 matrix with rows numbered from 0001 through 0014_8.

Each row of switches represents a 12-bit PP instruction word in the deadstart program. Thus, by setting these switches in a prescribed manner, you create the program necessary to deadstart; this program is subsequently loaded into PP0 memory. It is executed whenever you press the deadstart button.

The deadstart program:

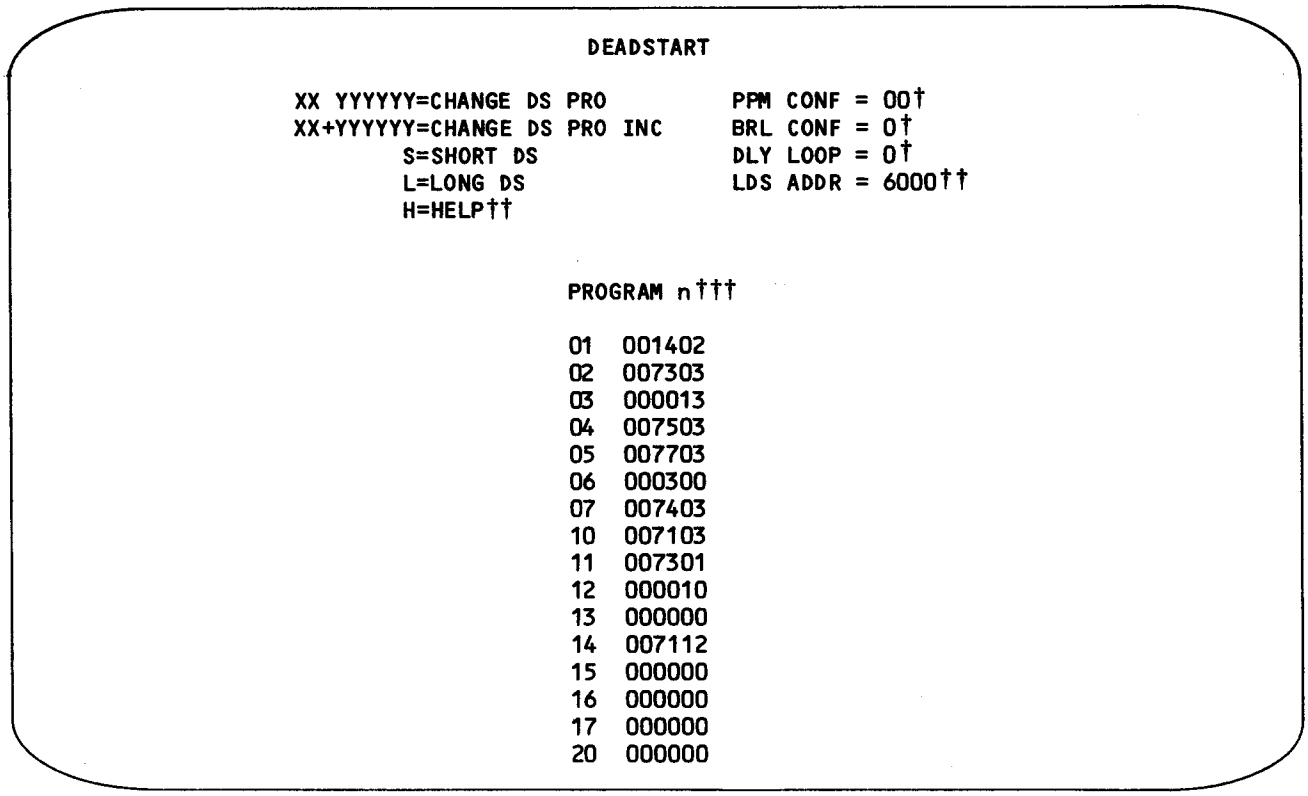
- Identifies the tape/disk unit, controller, and channel number to be used to access the deadstart device (specified in words 1 through 10).
- Reads the first record from the deadstart file. This routine initiates the processing of the remainder of the deadstart file according to the options specified on the deadstart panel (word 13).

Models 835 and 855 deadstart panel (figure II-2-4) contains a 16-by-16 matrix of toggle switches with rows numbered from 1 through 20_8. To deadstart model 835 or 855, set the four leftmost columns of switches (columns 2^{12} through 2^{15}) to the down position.

NOTE

All switches in columns 2^{12} through 2^{15} must be in the down position for proper operation of models 835 and 855.

Use the 12 rightmost columns to set the 12-bit PP instruction words that are the deadstart program; this program is subsequently loaded into PP0 memory. It is executed whenever you press the deadstart button.



†Refer to appendix I for explanation of these entries.
††Refer to the CYBER 170 Models 815 and 825 Hardware Operator's Guide for explanation of these entries.
†††n is the number of the most recently used deadstart program number; the program contents are those most recently used to deadstart.

Figure II-2-1. Initial Deadstart Display for Models 815 and 825

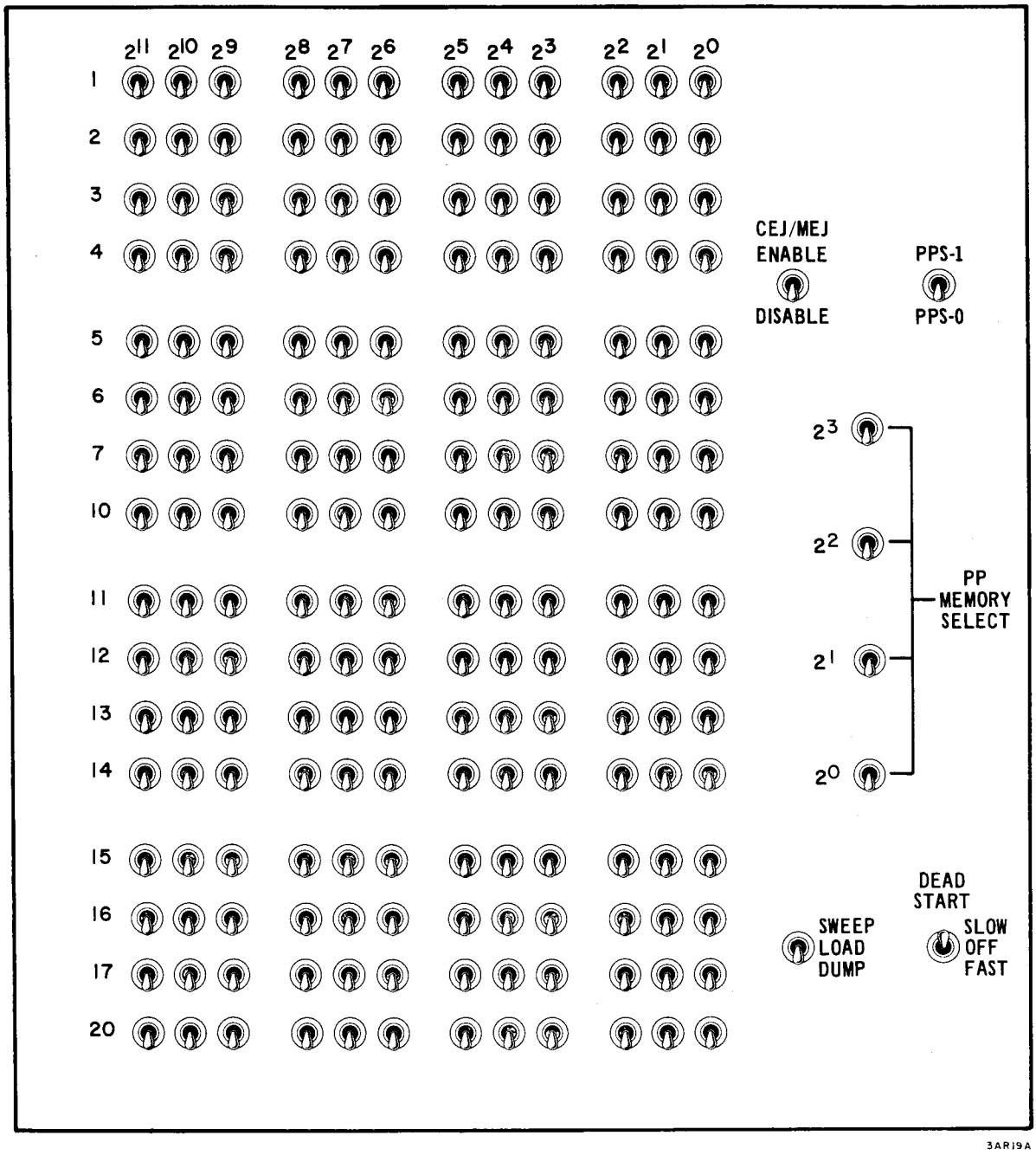


Figure II-2-2. CYBER 170 Computer Systems (Except Models 815, 825, 835, and 855) Deadstart Panel

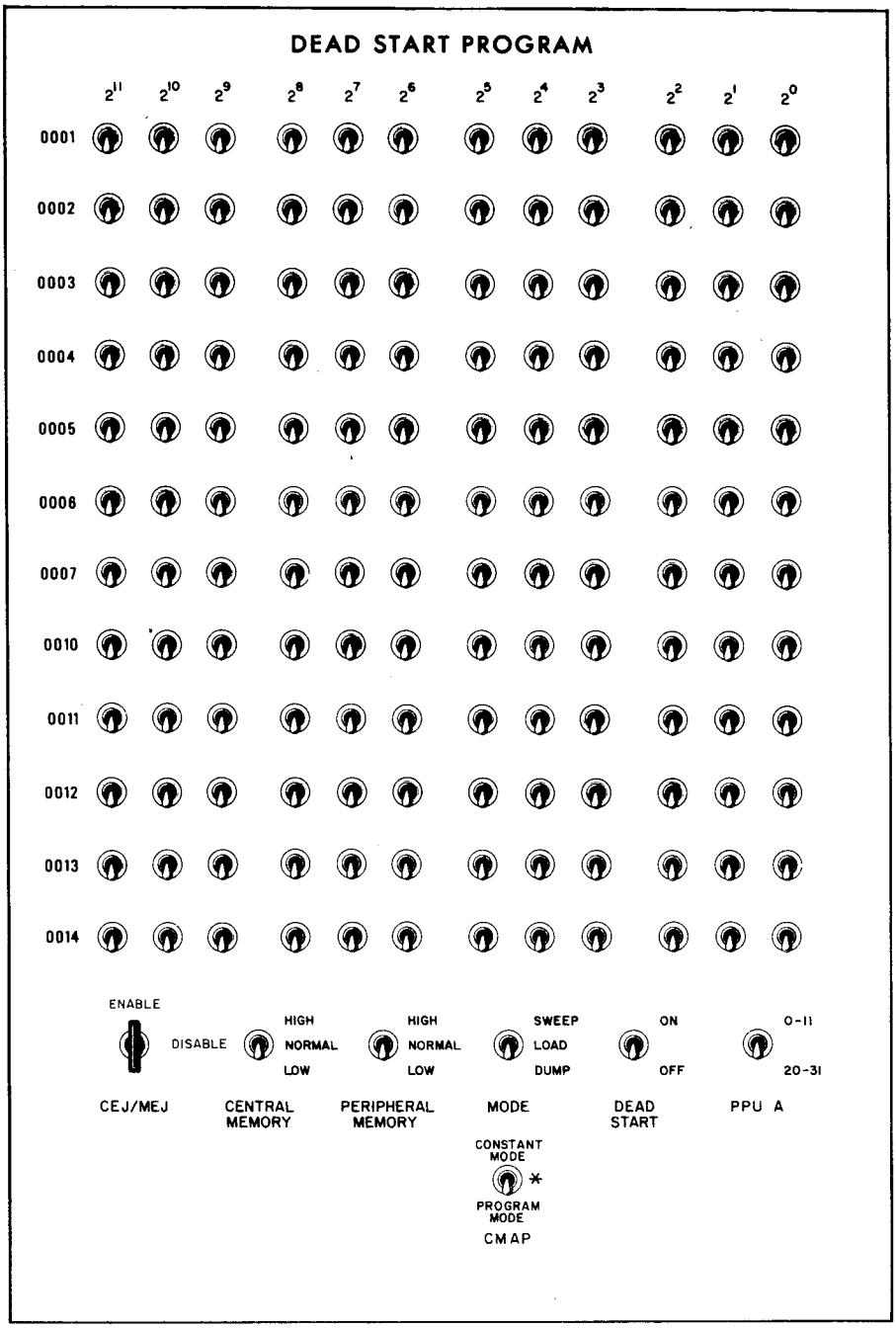


Figure II-2-3. CYBER 70/6000 Computer Systems Deadstart Panel

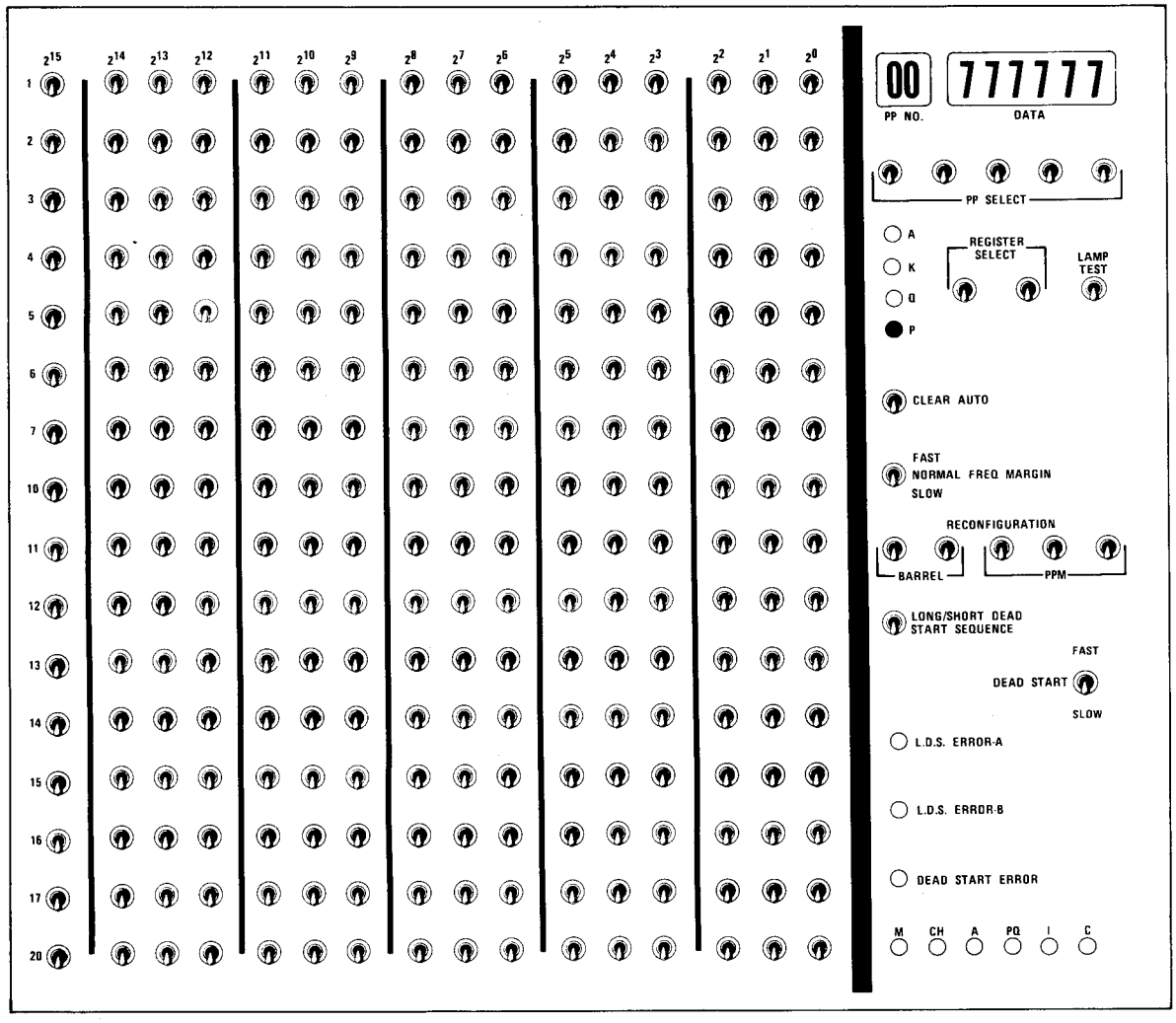


Figure II-2-4. CYBER 170 Models 835 and 855 Deadstart Panel

For models 835 and 855, select one of the following deadstart options.

Option	Action
No testing	Set the LONG/SHORT DEADSTART SEQUENCE switch to the down (short) position.
Confidence testing	Set the LONG/SHORT DEADSTART SEQUENCE switch to the up (long) position. This option destroys some information in PP memory [refer to the description of the E option in Utilities (*U*) Display in this section].
Extended deadstart testing	Set the LONG/SHORT DEADSTART SEQUENCE switch to the up (long) position and set the rightmost bit (2^0) of word 12 to the up position. This option destroys some information in PP memory [refer to the description of the E option in Utilities (*U*) Display in this section].

For normal operator deadstarts, performing the confidence test and extended deadstart test is not necessary. These tests are usually done after maintenance was performed on the system. Refer to the appropriate hardware reference manual for more information on extended deadstart testing.

In the illustrations of the deadstart panel that accompany the following descriptions, switch position 1 (switch in up position) and switch position 0 (switch in down position) are mandatory settings. However, the switch positions for fields represented by alphabetic characters are determined by each installation. Octal values entered on the models 815 and 825 deadstart displays appear to the right of the panel illustrations.

NOTE

Before pressing the deadstart button, set the mode switch on the deadstart panel to LOAD (for all systems except models 815, 825, 835, and 855) and set the CMAP switch to CONSTANT MODE (for the CYBER 70 and 6000 Computer Systems).

For all computer systems except models 815, 825, 835, and 855, the CEJ/MEJ option is logically enabled by default. NOS does not run if the CEJ/MEJ option is disabled. For models 815, 825, 835, and 855, CEJ/MEJ is permanently enabled. You cannot turn it off.

For all computer systems except models 815, 825, 835, and 855, if there is no CEJ/MEJ switch or key or if it is physically set to the disable position on the deadstart panel and you do not logically disable it via the *H* display [refer to Operator Intervention (*O*) Display in this section], the system displays the following error message after you press the final CR for the the CTI options.

```
CEJ/MEJ OPTION NOT ENABLED

FOR CEJ/MEJ USAGE, ENABLE SWITCH
ON DEADSTART PANEL AND DEADSTART

(CR) FOR NON CEJ/MEJ USAGE
```

To choose the CEJ/MEJ option, enable the switch or key on the deadstart panel and deadstart again. Press CR if you do not want to use the CEJ/MEJ option.

The preceding display also appears if the CEJ/MEJ switch or key fails and you have not logically disabled it.

NOTE

For CYBER 70 and 6000 Computer Systems, turn the CEJ/MEJ key fully counterclockwise to enable CEJ/MEJ. Turn the key fully clockwise to disable CEJ/MEJ.

Descriptions of the panel settings for coldstart of tape and disk controllers and for the panel settings for word 13 of the deadstart panel follow.

PANEL SETTINGS FOR COLDSTART OF 7021/7152 TAPE CONTROLLER FROM CARD READER

During coldstart from a card reader, the deadstart program:

- Identifies the controller and channel number used to access the card reader from which the controlware is to be read.
- Specifies the controller, channel, and unit number of the tape unit on which the deadstart tape is mounted.
- Reads the controlware card deck (this deck loads the tape controller).
- Processes the deadstart tape according to the options specified on the deadstart panel.

You identify the equipment necessary for the devices used during coldstart by setting the switches shown in the unshaded area of the deadstart panel (figure II-2-5). This includes both the channel and controller number associated with the card reader and the channel, controller, and unit number of the tape unit.

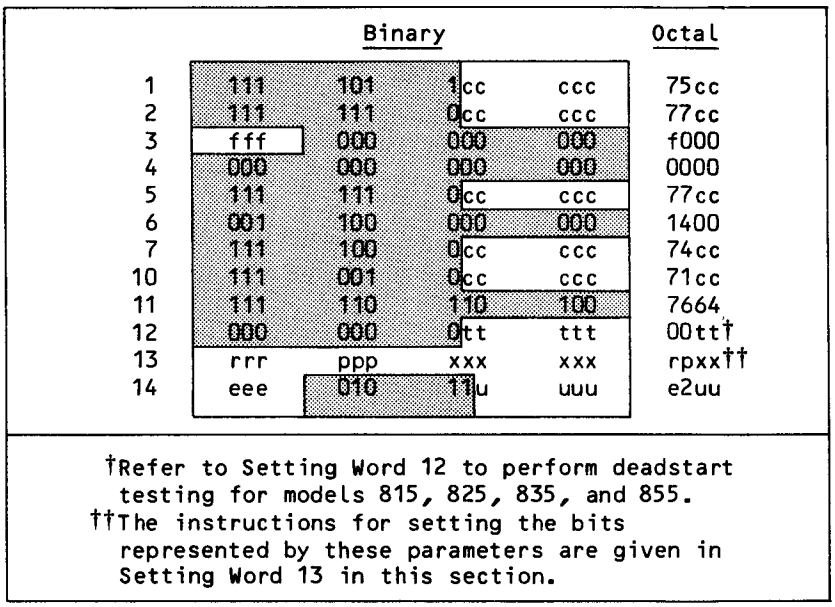


Figure II-2-5. Coldstart of 7021/7152 Tape Controller from Card Reader

Descriptions of the deadstart panel parameters follow.

Notation	Description
cc ccc	Channel number used to access the card reader from which the controlware is to be read.
fff	Controller number to which the card reader is connected.
tt ttt	Channel number used to access the deadstart tape equipment.
rrr	Deadstart level.
ppp	Deadstart parameters.
xxx xxx	CMRDECK number.
u uuu	Physical unit number of the tape unit on which the deadstart tape is mounted.
eee	Controller number to which the tape unit is connected.

The card reader and the tape unit on which the deadstart tape is mounted must be on different channels. The card reader must be on a channel without a PP (for example, channel 12 or 13). Refer to appendix H to determine which channels in your hardware configuration do not have PPs.

The numbers are entered in binary form; each switch represents a bit in a 12-bit PP instruction word.

Refer to Setting Word 13 in this section for detailed information on word 13 parameters. For models 835 and 855, set the four leftmost bit positions for each row to 0 (they are not shown in figure II-2-5).

After a successful coldstart, it is advised that you immediately reset the deadstart panel for a warmstart.

If the tape subsystem is functioning properly, there is no need to perform another coldstart after initial loading of the controlware.

PANEL SETTINGS FOR COLDSTART OF 7152 TAPE CONTROLLER FROM TAPE UNIT

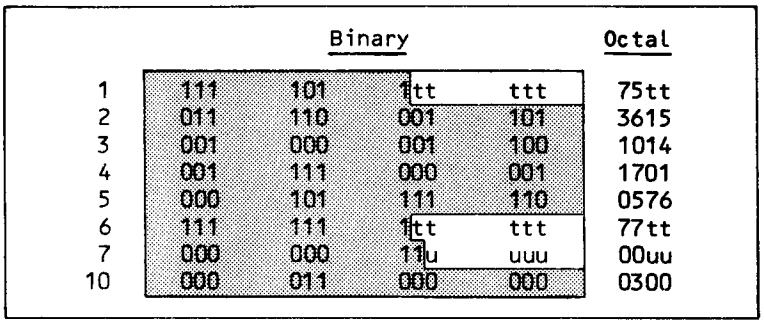
During coldstart from a tape unit, the deadstart program:

- Identifies the channel and unit number of the tape unit on which the controlware tape is mounted and to be read.
- Reads the controlware tape, which loads the tape controller.

You identify the tape unit and the channel used to access the unit by setting the switches shown in the unshaded area of the deadstart panel (figure II-2-6). The tape unit number must be between 10 and 17, and the unit must be on a channel without a PP (for example, channel 12 or 13). Refer to appendix H to determine which channels in your hardware configuration do not have PPs.

The numbers are entered in binary form; each switch represents a bit in a 12-bit PP instruction word. The remainder of the panel is not used. For models 815, 825, 835, and 855, set the four leftmost bit positions for each row to 0 (they are not shown in figure II-2-6).

Unloading of the controlware tape indicates that the controlware was loaded successfully. It is necessary to reset the deadstart panel for a warmstart immediately in order to proceed with the loading of the system deadstart tape.



	Binary				Octal
1	111	101	1tt	ttt	75tt
2	011	110	001	101	3615
3	001	000	001	100	1014
4	001	111	000	001	1701
5	000	101	111	110	0576
6	111	111	1tt	ttt	77tt
7	000	000	1u	uuu	00uu
10	000	011	000	000	0300

Figure II-2-6. Coldstart of 7152 Tape Controller from Tape Unit

Descriptions of the deadstart panel parameters follow.

Notation	Description
tt ttt	Channel number that accesses the controlware tape equipment.
u uuu	Physical unit number of the tape unit on which the controlware is mounted.

PANEL SETTINGS FOR COLDSTART OF 7054/7154/7152/7155 DISK CONTROLLER FROM CARD READER

During coldstart from a card reader, the deadstart program:

- Identifies the controller and channel number that accesses the card reader from which the controlware is to be read.
- Specifies the controller, channel, and unit number of the drive on which the deadstart disk is mounted.
- Reads the controlware card deck (this deck loads the disk controller).
- Processes the deadstart tape according to the options specified on the deadstart panel.

You identify the equipment necessary for the devices used during coldstart by setting the switches shown in the unshaded area of the deadstart panel (figure II-2-7). This includes the channel number and controller associated with the card reader and the channel, controller, and unit number of the disk unit.

The card reader and the drive on which the deadstart disk is mounted must be on different channels. The card reader must be on a channel without a PP (for example, channel 12 or 13). Refer to appendix H to determine which channels in your hardware configuration do not have PPs.

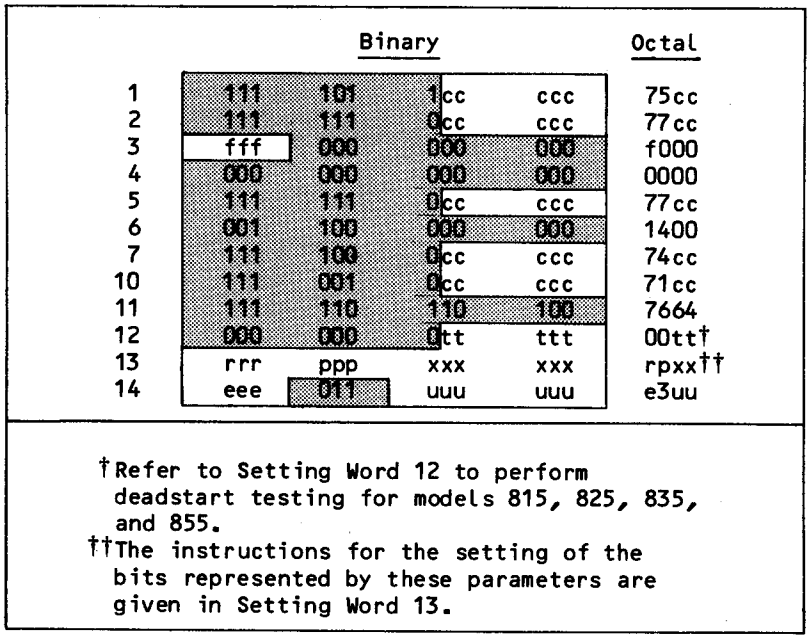


Figure II-2-7. Coldstart of Disk Controller from Card Reader

Descriptions of deadstart panel parameters follow.

Notation	Description
cc ccc	Channel number used to access the card reader from which the controlware is to be read.
fff	Controller number to which the card reader is connected.
tt ttt	Channel number used to access the deadstart disk equipment.
rrr	Deadstart level.
ppp	Deadstart parameters.
xxx xxx	CMRDECK number.
eee	Controller number to which the disk unit is connected.
uuu uuu	Physical unit number of the drive on which the deadstart disk is mounted.

NOTE

When deadstarting from a 7054 or 7154 disk controller, incorrect panel settings, such as channel or unit numbers, can hang the controller. To free the controller, correct the panel settings and master clear the controller by pressing in the following sequence, the STOP, MASTER CLEAR, and GO buttons located inside the controller chassis.

The numbers are entered in binary form; each switch represents a bit in a 12-bit PP instruction word. For models 835 and 855, set the four leftmost bit positions for each row to 0 (they are not shown in figure II-2-7).

Refer to Setting Word 13 in this section for detailed information on word 13 parameters.

After coldstart, it is advised that you immediately reset the deadstart panel for a warmstart.

If the disk subsystem is functioning properly, there is no need to perform another coldstart after initial loading of the controlware.

PANEL SETTINGS FOR COLDSTART OF 7152/7155 DISK CONTROLLER FROM DISK UNIT

During coldstart from a disk unit, the deadstart program:

- Identifies the controller and channel number used to access the disk unit from which the controlware is to be read.
- Specifies the controller, channel, and unit number of the drive on which the deadstart disk is mounted.
- Reads the controlware (this controlware loads the disk controller).
- Processes the deadstart file according to the options specified on the deadstart panel.

The equipment necessary for the devices used during coldstart is identified by setting the switches shown in the unshaded area of the deadstart panel (figure II-2-8). This includes the channel number and controller associated with the disk unit and the channel, controller, and unit number of the drive.

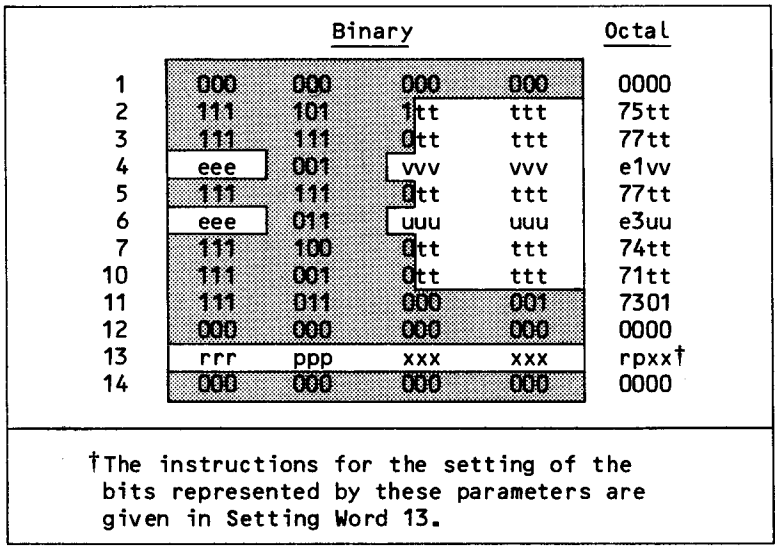


Figure II-2-8. Coldstart of 7152/7155 Disk Controller from Disk Unit

Descriptions of the deadstart panel parameters follow.

Notation	Description
tt ttt	Channel number used to access the deadstart disk equipment.
eee	Controller number to which the disk unit is connected.
vvv vvv	Physical unit number of the disk drive from which the coldstart operation is to be completed.
uuu uuu	Physical unit number of the disk drive from which the warmstart operation is to be completed.
rrr	Deadstart level.
ppp	Deadstart parameters.
xxx xxx	CMRDECK number.

The disk unit must be on a channel with no PP (for example, channel 0, 12, or 13). Refer to appendix H to determine which channels in your hardware configuration do not have PPs.

The numbers are entered in binary form; each switch represents a bit in a 12-bit PP instruction word. For models 815, 825, 835, and 855, set the four leftmost bit positions for each row to 0 (they are not shown in figure II-2-8).

Refer to Setting Word 13 in this section for detailed information on word 13 parameters.

After a successful coldstart, it is advised that you immediately reset the deadstart panel for a warmstart.

If the disk subsystem is functioning properly, there is no need to perform another coldstart after initial loading of the controlware.

WARMSTART PROCEDURE SUMMARY

Warmstart is the deadstart procedure used when the controlware is loaded and functioning properly. Figure II-2-9 illustrates the warmstart procedure. Detailed information concerning all phases of the deadstart process follows.

The following steps summarize the procedures necessary to perform warmstart from a 66x/67x magnetic tape unit, 844 disk unit or 885-11/12 disk unit. Use this as a checklist during warmstart.

For models 815 and 825, steps 3 and 4 must be interchanged. For more complete information, refer to Warmstart Procedure for Models 815 and 825 later in this section.

1. Ensure that required mass storage devices are available and that they have packs mounted.

2. Mount the deadstart tape or pack (refer to appendix D).

3. Set the deadstart panel for warmstart (refer to Setting the Deadstart Panel for a Warmstart in this section).

   a. Select the correct deadstart function.

   b. Select the correct CMRDECK.

4. Press the deadstart button.

5. Select the correct CTI options.

6. Modify the CMRDECK.

7. Type NEXT to modify an APRDECK or type GO if there are no changes to any APRDECK or IPRDECK.

8. Type IPR. to modify the IPRDECK or type GO if there are no changes to the IPRDECK.

9. Initialize the system (refer to Initializing the System later in this section).

   a. Enter the date.

   b. Enter the time.

10. Initiate job processing (refer to Initiating Job Processing) by typing AUTO or MAINTENANCE if job processing was not initiated during IPRDECK modification.

11. Respond to CYBERLOG displays.

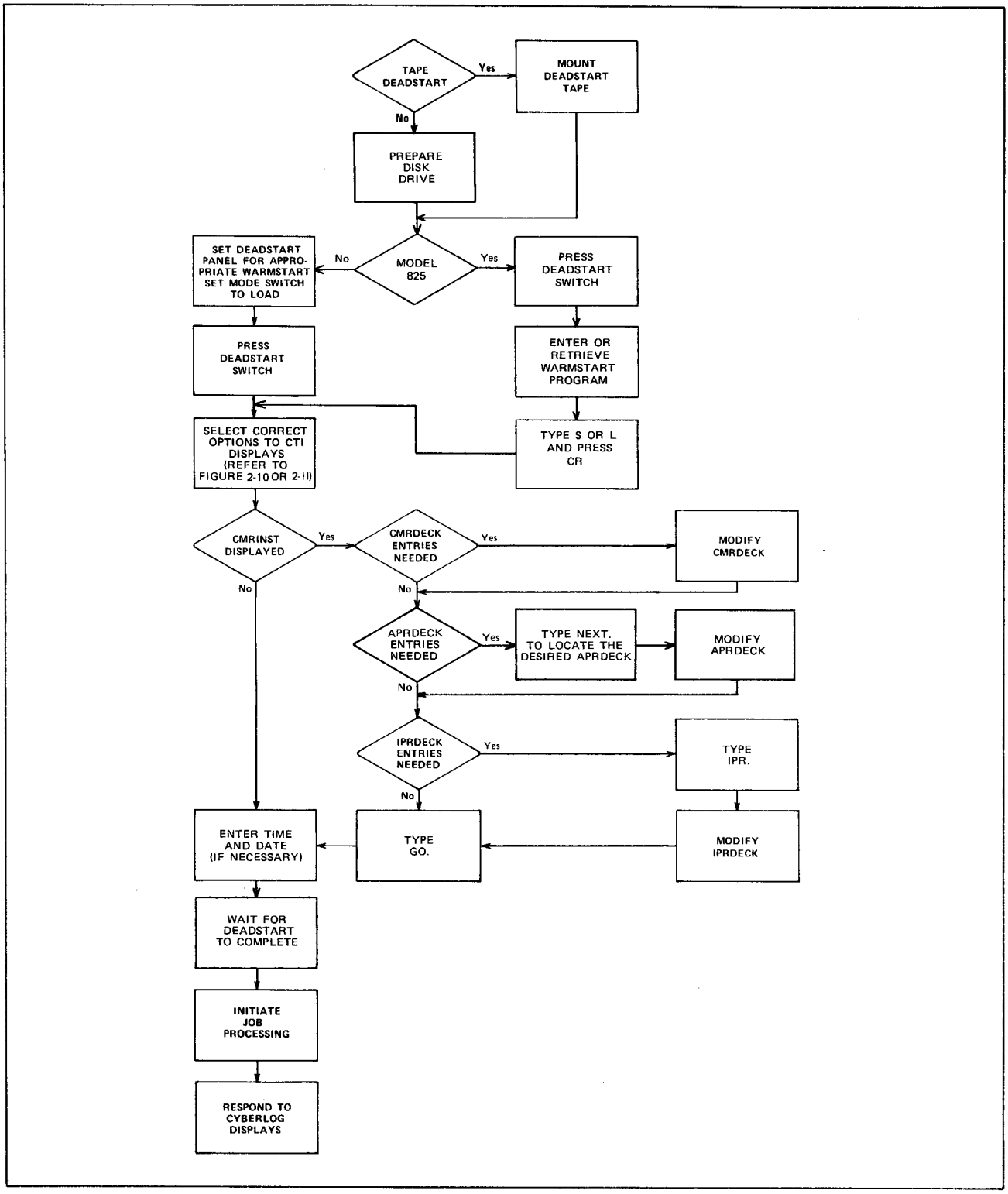


Figure II-2-9. Warmstart

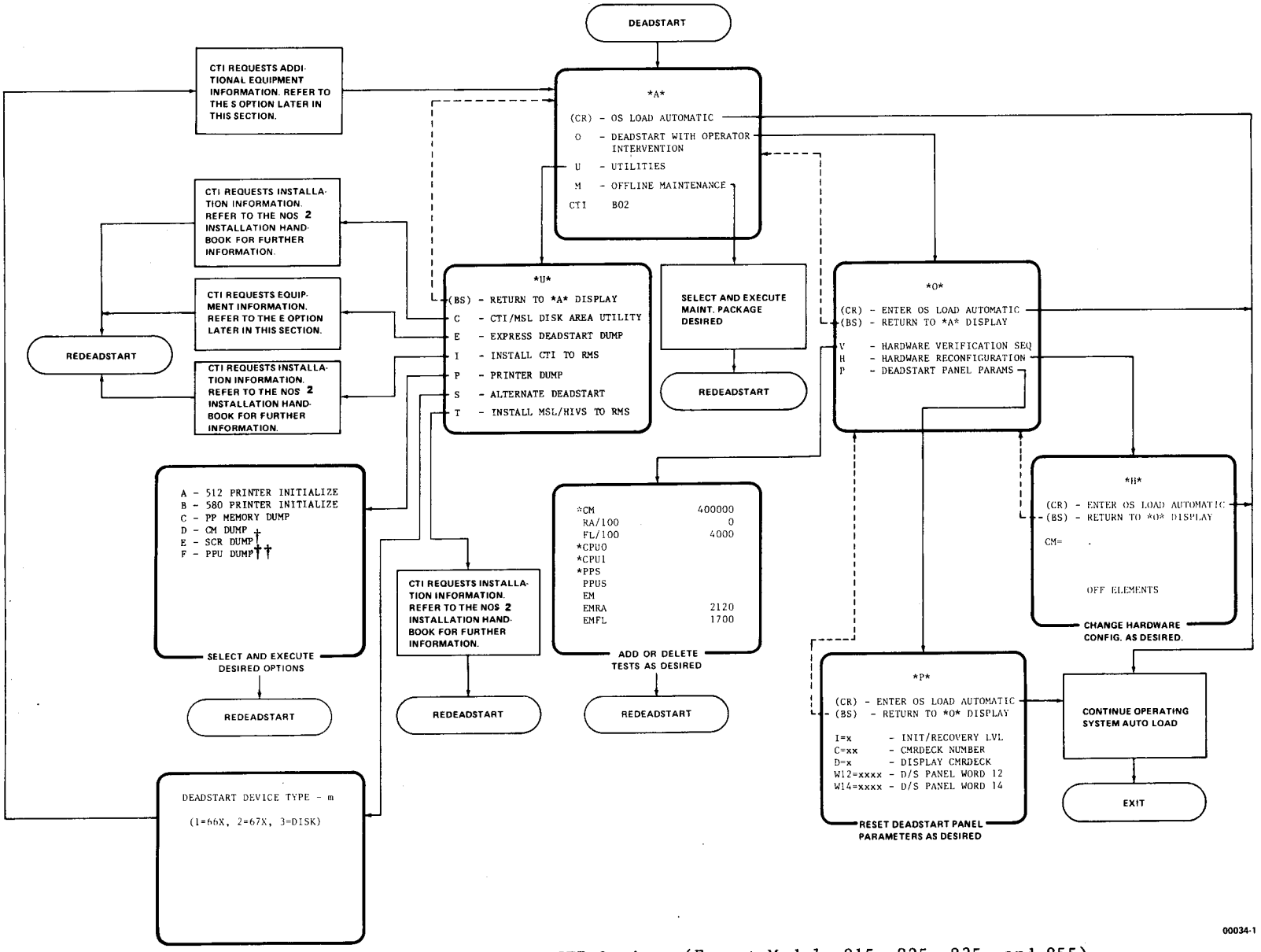


Figure II-2-10. Select Correct CTI Options (Except Models 815, 825, 835, and 855)

†Appears only on CYBER 170 Computer Systems (except models 815, 825, 835, and 855).
††Appears only on model 176.

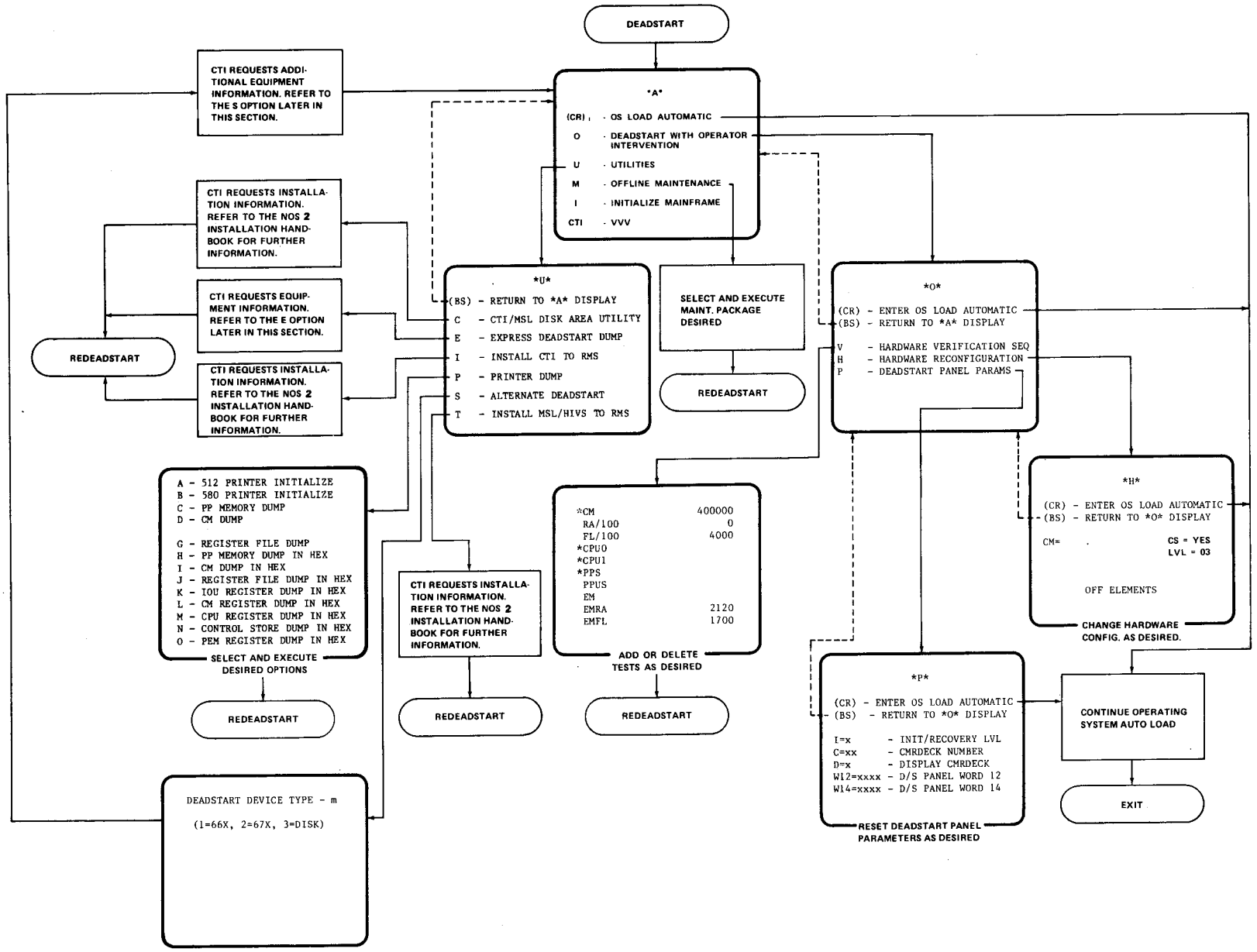


Figure II-2-11. Select Correct CTI Options (Models 815, 825, 835, and 855 Only)

WARMSTART PROCEDURE FOR MODELS 815 AND 825

The procedure to warmstart models 815 and 825 is similar to other CYBER 170 Computer Systems except that the models 815 and 825 do not have a deadstart panel. The warmstart programs represented by the deadstart panel switch settings on a model 835 or 855 are entered through the model 815 or 825 console keyboard as octal numbers. Warmstart programs for the models 815 and 825 are identical to those for models 835 and 855 except where specifically noted.

Pressing the deadstart button on the console of a model 815 or 825 brings up the initial deadstart display shown in figure II-2-1. If the warmstart program is already stored in the microprocessor, retrieve it by typing

```
GP n
```

where n is the number (0 through 3) of the stored program. You can change individual instructions in a program, such as unit number or other parameters, as outlined below. These changes are not retained across deadstarts unless the new program is stored as outlined later in this section.

You can use the space bar to cycle through the stored programs. If the correct warmstart program is not stored or a new program is to be entered and stored, the program must be entered as octal numbers equivalent to the switch settings on the deadstart panels for other models.

Enter the warmstart program represented by the switch settings shown in the related deadstart panel figure for your configuration by typing

```
xx yyyyyy
```

where xx is the octal row number if the deadstart instruction and yyyyyy is the octal number equivalent of the actual instruction. When you enter a 6-digit instruction, the first two digits of the instruction must be zeros. However, leading zeros in both the octal row number and the instruction need not be entered. For example, if the row number was 03 and the instruction was 000017 you could enter

```
3 17
```

and get the same setting as entering

```
03 000017.
```

If you want the system to automatically increment the octal row number, the entry after which the increment is to occur is

```
xx+yyyyyy
```

where the + character indicates that the system is to automatically increment the octal row number. When the automatic increment is in effect, the system displays the next location after accepting the previous entry. Only the next instruction need be entered.

To cancel the automatic incrementing, press the left blank (erase) key after the octal row number appears.

To store a new program or a modified program, type

```
SP n
```

where n is the number (0 through 3) of the program to be stored. If a program is already stored at the specified number, the new program replaces it.

After entering or retrieving the desired warmstart program, type

S

followed by a CR for a short deadstart sequence, or

L

followed by a CR for a long deadstart sequence.

When system power is applied to a models 815 and 825 mainframe, the microprocessor automatically retrieves the warmstart program stored as program number 3 and initiates a long deadstart sequence. If you want this feature, store the warmstart program for your configuration as program number 3. If you do not want this feature, store the first word of program 3 as 000300. This instruction puts the program in PP0 into a loop. No deadstart activity occurs and no displays appear on the screen. You must press the deadstart button to bring up the initial deadstart display. You can then retrieve or enter the warmstart program you wish and select a short or long deadstart sequence.

SETTING THE DEADSTART PANEL FOR A WARMSTART

There are two types of warmstart panel settings: one for a deadstart device connected to a channel with a PP and the other for a device connected to a channel without a PP. When the device is connected to a channel with a PP, two panel settings are different because CYBER 70/6000 panels have fewer switches.

NOTE

When deadstarting from a 7054 or 7154 disk controller, incorrect panel settings, such as channel or unit numbers, can hang the controller. To free the controller, correct the panel settings and master clear the controller by pressing, in the following sequence, the STOP, MASTER CLEAR, and GO buttons located inside the controller chassis.

The deadstart device on which the deadstart tape or disk pack is mounted, its associated controller, and the channel used to access this equipment are identified by setting the switches shown in the unshaded area of the deadstart panels illustrated in figures II-2-12, II-2-13, and II-2-14 (refer to appendix H to determine which channels in your hardware configuration do not have PPs).

	Binary				Octal
1	001	100	000	010	1402
2	111	011	0tt	ttt	73tt
3	000	000	001	111	0017
4	111	101	1tt	ttt	75tt
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	000	000	000	000	0000
13	rrr	ppp	xxx	xxx	rpxx†
14	000	000	000	000	0000
15	000	000	000	000	0000
16	000	000	000	000	0000
17	000	000	000	000	0000
20	111	001	001	010	7112

†The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure II-2-12. CYBER 170 Computer Systems Panel Settings for Warmstart from Channel with a PP (For Example, Channel 1, 2, or 11)

	Binary				Octal
1	001	100	000	010	1402
2	111	011	0tt	ttt	73tt
3	000	000	001	011	0013
4	111	101	1tt	ttt	75tt
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	rrr	ppp	xxx	xxx	rpxx†
13	000	000	000	000	0000
14	111	001	001	010	7112

†The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure II-2-13. CYBER 70 and 6000 Computer Systems Panel Settings for Warmstart from Channel with a PP (For Example, Channel 1, 2, or 11)

	Binary				Octal
1	000	000	000	000	0000†
2	000	000	000	000	0000†
3	000	000	000	000	0000†
4	111	101	1tt	ttt	75tt
5	111	111	0tt	ttt	77tt
6	eee	ddd	ddd	ddd	eddd
7	111	100	0tt	ttt	74tt
10	111	001	0tt	ttt	71tt
11	111	011	000	001	7301
12	000	000	000	000	0000
13	rrr	ppp	xxx	xxx	rpxx††
14	000	000	000	000	0000

†If a 6681 data channel converter is the first equipment on the channel, or if it precedes the deadstart device controller, words 2, 3, and 4 must be set as follows:

Word		Binary		Octal
2	111 101	1tt	ttt	75tt
3	111 111	0tt	ttt	77tt
4	010 001	000	000	2100

††The instructions for setting the bits represented by these parameters are given in Setting Word 13.

Figure II-2-14. Panel Settings for Warmstart from Channel with No PP (For Example, Channel 0, 12, or 13)

Descriptions of the deadstart panel parameters follow.

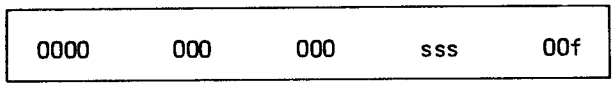
Notation	Description
tt ttt	Channel number used to access the deadstart equipment.
eee	Controller number to which the deadstart unit is connected.
ddd ddd ddd	Deadstart function; depends on device type as follows:
	010 11u uuu 66x tape units.
	001 01u uuu 677 tape units at 800 cpi and 679 tape units.
	011 01u uuu 677 tape units at 556 cpi.
	011 uuu uuu 844 or 885-11/12 disk units.
	u uuu or uuu uuu represents the physical unit number on which the deadstart tape or disk pack is mounted.
rrr	Deadstart level.
ppp	Deadstart parameters.
xxx xxx	CMRDECK number.

The numbers are entered in binary form; each switch represents a bit in a 12-bit PP instruction word. For models 835 and 855, you must set the four leftmost bit positions for each row to 0 (they are not shown in figures II-2-12 and II-2-14).

Refer to Setting Word 13 in this section for detailed information on word 12 (CYBER 70 and 6000 Computer Systems) and Word 13 parameters.

SETTING WORD 12 (MODELS 815, 825, 835, AND 855)

For models 815, 825, 835, and 855, two unique fields exist in word 12 of the deadstart program. They allow you to enter the model type that HIVS/MSL 150 uses and to select extended deadstart testing. The switches that represent these fields are shown in the following illustration. The switches are set on the deadstart panel for models 835 and 855 or are entered as octal values through the model 815 or 825 console.



sss Specifies the model type as follows:

Model Type	Mainframe
001	815 or 825
010	835
011	855

You must set these bits correctly for HIVS/MSL 150 use. If you set the bits to any other configuration, the model type set is not valid and the following message appears.

ERROR - NOT ON LIBRARY

f Specifies the extended deadstart sequence option. If you set this bit and have the LONG/SHORT DEADSTART SEQUENCE switch on the deadstart panel set to the up (long) position, (or specify 1 and enter L after entering or retrieving the warmstart program for a model 815 or 825), the system loads and executes the extended deadstart sequence (EDS). If this bit is not set or if the LONG/SHORT DEADSTART SEQUENCE switch is set to the down (short) position, (or enter S after entering or retrieving the warmstart program for a model 815 or 825), the extended deadstart sequence does not occur.

When this bit is set, parts of PP memories are destroyed. Refer to the description of the E option in Utilities (*U*) Display in this section for more information.

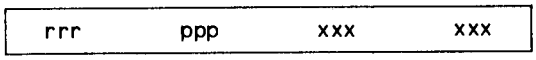
NOTE

When you are coldstarting a tape or disk controller from a card reader, this bit is also used as part of the channel number of the card reader. Thus, the channel number of the card reader controls whether the extended deadstart sequence occurs when the LONG/SHORT DEADSTART SEQUENCE switch is in the up (long) position (you entered an L after loading the warmstart program for model 815 or 825). If the channel number is an odd number (the 2^0 bit is set), the extended deadstart sequence takes place. If the channel number is an even number (the 2^0 bit is not set), the extended deadstart sequence does not take place.

The rest of word 12 can be set for other maintenance purposes (refer to the applicable hardware operator's guide).

SETTING WORD 13

Three unique fields exist in word 13 (word 12 on CYBER 70 and 6000 Computer Systems) of the deadstart program which allow you to select the CMRDECK, the deadstart parameters, and the level of deadstart. The switches that represent these fields are shown in the following illustration. The switches are set on the deadstart panel for all models except models 815 and 825; and are entered as octal values through the model 815 or 825 console.



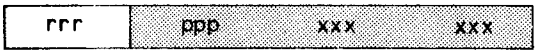
rrr Specifies the level of deadstart.

ppp Specifies the deadstart parameters.

xxx xxx Specifies the CMRDECK number.

SELECTING THE DEADSTART LEVEL

You can select one of four levels of deadstart by setting bits 11, 10, and 9 in word 13. The switches that represent this field of bits are shown in the unshaded area:



Value of rrr (Bits 11 - 9)	Description
000	Indicates an initial or level 0 deadstart, in which the system is loaded from the deadstart file. This is not considered a recovery deadstart although permanent files, queued files, and system dayfiles are recovered automatically unless those file types are initialized by the CMRDECK entry, INITIALIZE. If queued files are recovered, they are inactive (refer to the QREC utility in the NOS 2 System Maintenance Reference Manual for more information). An attempt to recover these files is made on all levels of system deadstart. Level 0 deadstart is normally specified under the following conditions. • For the first deadstart following a period in which the system was either inoperative or used for purposes other than NOS operations. • When a system malfunction occurred and other levels of system deadstart prove ineffective. If it is necessary to redeadstart the system (for example, due to system malfunction), it is recommended that you attempt a level 3 recovery deadstart. If you select level 0, the system is reloaded from the deadstart file. All central memory (except on models 815, 825, 835, and 855)† and PP contents are destroyed by the memory confidence test.
001	Indicates a level 1 recovery deadstart, in which the system, all jobs, and all active files are recovered from checkpoint information on mass storage. Permanent files are also recovered. You can do a level 1 deadstart only if the DSD command CHECK POINT SYSTEM (section 3) is successfully executed immediately prior to deadstart. Once level 1 recovery deadstart begins, all central memory (except on models 815, 825, 835, and 855)† and PP contents are destroyed by the memory confidence test. Normally you use level 1 recovery deadstart to allow maintenance to be performed and then to resume normal processing. It is also useful in system test situations. Never use level 1 recovery deadstart to attempt recovery from a system malfunction or to preserve queue files.
010	Indicates a level 2 recovery deadstart, in which all jobs and active files are recovered from checkpoint information on mass storage. No attempt is made to recover the system. Instead, the system is loaded from the deadstart file as in level 0 deadstart. In all other respects, level 2 recovery deadstart is identical to that described for a level 1 recovery deadstart. Once level 2 recovery deadstart begins, all central memory (except on models 815, 825, 835, and 855)† and PP contents are destroyed by the memory confidence test.

†Central memory and extended memory are not destroyed on models 815, 825, 835, and 855 unless the V option is selected from the *O* display [refer to Operator Intervention (*O*) Display in this section].

Value of rrr (Bits 11 - 9)	Description
	Normally you use level 2 recovery deadstart in system test situations; it is not recommended for the normal production environment.
011	Indicates a level 3 recovery deadstart in which all jobs, active files, and the system, with the exception of the library directory, are recovered from central memory tables. A level 3 deadstart is the only level that preserves the contents of central memory. If a deadstart level less than 3 is selected early in the deadstart process, a memory test pattern is written throughout central memory. In order to avoid inadvertent destruction of central memory contents when a level 3 deadstart is intended, it is recommended that you always select level 3 on the deadstart panel. If you need a deadstart level other than 3, you can specify the level by changing the *P* display. The library directory is recovered from mass storage. Permanent files are also recovered. A CHECK POINT SYSTEM command must be issued prior to deadstart to prevent loss of SYSEDIT (system library modification) information. Only PP memory confidence testing occurs during a level 3 recovery deadstart; central memory is unaffected. Normally you perform level 3 recovery deadstart following an equipment malfunction (for example, channel or PP hung), providing central memory and mass storage remain intact. Unless you can determine that central memory is no longer reliable, you should attempt a level 3 recovery following a malfunction. If level 3 recovery fails, you must perform a level 0 deadstart.

NOTE

Attempting a level 1 or 2 recovery deadstart after a level 3 deadstart fails does not correctly recover system activity and can endanger system and permanent file integrity. You must perform a level 0 deadstart.

For additional information concerning levels of deadstart, refer to Preparing for Recovery Deadstart in this section.

SELECTING THE DEADSTART PARAMETERS

You can select deadstart parameters to control miscellaneous deadstart functions by setting bits 8 through 6 in word 13. The switches that represent this field of bits are shown in the unshaded area:

ppp Specifies miscellaneous deadstart functions. Refer to table II-2-1.

Table II-2-1. Deadstart Parameters Switch Settings

Bit Number	Switch Position	Description
8	Down	Reserved for future use.
7 = 0	Down	Indicates that the system does not save the contents of PP0 in central memory when it performs an express deadstart dump.
7 = 1	Up	Indicates that the system attempts to save the original contents of PP0 in central memory when it performs an express deadstart dump. This is done only if a free block of central memory is available. A free memory block is field length beyond the first 10000_8 words which is not assigned to a subsystem. If no free block of central memory is available, the original contents of PP0 cannot be saved.
6 = 0	Down	Indicates that the CMRDECK is not displayed during deadstart.
6 = 1	Up	Indicates that the CMRDECK is displayed during all levels of deadstart.

SELECTING THE CMRDECK

The CMRDECK contains the equipment configuration to be used for system operations. Up to 64 CMRDECKs (numbered 0 through 77_8) can be included on the deadstart file. You select one of the CMRDECK equipment configurations when the system is deadstarted.

NOTE

You can select the CMRDECK only during a level 0 (initial) deadstart. For a level 1, 2, or 3 (recovery) deadstart, you must use the CMRDECK selected during the most recent level 0 deadstart. Refer to Selecting the Deadstart Level earlier in this section for information concerning the levels of deadstart.

The number of the selected CMRDECK is indicated by setting the switches (bits 5 through 0) shown in the unshaded area:

xxx xxx Specifies the CMRDECK number (0 through 77_8) to be used.

For example, if CMRDECK number 26_8 is selected, the corresponding switches on the deadstart panel are set as follows:

```
rrr ppp 010 110
```

0 indicates switch is in down position; 1 indicates switch is in up position. You can also specify the CMRDECK from the console keyboard by using the *P* display (described in this section). Values entered from the *P* display have precedence over those specified on the deadstart panel. For example, bits 5 through 0 of word 13 on the deadstart panel (xxx xxx) could be set to select the CMRDECK most frequently used by an installation. A different CMRDECK could be selected via the *P* display during a level 0 deadstart.

KEYBOARD ENTRIES

The following statements apply to operator/console communication during deadstart (refer to figure II-1-1, for an illustration of the console keyboard).

- Entries typed from the console keyboard are displayed on the bottom of the left console screen as they are entered.
- The BKSP key deletes the previous character typed.
- The left blank key deletes the current line being typed (left blank is third key from right on top row of keyboard).
- The following message may appear above the console entry if the entry is unrecognizable.

  INVALID ENTRY.

INITIATING THE DEADSTART PROCESS

Initiate the deadstart process by momentarily pressing the deadstart button on the display console.

Most of what you do during system deadstart is preliminary. That is, you specify the conditions of deadstart. Deadstart proceeds automatically until you are required to initialize the system or until an error is encountered (refer to Initializing the System later in this section). Generally, automatic deadstart consists of the following steps.

1. Validate labels on all mass storage devices. This is done to ensure that the configuration matches that were specified in the CMRDECK are being used.
2. Build central memory tables that reflect information contained in the device labels (level 0 deadstart only). If a recovery deadstart is being performed, the central memory tables can be recovered from checkpoint information on mass storage (level 1 or 2) or verified against information in device labels if central memory is found to be intact (level 3).
3. Load the operating system programs into central memory. Again, the level of deadstart determines the amount of loading to be performed.

You can monitor deadstart progress on the console display screen(s). If errors are encountered during deadstart, a descriptive message is displayed on the right console screen, and deadstart halts. Refer to Error Processing at the end of this section for complete information and corrective action.

If the left display screen is replaced by an error display, a fatal error occurred. Deadstart halts. Refer to appendix B for a description of the error messages and appropriate action.

CTI INITIAL OPTIONS (*A*) DISPLAY

A description of the deadstart displays and options provided by the common testing and initialization (CTI) module follows. The initial options (*A*) display appears first. From the *A* display, you can select additional options, or you can instruct the system to proceed with automatic system deadstart.

The *A* display provides four options (figure II-2-15).

```
                    *A*

(CR) - OS LOAD AUTOMATIC

  0  - DEADSTART WITH OPERATOR
       INTERVENTION

  U  - UTILITIES

  M  - OFFLINE MAINTENANCE

  I  - INITIALIZE MAINFRAME


CTI    vvv
```

Figure II-2-15. CTI Initial Options (*A*) Display

Option	Description
(CR)	OS load automatic [refer to OS Load Automatic (CR) Display in this section for detailed information]. Press CR to load the operating system with no intervention on your part. You cannot select additional options after this entry.
0	Deadstart with operator intervention. Select this option to display the operator intervention (*0*) display (described in this section).
U	Utilities. Select this option to display the utility (*U*) display (described in this section).
M†	Off-line maintenance. Select this option to initiate the off-line maintenance tests. For models 815, 825, 835, and 855, refer to the appropriate hardware operator's guide for more information. For all other CYBER 170 Computer Systems, consult customer engineer for more information.
I††	Power-on initialization. Select this option for a power-on long deadstart or when deadstarting after a maintenance activity. When you select this option, the message ALL MAINFRAME MEMORIES WILL BE INITIALIZED FOR MSL/OS LOADS. appears at the bottom of the display. Select another option to continue with the deadstart.

The current version of CTI (vvv) is indicated at the bottom of the *A* display.

†The off-line maintenance display always appears when you are deadstarting from tape. When you are deadstarting from disk, this display appears only if MSL is available at your site. Consult a customer engineer for more information.

††Only appears when deadstarting model 815, 825, 835, or 855.

OS LOAD AUTOMATIC (CR) DISPLAY (ALL COMPUTER SYSTEMS EXCEPT MODELS 815, 825, 835, AND 855)

When you press CR, CTI loads the memory confidence test. At a level 3 deadstart, the system bypasses the memory confidence test for central memory, so that memory contents are preserved. The memory confidence test first verifies the ability of PP and central memory to hold simple data patterns and then presets the contents of PP and central memory to a known state of all ones before the operating system is loaded. The control bits of the status/control (S/C) register† on the CYBER 170 Computer Systems (except models 815, 825, 835, and 855) are cleared and then set to a known state. The interlock register on the CYBER 70 Computer Systems is cleared so that no bits are set if the S/C register† simulator SCRSIM is called.

The current address being tested for each processor is displayed on the left screen. Any memory data errors are displayed on the right screen. The information displayed varies depending on the system being used.

The CYBER 170 Computer Systems (except models 815, 825, 835, and 855) left screen shows the current S/C register† (00 or 01) and the respective bit (0000 through 0313) being tested. If this register testing completes with no errors detected, CTI clears this line from the display. At this point PP and central memory testing begins. The PP number and PP data address being checked, the central memory address being checked, and the value of the P register are given by the running display. The right screen shows the PP being checked, any PP or central memory data errors, and any S/C register† errors (figure II-2-16).

The CYBER 70 Computer Systems left screen displays the same information as the CYBER 170, except that the interlock register and its bit are shown in place of the S/C register† and bit. The right screen shows the PP being tested and any PP or central memory data errors (figure II-2-17).

The 6000 Computer Systems left screen displays the PP number, the PP and central memory address being tested, and the P register. The right screen shows the PP being tested and any PP or central memory data errors (figure II-2-18).

If the system detects any errors, it adds an explanatory message to the right display and stops processing. Otherwise, NONE appears on the line below each header.

---

†For models 865 and 875, S/C registers are maintenance registers.

A PP or central memory data error message has the following format:

```
ADDRESS
EXPECTED DATA
ACTUAL DATA
DIFFERENCE
```

Additional information appears after each entry.

```
CHECK COMPUTER MEMORY.

S/C REGISTER† 01 BIT  0214
```

†For model 865 or 875, S/C registers are maintenance registers.

Left Screen During S/C Register Testing

```
CHECK COMPUTER MEMORY.

PP05 0567
CM ADDRESS  056472  P0=001104
```

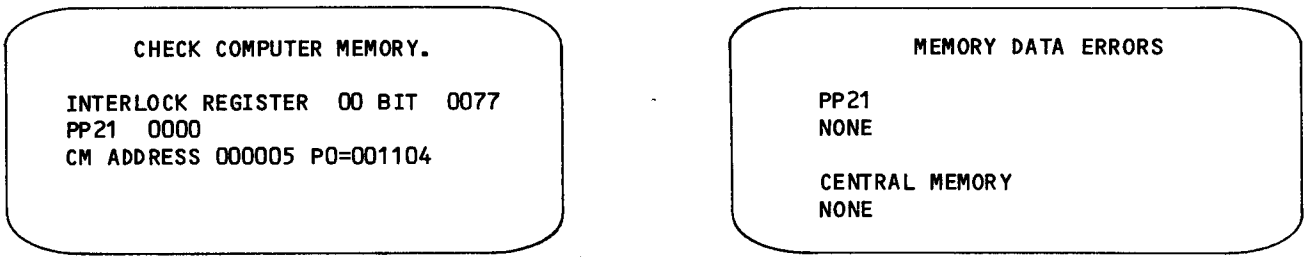
Left Screen During PP and CM Testing

```
MEMORY DATA ERRORS

PP05
NONE

CENTRAL MEMORY
NONE

S/C REGISTER ERRORS††
NONE
```

††For models 865 and 875 the message MAINT.REG. ERRORS appears.

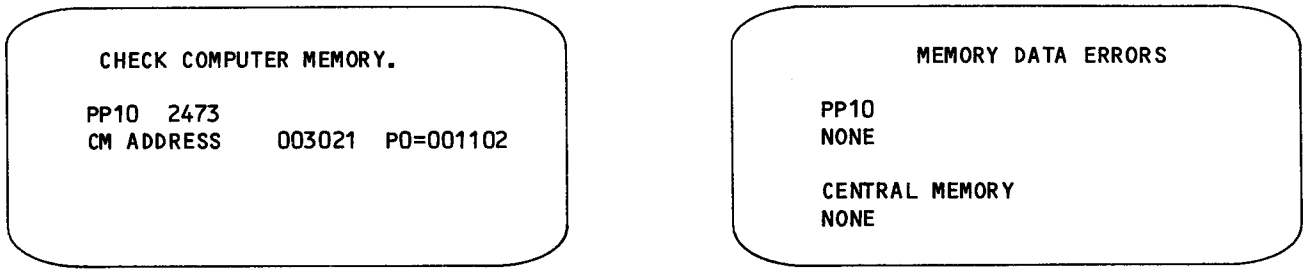
Right Screen

Figure II-2-16. CYBER 170 Computer Systems (Except Models 815, 825, 835, and 855) Memory Check



Left Screen Right Screen

Figure II-2-17. CYBER 70 Computer Systems Memory Check



Left Screen Right Screen

Figure II-2-18. 6000 Computer Systems Memory Check

When there is an S/C register error,† the following message appears at the bottom of the left screen.

```
DEADSTART ABORTED - FATAL ERRORS.
```

The actual error message appears on the right screen and has the following format:

```
            word 16
SC-0-2††   yyyy yyyy yyyy yyyy yyyy.
SC-0-1     yyyy yyyy yyyy yyyy yyyy yyyy.
SC-0-0     yyyy yyyy yyyy yyyy yyyy yyyy.
                                    word 0
```

yyyy is the contents of a word in the S/C register;† word 0 is at the lower right, and word 16 is at the upper left. Appearing below the S/C register† contents are text explanations of the error bits currently set. If the message single error correction double error detection (SECDED)

```
SECDED DOUBLE - QUADRANT n , CSUxxx.
```

†For models 865 and 875, S/C registers are maintenance registers.
††For models 865 and 875, SC is replaced by MR.

appears, the system has detected a double bit memory error. You may want to reconfigure central memory so that the system does not use the part of central memory causing the error (refer to appendix I). Following these explanations, the contents of the channel 36 S/C register,† if it exists, appear in similar format with 1 replacing 0 in the m field of SC-m-n.†† Finally, the explanation of the channel 36 error bits currently set appears. Overflow from the left display appears on the right screen with an information message indicating the overflow.

If problems occur during PP memory testing, the following messages appear.

```
PROCESSOR NOT RESPONDING

FATAL ERROR - DEADSTART ABORTED
```

Inform a customer engineer.

OS LOAD AUTOMATIC (CR) DISPLAY (MODELS 815, 825, 835, AND 855)

When you press CR, the system searches for the hardware initialization verification sequence (HIVS) on disk. If you are deadstarting from tape or from a disk that does not have HIVS, the system requests the disk that contains HIVS. The following lines appear:

```
ENTER LOCATION
OF MSL/HIVS DEVICE
CHANNEL - cc
```

cc is the channel number of the deadstart device. Enter the channel number of the disk containing HIVS and press CR. The following line appears:

```
EQUIPMENT - e
```

e is the equipment number of the deadstart device. Enter the equipment number of the disk containing HIVS and press CR. The following line appears:

```
UNIT - uu
```

uu is the unit number of the deadstart device. Enter the unit number of the disk containing HIVS and press CR.

---

†For models 865 and 875, S/C registers are maintenance registers.
††For models 865 and 875, SC is replaced by MR.

The system uses HIVS to build the models 815, 825, 835, and 855, environment and deadstart proceeds to the loading of the memory confidence test. The system loads the environment interface (EI) to central memory, loads the microcode to the central processor control store, and establishes the operating environment. As these things happen, the following messages flash on the left screen:

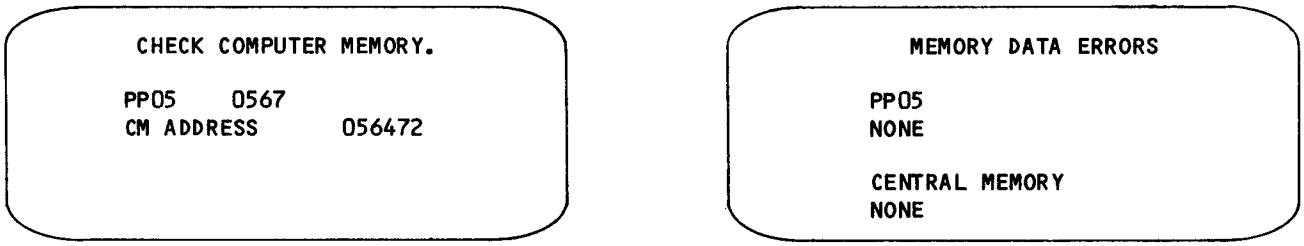
```
LOADING EI
LOADING MICROCODE
ESTABLISHING ENVIRONMENT
```

The memory confidence test verifies the ability of PP memory to hold simple data patterns and presets the contents to all ones for all levels of deadstart.

Central memory confidence testing is only done when the V option is selected on the *O* display [refer to Operator Intervention (*O*) Display in this section].

The left console screen displays the address being tested for each processor. It shows the PP number and the PP data address being checked (figure II-2-19).

The right console screen shows the PP being checked and any PP or central memory errors (figure II-2-19).



Left Screen

Right Screen

Figure II-2-19. Models 815, 825, 835, and 855 Memory Check

If the system detects a fatal error, the following message appears on the left screen:

```
DEADSTART ABORTED - FATAL ERROR

eeee    rrrr   =cc cc cc cc cc cc cc cc
        rrrr   =cc cc cc cc cc cc cc cc
        rrrr   =cc cc cc cc cc cc cc cc
eeee    rrrr    bb-bb - tttt
```

Notation	Description
eeee	Name of the hardware that has the error.

Name	Hardware
In	Input/output unit.
Mn	Central memory.
Pn	Central processing unit.

n is 1, 2, or 3 depending on the particular hardware configuration.

rrrr	Register name.
cc	Register content in hexadecimal notation.
bb	Bit number in decimal notation.
tttt	Text explanation of the error.

If problems occur during PP memory testing, the following messages appear.

```
PROCESSOR NOT RESPONDING
FATAL ERROR - DEADSTART ABORTED
```

Inform a customer engineer.

OPERATOR INTERVENTION (*O*) DISPLAY

Selecting the O option from the *A* display causes the operator intervention (*O*) display to appear on the left screen. Figure II-2-20 illustrates the *O* display.

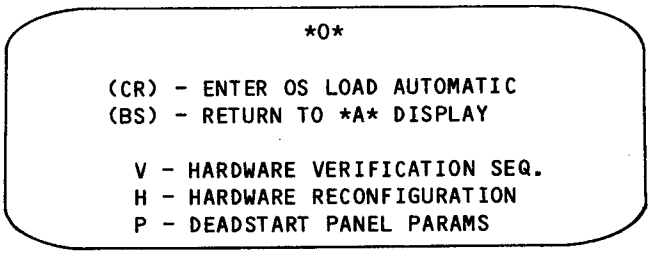


Figure II-2-20. Operator Intervention (*O*) Display

Option	Description
(CR)	Enter OS load automatic. For detailed information, refer to OS Load Automatic (CR) Display in this section. Press CR to load the operating system with no intervention on your part. You cannot select additional options after this entry.
(BS)	Return to *A* display. Press BKSP to return to the *A* display.
V†	Hardware verification sequence. Select this option to load the hardware verification sequencer (HVS). HVS controls the execution of a set of confidence tests of the PPs, PPUs, central memory (CM), extended memory (EM), and the CPU. If you select both a level 0, 1, or 2 deadstart and this option on a model 815, 825, 835, or 855, the contents of central memory and extended memory are destroyed by the process. To continue with a level 3 recovery after verifying the hardware, you must set the deadstart panel for a level 3 recovery at deadstart.

†For models 865 and 875 testing is all internal. The next message is the end of testing as documented later in this section.

Option	Description

After you select V, the display shown in figure II-2-21 appears. The * indicates the hardware to be tested.†

```
*CM                    400000
 RA/100                     0
 FL/100                  4000
*CPU0
*CPU1
*PPS
 PPUS
 EM
 EMRA                    2120
 EMFL                    1700
```

Figure II-2-21. V Option

If you attempt to test hardware that was turned off by CTI or is physically not present on the system, one of the following messages is presented.

NO PP available

NO CM available

NO CP available

NO EM available

Word	Description
CM	Central memory size.
RA	Relative address for all central memory accesses.
FL	Field length for all central memory accesses.
CPU0	Test status of CPU0.
CPU1	Test status of CPU1.
PPS	Test status of PPs in the system.
PPUS	Test status of PPUs in the system.
EM	Extended memory selection.
EMRA	Relative address for all EM accesses.
EMFL	Field length of all EM accesses.

†HVS does not test hardware that is turned off (refer to the *H* display).

Option	Description

To add or delete hardware to be tested, make the following entries.

Entry	Add (A) or Delete (D)
A,CM or D,CM	Central memory tests.
A,C0 or D,C0	CPU0 tests.
A,C1 or D,C1	CPU1 tests.
A,PS or D,PS	PP tests.
A,PU or D,PU	PPU tests.
A,EM or D,EM	Extended memory tests.

Press CR to start testing. Hardware tests are selected individually and are not dependent on the successful completion of previous tests. For example, you can select CPU testing without testing the PP's or central memory. For models 865 and 875 testing is all internal. The next message is the end of testing as documented later in this section.

HVS displays the following messages during testing when all tests are selected (the messages are listed in the testing order).

```
TESTING REG
TESTING PPS
TESTING PPUS†
TESTING CM
TESTING CPU xx
TESTING EM
```

If an error condition occurs, one of the following messages appears.

```
ERROR PP xx
ERROR PPU xx†
ERROR CM
ERROR CPU xx
ERROR EM
ERROR REG
SCR ERROR yyyy††
```

xx indicates the PP, PPU, or CPU in error. Contact a customer engineer.

---

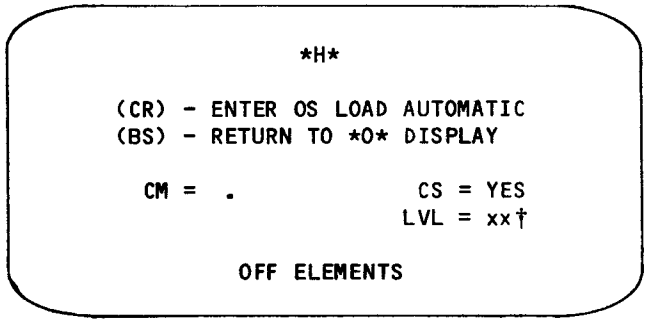
†This message appears only on a model 176.
††For models 865 and 875, the message MAINT. REG. ERRORS appears.

Option	Description
	yyyy indicates an SCR word 0 error. Contact a site analyst. If the error is fatal, CTI displays it on a subsequent deadstart. This message appears only on the CYBER 170 Computer Systems (except models 815, 825, 835, and 855).
	Upon test completion, HVS checks for any status/control register† errors (CYBER 170 Computer Systems except models 815, 825, 835, and 855) and displays HARDWARE VERIFICATION COMPLETE DEADSTART IS REQUIRED Press the deadstart button after testing to ensure that the system is returned to initial deadstart condition prior to system loading or recovery. Do this whether or not testing is successful. Refer to the On-Line Maintenance Software Reference Manual for additional information.
H	Hardware reconfiguration. Select this option to alter the hardware configuration. The *H* display appears on the left screen (figure II-2-22 for all computer systems except models 815, 825, 835, and 855 and figure II-2-23 for models 815, 825, 835, and 855).

```
*H*

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

 CM =

        OFF ELEMENTS
```

Figure II-2-22. Hardware Reconfiguration (*H*) Display (All Computer Systems Except Models 815, 825, 835, and 855)

†For models 865 and 875, S/C registers are maintenance registers.



†Two-character revision number of the microcode. This field is blank unless you enter a microcode revision number.

Figure II-2-23. Hardware Reconfiguration (*H*) Display (Models 815, 825, 835, and 855)

Option	Description

The *H* display shows the current hardware configuration. Initially this display reflects the default condition (every hardware element is available for use). Through keyboard entries, you can alter the hardware configuration to prevent use of selected hardware elements.

Press CR if you want to continue system deadstart processing with no further intervention on your part. You cannot select additional options after this entry.

Press BKSP if you want to return to the *O* display.

When you turn off any CPU, PP, or PPU element, its identifier is added to the OFF ELEMENTS list on the display. The identifiers are removed from the list if the element is subsequently turned back on. The list is empty when you first bring up the display.

Table II-2-2 shows the keyboard entries that you can make to reconfigure the hardware on all computer systems except models 815, 825, 835, and 855. Entries are in the form keyword=option.

Table II-2-3 shows the keyboard entries that you can make to reconfigure the hardware on the models 815, 825, 835, and 855. Entries are in the form keyword=option.

Table II-2-2. Keyboard Entries for the *H* Display (All Computer Systems Except Models 815, 825, 835, and 855) (Sheet 1 of 2)

Keyword	Option	Function
CM=	nnnnn	Specifies the size in octal of central memory in hundreds of words. Central Memory Size / nnnnn 49K / 1400 65K / 2000 98K / 3000 131K / 4000 198K / 6000 262K / 10000† 524K / 20000† 786K / 30000† 1048K / 40000† If you enter CM=0 or do not enter the CM=nnnnn parameter, the system sets the maximum central memory size. If the nnnnn value you specify exceeds the amount of physical memory, the following error message appears. **UNAVAILABLE** If you specify a central memory size that is not large enough for a system deadstart, the following message appears. **INVALID ENTRY**
CPUn=	OFF/ON	Specifies the logical status of each available CPU. Values for n are 0 or 1. On a two-CPU system, if you enter a CPUn=OFF and the other CPU is already off, the following error message appears. **ALL CPUS OFF, OS LOAD IMPOSSIBLE** You cannot continue the deadstart until at least one CPU is on. If your site has only one CPU, the system uses it even if you turn it off.

†Models 865 and 875 only.

Table II-2-2. Keyboard Entries for the *H* Display
(All Computer Systems Except Models 815, 825, 835, and 855) (Sheet 2 of 2)

Keyword	Option	Function
PPnn=	OFF/ON	Specifies the logical status of one or more peripheral processors. Values for nn can be any octal number in the range 3 through 11 (excluding 10) or in the range 20 through 31. Values for nn can also be in the form a-b (a through b); a and b are octal numbers either in the range 3 through 11 (excluding 10) or in the range 20 through 31, and a is less than b. PP0, 1, 2, and 10_8 must be on before you can deadstart the NOS system. On CYBER 170 Computer Systems (except models 815, 825, 835, and 855) an attempt to turn off a bad PP may cause CTI to abort the deadstart. This happens when the PP to be turned off is so damaged it does not accept the idle code used to logically remove the PP from the system configuration. When CTI aborts the deadstart process in this situation, no system operation is possible. For example, the following entries are valid. PP4=OFF PP5-7=OFF The following entries are invalid. Entry — Reason Not Valid PP2=OFF — PP2 must be on to deadstart. PP7-5=OFF — a must be less than b. PP3-31=OFF — Illegal range.
PPUnn=	OFF/ON	Specifies the logical status of the indicated physical first-level peripheral processor (PPU). This entry is used only on a model 176. Values for nn are any octal number in the range 1 through 15. Values for nn can also be in the form a-b (a through b); a and b are both octal numbers in the range 1 through 15, and a is less than b.
CEJ/MEJ=	OFF/ON	Specifies the logical status of CEJ/MEJ. If status is ON, CEJ/MEJ is used if present. NOS does not run with either CEJ/MEJ status of OFF or the CEJ/MEJ deadstart panel key set to the DISABLE position. If there is no CEJ/MEJ switch, or if the CEJ/MEJ switch is physically set to the DISABLE position on the deadstart panel and the logical status is set to ON (default), an error message display results after the final CR is pressed for the CTI options. Refer to Setting the Deadstart Panel for a Coldstart earlier in this section for a description of the error message display.
CMU=	OFF/ON	Specifies the logical status of the compare/move unit (CMU) hardware. If the logical status is ON, CMU is used if present.

Table II-2-3. Keyboard Entries for the *H* Display
(Models 815, 825, 835, and 855) (Sheet 1 of 2)

Keyword	Option	Function
CM=	nnnnnn	Specifies the size in octal of central memory in hundreds of words. The following examples show the value you enter for nnnnnn, given the central memory size (1 megabyte is equal to 131K). Central Memory Size / nnnnnn 49K / 1400 98K / 3000 393K / 14000 917K / 34000 1572K / 60000 2097K / 100000 nnnnnn can range from 40 to 100000 and is truncated to a valid memory boundary. For example, if you enter CM=4016, nnnnnn becomes 4010. If you enter CM=0 or do not enter the CM=nnnnnn parameter, the system sets the maximum central memory size. If you specify a value for nnnnn that exceeds the amount of physical memory, the system sends the following message: **UNAVAILABLE** If you specify a central memory size that is not large enough for a system deadstart, the system sets the maximum central memory size and the following message appears. **INVALID ENTRY**
CPUn=	OFF/ON	Specifies the logical status of each available CPU. Values for n can be 0 or 1. On a two-CPU system, if you enter CPUn=OFF and the other CPU is already off, the following message appears. **ALL CPUS OFF, OS LOAD IMPOSSIBLE** You cannot continue the deadstart until at least one CPU is on. If you enter CPU0=OFF on a one-CPU system, CTI accepts your entry, but when you press CR to load the system, CTI uses the CPU (CTI assumes that you did not mean to turn off the only CPU).
PPnn=	OFF/ON	Specifies the logical status of one or more peripheral processors. Values for nn can be any octal number either in the range 3 through 11 (excluding 10) or in the range 20 through 31. Values for nn can also be in the form a-b (a through b); a and b are octal numbers either in the range 3 through 11 (excluding 10) or in the range 20 through 31, and a is less than b. PP0, 1, 2, and 10_8 must be turned on before you can deadstart the NOS system.

Table II-2-3. Keyboard Entries for the *H* Display
(Models 815, 825, 835, and 855) (Sheet 2 of 2)

Keyword	Option	Function
		For example, the following entries are valid: PP4=OFF PP5-7=OFF The following entries are invalid. Entry — Reason Not Valid PP2=OFF — PP2 must be on to deadstart. PP7-5=OFF — a must be less than b. PP3-31=OFF — Illegal range.
CACHn=	OFF/ON	Specifies the logical status of each unit of the central processor cache. If the number of a unit appears on the screen, the system uses that unit if it is present. For example, if you enter CACH2=ON, the system uses unit 2 if it is present. CTI ignores this keyword when it is entered on model 815 or 825. The value for n can be any number from 0 through 3. The value for n also can be in the form a-b (a through b); a and b are numbers in the range 0 through 3, and a is less than b.
SMAPn=	OFF/ON	Specifies the logical status of each unit of the central processor segment map. If the number of a unit appears on the screen, the system uses that unit if it is present. For example, if you enter SMAP1=ON, the system uses unit 1 if it is present. The value for n can be 0 or 1. You can enter SMAP0-1=OFF/ON to turn both elements off or on. CTI ignores this keyword when it is entered on a model 815 or 825.
PMAPn=	OFF/ON	Specifies the logical status of each unit of the central processor page map. If the number of a unit appears on the screen, the system uses that unit if it is present. For example, if you enter PMAP3=ON, the system uses unit 3 if it is present. The value for n can be any number from 0 through 3. The value for n also can be in the form a-b (a through b); a and b are in the range 0 through 3, and a is less than b. Turning off more than two units of the map for a model 815 or 825 is not recommended.
CS=	YES/NO	Specifies whether the system should load the central processor microcode. The default is yes for all levels of deadstart.
LVL=	xx	Specifies the version of microcode the system loads into the central processor control store. xx is the two-character revision number of the microcode entered by the operator.

Option	Description
P	Deadstart panel parameters. Select this option to change any of the following: the deadstart level, the CMRDECK, or deadstart panel words 12 and 14. The *P* display appears on the left screen (figure II-2-24). Press CR if you want to cause system deadstart processing to continue with no further intervention on your part. Refer to OS Load Automatic (CR) Display earlier in this section for detailed information. You cannot select additional options after this entry. Press BKSP if you want to return to the *O* display. Table II-2-4 shows the keyboard entries that you can make to change deadstart panel parameters.

```
                    *P*

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

I=x        - INIT/RECOVERY LVL
C=xx       - CMRDECK NUMBER
D=x        - DISPLAY CMRDECK
W12=xxxx   - D/S PANEL WORD 12
W14=xxxx   - D/S PANEL WORD 14
```

Figure II-2-24. Deadstart Panel Parameters (*P*) Display

Table II-2-4. Keyboard Entries for the *P* Display

Entry	Function
I=x	Specifies the level of deadstart. The value of x can be 0, 1, 2, or 3. Refer to Preparing for Recovery Deadstart in this section for additional information concerning the levels of deadstart.
C=xx	Specifies the CMRDECK number. The value of xx can be 0 through 77 octal. If a level 1, 2, or 3 recovery deadstart is to be performed, you must use the CMRDECK selected during the most recent level 0 deadstart. For additional information concerning CMRDECK selection, refer to Selecting the CMRDECK in this section.
D=x	Specifies whether the CMRDECK is to be displayed. The value of x can be: Entry — Description Y — Display CMRDECK. N — Do not display CMRDECK. **NOTE** The following entries are for maintenance operations and do not affect operating system deadstart.
W12=xxxx	Specifies the value for deadstart panel word 12. For the models 815, 825, 835, and 855, refer to the appropriate hardware operator's guide. For all other CYBER 170 Computer Systems, consult a customer engineer for additional information.
W14=xxxx	Specifies the value for deadstart panel word 14. Word 14 is reserved for the operating system or maintenance system.

UTILITIES (*U*) DISPLAY

Selecting the U option from the *A* display causes the utilities (*U*) display to appear on the left screen. Figure II-2-25 illustrates the *U* display.

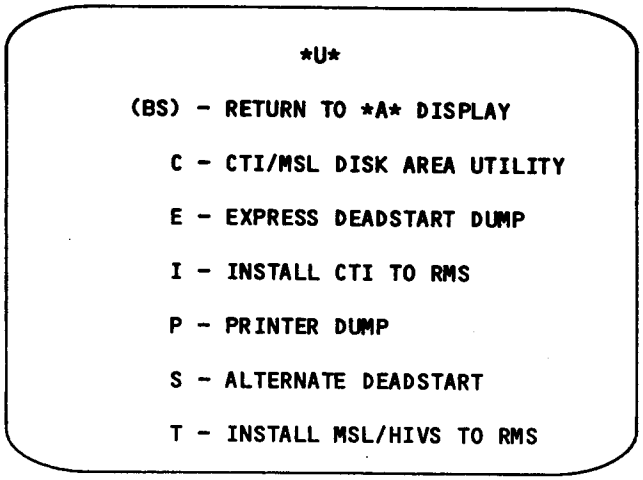


Figure II-2-25. Utilities (*U*) Display

Option	Description
BS	Return to *A* display. Press BKSP to return to the *A* display.
C	CTI/MSL disk area utility. Select this option to install or modify the default parameter block, install microcode (models 815, 825, 835, and 855 only), or install the environment interface (models 815, 825, 835, and 855 only) on a shared area of an 844 or 885-11/12 mass storage device. Refer to the NOS 2 Installation Handbook for further information.

Option	Description
E	Express deadstart dump (EDD). Select this option to dump to magnetic tape the contents of PP memories, central memory, extended memory (CYBER 170 Computer Systems), CPU hardware registers, S/C registers† (CYBER 170 Computer Systems except models 815, 825, 835, and 855), maintenance registers (models 815, 825, 835, and 855), processor control store (models 815, 825, 835, and 855), and the tape and disk controlware. The default tape density is 800 cpi for 7-track 66X/67X tapes and 1600 cpi for 9-track 66x/67x tapes. All tapes are written in S-format. Later, you can print part of the dump using the Deadstart Dump Interpreter (DSDI) routine described in the NOS 2 System Maintenance Reference Manual.

NOTE

EDD dumps unified extended memory (UEM) for models 815, 825, 835, and 855 (and for models 865 and 875 that contain UEM). For all other CYBER 170 Computer Systems (including models 865 and 875 with external extended memory), you must dump extended memory separately.

When EDD dumps PP memories, it destroys some of the contents of the PPs. For all systems except models 815, 825, 835, and 855, the following locations are affected:

PP	Locations
PP0	0 through 21_8 and 6000_8 through 7777_8.
PP1	0 through 7.
All others	0 through 3 and 7774_8 through 7777_8.

On models 815, 825, 835, and 855, the long deadstart sequence and the extended deadstart sequence destroy parts of PP memories. If you select the express deadstart dump (EDD) option after selecting one of these deadstart sequences, some of the information dumped is not valid. On models 815, 825, 835, and 855, the amount of information EDD destroys depends on the position of the LONG/SHORT DEADSTART SEQUENCE switch (or on models 815 and 825, whether an S or an L was extended). The following locations are affected:

	Locations	
PP	Short Deadstart Sequence	LDS or LDS with EDS
PP0	0 through 21_8; 6000_8 through 7777_8.	All memory destroyed.
PP1-PP4	No loss.	All memory destroyed.
All others	No loss.	No loss.

† For models 865 and 875, S/C registers are maintenance registers.

Option	Description

Also, if you deadstart on models 815, 825, 835, or 855 from a channel of an active PP, that PP loses the contents of locations 0 and 1.

For all systems, if you want to dump the entire contents of PP0, you must either reconfigure PPs to deadstart from another PP or transfer the contents of PP0 to another PP before you use EDD. When possible, you should reconfigure (refer to appendix I). If you cannot reconfigure PPs, the following process can be used to transfer the contents of PP0 to another PP prior to the dump.

1. Choose a channel of an active PP to which the system can transfer the contents of PP0.

2. For all models except models 815 and 825, set the following program on the deadstart panel. For models 815 and 825, press the deadstart button and enter the octal equivalent of the program through the deadstart display.

1	010	000	000	000	LDC	00
2	111	111	111	110	77	76
3	111	011	ppp	ppp	OAM	PP
4	000	000	000	000	00	00
5	000	011	000	000	UJN	00

ppp ppp — Binary representation of the number of the PP you chose to hold the contents of PP0.

3. For models 835 and 855, set the LONG/SHORT DEADSTART SEQUENCE switch on the deadstart panel to the down (short) position. For models 815 and 825, type S.

4. For all models except models 815 and 825, activate the deadstart switch. For models 815 and 825, press CR. The system transfers the contents of PP0 to the PP you chose. The contents of that PP is destroyed by the transfer.

5. Reset the deadstart panel for the appropriate warmstart (except on models 815 and 825).

If you have reconfigured PPs or transferred the contents of PP0, you must redeadstart to use EDD. Remember which PP has the contents of PP0 so that when the system dumps the PPs you will know which PP to print to get the contents of PP0.

When you activate the deadstart switch (for models 815 and 825, type S followed by a CR after retrieving or entering the warmstart program), the system displays the initial options (*A*) display. Enter U to select the utilities display. Then enter E to start the dump process.

Option	Description

CTI uses the default dumping equipment if the site has already defined the default during system installation (refer to the C option on the *U* display earlier in this section). If the default dumping equipment is not defined, CTI requests the information at the console by displaying the line:

```
MT CH 00
```

Enter the two-digit channel number of the tape unit to which memory is to be dumped and press CR. The console then displays:

```
MT ECUU 0000
```

Enter the one-digit number of the tape unit's controller (E), the one-digit number specifying controller type (C is 1 for 667/679 tape units; C is 2 for 677/669 tape units), and the two-digit number of the tape unit (UU). The default controller type is 2. Press CR. The console displays:

```
EXPRESS DUMP NUMBER 00
```

Enter the two-digit dump identifier and press CR. This dump identifier is placed on the first record of the tape for future reference. The console displays:

```
NONZERO INHIBITS REWIND
```

To prevent the tape from rewinding before and after a dump, enter a nonzero octal number and press CR. To rewind the tape before and after the dump, either enter 0 and press CR or press CR with no entry. Multiple dumps may be taken on a tape by inhibiting rewind on each dump.

If the dump tape equipment is not ready, the following message is displayed:

```
DUMP TAPE ON CHcc EQee UNuu NOT READY (CR WHEN READY)
```

cc	channel number
ee	equipment number
uu	unit number

You must ready the equipment and press CR to continue.

If the write ring is not on the tape, the following message is displayed:

```
DUMP TAPE ON CHcc EQee UNuu NO WRITE RING (CR WHEN READY).
```

In this case, you must insert the write ring and press CR.

Option	Description

The contents of central memory (including extended memory on the models 815, 825, 835, and 855), PP memories, S/C register† (except models 815, 825, 835, and 855), maintenance registers (models 815, 825, 835, and 855 only), processor control memories (models 815, 825, 835, and 855 only), and the CPU hardware register are dumped.

If the tape error occurs during dumping, the following message appears:

```
ERROR IN (error)
FATAL TO DUMP OPERATION

DUMP SUCCESSFUL FOR
/equipment/
(CR) TO SEE ERROR STATUS
```

error	Description
UN	Unit errors.
EQ	Controller errors.
CH	Channel errors.

equipment	Description
BC	Buffer controller.
CM	Central memory.
CPU	Central processor hardware registers.
ECS-LCM	Extended memory (except unified extended memory).
FLPP	First level peripheral processors (for model 176 only).
MMR††	Memory maintenance registers.
MR	Maintenance registers (for models 815, 825, 835, 855, 865, and 875).
PCS††	Processor control store.
PEP††	Processor exchange package.
PMR††	Processor maintenance registers.
PP_i	Peripheral processors numbered consecutively ($0 \leq i \leq 17$).
PRF††	Processor register file.
SCR†††	Status and control registers.

†For models 865 and 875, S/C registers are maintenance registers.
††For models 815, 825, 835, and 855 only.
†††Except models 815, 825, 835, and 855. For models 865 and 875, S/C registers are maintenance registers.

Option	Description

If you press CR following this display, the system displays general and detailed equipment status information.

NOTE

If a CPU is logically turned off, a flag indicating this is set in the dump and the CPU is not exchanged during EDD execution. If CPU0 is down on a one-CPU machine, both CPU0 and CPU1 must be logically turned off at deadstart to avoid exchanging of the registers.

For the CYBER 170 Computer Systems (except models 815, 825, 835, and 855) you can optionally dump extended memory. The console displays:

```
ECS SIZE/1000 0000
```

To dump extended memory, enter a four-digit number representing extended memory size/1000 and press CR. To prevent dumping of extended memory, either enter 0 and press CR, or press CR with no entry.

NOTE

If both CPUs are logically turned off, no extended memory dump is performed regardless of the value entered.

Option	Description

If an extended memory dump does not end normally, the central memory buffer used in the dump procedure must be restored. If the buffer is not restored, a level 3 deadstart is not possible. To restore the central memory buffer after a tape error or other problem which causes the abnormal ending of the extended memory dump, enter S.

The buffer controller memory of disk and tape systems can then optionally be dumped. The console displays:

```
CONTROLWARE CHANNEL 00
```

Enter the two-digit channel number of the controller to be dumped and press CR. This sequence continues until you press CR with no entry.

NOTE

There is no capability in the deadstart dump interpreter (DSDI) to translate controlware dumps.

Whenever EDD is waiting for input, the dump can be stopped by entering the character S. The console displays:

```
DUMP id STOPPED
```

id Dump identifier.

When the dump is complete, the console displays:

```
DUMP id COMPLETE
```

id Dump identifier.

If you reconfigured the PPs before the dump, reconfigure them to their normal settings after the system completes the dump.

Activate the deadstart switch. The initial options (*A*) display reappears and additional options can be selected.

Option	Description
I	Install CTI on RMS. Select this option to load the CTI module onto an 885-11/12 or 844 mass storage device or to release space occupied by the CTI module on an 885-11/12 or 844 mass storage device. Refer to the NOS 2 Installation Handbook for further information.
P	Dump to a line printer. Select this option to dump part or all of central memory, a PP memory, or, on a CYBER 170 Computer System (except models 815, 825, 835, and 855), the S/C register † contents to a line printer. The display shown in figure II-2-26 appears on the left screen. You cannot return to the *U* display from this display. You must redeadstart the system. The program uses default values shown for the A and B options or, if they exist, values contained in the shared disk area for printer specifications (refer to the NOS 2 Installation Handbook). To change these values, you must initialize the printer.

```
A - 512 PRINTER INITIALIZE
B - 580 PRINTER INITIALIZE
C - PP MEMORY DUMP
D - CM DUMP
E - SCR DUMP†
F - PPU DUMP††
G - REGISTER FILE DUMP†††
H - PP MEMORY DUMP IN HEX†††
I - CM DUMP IN HEX†††
J - REGISTER FILE DUMP IN HEX†††
K - IOU REGISTER DUMP IN HEX†††
L - CM REGISTER DUMP IN HEX†††
M - CPU REGISTER DUMP IN HEX†††
N - CONTROL STORE DUMP IN HEX†††
O - PEM REGISTER DUMP IN HEX†††
```

† Does not appear when executing on models 815, 825, 835, and 855. For models 865 and 875 this line appears as MR DUMP.
†† Appears only when executing on model 176.
††† Appears only when executing on models 815, 825, 835, and 855.

Figure II-2-26. Dump to Printer Options

Option	Description
A	Select this option to initialize the 512 line printer buffer image with the data necessary to print with a 512-1 print train. The A parameter provides compatibility with previous systems.
B	Select this option to initialize the 580 line printer buffer image and format buffer image memories. The following message appears on the screen.††

```
PRINTER CH = 12
```

† For models 865 and 875, S/C registers are maintenance registers.
†† If you deadstart from a disk, and parameters for printer channel, equipment, and train type are specified in the default parameter block of the CTI/MSL disk area, those parameters appear. They can be overridden by specifying new parameters here. If you deadstart from tape, the default parameters shown here appear.

Option	Description

Option	Description
	Press CR to accept the default channel number. To specify a channel other than the default, enter the proper channel number and press CR. The following line appears. **PRINTER EQ = 5** Press CR to use this equipment number. To specify a different equipment number, enter the number and press CR. The following options appear next. **1 = 596-1** **2 = 596-2†** **3 = 596-3†** **4 = 596-4†** **5 = 596-5** **6 = 596-6** **TRAIN SEL = 5**

†Although these are legitimate train types for use during CTI, they are not supported by NOS.

Option	Description

Option	Description

If the default train type of 5 is acceptable, press CR. Otherwise enter the number of the correct train type and press CR. After the CR, the following message appears.†

```
SET FORMAT BUFFER Y OR N
        Y = YES
        N = NO

     (DEFAULT = Y)
```

Press CR to begin initializing the print buffer and format buffer memories. Type N followed by CR to initialize only the print buffer memory.

The following error messages may appear on the screen.

```
PRINTER NOT READY

PRINTER BUSY

FUNCTION TIMEOUT, (CR) TO RETRY

INVALID ENTRY
```

For the PRINTER BUSY and PRINTER NOT READY messages, program execution continues without operator intervention when the condition clears.

For the FUNCTION TIMEOUT message, press CR to retry the function. If the error recurs, check to make sure the correct channel was specified. If the channel and equipment entries are correct, redeadstart. If the error appears, contact a site analyst.

The INVALID ENTRY message indicates a character was entered that was not part of the accepted character set. Entering any valid character clears the message.

C — Select this option to dump PP memories and, for models 815, 825, 835, and 855 PP memories, their associated R registers, in octal format. The following message appears.

```
PP NO =
```

†If you deadstart from a disk and a parameter for format buffer is specified in the default parameter block of the CTI/MSL on disk area, that parameter appears. It can be overridden by specifying a new parameter here. If you deadstart from tape, the default parameter shown here appears.

Option	Description

Option	Description
	Enter the number of the PP to be dumped or A to dump all PPs except PP0; then press CR. If you select a PP that does not exist, the following message appears. PP UNAVAILABLE, (CR) TO RE-ENTER Press CR and enter the correct PP number. If communication with a PP is lost, the following message appears. PP HUNG, (CR) TO RETRY Press CR to retry the function. If the message recurs, redeadstart. If on a subsequent attempt the message reappears, contact a customer engineer.
D	Select this option to dump a selected area of central memory in octal format. The following message appears. START ADRS = Enter the starting address of the memory to be dumped and press CR. The following message appears. END ADRS = Enter the last address to be dumped and press CR. If the first address entered is larger than the second address, the following message appears. INVALID SELECTION, (CR) TO RETRY Press CR and reenter both addresses. If you enter an address that is beyond the CM size, the following message appears. CM UNAVAILABLE, (CR) TO RE-ENTER Press CR and enter a correct address. If the program is unable to access central memory, the following message appears. ELEMENT NOT ACCESSIBLE You must deadstart the system when this message occurs. Then you can retry the dump. If the message recurs, contact a customer engineer.

Option	Description

Option	Description
E	Select this option to dump status and control registers† in octal format. No further action is necessary. The same error messages that appear when initializing a printer may appear with this option. This option appears only on CYBER 170 Computer Systems except models 815, 825, 835, and 855.
F	Select this option to dump PPU memories in octal format. This option only appears on model 176. The following message appears. PPU NO = Enter the number of the PPU to be dumped, or A if all are to be dumped, followed by CR. If you select a PPU that is outside the range 1 through 15_8, the following message appears. PPU UNAVAILABLE, (CR) TO RETRY Press CR and enter the correct PPU number. If you select a PPU within the range $1\text{-}15_8$ but it does not physically exist, the program attempts the dump but prints no data. The initial options display reappears as it does at the completion of a normal dump. The same error messages that appear when initializing a printer may appear with this option.
G	Select this option to dump the CPU register file contents in octal format. No further action is necessary. If the CPU is not accessible, the following message appears. ELEMENT NOT ACCESSIBLE When this message appears, you must redeadstart and, if required, retry the operation. If the message reappears, contact a customer engineer. If microcode is not operational, the register contents are dumped but will contain invalid information, either all zeros or all ones, depending on the mainframe model.

†For models 865 and 875 this line appears as MR DUMP to indicate the dumping of maintenance registers.

Option | Description

Option | Description

H — Select this option to dump PP memories in hexadecimal format. The messages and actions required for this option are identical to those described for option C.

I — Select this option to dump a selected area of central memory in hexadecimal format. The following message appears.

```
SELECT ADDRESS MODE
   H = HEX ADRS
   B = BYTE ADRS
```

Enter either H for hexadecimal address entry mode or B for byte address entry mode. If you select byte address entry mode, the program converts the address to a hexadecimal word address, reads central memory, converts hexadecimal word address to the corresponding byte address, and then dumps central memory. The following message appears.

```
START ADRS =
```

The actions required, subsequent messages, and possible error messages are identical to those described for the D option.

J — Select this option to dump the CPU register file contents in hexadecimal format. The possible error messages are identical to those described for option G.

K — Select this option to dump the IOU maintenance register contents in hexadecimal format. No additional action is required. If the IOU is not accessible, the following message appears.

```
ELEMENT NOT ACCESSIBLE
```

When this message appears, you must redeadstart and, if required, retry the operation. If the message reappears, contact a customer engineer.

L — Select this option to dump the central memory maintenance register contents in hexadecimal format. No additional action is required. If central memory is not accessible, the following message appears.

```
ELEMENT NOT ACCESSIBLE
```

When this message appears, you must redeadstart and, if required, retry the operation. If the message reappears, contact a customer engineer.

Option	Description

Option	Description
M	Select this option to dump the CPU maintenance register contents in hexadecimal format. If microcode is not executing, the program dumps only the hardware maintenance registers, and in place of the software registers the following message appears on the printer dump. MICROCODE HUNG If the CPU maintenance registers are not accessible, the following message appears. ELEMENT NOT ACCESSIBLE When this message appears, you must redeadstart and, if required, retry the operation. If the message reappears, contact a customer engineer.
N	Select this option to dump the contents of control store in hexadecimal format. No additional action is required. If control store is not accessible, the following message appears. ELEMENT NOT ACCESSIBLE When this message appears, you must redeadstart and, if required, retry the operation. If the message reappears, contact a customer engineer.
O	This option is reserved for future development.

S Alternate deadstart. Select this option to specify an alternate tape unit or disk device from which to deadstart. This device can be deadstarted using the panel settings described previously. The display shown in figure II-2-27 appears on the left screen.

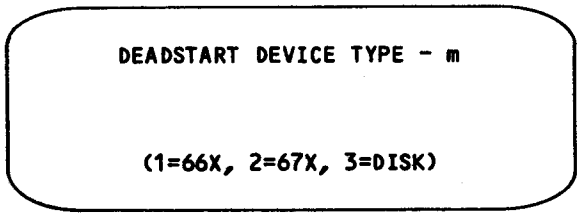


Figure II-2-27. Alternate Deadstart Display

Option	Description
	m is the device type currently indicated on the deadstart panel when deadstarting from tape. When you deadstart from disk, m is the device type specified in the default parameter block of the CTI/MSL disk area. If this parameter block is not present, zeros are placed in the m field. Press CR to use this device type. To specify an alternate device type, enter a 1, 2, or 3 to replace m and press CR. The following line appears. CHANNEL - cc cc is the channel currently indicated on the deadstart panel when deadstarting from tape. When you deadstart from disk, cc is the channel specified in the default parameter block of the CTI/MSL disk area. If this parameter block is not present, zeros are placed in the cc field. Press CR to use this channel. To specify an alternate channel, enter the channel number to replace cc and press CR. The following line appears. EQUIPMENT - e e is the equipment currently indicated on the deadstart panel when deadstarting from tape. When you deadstart from disk, e is the equipment number specified in the default parameter block of the CTI/MSL disk area. If this parameter block is not present, zeros are placed in the e field. Press CR to use this equipment. To specify an alternate equipment, enter the equipment number to replace e and press CR. The following line appears. UNIT - uu uu is the unit number currently indicated on the deadstart panel when deadstarting from tape. When you deadstart from disk, uu is the unit number specified in the default parameter block of the CTI/MSL disk area. If this parameter block is not present, zeros are placed in the uu field. Press CR to use this unit number. To specify an alternate unit number, enter the unit number to replace uu and press CR. The system now deadstarts from the alternate device. The initial options (*A*) display reappears.
T	Install MSL/HIVS on rotating mass storage. Select this option to install HIVS on an 844 or 885-11/12 mass storage device. Refer to the NOS 2 Installation Handbook for further information.

INITIALIZE MAINFRAME (I)

Selecting option I on the *A* display causes the following message to be added to the bottom of the display.

```
    ALL MAINFRAME MEMORIES WILL
BE INITIALIZED FOR MSL/OS LOADS.
```

At this point, the next option selected from the *A* display determines the extent of initialization performed.

Entry of a CR when a level 0, 1, or 2 deadstart recovery is specified by the deadstart program causes CTI to clear all central memory, PP memory, extended memory, and maintenance registers. No maintenance register errors are reported until after this initialization process has completed.

Entry of a CR when a level 3 deadstart recovery is specified by the deadstart program causes the following display to appear:

```
      OS LOAD IMPOSSIBLE
POWER ON INITIALIZATION AND
RECOVERY DEADSTART SELECTED
 DEADSTART AND SELECT ONLY
       ONE OPTION.
```

Reset the deadstart program for a level 0, 1, or 2 deadstart and press the DEADSTART switch.

Entry of the M causes CTI to clear all central memory, PP memory, extended memory, and maintenance registers (except for the EC register), establishes the environment interface, and loads the off-line diagnostics program. For more information on off-line diagnostics, refer to the hardware operator's guide for your particular mainframe.

Entry of an O or U presents the desired CTI display. CR must be entered at some time following an O or U entry to clear all mainframe memories.

NOTE

Pressing the DEADSTART switch while in the O or U utility returns you to the *A* display without performing any additional initialization.

MODIFYING THE CMRDECK

If bit 6 of word 13 (word 12 for warmstart on CYBER 70 or 6000 Computer Systems with an active PP) is set (ppp=001), or if you select the D=Y option on the *P* display, an instruction display entitled CMRINST appears on the console screen(s) after you press the final CR in response to the CTI displays. All valid CMRDECK entries are defined in this display. Several of the entries listed are assigned system default values. These values are assumed if the entries do not appear in the CMRDECK being used. To view the contents of the CMRDECK being used, press the right blank key (rightmost blank key on top row of console keyboard; refer to figure II-1-1). The CMRINST display is returned by pressing the right blank key again.

The display alternates each time the right blank key is pressed. If either the CMRDECK or CMRINST overflows two screens, the display can be advanced by pressing the + key.

Modify the CMRDECK by entering the appropriate changes or additions from the console keyboard. These entries can be made while either CMRDECK or CMRINST is being displayed. Generally, each console entry supersedes the value currently specified in the CMRDECK (or default value in CMRINST).

Since the extent of operator responsibility in modifying the CMRDECK can vary from one installation to another, table II-2-5 describes the operator entries that can only be entered from the console. Refer to the NOS 2 Installation Handbook for complete information concerning all CMRDECK entries.

NOTE

The modified CMRDECK remains in effect only until the next deadstart is performed. Changes to the CMRDECK are not recovered for the next deadstart unless a new deadstart file is created to reflect those changes.

If it is necessary to modify a specific APRDECK or the IPRDECK, refer to Modifying the APRDECK or Modifying the IPRDECK in this section. Otherwise, to indicate that all modifications to the CMRDECK are complete, type

```
GO.
```

and press CR.

MODIFYING THE APRDECK

After completing all CMRDECK modifications, you can also modify the default APRDECK, the APRDECK for a specific equipment, or the IPRDECK being used. If no changes need to be made to any APRDECK, but you do need to modify the IPRDECK, refer to Modifying the IPRDECK in this section.

Table II-2-5. CMRDECK Entries (Sheet 1 of 2)

Entry	Function
AUTOLOAD.	Toggles the selection of buffer controller autoloading for all 7054/7154/7152/7155 controllers. This entry is illegal in the CMRDECK and can only be entered from the console at deadstart time. This entry, which affects all 7054/7154/7152/7155 controllers defined on the mainframe being deadstarted, is not necessary for normal system operation but is provided as an aid to hardware checkout.
GRENADE.	Toggles the selection of the grenade function. The grenade function is issued to all 7054/7154/7152/7155 controllers, once the controlware is loaded. This function causes unit reservations to be cleared on all 844 units physically connected to each controller. This entry is normally used when a unit reservation from a downed mainframe exists on a device. Use this entry with caution since it can interrupt the operation of another machine that could be accessing affected units through another controller. This entry is illegal in the CMRDECK and can be entered only from the console at deadstart time.
INITIALIZE,op,eq_1,eq_2,...,eq_n.	Blank labels mass storage devices during a level 0 deadstart. This entry is valid only when entered from the console keyboard. That is, the INITIALIZE entry cannot be included as part of the CMRDECK on the deadstart file. Before any mass storage device defined in the CMRDECK (by an EQ entry) can be used, it must have a label that can be recognized by the system. Existing labels are normally recovered automatically during all levels of system deadstart. However, if the existing label is destroyed (for example, during maintenance operations on the device) or if a new mass storage device is added to the system, you enter the INITIALIZE command to create a new label. op Level of initialization AL Total initialize. PF Permanent files. QF Queued files. DF System dayfile. AF Account dayfile. EF Error log dayfile. FP Format pack (844). MF Binary maintenance log. eq_1 One- to two-digit number specified in EQ entry for device (for example, EQ05...). This is also the EST ordinal for the device. Any number of devices can be initialized with the same level of initialization, provided the command is no more than 72 characters in length.

Table II-2-5. CMRDECK Entries (Sheet 2 of 2)

Entry	Function
	Depending upon the levels of initialization selected, all or part of the previously existing information on the device is lost when the new label is created. Total initialization or 844 format pack (AL or FP options) destroys all information on a device. The other options selectively purge information. A separate INITIALIZE entry is required for each option selected. Selecting FP results in an automatic system selection of AL. The system deletes all existing information (including the system deadstart file) from a device initialized with the AL option (you cannot initialize the device from which you are deadstarting). You should initialize a device if you just loaded CTI, HIVS, or MSL on it. No options (except AL and FP) are processed until deadstart is completed. At that time, the K display is requested and you must enter the family name (FM) and device number (DN) of the device to be initialized. This is a final check to ensure that the correct device is being initialized; the selected options are then processed. If permanent files are to reside on the device being initialized, the CMRDECK should contain a PF entry for that device. The PF entry corresponds to the EST ordinal specified in the EQ entry and indicates that permanent files can reside on the device. If the CMRDECK displayed contains a PF entry for the device being initialized, a new PF entry is not required unless the existing entry is to be altered, or the associated EQ entry is altered. Modification of an existing EQ entry clears all other associated entries except SYSTEM, LINK, and FAMILY entries (PF, INITIALIZE, and so forth, are cleared). In addition, if PF entries do not exist in the CMRDECK, initializing the device causes a default family name and device number to be assigned. Thus, it is necessary to reestablish the PF entry via the console keyboard if the device is to remain a permanent file device. For this reason, it is recommended that the PF entry for all mass storage devices used for permanent files reside in the CMRDECK. Although this is recommended, it is not required. Refer to the NOS 2 Installation Handbook for complete information concerning the PF entry to CMRDECK. If the EQ entry in the CMRDECK displayed indicates that the status of a particular mass storage device is off when the INITIALIZE entry is made, initialize status is maintained and occurs automatically when the DSD command ON is entered for that device during normal system operation. It should be noted that initialization of mass storage devices can also be accomplished during normal system operation via the DSD command INITIALIZE (refer to description of command in section 3).

The APRDECK contains entries to the reserve areas of mass storage that are not usable (flaws). The APRDECK used can vary from equipment to equipment. One of the parameters specified when an equipment is defined in the CMRDECK is the APRDECK number that applies to that equipment. The default (APRDECK 0) is selected if this parameter is not specified.

To modify an APRDECK type

NEXT.

and press CR while the CMRDECK or CMRINST is being displayed. The APRINST display describes the legal entries. Enter the changes or additions to the APRDECK from the console keyboard (refer to the NOS 2 Installation Handbook for a description of the entries).

If there are no changes to the APRDECK displayed, type

NEXT.

and press CR to go to the next APRDECK. Repeat this process until the appropriate APRDECK is displayed or until you have changed all APRDECKs needing changes.

After all APRDECK modifications are complete, you can skip to the IPRDECK (either the default IPRDECK defined during system installation or the IPRDECK specified by the IPD command in the CMRDECK) by typing

IPR.

and pressing CR. You can refer to Modifying the IPRDECK in this section for more information. If there are no IPRDECK modifications, you can type

GO.

and press CR to indicate that changes to the CMRDECK, APRDECKs, and IPRDECK are complete.

MODIFYING THE IPRDECK

The IPRDECK contains installation parameters that describe the mode of system operation. IPRDECK modification is seldom required during deadstart since nearly all IPRDECK commands are also valid DSD commands that make the same changes during normal system operation. Generally, installation parameters changed during normal operations (with DSD commands or by modifying the IPRDECK) are retained only across a level 3 recovery deadstart. All valid DSD commands are described in section 3 of this manual.

After typing

IPR.

and pressing CR when all the CMRDECK or APRDECK modifications are complete or after repeatedly typing NEXT. to step through all the APRDECKs, the instruction display entitled IPRINST then appears on the console screen(s). This display defines all valid IPRDECK entries. Most of these entries are also valid DSD commands. To view the contents of the IPRDECK being used, press the right blank key (figure II-1-1). The display alternates each time the right blank key is pressed. If either the IPRDECK or IPRINST overflows two screens, you can advance the display by pressing the + key.

Enter the appropriate changes or additions from the console keyboard. These entries can be made while either IPRINST or the IPRDECK is being displayed. A console entry supersedes the value currently specified in the IPRDECK.

NOTE

The modified IPRDECK remains in effect only until the next level 0, 1, or 2 deadstart is performed. Changes to the IPRDECK are retained if a level 3 recovery deadstart is performed.

For complete information concerning IPRDECK entries, refer to the NOS 2 Installation Handbook and to section 3 of this manual (DSD commands).

To indicate that changes to the CMRDECK and/or IPRDECK are completed, type

GO.

If you are performing a level 0 or level 2 deadstart, the system library is automatically loaded from the deadstart file to each mass storage device specified in the CMRDECK as a system device. If no system device is specified, the system is loaded on the first nonremovable mass storage device in the equipment status table.

If you specify a level 1 or level 3 recovery deadstart, the system library is not reloaded. In this case, the deadstart file is rewound and is not accessed again until another deadstart operation is performed. The system library is recovered from checkpoint information on mass storage. Central memory tables such as the system file name table (system FNT), executing job table (EJT), queued file table (QFT), equipment status table (EST), and track reservation table (TRT) are either recovered from checkpoint information for level 1 or from central memory (and the link device, extended memory, if in multimainframe mode) for level 3.

If a deadstart error occurs, a message appears on the right console screen and, depending upon the nature of the error, deadstart processing may halt. Refer to Error Processing in this section for complete information and corrective action. If the system is being loaded (level 0 or 2 only), the name of each system library program is also displayed on the right console screen as it is being loaded. This allows you to monitor deadstart progress.

The left console screen contains the message ENTER DATE YY/MM/DD and indicates that you can begin system initialization (refer to Initializing the System in this section). You can perform system initialization while the system is being loaded.

INITIALIZING THE SYSTEM

Each time a system deadstart function is performed, it is necessary to initialize the system. Essentially, this consists of entering the current date and time. The system uses the date and time (updated every second) for dayfile messages and for permanent file catalogs and directories for files being accessed. This includes the creation, last modification, and last access date and time for each permanent file in the system. It is important to enter the correct date and time in order to accurately maintain these system records. If you are performing a level 3 recovery deadstart, it is possible to recover the date and time from the previous system deadstart. However, this is not recommended since the new date and time recorded for system records would no longer be accurate.

When the system loading (or recovery) phase of deadstart is about to begin, the system checks for the presence of a wall clock chip. If the clock is present, the date and time are automatically read from it. If the clock is not present, the following one-line message appears in the center of the left console screen and requests entry of the current date.

```
ENTER DATE YY/MM/DD.
```

Type the current date, followed by CR, in the following format.

```
yy/mm/dd.
```

yy Year; 00 through 99.

mm Month; 01 through 12.

dd Day; 01 through nn (nn is the number of days in the month).

For deadstart levels 0, 1, and 2, pressing CR without first entering the date causes the system to assume the date that the deadstart file was created. For level 3 recovery deadstart, pressing CR alone recovers both the previous date and time (time entered during the last deadstart plus time accumulated until this deadstart).

When the system accepts the date entry, it displays the following request for entry of the current time.

```
ENTER TIME HH.MM.SS.
```

Type the current time followed by CR in the following format.

```
hh.mm.ss.
```

hh Hour; 00 through 23.

mm Minute; 00 through 59.

ss Second; 00 through 59.

For deadstart levels 0, 1, and 2, pressing CR without first entering the time causes the system to set the time to 00.00.00. If you enter CR alone following the date prompt on a level 3 recovery, this prompt to enter time does not appear (the previous time is assumed).

DSD commands specified in the IPRDECK automatically initiate normal job processing. If a level 1 or level 3 recovery deadstart is being performed, the system recovers all jobs and active files and resumes normal operation immediately. However, if an initial deadstart (level 0) or level 2 recovery deadstart is being performed, job processing may not be initiated immediately. The time to initiation depends upon the time it takes to load the system from the deadstart file (you can monitor progress on the right console screen). If file loading is not completed when the time entry is made, the DSD commands specified in IPRDECK are displayed and flashed on the lower portion of the left screen. Until file loading completes, you can clear one or more of the DSD commands by pressing the left blank key (third key from right on top row of keyboard; refer to figure II-1-1) as many times as is necessary.

Clearing a command prevents it from being executed when file loading completes. In this case, you must manually enter from the console keyboard the commands necessary to initiate job processing (refer to Initiating Job Processing).

INITIATING JOB PROCESSING

Control point assignment is automatic under system operation. Once deadstart is complete, processing proceeds with little or no intervention on your part. The DSD commands necessary to initiate job processing are set up in the IPRDECK. To clear the initial DSD commands, you press the left blank (erase) key for each command. To initiate job processing, enter either

AUTO. or MAINTENANCE.

Following entry of the AUTO or MAINTENANCE command during an initial (level 0) deadstart, the deadstart sequencing process begins. Deadstart sequencing causes job processing to be suspended until all system files in the default family are initiated. To initiate a family other than the default, enter the command

X.ISF,FM=family.

family Alternate family of devices.

For additional information concerning the ISF command and deadstart sequencing, refer to the NOS 2 System Maintenance Reference Manual.

Normal job processing begins after the deadstart sequencing job completes. If the AUTO command is entered, the subsystems enabled in the IPRDECK are automatically assigned to specified control points. Assuming that all standard subsystems are set to be enabled, the system calls them to specific control points as shown in the following example:

Control Point Number†	Job Sequence Name	Activity
1	IAF	Interactive facility.
2	NAM	Network Access Method.
3	TAF	Transaction subsystem executive routine.
4	NEXT	Available for automatic system assignment.
•	•	
•	•	
•	•	
n-3	NEXT	
n-2	MAG	Magnetic tape subsystem executive routine.
n-1	BIO	Central site automatic batch input/output.
n	RBF	Remote batch facility.
n+1	SYS	System.

†n is the number of control point defined in the CMRDECK.

The MAINTENANCE command performs the same function as the AUTO command. Additionally, it assigns several maintenance routines, according to mainframe type, to available control points and runs them as normal jobs with minimum queue and CPU priorities. These are CPU or central memory test routines designed to detect hardware errors. The routines display error messages either at the control point on the B display (refer to section 4) or in the system error log. To display the error log, type:

```
A,ERROR LOG.
```

You should monitor these routines from time to time. If a maintenance routine displays an error message indicating a hardware malfunction occurred, call a customer engineer. It is recommended that these programs be run at all times. The maintenance programs use little memory, are run at minimum CPU and queue priority, and are automatically rolled out if necessary; thus, system performance is not severely affected. Descriptions of the maintenance routines are in the On-Line Maintenance Software Reference Manual.

PREPARING FOR RECOVERY DEADSTART

Sometimes during system operation an uncorrectable error occurs that prevents further system activity. Often the situation can be corrected by deadstarting the system and recovering prior activity. The success of such a recovery depends upon the severity of the problem and the extent to which system information is destroyed. There are three levels of recovery deadstart available (levels 1, 2, and 3). Table II-2-6 lists each deadstart level, including level 0 (initial deadstart), and describes the extent of recovery possible.

If you are deadstarting in a multimainframe environment, refer to appendix E, Multimainframe Operation.

If the MS VALIDATION installation option† is enabled during a level 1 or 2 recovery, or if both the MS VALIDATION and PF VALIDATION options† are enabled during a level 3 recovery, the system:

- Verifies selected mass storage files.
- Checks files identified in the queued file table (QFT) to ensure that all tracks in the chain are reserved and that no circular linkage exists.
- Depending on file type, checks the track reservation table to ensure that the file is preserved.
- Checks all preserved files for proper length.

If the system encounters a verification failure, it clears the queued file table entry but does not release disk space assigned to the file. If a length error is detected, the system sets error idle status and terminates recovery operations on the device.

During level 0 deadstart, the system verifies the length of preserved files regardless of the setting of the MS VALIDATION option. If a length error is detected, the system reads the disk chain to determine the correct length of the file, issues a message to the B display, and stops recovery of the device. To alter the EOI for the file and proceed with recovery, enter

```
GO,SYS.
```

To terminate recovery of the device, enter

```
PAUSE,SYS.
```

---

†Refer to the NOS 2 Installation Handbook for a description of the MS VALIDATION and PF VALIDATION IPRDECK entries.

The following topics provide general information concerning each level of system deadstart and recommended steps of preparation.

Table II-2-6. Levels of System Deadstart

Deadstart Level	Information Recovered				
	Jobs	Queued Files	Permanent Files	System	System Dayfiles
0	Input and output queues recovered.†	No.	Yes.	No.	Yes.††
1	Recovered from last checkpoint.	Recovered from last checkpoint.	Yes.	Recovered from last checkpoint.	Yes.
2	Recovered from last checkpoint.	Recovered from last checkpoint.	Yes.	No.	Yes.
3	Recovered from CM copy of EJT.†††	Recovered from CM copy of QFT.	Yes.	Yes.	Yes.

†The input and output queues are recovered. Rollout queues are also recovered as input files. Input files associated with jobs currently executing are returned to the input queues, unless the device they reside on is initialized.
††Dayfiles are recovered unless initialized by an INITIALIZE entry in the CMRDECK.
†††Jobs that are rolled out continue. Jobs that are in CM are rerun.

CAUTION

Before attempting any level of recovery deadstart (including level 0), examine the current status codes listed for each mass storage device in the mass storage status (E,M.) display. Delay deadstart if status code C (checkpoint requested) appears for any device. When the system has processed the request, status code C is cleared (maximum of 30 seconds). Refer to section 4 for complete information concerning the mass storage status (E,M.) display. Failure to observe this caution may result in the loss of permanent file information.

LEVEL 3 RECOVERY DEADSTART

Usually you perform a level 3 recovery deadstart following an equipment or system malfunction (for example, channel or PP hung), providing the system remains intact. Basically, the system FNT, QFT, EJT, TRT, EST, and control-point areas of central memory must be intact in order to successfully perform a level 3 recovery deadstart. However, unless you can determine that central memory is no longer intact, attempt a level 3 recovery deadstart before a level 0 deadstart. This is recommended because system activity, as it existed at the time of the malfunction, can best be recovered by performing a level 3 recovery deadstart. Only PP memory confidence testing occurs during a level 3 recovery deadstart; central memory is not affected.

Requests for device checkpoint are retained over a level 3 recovery. Therefore, if a system malfunction prevents a device checkpoint from being done, the checkpoint is processed after level 3 recovery is successfully completed. If a level 3 recovery fails, determine during level 0 deadstart if checkpoint requests were pending by dumping mass storage tables and examining them for checkpoints. If you find any checkpoint requests pending on a device, dump and reload the permanent files residing on the device to save the files as they were at the time of the malfunction.

A level 3 recovery deadstart is impossible after:

- An attempted checkpoint recovery (level 1).
- An aborted level 0 (initial) deadstart.
- The MREC utility (refer to section 6) has been run for the machine to be deadstarted while in multimainframe mode.

It is recommended that you stop system activity prior to beginning the system deadstart procedure (that is, before activating the deadstart switch). To accomplish this, enter the following DSD commands.

ONSW,IAF,1.

Notifies the interactive subsystem to enter all users into recovery state when the subsystem is terminated. This and the following command are necessary only if the interactive subsystem is active.

UNLOCK.

Necessary only if console is currently locked.

STOP,IAF.

Drops the interactive subsystem.

CHECK POINT SYSTEM.

Provides for termination of job processing and for writing the contents of central memory tables to mass storage. For a complete description of this process, refer to the CHECK POINT SYSTEM command in section 3.

STEP.

Prevents the system from processing PP requests. This stops all central memory I/O operations. You should enter the STEP command after all device checkpoints are completed. Determine checkpoint status from the mass storage status (E,M.) display (refer to section 4).

LEVEL 1 RECOVERY DEADSTART

Usually you perform a level 1 recovery deadstart to resume normal processing following maintenance procedures. The system, all jobs, and all active files are recovered from checkpoint information on mass storage.

NOTE

A level 1 recovery deadstart is not intended to be a recovery process after a system/equipment malfunction. You should never attempt it after a level 3 recovery deadstart fails.

Level 1 recovery is also useful in system test situations. If two systems are being alternated, separate mass storage devices and tapes† must be available for both systems. Tapes are not repositioned after a level 1 deadstart. Thus, if a job was previously assigned to the tape unit which has been used for deadstarting, the job cannot be recovered. The tape unit should be left unloaded after recovery until it is no longer assigned to the job (job aborted).

The following rules apply when performing a level 1 recovery deadstart.

- The DSD command CHECK POINT SYSTEM (refer to section 3) must have been successfully completed immediately before the end of the last NOS operating period.
- Memory dumps must be completed before level 1 recovery deadstart begins since memory confidence testing destroys the contents of both central memory (except models 815, 825, 835, and 855) and PPs.
- The mass storage equipment configuration must be the same as specified during the most recent level 0 deadstart, that is, the same CMRDECK must be used.
- The system devices (mass storage devices on which the system library resides) must be the same as or fewer than those specified during the most recent level 0 deadstart.

†Separate tapes are necessary only if tape jobs are being checkpointed.

It is recommended that you stop system activity before beginning the system deadstart procedure (that is, before activating the deadstart switch). To accomplish this, enter the following DSD commands.

CHECK POINT SYSTEM.

Provides for termination of job processing and for writing the contents of central memory tables to mass storage. For a complete description of this process, refer to the CHECK POINT SYSTEM command in section 3.

UNLOCK.

Necessary only if console is currently locked.

STEP.

Prevents the system from processing PP requests. This stops all central memory I/O operations.

LEVEL 2 RECOVERY DEADSTART

Usually you perform level 2 recovery deadstart in system test situations; it is not recommended for the normal production environment. If you select level 2 recovery, all jobs and active files are recovered from checkpoint information on mass storage as in level 1 recovery. However, no attempt is made to recover the system. Instead, the system is loaded from the deadstart file as in level 0 deadstart. In all other respects, level 2 recovery is identical to that described for level 1, and all level 1 rules apply.

LEVEL 0 INITIAL DEADSTART

Use level 0 or initial deadstart in cases where a recovery deadstart is not possible. This is a complete or initial load from the deadstart file. Only preserved files, which includes permanent files, queued files, and system dayfiles, are recovered (preserved files are recovered on all levels of system deadstart). Because memory confidence testing destroys the contents of central memory (except on models 815, 825, 835, and 855) and PPs, all memory dumps must be completed before deadstart begins.

NOTE

If the machine is the first machine being deadstarted in a multimainframe environment or independent shared device environment, you must enter a PRESET command (refer to the NOS 2 Installation Handbook for description).

ERROR PROCESSING

If no CTI display appears after you press the deadstart switch, perform the following steps as needed. After each step, press the deadstart switch to see if the problem has been eliminated.

For deadstart from tape:

1. If the unit select switch on the deadstart tape unit is not on (tape does not move), check the channel, controller, and unit selections on the deadstart panel to ensure they are set correctly.

2. If the unit select switch is on, the correct unit was selected; however, check word 11 of the deadstart panel to ensure it is set correctly.

3. Ensure that a 7-track tape is not mounted on a 9-track drive or vice versa. Also, ensure that a deadstart tape is not mounted on a tape unit which does not support the density of the deadstart tape.

4. Ensure that the deadstart tape is an I-mode unlabeled tape.

5. Ensure that the card reader and tape unit (667 or 669 only) are not on the same channel and that the card reader is not on a channel with a PP. Also, ensure that two or more units do not have the same physical unit number.

6. If still no display appears after activating the deadstart switch, inform a site analyst. There might be a parity error on one of the first records of the deadstart tape or the magnetic tape controller might have detected a channel parity error on a CYBER 170 Computer System.

For deadstart from disk:

1. Ensure that the disk is spinning, the READY light is on, and the SELECT light is on.

2. Ensure that the disk has the CTI module loaded.

3. Ensure that the deadstart panel is set correctly.

4. Select an alternate channel.

5. If still no display appears after activating the deadstart switch, inform a site analyst. There might be a parity error on one of the first records of the deadstart file or the disk controller might have detected a channel parity error on a CYBER 170 Computer System.

For a proper understanding of the problems that can occur during deadstart, you should be familiar with several basic concepts. For example, because most errors that occur involve mass storage devices, you should be familiar with their use in the system. Each mass storage device has a label that contains descriptive information about its contents. For certain levels of recovery deadstart, this information must be consistent with corresponding information either contained in central memory or provided through deadstart procedures. Conflicts can result in the system issuing deadstart error messages. An attempt is made to recover all mass storage devices defined in the EST during all levels of system deadstart. The specific recovery function performed depends upon the level of deadstart selected. Table II-2-7 describes the recovery function performed for each deadstart level and the types of errors you can encounter. The system response to errors and the action it is recommended you take are also listed.

Refer to appendix B for information concerning all deadstart messages.

Table II-2-7. Mass Storage Device Recovery (Sheet 1 of 5)

Recovery Function	Level of Deadstart	Description of Error	Type of Device	System Response to Error	Operator Action
Read and verify the label on each mass storage device against that specified by the EQ definition for the device in CMRDECK.	0	Device being recovered is not ready and, therefore, cannot be read.	Removable.	Error code NR and status U set in MST; device is left unavailable.	None.
			Nonremovable.	Wait and retry. Error message is flashed on the right screen display.	Check to ensure that all nonremovable devices are ready.
		Read error occurred when attempting to read label (parity error, surface error, and so forth).	All.	Advance to next track and try to read. A predetermined number of tracks are searched if error persists. If this number is exceeded, the device is treated as if a bad label existed. Refer to the description of bad label error.	None.
		Label verification error. The label was read but could not be verified. For example, label indicates device is first unit of a three-unit multispindle pack (DK-3), but not all elements of the configuration are present.	Nonsystem device.	Error code CE and status U set in MST; device is left unavailable.	Examine E,M display after deadstart is complete to determine corrective action.
			System device (nonremovable with system residence).	• If permanent files do not reside on the device, it is initialized automatically using parameters in existing label.	None.
				• If permanent files reside on the device, the following message appears on the right console display and deadstart processing halts. CONTINUING DESTROYS PFS RECOVERY OF DEVICE IMPOSSIBLE.	Type GO. or PAUSE. to proceed. If GO. is entered, the device is initialized using parameters in existing label (permanent files will be lost), or redeadstart without system on this device.
		Bad label. Information read was not recognized as a label sector.	Nonsystem device.	Error code LE and status U set in MST; device is left unavailable.	Device must be initialized after deadstart if it is to be used (refer to DSD command INITIALIZE).
			System device (nonremovable with system residence).	Device is initialized automatically. Any permanent files that reside on device are lost.	None.

Table II-2-7. Mass Storage Device Recovery (Sheet 2 of 5)

Recovery Function	Level of Deadstart	Description of Error	Type of Device	System Response to Error	Operator Action
	1, 2, 3	Label verification error. The label was read but could not be verified. For example, label indicates device is first unit of a three-unit multispindle pack (DK-3), but units 2 of 3 and/or 3 of 3 are not present.	Removable (no active direct access files). Nonremovable or removable with active direct access files.	Error code indicates cause of error and status U set in MST; device is left unavailable. The following message appears on the right console display and deadstart processing halts. ERROR ON DEVICE WITH ACTIVE FILES. NOTE Active direct access files are attached when checkpoint was taken (level 1 or 2) or when deadstart was initiated. It is assumed that all removable devices have active direct access files.	Examine E,M display after deadstart is complete to determine corrective action. Perform level 0 deadstart or redefine configuration to match that of system being recovered.
Chain removable devices with consecutive physical unit numbers (applies only to 844-21 (DI or DK) and 844-41/44 (DJ or DL). This will allow a multispindle pack (for example, DK-3) to be mounted on devices defined in EST as single spindle devices (for example, DK-1). Definition for devices in EST is changed to reflect a multispindle device.	0, 1, 2	Label verification error. Label on remaining spindles of multispindle pack could not be verified.	Removable.	All units are returned to their original status in EST and device with label specifying multispindle pack is left unavailable (U status set in MST). The labels on remaining devices that were chained are then checked to determine if they are valid.	Examine the E,M display after deadstart is complete to determine corrective action.

Table II-2-7. Mass Storage Device Recovery (Sheet 3 of 5)

Recovery Function	Level of Deadstart	Description of Error	Type of Device	System Response to Error	Operator Action
Read TRT into central memory.	0	TRT could not be read successfully.	All.	The following message appears on the right console display and deadstart processing halts. LENGTH OF DEVICES TRT BAD - RECOVERY OF DEVICE IMPOSSIBLE.	Type GO. or PAUSE. to proceed. If GO. is entered, the device is initialized using parameters in existing label; permanent files will be lost.
	1, 2	TRT could not be read successfully.	Removable (no active direct access files).	Error code TL and status U set in MST; device is left unavailable.	Examine the E,M display after deadstart is complete to determine corrective action.
			Nonremovable or removable with active direct access files.	The following message appears on the right console display and deadstart processing halts. LENGTH OF DEVICES TRT BAD.	Perform level 0 deadstart and initialize the device.
Edit TRT to remove nonpermanent file information.	0	Edit was not successful. This could be caused by specifying a new RTK entry (flawed track) in APRDECK.	All.	The following message appears on the right console display and deadstart processing halts. PERM. FILE LINKAGE ERROR RECOVERY OF DEVICE IMPOSSIBLE.	Type GO. or PAUSE. to proceed. If GO. is entered, the device is initialized using parameters in existing label; permanent files will be lost. If RTK entry was specified, redeadstart and omit RTK entry.
Verify all mass storage devices in system to ensure permanent file integrity.	0	Two devices in same family have the same device number or the same bits set in the device mask, or two auxiliary devices have the same packname.	System device (nonremovable with system residence).	The following message appears on the right console display and deadstart processing halts. EQxx EQyy CONFLICTING DN. / DM. / PN. xx and yy are the EST ordinals of the conflicting devices.	Perform one of the following: • Remove one of the specified devices and redeadstart. • Redeadstart and logically turn off one of the specified devices (via CMRDECK entry).
			Nonsystem device.	Error code DN, DM, or PN and status U set in MST; both of the devices are left unavailable.	Examine the E,M display after deadstart is complete to determine the type of error. Either remove, or logically turn off one of the devices; the remaining device is recovered automatically.

Table II-2-7. Mass Storage Device Recovery (Sheet 4 of 5)

Recovery Function	Level of Deadstart	Description of Error	Type of Device	System Response to Error	Operator Action
Clear interlock data for direct access files.	0	Failure to read legal system sector. The TRT indicates track is beginning of direct access chain but first sector was not a system sector.	All.	Increment count of direct access files in error. Message appears in dayfile in following format. EQxx nnnn PRESERVED FILE ERRORS. xx EST ordinal of device. nnnn Number of files in error.	Examine dayfile after deadstart completes. Message described in preceding column indicates the number of direct access files in error.
		Interlock data specified file was in WRITE mode and last sector for file in TRT was not an EOI sector.	All.	Clear interlocks for file and rewrite system sector. Issue following message to error log and system dayfile: LENGTH ERROR filenam uindex. filenam Name of file on which error was encountered. uindex User index of file owner. Also, increment count of direct access file errors. The following message appears in the system dayfile. EQxxnnnnDIRECT ACCESS FILE ERRORS. xx EST ordinal of device. nnnn Total number of length errors.	Examine system and error log dayfiles after deadstart completes. The number of LENGTH ERROR messages issued and the count of DIRECT ACCESS FILE ERRORS should match. To recover files in error: 1. ATTACH,oldfilename. 2. PURGE,oldfilename. 3. DEFINE,newfilename with oldfilename. 4. COPY,oldfilename to newfilename. or CHANGE,oldfilename/CE.
Recovering queued files.	0	Last sector of file specified by TRT is not an EOI sector.	All.	The following message is issued to the dayfile and error log: QF LENGTH ERROR filnam. filnam Name of file being recovered. The following message is issued to the dayfile at the end of recovery: EQxx nnnn QUEUED FILE ERROR COUNT. xx EST ordinal of device. nnnn File count.	The utility QREC issues messages to the system dayfile indicating the location and job name of all files in error during the requeue operation. The message format is filnam TKxxxx LENGTH ERROR.

Table II-2-7. Mass Storage Device Recovery (Sheet 5 of 5)

Recovery Function	Level of Deadstart	Description of Error	Type of Device	System Response to Error	Operator Action
Recovery of multi-mainframe link device.	0	Extended memory resident table containing machine IDs of active mainframes is full.	Extended memory.	The following message appears on the right console display and deadstart processing halts. MAXIMUM NUMBER MIDS ACTIVE	1. Verify that the correct machine ID is specified in the CMRDECK. 2. Run MREC on active machine for specified machine ID if not initial deadstart.
	0, 1, 2, 3	A valid label track for extended memory was not found within predetermined limits.	Extended memory.	The following message appears on the right console display and deadstart processing halts. ECS LABEL TRACK NOT FOUND.	Perform a level 0 deadstart with INITIALIZE and PRESET selected if no other machines are active.
	0	Machine ID selected if CMRDECK is in use.	Extended memory.	The following message appears on the right console display and deadstart processing halts. MID CURRENTLY ACTIVE	Either redeadstart specifying a different machine ID or, if correct machine ID was entered, run MREC on another machine.
	1, 2, 3	The machine ID as maintained in CMR was not found in the extended memory resident table. This indicates that extended memory has been changed, either abnormally or by the execution of MREC on another machine.	Extended memory.	The following message appears on the right console display and deadstart processing halts. MID UNDEFINED IN ECS.	Perform a level 0 deadstart.
	0, 1, 2, 3	Error exit was taken while attempting to execute instruction accessing extended memory.	Extended memory.	The following message appears on the right console display and deadstart processing halts. ECS READ/WRITE PARITY ERRORS.	Inform customer engineer. Recovery is impossible.

OPERATION UNDER DSD CONTROL 3

After the system has been deadstarted successfully, you can enter the DSD commands necessary to provide optimum performance and reliability for users. There are nine general categories of DSD commands available for this purpose.

Dayfile	Dumps the system, account, or error log dayfile to a specified device.
Job processing control	Provides added control over job scheduling and processing.
Peripheral equipment control	Controls the peripheral equipment available to the system.
Subsystem control	Schedules a subsystem to a control point or terminates a current subsystem.
System control	Maintains system integrity in a normal production environment or debugs a system that is in an abnormal state.
Memory entry	Changes the contents of central memory and extended memory.
Channel control	Controls activity on a specified data channel in circumstances where abnormal hardware and/or system operation is detected.
Extended memory flag register	Clears and sets bits in the extended memory flag register.
Transaction subsystem	Controls operation of the transaction subsystem after it is brought to a control point.

Although all DSD commands (approximately 180) are generally available, many of them are seldom used in a normal production environment. Many DSD commands are used only by the system analyst for maintenance or debugging purposes. These commands include all memory entry and channel control commands as well as several commands in the other categories listed.

When unusual problems arise, do not attempt corrective action unless you have considerable experience in that area or have received specific instructions relating to the current problem. If you have not received specific instructions, consult a site analyst before attempting corrective action.

Attempts to correct a system problem can often destroy information required to eliminate repetition of the problem.

To assist customer engineers in maintaining the hardware, the system enters the first characters (up to 25) of the following commands into the error log after each execution.

DOWN, param.

FORM, param.

INITIALIZE,param.

LOG,param.

OFF,eq.

ON,eq.

REDEFINE,param.

99.

Memory entry commands

Channel control commands

Any other commands that the system analyst specifies at installation time.

These commands are prefixed by the characters DS in the error log but otherwise appear exactly as they are entered. This feature can be enabled and disabled using the 99 command (refer to System Control Commands later in this section).

The manner in which the DSD commands are entered and the use of special keyboard characters are described in section 1. Command formats are fixed field; that is, the fields in the command format must be specified as shown. Embedded blanks are allowed in octal fields. Leading spaces in operator entries are not allowed.

Since the commands that follow are arranged according to function rather than alphabetically, use the alphabetical command index inside the front cover for a quick page reference.

DAYFILE COMMANDS

The system saves messages in five types of dayfiles.

Account dayfile

Binary maintenance log dayfile

Error log dayfile

Job dayfile

System dayfile

The account dayfile keeps a record of all resources charged to a job. This dayfile can be used for customer billing and other accounting purposes. The binary maintenance log dayfile records the information used in Control Data maintenance in binary format. The error log dayfile records system error messages, such as disk errors. Job dayfiles keep entries for individual jobs. The system dayfile keeps a history of all commands for all jobs processed. The following commands dump the account, error log, or system dayfile to a system-defined mass storage device. The resultant mass storage file is put in the output queue for printing. The system automatically prints the job dayfile at the end of the job's output. The binary maintenance log dayfile is designed to be processed through an interpreter program, and therefore is normally dumped to tape or disk. Refer to section 4 for descriptions of dayfile displays as well as additional information on dayfile messages and commands.

Command	Description
X.AFD.	Requests that account dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing.
X.DFD.	Requests that system dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing.
X.ELD.	Requests that error log dayfile be dumped to system-defined mass storage. The resultant mass storage file is put in the output queue for printing.

JOB PROCESSING CONTROL COMMANDS

Under normal circumstances, control over job processing is performed automatically by the system. Although the following commands may not be used frequently, they provide an added measure of control over job processing. Several of the commands described here change internal system parameters which control job scheduling and processing. Give careful consideration to their use since job flow and overall system performance can be affected. Refer to the individual command descriptions for further information.

CKP,jsn.

Checkpoints the job with job sequence name jsn. The checkpoint information includes a copy of the job's field length, the system information used for job control, and the name and contents of all local files currently assigned to the control point. It is the responsibility of the user's job to establish a magnetic tape or mass storage permanent file to receive the checkpoint information. Otherwise, checkpoint information is automatically written to a local file named CCCCCCC and is not available if a restart becomes necessary (restart is user-controlled and is accomplished using the RESTART command). Use this command only under the direction of a site analyst since job and system overhead are increased. Refer to the NOS 2 Reference Set, Volume 3 for supplementary information concerning the checkpoint/restart feature available to users.

NOTE

If the current job command has secure system memory (SSM) status set, the job cannot be checkpointed. SSM status is set for certain jobs to prevent dumping of the job's field length. Subsystems cannot be checkpointed.

ROLLIN,jsn,L.

Allows the job defined by job sequence name jsn to be scheduled to an available control point. If L is entered, the job cannot be selected by the scheduler for roll out.

ROLLOUT,jsn,sd.

Removes the currently executing job with job sequence name jsn and makes it a rolled out job. A subsystem cannot be rolled out. sd is the number of scheduler intervals before the job can be scheduled again. The acceptable range for sd is between 0 and 7777_8. If sd is not present or is zero, the job is not scheduled back to a control point automatically. That is, your action is required to return the job to a control point. This can be done by using the ROLLIN command.

The amount of time required for one job scheduler interval is initially set in the IPRDECK but may be changed via the DELAY command (JS parameter) described later in this section. Normally, it is a 1-second interval.

SRST,t.

Changes the secondary rollout sector threshold to the value t ($0 \leq t \leq 7777_8$).

The following job control commands affect scheduling and execution of jobs in the system. These commands are normally used only by the site analyst although you may also be required to use them periodically. However, do not enter these commands unless specifically directed to do so. Improper use of these commands can drastically hamper job flow as well as system performance. In certain cases, jobs may be lost.

The priority associated with each priority parameter in the following commands is established by an entry in the IPRDECK for each service class. The value of each priority parameter for each service class is listed on the system control information (S) display (refer to section 4 for more information on the S display).

DELAY,p_1,p_2,...,p_n.

Alters current system delay parameters. Examine the S display (refer to section 4) to determine the current delay parameter values.

P_i	Delay
ARint	PP auto recall interval in milliseconds. This parameter specifies the time interval at which peripheral processor units (PPs) in auto recall are recalled. One PP routine is activated each time period. The acceptable range for int is from 1 to 7777_8.
CRrp	CPU recall period in milliseconds. This parameter specifies the amount of time a job remains in recall (X status) when an RCL request is placed in RA+1. The acceptable range for rp is from 1 to 7777_8.

Pi	Delay
JQdel	Job scheduler delay in seconds. The acceptable range for del is from 0 to 14_8.
JSint	Job scheduler interval in seconds. This parameter specifies the interval at which the job scheduler and priority evaluation routines are called. The scheduler may also be called at other times. The acceptable range for int is from 1 to 7777_8.
MNsi	Minimum CPU job switch interval in milliseconds. The acceptable range for si is from 1 to 7777_8.
MXsi	Maximum CPU job switch interval in milliseconds. The acceptable range for si is from 1 to 7777_8.

The value for each system delay parameter may be established via a DELAY command entry in the IPRDECK. If no DELAY entry is present, default values are provided. Figure II-3-1 provides space to record the original values (specified in the S display) in the event that any are altered temporarily. For additional information concerning the DELAY command, refer to the NOS 2 Installation Handbook.

DELAY VALUES	
AR	
CR	
JQ	
JS	
MN	
MX	

Figure II-3-1. Record of Original Values in S Display (Delay Values)

DROP,jsn,qt,ujn.

Drops the job with job sequence name jsn from the queue qt where it currently resides. If a jsn is not specified, a one- to seven-character user job name ujn can be specified after the queue type.

If no jsn or ujn is specified, all jobs in the specified queue type are dropped. If the queue type is not specified, the default is the executing queue.

The DROP command cannot be used to terminate a subsystem. The queue type is one of the following.

qt	Queue Type
ALL	All jobs and queued files.
EX	All jobs in the executing queue (including the rolled out jobs).
IN	All jobs in the input queue.
PL	All jobs in the plot queue.
PR	All jobs in the print queue.
PU	All jobs in the punch queue.
TT	All jobs in the wait queue.

ENQP,jsn,pr.

Enters queue priority of pr for a queue type file with job sequence name jsn. The value of pr can range from the minimum to the maximum of the job's service class. If the priority is zero, the file is not scheduled back to a control point automatically. The value specified overrides the current queue priority for the file. The current queue priority can either be increased or decreased using this command.

KILL,jsn.

Drops the job with job sequence name jsn from the executing job table (EJT) without exit processing. This command is useful for terminating jobs which loop in an exit processing sequence when the DROP command is used. The KILL command cannot drop a subsystem.

NOTE

Before pressing CR, check to ensure that the correct job sequence name has been specified.

OVERRIDE,jsn.

Certain types of job processing are unaffected by the DROP, KILL, and STOP commands. These include operations such as setting permanent file device interlocks, interlocking files/tracks, clearing VSN entries, and waiting for certain types of tape/PP activity to end. The OVERRIDE command terminates this type of processing and drops the job with job sequence name jsn from the executing job table regardless of queue priority. Unlock the console (refer to UNLOCK command) to enter this command. Use of this command is recorded in the error log dayfile.

CAUTION

Exercise extreme caution in using the OVERRIDE command. Undesirable situations (such as interlocks being left set, VSN entries remaining uncleared, or certain tape/PP activities left outstanding) could occur which would cause potentially damaging system activity. Never use this command during normal operations.

QUEUE,sc,qt,qp_1,qp_2,...,qp_n.

Alters the queue priorities qp_i associated with the input, executing, and output queues qt for each service class sc. Examine the S display (refer to section 4) to determine the priority values currently associated with each service class. These changes are valid only until the next deadstart.

sc	Service Class
BC	Local batch
CT	Communication task
DI	Detached interactive
MA	Maintenance
NS	Network supervisor
RB	Remote batch
SS	Subsystem
SY	System
TS	Interactive

qt	Job Queue Type
EX	Executing
IN	Input
OT	Output

qp_i	Queue Priority
ILpr	Lowest priority pr an executing job can have for an initial time slice. The range for pr is from 0 to 7777_8.
IPpr	Initial scheduling priority pr for an executing job. The range for pr is from 0 to 7777_8.
LPpr	Lowest priority pr at which a job can enter the queue. The acceptable range for pr is from 0 to 7777_8.
UPpr	Highest priority pr a job can reach in the specified queue; aging stops when this priority is reached. The job is also given this priority when initially assigned to a control point. The value of pr, which can range from 0 to 7777_8, is normally greater than LP but cannot exceed the maximum of the job's service class.
WFnn	Weighting factor nn for queue priority calculations. The possible values for nn are 0, 1, 2, 4, 10_8, 20_8, and 40_8.

The priority associated with each queue is established via QUEUE command entries in the IPRDECK for each service class. These entries normally reflect the ideal queue priorities for the job mix of the particular installation. The values specified in the IPRDECK are considered critical to optimum system performance and are not normally altered. Figure II-3-2 provides space to record the original values (specified in the S display) for that purpose. For additional information concerning the QUEUE command, refer to the NOS 2 Installation Handbook.

RERUN,jsn.

Terminates the job with job sequence name jsn, then reruns the job from the beginning. The job must be in rerun status as set by the RERUN command or macro.

SERVICE,sc,p_1,p_2,...,p_n.

Alters the service limits p_i associated with each service class sc. These changes are valid only until the next deadstart.

sc	Service Class
BC	Local batch
CT	Communication task
DI	Detached interactive
MA	Maintenance
NS	Network supervisor
RB	Remote Batch
SS	Subsystem
SY	System
TS	Interactive

JOB SERVICE CLASS	PRIORITIES FOR EACH QUEUE TYPE												
	INPUT QUEUE				EXECUTING QUEUE					OUTPUT QUEUE			
	LP	UP	WF	IP	IL	LP	UP	WF	IP	LP	UP	WF	IP
SY													
BC													
RB													
TS													
DI													
NS													
SS													
MA													
CT													

Figure II-3-2. Record of Original Values in S Display (Queue Priorities)

Pi	Service Limits
AMfl	Maximum field length divided by 100_8 for all jobs of the specified service class. This parameter is used to partition central memory by limiting the total field length available to each service class. For example, if scheduling a job to a control point exceeds the field length specified for its service class, it may not be scheduled until the required field length is available. This means that a lower priority job from a different service class may be scheduled first. However, a job that would normally exceed the field length for its service class can be scheduled to a control point if there are not enough jobs to fill the field length specified for another service class. The system always attempts to use central memory to its greatest capacity. The acceptable range for fl is from 0 to $777\ 777_8$.
CMts	Central memory time slice in seconds. This parameter specifies the maximum amount of time a job of the specified service class can remain at a control point before it becomes eligible to be rolled out. A job is not necessarily rolled out when its time slice is exceeded. It is set to a lower priority and then may be replaced by a job of higher priority. The value of ts can range from 0 to 7777_8.
CPts	CPU time slice (milliseconds x 64). This parameter specifies the maximum amount of time a job of the specified service class can use the CPU before its queue priority is set to the lower boundary.

Pi	Service Limits

CSv Cumulative size in PRUs allowed for all indirect access permanent files; v is used to specify the corresponding values shown in the following list.

v	Limit Value in Octal
0	Unlimited
1	1000
2	2000
3	5000
4	10 000
5	50 000
6	100 000
7	Unlimited

DSv Size in PRUs allowed for individual direct access permanent files; v is used to specify the corresponding values shown in the following list.

v	Limit Value in Octal
0	Unlimited
1	1000
2	2000
3	5000
4	10 000
5	50 000
6	100 000
7	Unlimited

ECfl Maximum extended memory divided by 1000_8 for any job of the specified service class. The acceptable range for fl is from 0 to 7777_8.

EMfl Maximum extended memory divided by 1000_8 for all jobs of the specified service class. The acceptable range for fl is from 0 to 7777_8.

Pi	Service Limits

FCv Number of permanent files allowed where v is used to specify the corresponding values shown in the following list.

v	Limit Value in Octal
0	Unlimited
1	10
2	20
3	30
4	40
5	50
6	100
7	Unlimited

FLf1 Maximum field length divided by 100_8 for any job of the specified service class. Jobs with field lengths which exceed this value are not considered for scheduling unless no other jobs are waiting to be scheduled and sufficient field length is available without rolling out any jobs. However, an interactive job which exceeds the value for the interactive service class is aborted. The acceptable range for f1 is 0 to 7777_8.

FSv Size in PRUs allowed for individual indirect access permanent files; v is used to specify the corresponding values shown in the following list.

v	Limit Value in Octal
0	Unlimited
1	10
2	30
3	50
4	100
5	150
6	300
7	Unlimited

NJn Maximum number of jobs. For each service class, this parameter specifies the number of jobs that can be executing in the system. The value for n can range from 0 to 7777_8.

Pi	Service Limits
PRpr	CPU priority ($2 \leq pr \leq 77_8$). Jobs with highest priority get CPU first. All service classes except NS and MA are normally set to the same CPU priority. Maintenance (MA) jobs are run at the lowest CPU priority. Network supervisor (NS) jobs are run at a higher priority than any of the other job service classes to provide good response time to network users. Subsystems control their own priorities.
TDs	Suspension timeout delay. A suspended job is not timed out for s x 10_8 seconds. s can range from 0 to 7777_8. The maximum timeout delay is approximately 9.1 hours.
TPpr	Initial scheduling priority. This is the priority assigned to the start of a new command or after terminal I/O for the interactive service class. The acceptable range for pr is from 2 to 7777_8. The TPpr parameter is valid for the TS service class only.

The service limits associated with each service class are established via SERVICE command entries in the IPRDECK. These entries normally reflect the ideal service limits for the job mix of the particular installation. The values specified in the IPRDECK are important to optimum system performance and are not normally altered. However, when changes are necessary they are usually temporary and the original values will be reset. Figure II-3-3 provides space to record the original values for that purpose. For additional information concerning the SERVICE command, refer to the NOS 2 Installation Handbook.

The following job control commands are used to respond to a job currently in the executing job table.

CFO,jsn.ccc...ccc.

Sends a message ccc...ccc (36 characters maximum) from the operator to the job with job sequence name jsn. Bit 14 of the job's RA must be set before the CFO command is accepted. The message is placed in locations RA+70_8 through RA+74_8 of the program's field length.

COMMENT,jsn.ccc...ccc.

Enters comment ccc...ccc (49 characters maximum) in the dayfile for the job with job sequence name jsn.

GO,jsn.

Clears the pause bit of the job with job sequence name jsn. A job may set the pause bit if an error is encountered or if an operator response is required. If jsn is not specified, the command applies to the system control point.

JOB SERVICE CLASS	SERVICE LIMITS													
	PR	CP	CM	NJ	TD	FL	AM	TP†	EC	EM	DS	FC	CS	FS
SY														
BC														
RB														
TS														
DI														
NS														
SS														
MA														
CT														

†TP is the service class for TS only.

Figure II-3-3. Record of Original Values

OFFSW,jsn,S_1,S_2,...,S_6

Turns off one or more sense switch(es) s_i ($1 \leq s_i \leq 6$) of the job with job sequence name jsn. Refer to Subsystem Control Commands in this section for definition of sense switches that can be set for the RBF, BIO, IAF, and TAF subsystems.

ONSW,jsn,S_1,S_2,...,S_6

Turns on sense switch(es) s_i ($1 \leq s_i \leq 6$) of the job with job sequence name jsn. Refer to Subsystem Control Commands later in this section for definition of sense switches that can be set for the RBF, BIO, IAF, and TAF subsystems.

PAUSE,jsn.

Sets the pause bit of the job with job sequence name jsn. If jsn is not specified, the command applies to the system control point.

The following job control commands apply only to jobs belonging to the interactive service class. The IAF subsystem must be active at control point 1.

DIAL,jsn,ccc...ccc.

Sends message ccc...ccc (48 characters maximum) to terminal currently assigned to the job with job sequence name jsn. Examine the T display (refer to section 4) to determine the appropriate job sequence name. The message is sent to the terminal immediately except when output is being sent to the terminal. In that case, the message follows the output data.

WARN,ccc...ccc.

Sends message ccc...ccc (48 characters maximum) to all terminals currently logged into IAF. The message is received at a terminal upon completion of the current command or at the end of a job step. Each subsequent terminal to log in to IAF also receives this message. This continues until either a new message is entered or the message is cleared (refer to following command). In addition, the current message also appears at the IAF subsystem control point on the B display.

When sent to an interactive terminal, the message ccc...ccc is always preceded by the statement

```
hh.mm.ss.   WARNING
```

time (hours.minutes.seconds) when you entered the WARN command

For example, if you enter

```
WARN,SYSTEM SHUTDOWN AT 1500.
```

the following information would be transmitted to all terminals.

```
hh.mm.ss.   WARNING

SYSTEM SHUTDOWN AT 1500.
```

This command is typically used to notify interactive users of an interruption in service or system shutdown.

WARN.

Clears message entered by the WARN,ccc...ccc. command. Unless this command is entered, the existing message (if any) continues to be transmitted to each new terminal that logs into IAF.

PERIPHERAL EQUIPMENT CONTROL COMMANDS

The commands described in this category provide overall control of the peripheral equipment available to the system.† You should become familiar with the following DSD displays which are closely associated with the use of these and other commands described throughout this section.

- Equipment status table (E,A.) display.
- Mass storage status table (E,C. and E,M.) displays.
- Tape status (E,T.) display.
- Resource mounting preview (E,P.) display.
- BIO status (I) display.

†Operation of peripheral equipment is described in appendix D.

A complete description of each of these displays is given in section 4 of this manual.

ASSIGN,jsn,eq.

Assigns equipment defined by EST ordinal eq (normally a tape unit) to the job with job sequence name jsn. This command is entered in response to a flashing REQUEST message. Use of this command for assignment of a tape unit should not rormally be required because tape assignment is performed automatically when a volume serial number (VSN) is specified in the job request. However, if a VSN is not specified in the job request for a labeled or unlabeled tape, the REQUEST message appears at the job's control point (on B display), and the ASSIGN command must be entered to assign a tape unit to the job.

BKSP,eq,rr.

Backspaces rr octal logical records on the print file for the BIO equipment defined by EST ordinal eq. When rr is not specified, the default is 1 record.

BKSPF,eq,ff.

Backspaces ff octal files on the print file for the BIO equipment defined by EST ordinal eq. When ff is not specified, the default is 1 file.

BKSPRU,eq,ss.

Backspaces ss physical record units (PRUs) on the print file for the BIO equipment defined by EST ordinal eq. The PRU count, ss, must be specified. There is no default setting. Printing resumes at the beginning of a line.

CONTINUE,eq.

Resumes printing on BIO equipment defined by EST ordinal eq.

CP,eq,id.

Assigns a numeric identifier id to the BIO card punch defined by EST ordinal eq. The value of id can range from 00 to 67_8. Only those files in the punch queue with an identifier equal to id are directed to card punch eq. Refer to the descriptions of the LOAD and CR commands to assign an identifier to a job or queue type file.

CR,eq,id.

Assigns a numeric identifier id to the card reader defined by EST ordinal eq. The value of id can range from 00 to 67_8. All subsequent jobs loaded from card reader eq are assigned the identifier id.

DOWN,CHcc,EQeq. or
DOWN,MCHcc,EQeq. or
DOWN,EQeq.

The first form of the command discontinues use of channel cc for the equipment specified by EST ordinal eq. If the EQeq parameter is omitted, channel cc is discontinued for all equipments in the EST.

The second form of the command discontinues use of MUX channel cc for the equipment specified by EST ordinal eq (this form only applies to model 176). If the EQeq parameter is omitted, MUX channel cc is discontinued for all equipments in the EST.

The third form of the command discontinues the use of equipment with EST ordinal eq for all channels. The equipment specification (EQeq parameter) is valid only for mass storage equipments.

If channel cc is the only channel available to a mass storage equipment, its use is not discontinued. If channel cc is

- Not defined as a magnetic tape or mass storage channel
- Is the last active channel on an equipment that is not globally unloaded (status N on the E,M. display)

the command is ignored and the following message appears on the left screen.

ILLEGAL ENTRY

Correct the entry and retry the command.

If you attempt to DOWN an equipment

- Already with a DOWN status
- Assigned to a control point
- Not listed as removable in the EST
- Listed in the EST as removable but not globally unloaded
- That is an independent shared device (multimainframe)

the following error message appears.

ILLEGAL ENTRY

Correct the entry and retry the command.

NOTE

This command should be used with caution since it directly affects the operation of system peripheral equipment.

END,eq,rc.

Terminates current operation on BIO equipment defined by EST ordinal eq. If eq defines a line printer or card punch, BIO then assigns the next available file to that equipment. If eq defines a card reader that is actively reading cards when END,eq is entered, the job terminates at the last card read. The next card is treated as the beginning of a new job. If another card deck follows the end-of-information card (multipunch 6/7/8/9), it is processed normally.

If eq defines a card reader that is stopped because of a compare error when END,eq. is entered, perform the following steps:

1. Remove the remainder of the card deck, except the end-of-information card, from the card reader input hopper.

2. Ready the card reader to read the end-of-information card.

The job terminates and if another card deck follows the end-of-information card, it is processed normally.

The rc parameter cancels a portion of the repeat count specified for that equipment (refer to REPEAT command). For example, if the current operation on equipment eq had been set to be repeated five times (operation performed six times), entering a value of 4 for rc would only permit the operation to be performed twice. If the repeat count is zero, this command performs the END operation once.

FORM,eq,fc.

Assigns a two-character forms code fc to the BIO line printer or card punch defined by EST ordinal eq. Only those files in the output queue assigned the forms code fc are directed to equipment eq. A user can assign a forms code to an output file using the ROUTE command. (For a description of the ROUTE command, refer to the NOS 2 Reference Set, Volume 3.) The value of the forms code can range from AA to 99. If forms code is not present, the current forms code field is cleared (value is null).

IDLEFAMILY,eq.

This command performs one of the two following functions, depending on the status of the family.

- If the family is active, the IDLEFAMILY command causes all new jobs and USER commands for the family on the equipment specified by EST ordinal eq to be aborted. Jobs in progress are allowed to complete.

- If the family is inactive, the IDLEFAMILY command allows jobs to access the family on the equipment specified by EST ordinal eq.

The famc column of the E,M display shows the number of jobs in progress on the equipment.

INITIALIZE,op,eq_1,eq_2,...,eq_5.

Reverses current setting of initialize option op for mass storage devices defined by EST ordinals eq_i (maximum of 5 devices). Examine the E,A. display to determine correct EST ordinals.

op	Level of Initialization
AF	Initialize inactive account dayfile
AL	Total initialization
DF	Initialize inactive system dayfile
EF	Initialize inactive error log dayfile
FP	Format pending†
FT	Total initialization as full-track device††
HT	Total initialization as half-track device††
MF	Initialize binary maintenance log
PF	Initialize permanent files
QF	Initialize inactive queue files

This command provides the capability to initialize and flaw tracks on any mass storage device during normal system operation. Each time this command is entered it is logged in the error log dayfile.

If local unload (L) status is set for the device, the INITIALIZE command is ignored and the following message appears on the left console screen.

```
ILLEGAL ENTRY
```

However, the INITIALIZE command will be allowed to execute while local unload is set if an error code (CE, IL, LE) is set.

Entry of this command does not in itself initialize the specified device. It merely sets initialize status for the device so that it may be initialized. However, if fast attach files (special system files) are active on the specified device and initialization level of AL or PF is specified, initialize status cannot be set until these files are returned. In this case, the message

```
FAST ATTACH FILES ON DEVICE.
```

appears at the system control point on the job status (B) display. Refer to the description of this message in appendix B for additional information.

The procedure involved in initializing a mass storage device is outlined later in this description. The following describes system activity when initialization occurs.

If the device is shared in a multimainframe environment, initialization does not proceed until all other mainframes sharing the device have processed an UNLOAD command for the device and user counts on all machines are zero. If all machines have not unloaded the device, the following control point message is displayed.

---

†Sets format pending bit in the MST for 881/883 pack reformatting. Refer to the description of the FORMAT program in the NOS 2 System Maintenance Reference Manual.
††Device must be removable.

EQeq BUSY ON ID=id.

eq is the EST ordinal and id is the machine ID of the first machine found without unload status set.

If initialize status is set on this device for another mainframe, the INITIALIZE command is ignored and the following message appears at the system control point on the job status (B) display.

INITIALIZE PENDING ON THIS DEVICE.

When the AL initialization option is specified, the label on the device to be initialized is either updated or a new label is created. If the label on the device is bad or cannot be recognized, the new label is created and all current data on the device is lost. If the label is found to be good, it is updated and all permanent file information is cleared. In this case, system library or temporary files (local, rollout, and so forth) residing on the device are not disturbed. If the device being initialized is a master device, the system scans all other mass storage devices in the family that contain direct access files and releases the space for files with catalogs on this device. If the device being initialized contains direct access files, the system scans all other master devices and sets the catalog entries on those devices to indicate that the files were purged. All or part of the permanent file system can be initialized and then reloaded if necessary (refer to the description of permanent file utilities in the NOS 2 System Maintenance Reference Manual).

LOAD,eq,id.

Requests that a job be loaded from equipment defined by EST ordinal eq (normally tape unit). The job is assigned a numeric identifier id ranging from 00 to 67_8. If id is not specified, it defaults to 00. Examine the E,A display (refer to section 4) to determine the EST ordinal of the equipment to be used.

LP,eq,id. or
LQ,eq,id. or
LR,eq,id. or
LS,eq,id. or
LT,eq,id.

Assigns a numeric identifier id to the line printer defined by EST ordinal eq. The value of the identifier can range from 00 to 67_8. Only those files in the print queue with an identifier equal to id are directed to line printer eq. Refer to the descriptions of the LOAD and CR commands to assign an identifier to a job or queue type file. The user usually assigns the identifier to the file.

MSAL,t=eq_1,eq_2,...,eq_n.

Assigns job files of type t to mass storage devices defined by EST ordinals eq_i. The specified mass storage device must be nonremovable. Examine the mass storage status (E,M.) display to determine if the device is nonremovable.

t	File Type
B	LGO
D	User dayfile
I	Input
L	Local
O	Output
P	Primary
R	Rollout
S	Secondary rollout
T	Temporary

If no devices are specified for a file type, the system selects a temporary device.

Secondary rollout files do not exist until the command SRST=t (where t is the size in sectors of the file, 0 through 7777_8) defines a threshold; the default value of a threshold is zero. All rollout files smaller than the threshold are secondary rollout files. These files are assigned to the devices specified with the MSAL,S=eq_i. command.

All files greater than or equal to the threshold are assigned to the rollout file devices (MSAL,R=eq_i command).

The following example illustrates a use for secondary rollout files.

```
CMRDECK
    .
    .
    .
EQ11=DP,ON, 1000, 27.        Equipment 11 is extended memory via DDP.
    .
    .
    .
MSAL,S=11.                   Assigns secondary rollout files to
    .                        extended memory.
    .
    .
IPRDECK
    .
    .
    .
SRST=20.                     Sets the threshold count so rolled out files
    .                        under 20 sectors long are assigned to extended
    .                        memory.
    .
```

For additional information concerning the SRST command, refer to the NOS 2 Installation Handbook.

MOUNT,eq,P.

Clears local unload (L) and global unload (N) status for a mass storage device and reactivates the device. The device is defined by EST ordinal eq (examine the E,A. display to determine the EST ordinal).

When you specify P in the MOUNT command for an independent shared device in a multimainframe environment, the system presets the device with EST ordinal eq. The preset (P) option can be specified only on the first mainframe to access the device.

If the device defined by EST ordinal is not a mass storage device, the MOUNT command is ignored and the following message appears on the left console screen.

```
ILLEGAL EQUIPMENT.
```

If the device is shared in a multimainframe environment and another mainframe has an unsatisfied initialize request pending for that device, the MOUNT command is ignored and the following message appears at the system control point on the job status (B) display.

```
INITIALIZE PENDING ON THIS DEVICE.
```

OFF,eq.

Logically turns off the device defined by EST ordinal eq. This command allows you to logically remove a device from the operating environment. Examine the E,A. display to determine the EST ordinal and current status (ON or OFF) of the device. If eq specifies a mass storage device and the system library or temporary files (local, rollout, and so forth) reside on that device, it should not be turned off. Examine the mass storage status (E,M.) display (refer to section 4) to determine which mass storage devices have system residency or allow system allocation of temporary files. In addition, if an MSAL entry is currently specified for a mass storage device, it is cleared when that device is turned off. The MSAL designation is not reset automatically when the device is turned back on and must be reset manually (if necessary) using the DSD command MSAL.

ON,eq.

Logically turns on the device defined by EST ordinal eq. This command allows you to activate a device currently having OFF status in the EST. Examine the E,A. display to determine the EST ordinal and current status (OFF or ON) of the device.

PRSIZE,eq,ps.

Sets the paper status ps to short S or long L paper for the printer with EST ordinal eq. Refer to the NOS 2 System Maintenance Reference Manual for information on short or long paper.

REPEAT,eq,rc.†

Repeats the current operation on the BIO equipment defined by EST ordinal eq the number of times specified by rc. The maximum value that can be entered for rc is 77_8.

† When the current BIO operation is repeated, maximum line and card limits are reinitialized prior to printing or punching of the file being processed. User control limits apply individually to each output file copy produced.

REPRINT,eq,pr.

Terminates current operation on the BIO printer equipment defined by EST ordinal eq and reenters the job in the print queue with a queue priority specified by pr00 (service class minimum $\leq$ pr00 $\leq$ service class maximum; refer to the S display in section 4; pr value is multiplied by 100_8 internally). If pr is not specified, the service class default priority is assigned.

REPUNCH,eq,pr.

Terminates current operation on the BIO card punch equipment defined by EST ordinal eq and reenters the job in the punch queue with a queue priority specified by pr00 (service class minimum $\leq$ pr00 $\leq$ service class maximum; refer to the S display in section 4; pr value is multiplied by 100_8 internally). If pr is not specified, the service class default priority is assigned.

SCRATCH,eq.

Declares the tape mounted on an unassigned magnetic tape unit, defined by EST ordinal eq, to be a scratch tape. This command enables a tape to be available to satisfy scratch VSN requests and still be assigned by its original VSN. Thus, the VSN defined on the tape (in VOL1 label) is not redefined as scratch although the VSN will appear as SCRATCH on the tape status (E,T.) display.

Scratch status is retained for only one job assignment. This allows a tape to be used for scratch purposes on a temporary basis. For example, a job requests a tape mounted on the tape unit defined in this command by specifying the current VSN for that tape in the request. The tape is then assigned to the job as a scratch tape (the original VSN is retained and not made scratch). When that job releases the tape, SCRATCH status is cleared, and unless this command is entered again, that tape would not be assigned as a scratch tape in future requests. To determine if SCRATCH status is in effect for a tape, monitor the tape status (E,T.) display.

SKIP,eq,rr.

Skips forward rr octal logical records on the print file for the BIO equipment defined by EST ordinal eq. When rr is not specified the default is 1 record.

SKIPF,eq,ff.

Skips forward ff octal files on the print file for the BIO equipment defined by EST ordinal eq. When ff is not specified the default is 1 file.

SKIPRU,eq,ss.

Skips forward ss PRUs on the print file for the BIO equipment defined by EST ordinal eq. All parameters must be specified; there are no default settings. The PRU count, ss, is limited to 10_8 PRUs (the current buffer size) plus the number of PRUs remaining in the buffer. If the buffer was empty, ss would be limited to 20_8 PRUs. If ss is larger than the number of PRUs remaining in the buffer, the buffer is filled again and the additional PRUs skipped on the new print file. For example, if five PRUs remained in the print file and ss was specified as 10, the remaining five PRUs would be skipped, the buffer filled again, and five additional PRUs skipped. Printing resumes at the beginning of a line.

STOP,eq.

Stops printing on the BIO equipment defined by EST ordinal eq.

SUPPRESS,eq.

Suppresses automatic printer carriage control on the BIO line printer defined by EST ordinal eq. This command stops the page eject function on the line printer to provide a continuous listing for the current job.

TEMP=eq_1,eq_2,...,eq_n.

Reverses current set or clear condition of temporary file status for mass storage devices defined by EST ordinals eq_i. When temporary file status is set, the system can use the specified device for allocation of temporary files. This command is not valid if the device specified is defined as removable. Examine the mass storage status (E,M.) display (refer to section 4) to determine:

- EST ordinal of device.
- If device is defined as removable.
- If temporary file status is currently selected (set) for the device.

TRAIN,eq,t.

Assigns or changes print train identifier t of the line printer defined by EST ordinal eq. This command can set the identification if it was not specified in the EQ entry of the CMRDECK, or change an identification previously included in the CMRDECK. An LR designation in the EQ entry indicates a 580-12 line printer, LS is a 580-16 line printer, and LT is a 580-20 line printer. LP is applicable to all line printer types. Print trains supported for the 580 printers are 596-1, 596-5, and 596-6. The t field specifies the print train.

t	Print Train
0	596-1 (for CDC graphic 63/64-character set files); default.
1	596-1 (for CDC graphic 63/64-character set files).
2	Reserved for future use.†
3	Reserved for future use.†
4	596-5 (for ASCII graphic 63/64-character set files).
5	596-5 (for ASCII graphic 63/64-character set files).
6	596-6 (for ASCII graphic 95-character set files).
7	596-6 (to print ASCII graphic 63/64-character set files as on a 596-5).

† These values are allowed but will default to 596-1.

UNLOAD,eq.

Physically unloads a tape or logically removes a removable mass storage device from the operating system. The device to be unloaded is defined by EST ordinal eq (examine the E,A. display to determine the EST ordinal). Also, in a multimainframe environment, the UNLOAD command must be issued if another mainframe wants to initialize a shared mass storage device, whether the device is removable or nonremovable (refer to INITIALIZE command). If a magnetic tape is specified, the tape is physically unloaded. If a removable mass storage device is specified, you can dismount the disk pack on that device.

NOTE

If a nonremovable shared mass storage device is to be specified, the console must be unlocked (refer to UNLOCK command).

Magnetic tape units: If a tape is currently assigned to a job, it cannot be unloaded. If this is attempted, the UNLOAD command is ignored and the following message appears on the left console screen.

```
UNIT NOT AVAILABLE
```

Examine the tape status (E,T.) display before entering the UNLOAD command to determine if the tape to be unloaded is currently assigned to a job. If the tape is not currently assigned, entering this command unloads the specified tape.

Mass storage devices: The UNLOAD command is valid for any shared mass storage device in a multimainframe environment for the purpose of initialization. Otherwise, the command is valid only for removable devices. (Only removable devices may be physically removed by unloading.) After entering the UNLOAD command, monitor the mass storage status (E,M.) display. Execution of this command immediately causes local unload (L) status to appear in the STATUS field for that device. While L status is displayed, no new users are permitted to access files on the device. A user currently accessing files on the device can continue while at least one direct access file from the device is attached to the job. When the user count is zero and there are no checkpoint requests pending, one of the following two actions occurs.

- If the device is removable and the L status is set in all machines accessing the device, global unload (N) status is displayed. This indicates that the device may now be physically dismounted.

NOTE

If a situation occurs such as a DI-2 family mounted on two DI-1's, only the first DI-1 shows global unload status.

- If an initialize is pending on the device and all other machines accessing the device have L status set, the initialization proceeds. However, initialization cannot take place if the device has been unloaded.

NOTE

A device should be physically dismounted only if global unload status (N) is displayed on all machines accessing the device.

If a removable pack is dismounted before the N status is displayed, the following may occur.

- Mass storage device status errors.
- Permanent file errors when pack is remounted at some later date.
- If another pack has been mounted, accesses made by a previously attached user may destroy information on the new pack or the user may retrieve information from the new device which he is not necessarily privileged to access. Mass storage device status errors are also possible in this situation.

NOTE

If the Mass Storage Subsystem (MSS) is active, it must be idled before unloading a removable family pack which has MSS files. After dismounting the family pack, MSS can be initialized again.

UP,CHcc,EQeq. or
UP,MCHcc,EQeq.†or
UP,EQeq.

Resumes normal use of channel cc or the equipment with EST ordinal eq by tape units and/or mass storage, reversing the DOWN command. If EQeq is specified, use of channel cc resumes only for the mass storage equipment with EST ordinal eq. The equipment specification is legal only for mass storage equipments. If you attempt to UP a channel or equipment that

- Is already UP.
- Has a DOWN status and is assigned to a maintenance job.
- Was given a DOWN status by another mainframe that is sharing the equipment.

the following error message appears

ILLEGAL ENTRY

† Model 176 only.

If the channel or equipment is already up, no further action is necessary. If the equipment is assigned to a maintenance job, you cannot bring up the equipment until the maintenance job releases it. If the DOWN,EQeq. command was entered from another mainframe in a multimainframe enviromnent, that mainframe must enter the UP,EQeq. command.

Putting an equipment in an UP status does not completely reverse the DOWN status. The equipment must also be turned on using the ON,eq. command.

NOTE

This command should be used with caution since it directly affects the operation of system peripheral equipment.

VALIDATE,eq.

Causes validation of mass storage tables associated with the equipment defined by EST ordinal eq. The equipment must be available mass storage and the MS VALIDATION option must have been selected in the IPRDECK at deadstart.

VSN,eq,.

Declares the tape mounted on an unassigned magnetic tape unit, defined by EST ordinal eq, to be a scratch tape. This command is similar in function to the SCRATCH command in that it enables a tape to be available to satisfy scratch VSN requests. However, if the tape is labeled and a write function is performed, the VSN specified in the VOL1 label will be rewritten as a scratch VSN, destroying the original VSN and making the tape available for future scratch VSN requests. The VSN also appears as ****est (est is the ordinal of the est) on the tape status (E,T.) display. Refer to the VSN,eq,vsn. command for a discussion of the ILLEGAL ENTRY message which is also applicable to VSN,eq,.

VSN,eq,vsn.†

Assigns VSN vsn to an unassigned magnetic tape unit defined by EST ordinal eq. This command allows you to specify a 1- to 6-character VSN for a mounted, unlabeled tape so it may be assigned and referenced automatically. For example, when a job specifies a VSN in the request for an unlabeled tape, an entry for that job appears in the resource mounting preview display (E,P.). This display indicates the job sequence name of the job, the type of tape unit, 7-track (MT) or 9-track (HD, PE, or GE), on which the tape is to be mounted, the required VSN, user name of the job, and the required write ring status (IN or OUT). If the correct tape is not currently mounted, mount the tape on an available unit (ensuring that track type and write ring status are correct), ready the unit, and enter this command. The system equates the VSN entered by you with that specified by the job and assigns the tape automatically upon demand.

† Special characters cannot be entered using this command. If a special character is encountered in vsn, the VSN entered is truncated at the character preceding the special character.

If the tape mounted on the tape unit defined by EST ordinal eq is a labeled tape, has already had a VSN assigned by console command, or has not yet been checked for a label by the MAG subsystem, this command is ignored. The message

ILLEGAL ENTRY

appears on the left console screen. To change a VSN previously assigned by this command, clear the first VSN by entering

VSN,eq.

eq EST ordinal of the tape unit.

The command

VSN,eq,vsn.

vsn New VSN.

can then be entered. (The preceding message and procedure for changing a VSN are also applicable to the VSN,eq,. command.)

If a job specifies a VSN in the request for a labeled tape, assignment occurs automatically, without your intervention, unless the correct tape is not mounted. In this case, an entry is formed in the resource mounting preview (E,P.) display which describes the tape to be mounted. When the tape is mounted and the tape unit made ready, assignment occurs automatically without additional intervention by you. For multireel files, automatic tape assignment occurs only if the tape units on which the tapes are mounted are similar and on the same channel(s). That is, if the first reel of the file is on a 669 tape unit on channels 13 and 33, all subsequent reels must be on a 669 unit on channels 13 and 33. When assigning tapes, models 679-2, 679-3, and 679-4 drives (800/1600-cpi) are similar. Also models 679-5, 679-6, and 679-7 drives (1600/6250-cpi) are similar.

If two or more unassigned tapes having identical VSNs are mounted on units of the same track type, the flashing message

REQUEST,dt,vsn

appears on the B display. The dt field is either the device type MT or the density requirement HD, PE, or GE; vsn is the VSN required.

You must assign one of the tapes using the ASSIGN command. If the duplicate VSNs are SCRATCH, the resource executive routine assigns one automatically.

NOTE

It is not possible to specify a VSN of SCRATCH with this command since only six characters may be used to define a VSN. To define a scratch tape (used to satisfy scratch VSN requests), refer to the description of the SCRATCH command.

SUBSYSTEM CONTROL COMMANDS

The commands that follow provide control over which subsystems are to be used. When a system deadstart is performed, parameters specified in the IPRDECK determine which subsystems initially are available. Scheduling other subsystems to a control point or terminating a current subsystem depends on your action.

When a subsystem is scheduled to a specific control point, any job currently assigned to that control point is rolled out if it is not another subsystem or special system job. However, if the job cannot be rolled out, the command used to call the subsystem would not be valid. In this case, either terminate the job (if the subsystem required that control point) or specify another control point on the ENABLE command. Under normal circumstances, do not terminate the job unless you have received specific instructions to do so.

BIO.

Calls the batch input/output (BIO) subsystem. BIO must be active in order to use any of the local batch peripheral devices. BIO equipment activity can be monitored on the I display (refer to section 4).

Response to line printer errors is controlled by setting sense switch 1 as follows:

```
ONSW,BIO,1.
```

Lines causing print error messages are not flagged or retried.

CDCffff.†

Calls the CYBER Database Control System (CDCS). CDCffff.† calls a procedure file named CDCffff under the system user index, which initiates the CDCS subsystem.

IAFffff.†

Calls the interactive facility (IAF) subsystem to control point 1. IAFffff.† executes a procedure file named IAFffff under the system user index, which initiates the IAF subsystem. The IAF subsystem must be active before jobs can be entered from an interactive terminal. Use the T display (refer to section 4) to monitor activity at the IAF subsystem control point.

Ensure that NAM is active at a control point (refer to the B display in section 4) before you enter the IAFffff† command.

Several options are available to control the operation of IAF. Select these options by setting sense switches after the subsystem is initiated. Although normal operation does not require these sense switches to be set, sense switch 5 (ONSW,IAF,5.) is set by default when the IAF subsystem is initiated. Once set, the sense switches may be turned off again by entering OFFSW,IAF,s. (s is the sense switch number.)

---

†The characters ffff are optional; if required, installation personnel must supply the one to four alphanumeric characters to be used.

Entry	Response
ONSW,IAF,1.	When the IAF subsystem is terminated (by a STOP,IAF. command), enter users into detached state and inhibit restarting operations.
ONSW,IAF,3.	Aborts the IAF subsystem on all abnormal conditions. This ensures that the subsystem does not continue to operate if an internal malfunction occurs. This may be used with sense switch 5 to enable an analyst to determine the problem. Some conditions cause the IAF subsystem to abort even though sense switch 3 is not set.
ONSW,IAF,4.	Enables dump on normal termination. This option should be activated whenever a dump is desired after the STOP,IAF. command.
ONSW,IAF,5.	Dumps information to the OUTPUT file after the IAF subsystem is dropped or aborted. This option provides a listing which may assist an analyst in determining the problem that existed when the subsystem dropped or aborted. This sense switch is set by default when the IAF subsystem is activated.
ONSW,IAF,6.	Releases OUTPUT file containing dump information written after the IAF subsystem is dropped or aborted (refer to the ONSW,IAF,5. operation) immediately after the dump is taken. When sense switch 6 is not set, the OUTPUT file is not released until the IAF subsystem is terminated. It is then printed with the dayfile. This switch applies only when sense switch 5 is set.

IDLE,sub.

Sets idledown status for subsystem sub. The subsystem terminates when idledown conditions are met. MAG terminates when no tapes are assigned. MSS terminates when no requests are outstanding and no MSS utilities are connected. BIO terminates when no active equipments remain. For all other subsystems, there are no idledown conditions; they terminate immediately.

The system does not initiate new activity, such as assigning tapes and beginning print jobs, when idledown status is set. It is recommended that you use this command for terminating all subsystems.

MAGffff.†

Calls the magnetic tape subsystem (MAG) to the control point specified in the ENABLE command. MAG must be active in order for tape processing and resource allocation to take place and to make the resource mounting preview (E,P.) available. Tape use can be monitored on the tape status and preview displays (refer to description of E display in section 4). MAGffff.† executes a procedure file named MAGffff under the system user index, which initiates the MAG subsystem.

NOTE

You must not change unit numbers or power down tape units after MAG is initialized. Also, MAG should not be stopped (via the STOP command) while tapes are assigned.

†The characters ffff are optional; if required, installation personnel must supply the one to four alphanumeric characters to be used.

MAPffff.†

Calls the matrix array processor (MAP) subsystem to the control point specified in the ENABLE command. MAPffff.† executes a procedure file named MAPffff under the system user index, which initiates the MAP subsystem.

MCSffff.†

Calls the message control system (MCS) to the control point specified in the ENABLE command. MCSffff.† calls a procedure file named MCSffff under the system user index, which initiates the MCS subsystem.

MSSffff.†

Calls the mass storage subsystem (MSS) processing program to the control point specified in the ENABLE command. MSSffff.† calls a procedure file named MSSffff, under the system user index, which initiates the MSS subsystem.

NAMffff.†

Calls the network access method (NAM) to the control point specified in the ENABLE command. NAMffff.† calls a procedure file named NAMffff under the system user index, which initiates several NAM supervisor modules. These modules appear momentarily at different control points as needed during NAM activity.

The release versions are NAM and NAMNOGO. Use NAM if you want to initialize the network with no operator intervention. Use NAMNOGO if you want to alter the memory file. Refer to section 5 for more information.

Additional commands which you can enter during NAM initiation are described in section 5.

RBFffff.†

Calls the remote batch facility (RBF) subsystem to the control point specified in the ENABLE command. RBFffff.† calls a procedure file named RBFffff under the system user index to initiate RBF. NAM must be active at a control point to use RBF.

RDFffff.†

Calls the remote diagnostic facility (RDF) subsystem to control point 1. RDFffff.† calls a procedure file named RDFffff or IAFffff (depending upon whether the site uses the interactive facility) under the system user index to initiate RDF.

If your site uses IAF, ensure that NAM is active at a control point (refer to the B display in section 4) before you enter the RDFffff command.

† The characters ffff are optional; if required, installation personnel must supply the one to four alphanumeric characters to be used.

RHFffff.†

Calls the remote host facility (RHF) subsystem to the control point specified in the ENABLE command. RHFffff.† calls a procedure file named RHFffff under the system user index to initiate RHF.

STMffff.†

Calls the stimulator to the last control point. STMffff.† calls a procedure named STMffff under the system user index to initiate the stimulator.

STOP,sub.

Drops (terminates) the subsystem sub. Any acceptable three-letter subsystem name can be specified. Unlock the console to enter this command. This command can cause termination errors in the subsystem being dropped. It is recommended you use this command only under the direction of an analyst. The IDLE,sub. command does the same thing without the termination errors.

TAFffff.†

Calls the transaction (TAF) subsystem to the control point specified in the ENABLE command. TAF must be active for transaction processing to take place.

TAFffff.† calls a procedure file named TAFffff under the system user index to initiate TAF. NAM must be active at a control point to run TAF.

Response to an operator drop or fatal error is controlled by setting sense switches as follows:

Entry	Response
ONSW,TAF,3.	Attempt recovery after TAF is dropped or aborted. To successfully drop the transaction subsystem once this entry has been made, the command OFFSW,TAF,3. must be entered prior to the STOP,TAF. command.
ONSW,TAF,5.	Dump entire field length and release OUTPUT after the transaction is dropped or aborted.
ONSW,TAF,6.	Print job dayfile upon termination.

Activity at the transaction control point can be monitored on the 0 displays (refer to section 4). For further information concerning transaction operations, refer to TAF Subsystem Commands later in this section.

Refer to the System Control Commands AUTO, ENABLE, DISABLE, and MAINTENANCE for additional information concerning subsystem control.

† The characters ffff are optional; if required, installation personnel must supply the one to four alphanumeric characters to be used.

SYSTEM CONTROL COMMANDS

The following DSD commands control the operating system as well as the subsystems which run under the system. Several of these commands are typically used only by the site analyst for debugging purposes when the system is in an abnormal state. You may use others frequently to maintain system integrity in a normal production environment. Appropriate cautions are included with individual command descriptions in cases where you do not normally use the command or it is not recommended for use in a production environment.

AUTO.

Calls specific subsystems to control points and initiates automatic job processing. The IPRDECK used at deadstart time determines which subsystems will be activated by default. However, any of those subsystems not currently assigned to a control point can be disabled or others enabled through use of the DISABLE and ENABLE commands. Individual subsystems can also be called to a control point or removed independent of the AUTO command by using the Subsystem Control Commands described earlier in this section. For additional information concerning the AUTO command, refer to Initiating Job Processing in section 2.

CHECK POINT SYSTEM.

Provides for termination of job processing and writes the contents of central memory tables to mass storage. This command is typically entered in preparation for recovery deadstart. The following sequence of operations takes place:

1. The sense switch for the IAF subsystem which causes all users to be placed in detached job status when an operator drop is set. When all users are in detached job status, the IAF subsystem is dropped and the checkpoint continues.

2. All job scheduling is inhibited. (This has the same effect as if the IDLE command was entered.)

3. Jobs with a zero subsystem ID are rolled out. All of these jobs are recovered on a level 1 or level 2 recovery.

4. The system moves the system dayfile buffers maintained in CMR to disk.

5. All subsystems except the magnetic tape executive (MAG) are aborted.

6. MAG is rolled out when no other jobs are active. The rolling out of MAG allows recovery of all tape files associated with jobs rolled out if the tapes are not repositioned prior to the level 1 or level 2 recovery. Because of this, if a tape unit is used for deadstart, it should be unassigned prior to the checkpoint command.

7. The system is left in an idle state. Normal processing may be continued with an AUTO command. If this is done, no attempt should be made to later perform a level 1 or level 2 recovery unless another checkpoint command is performed.

During the processing of the checkpoint, the message

PROCESSING CPn.

is issued at the system control point indicating which control point is currently being processed (n is the control point number). Most of the checkpoint process must be performed in a serial manner so that occasionally one control point number may be displayed for a period of time. This is especially true of the IAF subsystem if many users were active when the checkpoint was issued. It is also possible that under certain circumstances the checkpoint routine will not be able to properly abort a job (such as one that has NOEXIT selected and has a nonzero subsystem ID). If such a job continues processing after the system has aborted it, it is then necessary for the operator to abort the job for the checkpoint to continue. A more desirable approach to this situation is to ensure that jobs such as permanent file dumps are finished prior to the checkpoint. For additional information concerning the CHECK POINT SYSTEM command, refer to Preparing for Recovery Deadstart in section 2.

DATE.yy/mm/dd.

Changes the current system date. Unlock the console before entering this command (refer to UNLOCK command).

yy Year; 00 through 99.

mm Month; 01 through 12.

dd Day; 01 through 31.

DEBUG.

Reverses the current set or clear condition of debug mode. When debug mode is set, the message DEBUG appears in the header of the left screen display. Debug mode provides system origin privileges to validated users and allows modifications to be made to the running system. Unlock the console before entering this command (refer to UNLOCK command). Use of debug mode is not commonly allowed in normal production environment.

DIS,jsn.

Calls the job display package (DIS) to the job with job sequence name jsn. The A and B display for DIS automatically appear on the left and right console screen, respectively. Refer to section 8 for complete information concerning the DIS package.

DISABLE,op,cp.
or
ENABLE,op,cp.

Disables or enables option op. cp is an optional control point assignment and can be specified when op is a subsystem. If cp is specified for a subsystem, the control point assignment supersedes any IPRDECK control point assignment. If cp is not specified, whatever IPRDECK assignment was made remains in effect. If the format ENABLE,op,0. or DISABLE,op,0. is used, any IPRDECK control point assignment is cleared and any available control point is used for the subsystem when you enter the next AUTO or MAINTENANCE command or make an explicit call for the subsystem.

If you enter the ENABLE command and op is currently enabled, the system ignores the command. The system also ignores the DISABLE command if you enter it and op is already disabled. The ENABLE or DISABLE command does not initiate or drop a subsystem when you enter the command. Instead, the option merely determines if the specified subsystem is to be assigned to a control point upon entry of the next AUTO or MAINTENANCE command. In addition, a currently active subsystem (assigned to a control point) will not be dropped by entering the DISABLE command followed by AUTO or MAINTENANCE. The IDLE,sub. command should be entered to drop an active subsystem.

op and optionally cp are the following options.

BIO,cp

Enables or disables the batch input/output subsystem.

CDC,cp

Enables or disables the system control point version of the CDCS data management subsystem.

ENGR

Enables or disables engineering mode. When engineering mode is set, the message ENGR appears in the header of the left screen display. Engineering mode allows PP/hardware diagnostics and FORMAT/FDP to be executed if the user has system origin privileges. Unlock the console before entering this command (refer to UNLOCK command).

FILE STAGING

Enables or disables the staging of MSF resident permanent files to disk. Disabling FILE STAGING causes job attempts to access MSF resident files to be aborted. If the MSSEXEC is running, enabling FILE STAGING allows MSF resident files to be staged to disk when accessed.

IAF

Enables or disables interactive facility subsystem. IAF always runs at control point 1.

LOGGING

Enables or disables logging of dayfile messages intended for systems analysts concerned with program efficiency.

MAG,cp

Enables or disables magnetic tape subsystem.

MAP,cp

Enables or disables the matrix array processor subsystem.

MASTER MSS

Enables or disables master mainframe mode for MSS processing. When MSS is brought to a control point, the MSSEXEC program runs if master mainframe mode is enabled. The MSSSLV program runs if master mainframe mode is disabled. This entry has no effect unless MSS processing is activated.

MCS,cp

Enables or disables the message control system subsystem.

MS VALIDATION

Enables or disables automatic verification of mass storage tables. This command cannot be used unless the MS VALIDATION option has been selected in the IPRDECK used at deadstart. The validation which occurs for each level of recovery deadstart is described in section 2, Preparing for Recovery Deadstart.

MSS,cp

Enables or disables the mass storage subsystem processing.

NAM,cp

Enables or disables the network access methods subsystem.

PF VALIDATION

Enables or disables verification of BOI/EOI on preserved files. Selection of this option causes BOI/EOI information to be verified when a direct access file is attached or purged, and when an existing local file is defined as a direct access permanent file.

PRIVILEGED RDF

Enables or disables privileged mode of the remote diagnostic facility (RDF). When disabled, a user's commands are not checked to ensure that a maintenance function is being performed.

RBF,cp

Enables or disables the remote batch facility subsystem.

RDF

Enables or disables the remote diagnostic facility (RDF). RDF always runs at control point one. The ENABLE command turns on engineering mode; the DISABLE command turns off engineering mode.

REMOVABLE PACKS

Enables or disables automatic label checking for mass storage devices defined as removable. Examine the mass storage status (E,M.) display (refer to section 4) to determine which mass storage devices (if any) are defined as removable. If this option is disabled, all removable devices subsequently introduced into the system cannot be accessed. This option must be enabled to perform label verification before those devices can be accessed.

RESIDENT RDF

Enables or disables resident mode of RDF. While in resident mode, RDF remains active, regardless of terminal activity, until you disable RDF. When resident mode is disabled (the default condition), RDF becomes inactive if no one is logged on the remote diagnostic terminal for a period of 15 minutes. To allow terminal activity to resume, you must reactivate RDF with a call to RDFfffff.

RHF,cp

Enables or disables the remote host facility subsystem.

SECONDARY USER CARDS

Enables or disables the acceptance of more than one USER command in a job. If disabled, any USER command encountered after the first one causes the job to be aborted with no exit processing. An interactive origin type job which issues a USER command is logged off. Unlock the console (refer to UNLOCK command) to enable or disable this option.

STM

Enables or disables the interactive stimulator.

TAF,cp

Enables or disables the transaction facility subsystem.

USER ECS

Enables or disables use of the user accessible area of extended memory. If disabled, no job can access the user area of extended memory and, other than subsystems, all jobs currently accessing the area are rolled out.

IDLE.

Prevents any new jobs from being scheduled to a control point but does not terminate the jobs currently assigned. If a job is rolled out while this command is in effect, it will not be scheduled back to a control point until the AUTO or MAINTENANCE command is entered. When the BIO subsystem is idle, it is terminated.

K.ccc...ccc.

Allows entry of data ccc...ccc in the user- or system-defined CPU buffer for control when the K display is active. Refer to section 6 for information concerning the K display.

LOCK.

Locks the console keyboard. This command prevents entry of restricted commands (refer to UNLOCK command for list of restricted commands). All other DSD commands can be entered when the console is locked. The console is normally locked when the system is being used in a production environment.

MAINTENANCE.

This command performs the same functions as the AUTO command but additionally starts several maintenance routines. Refer to Initiating Job Processing at the end of section 2 for complete information concerning this command.

STEP.

Sets monitor in step mode. Setting monitor in step mode stops all central memory I/O operations and prevents the system from processing PP requests when the next monitor function is encountered. Pressing the spacebar releases the present step and stops again for each subsequent monitor function.† If a DSD command is entered while the system is in step mode and all PPs are assigned, it is possible the request cannot be satisfied. In that case, the screen(s) will blink until you correct the condition by clearing the entry.

When step mode is set, the message STEP appears in the header of the left screen display. Unlock the console before entering this command (refer to UNLOCK command).

This command is generally used by the site analyst for debugging purposes and should not be used in a normal production environment. In addition, the system may set step mode automatically upon detection of a main power failure or abnormal environmental condition (refer to S/C Register†† Error Detection, appendix F).

STEP,jsn,ff,b,v. or
STEP,,ff,b,v.

Sets step mode for the job with job sequence name jsn (first form of the command) or all jobs (second form of the command) at the next occurrence of monitor function ff when output register byte b has value v.

If jsn is specified (first form of the command), the monitor function ff, the output register byte number b, and the output register value v can be optionally specified for more precise control of when the step mode is executed. The values for b can be from 0 to 4; the values for v can be from 0 to 7777_8.

If jsn is not specified (second form of the command), the monitor function ff must be specified. The output register byte number b and value v can be optionally specified for more precise control of when the step mode is executed. The values for b can be from 0 to 4; the values for v can be from 0 to 7777_8.

For either form of the command, pressing the spacebar releases the current step and steps the job or system at the next occurrence of the monitor function ff, if specified, or the next monitor function from the job if the first form is used and no monitor function is specified.

---

†Monitor functions are described in the NOS 2 Systems Programmer's Instant.
††For models 865 and 875, S/C registers are maintenance registers.

Using the second form of the command may stop all central memory I/O operations and prevent the system from processing PP requests. If a DSD command is entered while the system is in step mode and all PPs are assigned, it is possible the request cannot be satisfied. In this case, the screens blink until you clear the entry. The message STEP followed by the monitor function number ff (if specified) appears in the header of the left screen displays while this command is in effect. The console must be unlocked before entry of this command is permitted (refer to the UNLOCK command).

These commands are generally used only for debugging purposes. Do not enter these commands if the system has automatically set step mode because of a power failure or abnormal environmental condition (refer to S/C Register† Error Detection, appendix F).

TIME.hh.mm.ss.

Changes the current system time. Unlock the console before entering this command (refer to UNLOCK command).

hh Hour; 00 through 23.

mm Minute; 00 through 59.

ss Second; 00 through 59

UNLOCK.

Unlocks the console keyboard. When this command is active, the message UNLOCKED appears in the header of the left screen display. Although all DSD commands can be entered when the console is unlocked, the following commands are restricted to entry only when the console is unlocked.

DATE.yy/mm/dd.

DEBUG.

DISABLE,SECONDARY USER CARDS.

ENABLE,SECONDARY USER CARDS.

FORMAT,eq.

OVERRIDE,jsn.

STEP.

STEP,jsn,ff,b,v.

STOP,sub.

TIME.hh.mm.ss.

UNLOAD,eq. (eq specifies a nonremovable shared mass storage device)

UNSTEP.

---

†For models 865 and 875, S/C registers are maintenance registers.

All memory entry commands

All channel control commands

Always lock the console when the system is being used in a production environment. However, you can unlock the console to enter the STEP command if a system failure requiring a recovery deadstart occurs (refer to Preparing for Recovery Deadstart in section 2) or to enter the UNSTEP command after a power or environmental interrupt (refer to appendix F).

UNSTEP.

Clears step mode. This command clears the effect of any format of STEP command. Unlock the console before entering this command (refer to UNLOCK command). Depending on current syntax overlay residency, you may have to enter the 99 command before entering the UNSTEP command (refer to 99 command description). If the system has set step mode because of a main power failure or abnormal environmental condition (refer to S/C Register† Error Detection, appendix F), do not enter this command until the conditions that caused the automatic setting have again become normal.

X.name.
or
X.name(ccc...ccc)
or
X.name,fl.

Calls a system program or utility specified by name to an available control point. If parameters are to be passed to the program (for example, PFDUMP or MODVAL), the second form of the command is used where (ccc...ccc) specifies the parameters. In both the first and second form of the command, the field length specified in the library for the command is used. If no field length is specified in the library, a value of $60\ 000_8$ is assumed. If a field length different from the default is required, the third form of the command is used. The field length is specified by fl. Only the first 38 characters following X. are used.

99.

Disables or enables syntax overlay processing and logging of DSD commands in the system dayfile/error log. That is, depending upon current status, syntax overlay processing and logging are reversed. When this mode is enabled, 99 appears on the left screen header.

When syntax overlay processing and logging of DSD commands is disabled, DSD does not allow you to enter any command requiring the loading of an overlay. Disable overlay loading only when the system is in abnormal state to prevent PPs from being requested when they cannot perform the necessary tasks (for example, when a system disk channel is hung). A 99 command which enables logging will be logged itself, but a 99 command which disables logging will not be logged.

This command is normally used only by the site analyst for debugging purposes. Do not enter this command unless you are given specific instructions concerning its use. When the system is in abnormal state, the commands which require entry of the 99 command depend on which syntax overlays for DSD are in central memory.

†For models 865 and 875, S/C registers are maintenance registers.

MEMORY ENTRY COMMANDS

The following commands are used to change the contents of central memory and extended memory. Either absolute locations or those relative to a specific job's reference address (RA) can be changed.

CAUTION

Use these commands with extreme caution to avoid damage to the system or to user jobs.

Before entering these commands you must unlock the console keyboard (refer to the UNLOCK command). To change central memory, you must bring a central memory display (C, D, F, or G) to the left screen. To change extended memory, you must bring the M display to the left screen. It is this display that controls whether the memory entry commands change absolute memory locations or relative memory locations.

For example, if you type

```
C,.
```

to bring up the C display, any memory entry commands entered make changes to absolute memory locations. If you type

```
C,jsn.
```

where jsn is a valid job sequence name, any memory entry commands entered make changes to memory locations relative to the job's RA.

Character values or numeric data can replace the current word contents. Either one 12-bit byte or a 60-bit word can be changed. A single byte can be changed by inserting the byte number after the location; bytes are numbered 0 through 4 from left to right. The address and contents are assembled right-justified with zeros filling unused leading positions. Leading zeros may be omitted in the entry.

When you are changing the contents of memory relative to a specific job (a valid job sequence name was specified when the memory display was brought to the left screen), the negative field length area of the job can be accessed. This area is accessed by specifying a negative address in the memory entry command. For example, to change the contents of word RA-3, you enter the address $77\ 777\ 775_8$.

When you are changing a memory location relative to a specific job's RA, the system does not check for field length violations. If you specify an address larger than your job's RA plus field length you can change the contents of a word in some other job's field length.

Formats and descriptions for these commands are as follows:

aa...aa,yy...yy.
or
aa...aa±yy...yy.

Changes the contents of central memory location aa...aa (maximum of eight digits) to yy...yy (maximum of 20 digits). The second form of the command performs essentially the same function but is used when it is necessary to change successive memory locations.†

aa...aa,b,yyyy.
or
aa...aa±b,yyyy.

Changes the contents of byte b at central memory location aa...aa (maximum of eight digits) to yyyy. Note that each location consists of five 12-bit bytes, numbered 0 through 4 from left to right. The second form of the command performs essentially the same function but is used when it is necessary to change successive memory locations.†

aa...aa,Dyy...yy.
or
aa...aa±Dyy...yy.

Changes the contents of central memory location aa...aa (maximum of eight digits) to display code characters yy...yy (left-justified and zero-filled). The second form of the command performs essentially the same function but is used when it is necessary to change successive memory locations.†

Ea...aa,yy...yy.
or
Ea...aa±yy...yy.

Changes the contents of extended memory location aa...aa (maximum of seven digits) to yy...yy (maximum of 20 digits). The second form of the command performs essentially the same function but is used when it is necessary to change successive extended memory locations.†

Ea...aa,b,yyyy.
or
Ea...aa±b,yyyy.

Changes the contents of byte b at extended memory location aa...aa (maximum of seven digits) to yyyy. Note that each location consists of five 12-bit bytes, numbered 0 through 4 from left to right. The second form of the command performs essentially the same function but is used when it is necessary to change successive extended memory locations.†

---

†If the + sign is specified, the address is incremented by one location (aa...aa+1) after the initial entry is processed; the - sign causes the address to be decremented by one location (aa...aa-1). This allows immediate entry for the next (or previous) memory location. If the message REPEAT ENTRY is displayed above the entry, the yy...yy field is not cleared and can be entered in successive memory locations as many times as desired by pressing CR. This repeat entry mode is enabled by pressing CR before initial entry of the command.

Ea...aa,Dyy...yy.
or
Ea...aa±Dyy...yy.

Changes the contents of extended memory location aa...aa (maximum of seven digits) to display code characters yy...yy (left-justified and zero-filled). The second form of the command performs essentially the same function but is used when it is necessary to change successive extended memory locations.†

CHANNEL CONTROL COMMANDS

The following commands enable control activity on a specified data channel in circumstances where abnormal hardware and/or system operation is detected. These commands are typically used only by the site analyst or customer engineer since they directly affect the operation of system peripheral equipment. Extreme caution must be exercised if any of these commands are entered during normal system operation. In addition, the console keyboard must be unlocked before entry of any of these commands is permitted (refer to description of UNLOCK command). DSD does not reserve the channel specified in any of the channel control commands. The channels are numbered 0 to 13_8 in a 10-PP system and 0 to 13_8, 20_8 to 33_8 in a 20-PP system.

CAUTION

Extreme caution must be exercised when using the following channel control commands.

ACN,cc.

Activate channel cc. This command alerts and prepares peripheral equipment on channel cc for the exchange of data.

DCH,cc.

Drop channel cc. This is a software function to release the current reservation of channel cc.

DCN,cc.

Deactivate channel cc. As a result, peripheral equipment on channel cc stops and any current I/O operation is terminated.

---

†If the + sign is specified, the address is incremented by one location (aa...aa+1) after the initial entry is processed; the - sign causes the address to be decremented by one location (aa...aa-1). This allows immediate entry for the next (or previous) memory location. If the message REPEAT ENTRY is displayed above the entry, the yy...yy field is not cleared and can be entered in successive memory locations as many times as desired by pressing CR. This repeat entry mode is enabled by pressing CR before initial entry of the command.

FCN,cc,func.

Output a function code func to channel cc. This releases all equipment selections on that channel. If func is not specified, a zero function code (no activity) is output.

IAN,cc.

Input to pseudo A register from channel cc.

LDC,nnnn.

Load pseudo A register with nnnn (normally a peripheral equipment function code). The current value of nnnn is the leftmost field in the channel status header of the right screen display.

MCH,cc.

Master clears and removes all 3000-series peripheral equipment selections on channel cc (6681 function code 1700_8 is issued).

OAN,cc.

Output contents of psuedo A register to channel cc.

EXTENDED MEMORY FLAG REGISTER COMMANDS

The extended memory flag register commands are used to set or clear specific bits in the extended memory flag register. These commands are typically used by an analyst debugging a problem in a multimainframe environment. The console must be unlocked (refer to the UNLOCK command).

CAUTION

Extreme caution must be exercised when using these commands. Do not enter these commands unless you are specifically directed to do so.

CFR,bb.

Clear the extended memory flag register bit bb ($0 \leq bb \leq 17$).

SFR,bb.

Set the extended memory flag register bit bb ($0 \leq bb \leq 17$).

DSD DISPLAYS 4

You communicate with the system through the console keyboard and one or more console display screens. The system provides information about job and system status through displays on the console screen(s). Data entered from the keyboard is also displayed. You can request a permanent record, called a system dayfile, of all system/console communication that were logged.

The two major display programs are system display, controlled by the DSD program, and specific job display, controlled by the DIS program (refer to section 8). DSD controls the display console. The primary functions of DSD are as follows:

- Maintain a current display of system status.
- Process keyboard entries from the operator.

At the console keyboard, you can perform the following:

- Assign equipment.
- Exercise control over job scheduling and execution.
- Initiate utility programs.
- Select displays.

The CYBER 170 Computer Systems console keyboard contains a PRESENTATION CONTROL switch which allows you to display a left screen display only, a right screen display only, or both the left and right screen displays on a split screen. Refer to section 1 for a description of the PRESENTATION CONTROL switch.

DISPLAY SELECTION

Select any of the DSD displays with the console command

xy.

x and y Represent the letter designation of the displays.

x appears on the left screen and y appears on the right. If x and y are identical, both screens display the same information. The displays available under DSD are as follows:

Display	Description
A	Dayfile. Chronological history of system operations.
B	Executing job status. Current status of all jobs assigned to control points.
C,D	Central memory. Contents of 32 central memory words (four selectable eight-word groups) in five columns of four octal digits with display code equivalents.

Display	Description
E	Equipment status. Status of peripheral devices.
F,G	Central memory. Contents of 32 central memory words (four selectable eight-word groups) in four columns of five octal digits with display code equivalents.
H	System FNT. List of system FNT entries for all fast attach and system files in the system.
I	BIO status. Status of central site unit record devices.
J	Individual job status. Status of the specified job sequence name.
K	CPU programmable. Dynamic operator/CPU communication. Refer to section 6 for further information.
L	CMR buffer interface programmable. System utility interface communication. Refer to section 7 for further information.
M	Extended memory. Contents of 32 60-bit words of extended memory (four selectable eight-word groups) in five columns of four octal digits with display code equivalents.
O	Transaction status. Status of the transaction subsystem.
P	PP communications. Current contents of PP registers.
Q	Queue status. Status of active input and output queues in the queued file table.
R	Rolled out file status. Status of all executing jobs that the system has rolled out.
S	System control information. Parameters used to control job flow.
T	IAF status. Status of interactive users.
W	Request queues. List the request queues for all jobs in the EJT for monitoring by system analysts.
Y	Monitor functions. List of all monitor mnemonics and codes.
Z	Directory. List of the letter designators and descriptions of all DSD displays.

To preselect the left screen display sequence, enter the following DSD command. The left screen display is sequenced by the right blank key.

SET,ssss.

ssss Letter designating any four of the DSD displays listed. Note that four display identifiers must be specified.

Any display can appear on the left or the right screen, and therefore, can have a left screen or a right screen header. Figures II-4-1 and II-4-5 illustrate the left and right screen headers, respectively. All other displays illustrated in this section are shown without a header.

DISPLAY SCREEN HEADERS

Standard system headers appear on each of the display screens. The left screen header provides the following information.

- Time and date (specified by the DSD TIME and DATE commands) in the form hh.mm.ss. and yy/mm/dd.
- System name (specified by the NAME entry in CMRDECK).
- Next job sequence name to be assigned represented by a four-character sequence ranging from AAAA to ZZZZ.
- Machine identification (MID) used to identify this mainframe in a multimainframe environment.
- System version.
- Monitor step mode (either STEP or blank). Refer to section 3 for a description of the STEP and UNSTEP commands.
- Console status (either UNLOCK or blank). Refer to section 3 for a description of the LOCK and UNLOCK commands.
- Engineering mode (either ENGR or blank). Refer to section 3 for a description of the ENGR command.
- System modification status (either DEBUG or blank). Refer to section 3 for a description of the DEBUG command.
- Syntax loading status (99 if syntax loading is disabled, blank if enabled).

The right screen header provides the following information.

- Job sequence name to which the CPU is assigned, IDL if the CPU is not assigned to a control point, OFF if the CPU was turned off at deadstart time, or PRG if the CPU is assigned to the system control point.
- Pseudo A register contents.
- Status of the channels.
- Amount of central memory and user extended memory which is unassigned.
- Number of available PPs.

In addition, at the bottom of the right screen, any subsystem at a control point requiring operator attention is listed along with a short message.

DAYFILE (A) DISPLAYS

The system saves five types of dayfiles and an operator action display. The system dayfile contains the system history. The account dayfile keeps the accounting record for further processing (for example, customer billing). The error log dayfile records system error messages, such as disk errors. Job dayfiles record the operations of each job. The binary maintenance log dayfile records information used in Control Data maintenance. You cannot display the binary maintenance log dayfile. The operator action display lists system error conditions that require corrective action by either an operator under the supervision of an analyst or by the site analyst.

To display these dayfiles on the console screen, type one of the following:

DSD Command	Dayfile
A,. or A.	System
A,ACCOUNT FILE.	Account
A,ERROR LOG.	Error log
A,OPERATOR.	System to operator messages
DAYFILE,jsn.	Job dayfile

The system adds dayfile messages to one or more of the dayfiles when:

- The system processes a command or a system action occurs which is not in direct response to a command (such as an error message).
- The system detects an error.
- A user enters a comment using a COMMENT command, * command, an OPMSG command, or a MESSAGE macro.
- A user at an RDF terminal enters an RM= message.
- You enter a message at the console.

When a job terminates, the system sends the messages to the account dayfile which contains a record of the resources charged to the job. In addition, job dayfile entries are printed at the end of a job's output. The system dayfile, which includes entries for all jobs processed, is available as a record of all action taken since deadstart. Although the A display shows only the entries currently in the dayfile buffer, you can obtain the entire contents by dumping the file to a printer, punch, or tape unit.

Messages on the A display appear in the following formats.

System dayfile messages:

```
time.jsn sc.message.
```

Account dayfile messages:

```
time.jsn sc.activity,additional information.
```

Error log dayfile messages:

```
time.jsn sc.message.
```

Job dayfile messages:

```
time.message.
```

Operator action messages:

```
error number  message

   or

JSN=jsn
message

   or

RTN=jsn
message
```

where jsn is the job sequence name of the job where the message originated, and sc is a one-character code for the job's service class (refer to Job Status (B) Display later in this section for a list of the codes).

The time is the time of day as entered into the system at deadstart or by a TIME command to DSD. For example, if the system is deadstarted at 8:00 a.m. and the time is entered at deadstart, the time in 10 minutes is 08.10.00. If the time was not entered at deadstart, the time in 10 minutes is 00.10.00. The time is followed by the three- or four-character job sequence name of the job associated with the message and the message itself. As a job is processed, messages are sent to the dayfile by PP programs or central memory programs. The job sequence name is followed by a one-character service class designator, sc. The job sequence name is a unique four-character alphabetic name assigned by the system when an entry for the job is made in the queued file table (QFT) or a three-character subsystem name. For remote batch jobs this assignment occurs when the job enters the input queue. Files queued by jobs are assigned a job sequence name when they are queued.

Every time a level zero deadstart is performed, the job sequence name is set to AAAA. The first job after a level zero deadstart is assigned this name. The second job is assigned the name AAAB and so on to ZZZZ. The next job sequence name after ZZZZ is AAAA, and the sequence begins again. There are 456 976 possible names for jobs and queued files before a job sequence name repeats.

The activity given in account dayfile messages is a unique four-character identifier which defines a particular activity. The first character identifies the information group; the second character, the event which caused the message to be entered into the account file; and the third and fourth characters, the activity being recorded. The purpose of this field and the additional information which follows it is to record system usage and provide a means of accurately billing users. Complete descriptions of account file activity messages can be found in the NOS 2 System Maintenance Reference Manual.

Each command executed, including the job command, is entered into the dayfile. The dayfile may be observed as follows:

- On the console screen (A display), the file is moved up the display screen as messages are generated.

- At the end of a job's printed output, all dayfile messages associated with that job are printed. However, interactive origin jobs must request the dayfile listing via terminal command.

To dump a dayfile to the output queue, type:

DSD Command	Dayfile
X.DFD.	System dayfile
X.AFD.	Account dayfile
X.ELD.	Error log dayfile

To bring the system dayfile to the console display, enter the following command.

```
A,. or A.
```

A,. displays the system dayfile without starting the display from the start of the dayfile buffer. A. displays the system dayfile starting the display from the start of the dayfile buffer (with roll).

Figure II-4-1 illustrates the system dayfile display.

To bring the account dayfile to the console display, enter the following command.

```
A,ACCOUNT FILE.
```

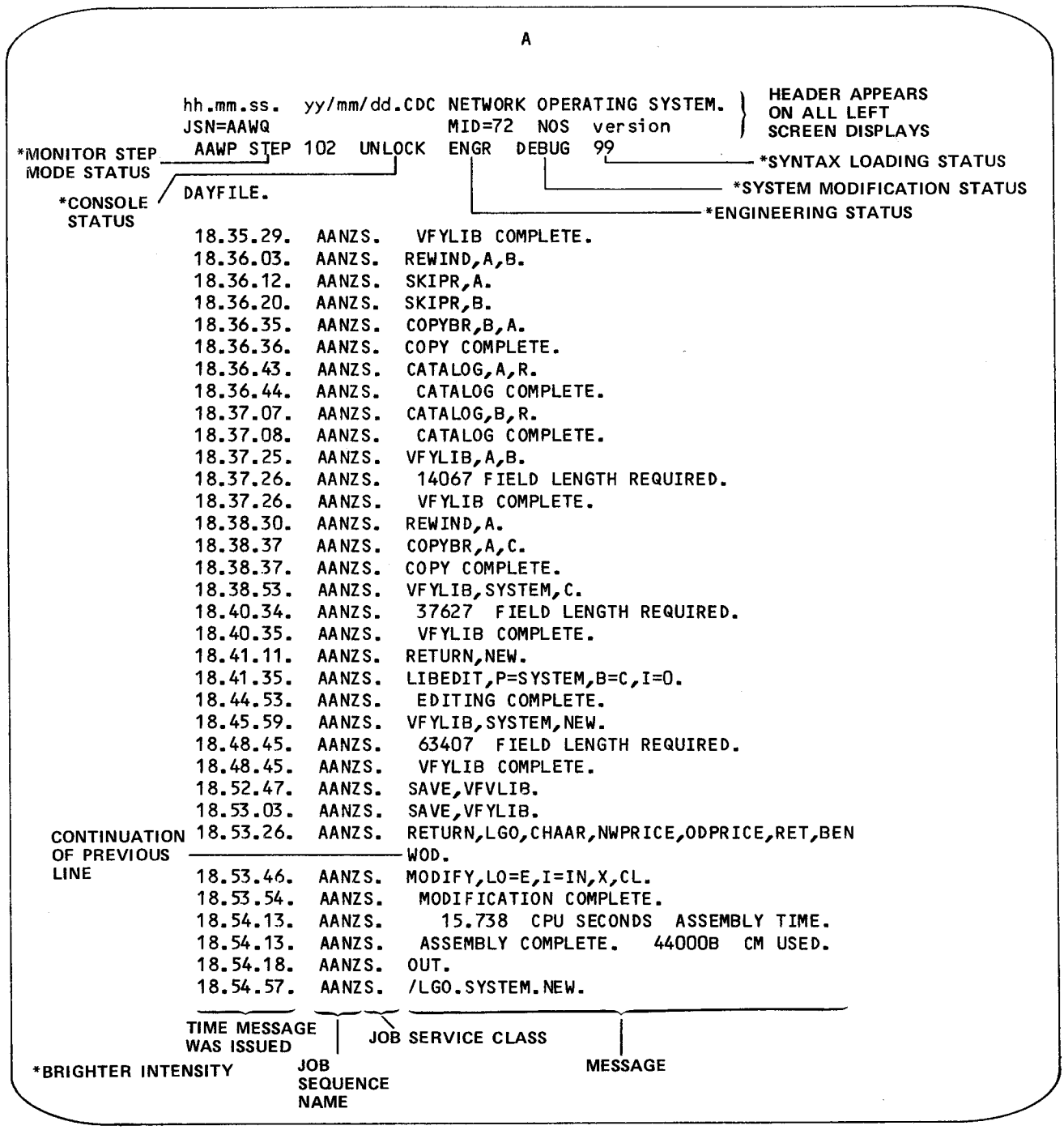


Figure II-4-1. System Dayfile (A,. or A.) Display

Figure II-4-2 illustrates the account dayfile display.

```
                                A

ACCOUNT FILE.

 16.43.46.   DFTES. SPCT, CATALOG.
 16.43.47.   DFTES. SPDF, ERA0414, , .
 16.43.48.   DFTES. APPN.
 16.43.51.   DFTES. APPN.
 16.43.51.   DFTES. SPCT, CATALOG.
 16.43.51.   DFTES. APPN.
 16.43.52.   DFTES. SPCT, CATALOG.
 16.43.52.   DFTES. SPCT, CATALOG.
 16.43.52.   DFTES. APPN, PACKEI.
 16.43.52.   DFTES. SPCT, CATALOG, , PACKEI.
 16.43.53.   DFTES. APPN.
 16.43.59.   AACIT. UECO,       0.652KCHS.
 16.43.59.   AACIT. UECI,       0.200KCHS.
 16.43.59.   AACIT. UEPF,       0.160KUNS.
 16.43.59.   AACIT. UEMS,       6.120KUNS.
 16.43.59.   AACIT. UECP,      15.100SECS.
 16.43.59.   AACIT. AESR,      16.715UNTS.
 16.44.15.   DFTES. UEPF,       0.004KUNS.
 16.44.15.   DFTES. UEMS,       0.104KUNS.
 16.44.15.   DFTES. UECP,       0.420SECS.
 16.44.15.   DFTES. AESR,       1.000UNTS.
 16.44.20.   AAAQT. SPCT, INPUT.
 16.44.36.   AANRS. UCLP, 23,       0.102 KLNS.
 16.44.39.   AAMYS. UCLP, 22,       0.256 KLNS.
 16.44.42.   DFTES. UCLP, 23,       0.256 KLNS.
 16.45.27.   AAAQT. SPGT, COMSSCP, , .
 16.45.42.   AACIB. UCLP, 23,       1.472 KLNS.
 16.45.44.   AACIB. UCLP, 22,       1.472 KLNS.
 16.46.37.   AAAQT. UCCO,      4.096KCHS.
 16.46.44.   AAAQT. UECO,      0.099KCHS.
 16.46.44.   AAAQT. UECI,      0.139KCHS.
```

Figure II-4-2. Account Dayfile (A,ACCOUNT FILE.) Display

To bring the error log dayfile to the console display, enter the following command.

```
A,ERROR LOG.
```

Figure II-4-3 illustrates the error log dayfile display.

```
                              A


ERROR LOG.

 16.19.19.   AANZS.   DJ01, U00,PS=984418.
 16.19.20.   AANZS.   DJ02, U01,PS=540329.
 16.19.20.   AANZS.   DI04, U03,PS=817203.
 16.19.20.   AANZS.   DI05, U04,PS=616649.
 16.19.20.   AANZS.   DI06, U05,PS=615927.
 16.19.20.   AANZS.   DI07, U06,PS=616472.
 16.19.20.   AANZS.   DI12, U07,PS=818223.
 16.19.21.   AANZS.   DS, LOG,10.
 16.19.21.   AANZS.   DS, FCN,3,3000.
```

Figure II-4-3. Error Log Dayfile (A,ERROR LOG.) Display

OPERATOR ACTION (A, OPERATOR) DISPLAY

Certain system errors cause the brighter intensity message

```
SEE *A,OPERATOR*
```

to appear in the upper right corner of the right screen of the console display. When you enter the command

```
A,OPERATOR.
```

the display in figure II-4-4 is presented.

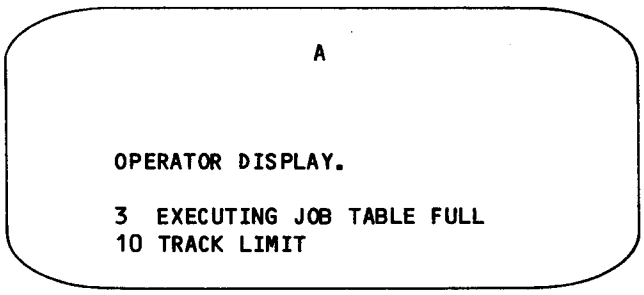


Figure II-4-4. Operator Action (A,OPERATOR.) Display

Each entry on this display has the following format.

```
en  message
```

en Error number.

message Text of the error message.

After you take corrective action, the right screen notification and the message are cleared by entering the following command.

```
LOG,en.
```

The variable en is the error number on the operator action (A,OPERATOR.) display.

If you attempt to clear the message before corrective action is taken, the message immediately reappears.

The remote diagnostic facility allows a customer engineer to send messages to you from a remote terminal. When they do, the right screen header notifies you by displaying the highlighted message SEE A,OPERATOR in the upper right hand corner of the display. If the message

```
JSN=jsn
message
```

appears on the A,OPERATOR display, respond to the message by entering the following command.

```
CFO,jsn.response message text
```

Refer to the CFO command in section 3. This entry removes the highlighted message.

If the text

```
RTN=jsn
message
```

appears on the A,OPERATOR display, respond to the message by entering the following command.

```
DIAL,jsn.response message text
```

Refer to the DIAL command in section 3. This entry removes the highlighted message.

To bring the dayfile of the particular job to the console display, enter the following command.

```
DAYFILE,jsn.
```

jsn Job sequence name of the particular job you want to examine.

The job dayfile is displayed only if the job is at a control point.

JOB STATUS (B) DISPLAY

DSD displays the status of control points. Figure II-4-5 illustrates the job status (B) display. The number of control points is specified at deadstart time (33_8 maximum). The system adds one control point to the number specified and dedicates it to system use.

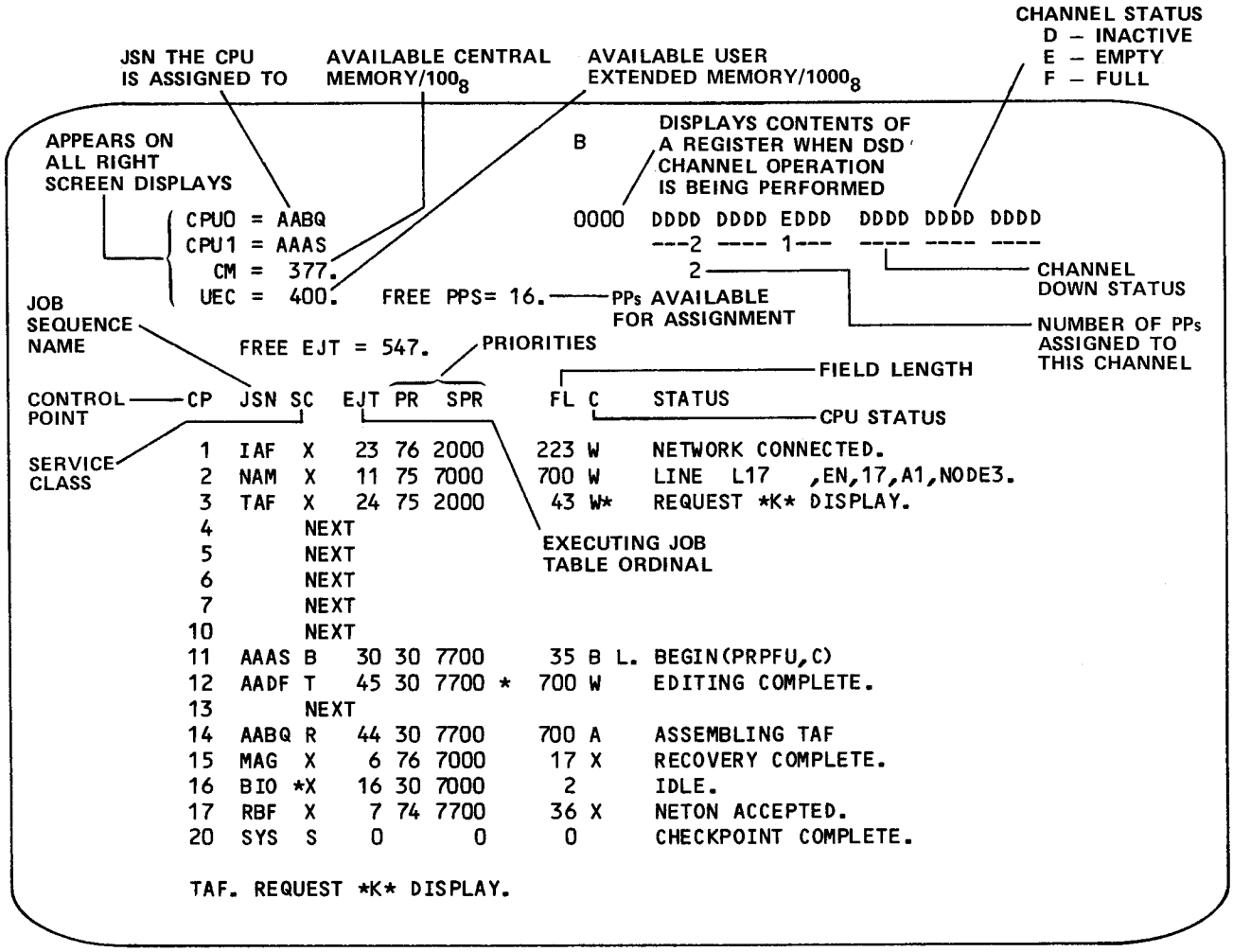


Figure II-4-5. Job Status (B) Display

The first line of the B display is as follows.

```
FREE EJT=num.
```

num is the octal number of currently unassigned executing job table entries. If num is zero, the system cannot start a new job until a currently executing job completes, freeing an executing job table entry.

A control point entry appears in the following format.

```
cp   jsn   *   sc   ejt   pr   spr   *   fl   c   *   L.   status
```

cp — Control point number. A job is assigned to a control point when it is residing in central memory.

jsn — Job sequence name assigned by the system to uniquely identify the job. The job sequence name consists of a three- or four-character identifier.

* — If present, the subsystem idle flag is set.

sc — Service class. A one-character mnemonic for the service class of the job. The mnemonics and their meanings are as follows.

B	Local batch
C	Communication
D	Detached interactive
M	Maintenance
N	Network supervisor
R	Remote batch
S	System
T	Interactive
X	Subsystem

ejt — The executing job table (EJT) ordinal of the job. This ordinal uniquely identifies the job to the system.

pr — CPU priority (the job priority for the CPU).

spr Scheduling priority (an indication of the relative priority of the job).

* If present, job has extended memory field length assigned.

fl Field length/100_8 of job being processed.

c CPU status:

blank	CPU not in use at this control point.
A	Job using CPU 0.
B	Job using CPU 1 (dual CPU systems only).
I	Job is in auto recall (waiting for completion of system request: tape I/O, and so forth).
W	Job waiting for CPU.
X	Job is in recall.

* If present, subcontrol points are active at this control point.

L. If present, the job has been locked in at the control point with the ROLLIN,jsn,L. command. The job is not rolled out until you enter the ROLLOUT command.

status First 30 characters of the message area for the job. Messages requiring your intervention, commands being processed, and error messages are displayed here. If a message requires your action, it may be periodically intensified by the system.

When a machine is running in multimainframe mode, certain configurations may cause jobs to wait because of controller reservations by another machine. When this happens, the disk error message specifying a controller reservation (CR as error code) appears in this field. The message

ECS ERROR.

appears in this field at the system control point when the system encounters errors in extended memory.

STORAGE (C, D, F, G, M) DISPLAYS

These displays show the contents of central memory (C, D, F, and G displays) and extended memory (M display). Each storage display consists of four groups of either central memory or extended memory words, with the groups numbered 0 through 3 from top to bottom.

Figure II-4-6 illustrates the C and D central memory displays, figure II-4-7 illustrates the F and G central memory displays, and figure II-4-8 illustrates the M extended memory display.

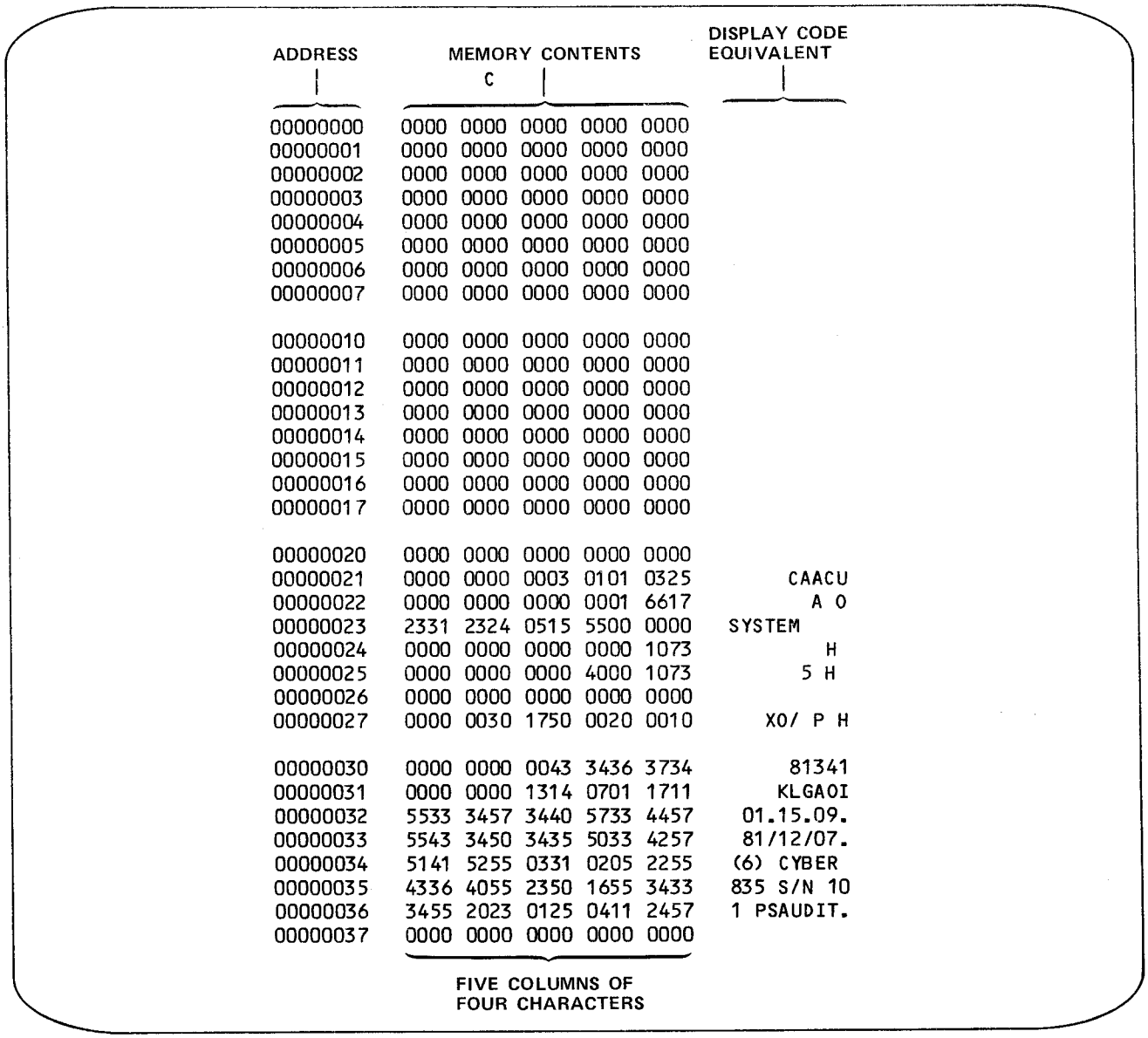


Figure II-4-6. Central Memory (C) Display

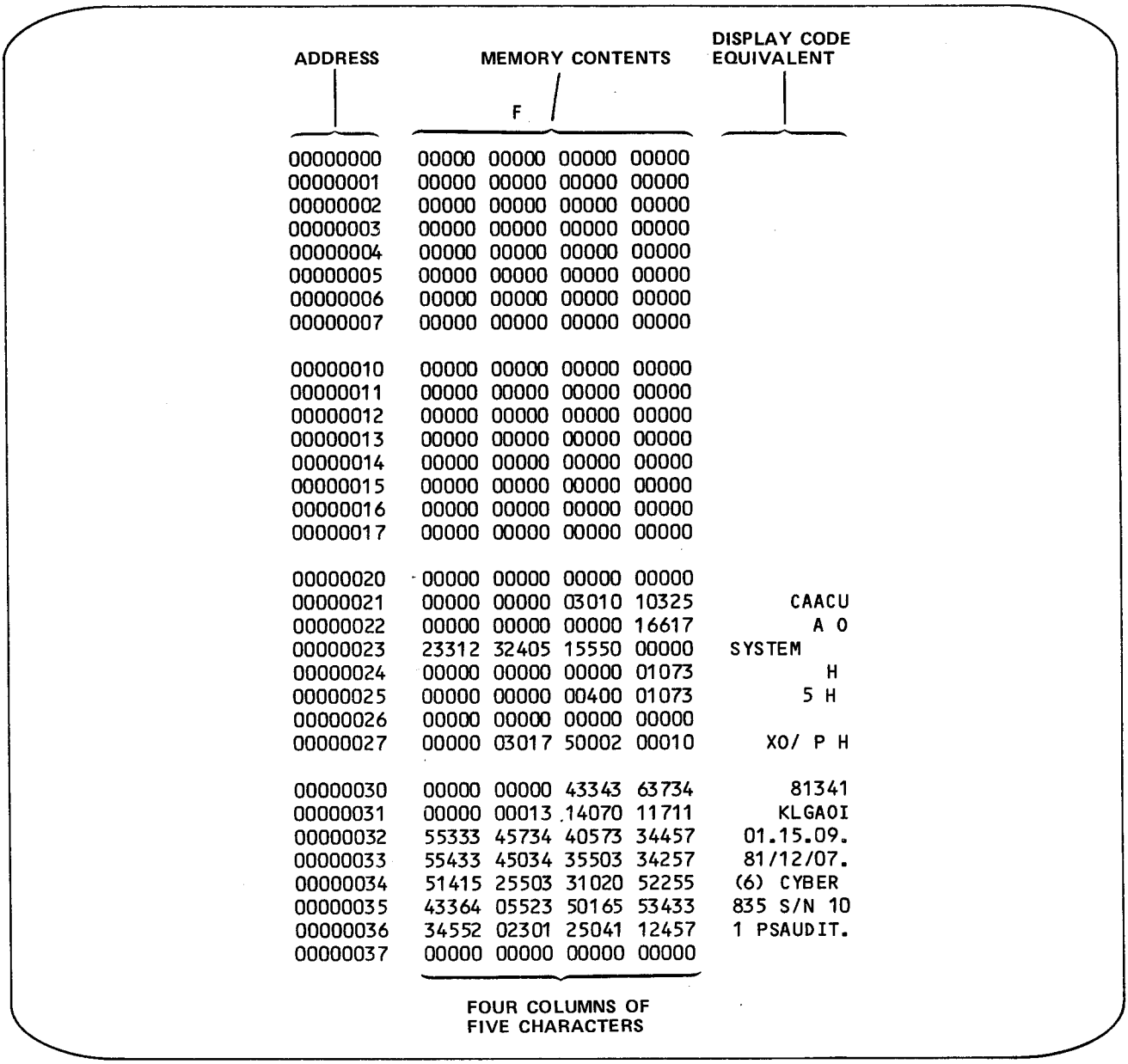


Figure II-4-7. Central Memory (F) Display

```
                              M

FLAG REGISTER   000000†

00000000 3700 0000 1401 0205 1400  4   LABEL
00000001 0002 0036 0000 3700 4003   B 3  4 5C
00000002 0000 0000 0100 1343 3032      A K8XZ
00000003 0000 0000 0602 2023 4642      FBPS-7
00000004 0000 0000 0000 0000 0000
00000005 0000 0000 0000 0000 0000
00000006 0000 0000 0000 0000 0000
00000007 0000 0000 0000 0000 0000

00000010 0000 0000 0000 0000 0000
00000011 0000 0000 0000 0000 0000
00000012 0000 0000 0000 0000 0000
00000013 0000 0002 4235 2514 1102     B72ULIB
00000014 0000 0000 0000 0000 0000
00000015 0000 0000 0000 0000 0000
00000016 0000 0000 0000 0000 0000
00000017 0402 0020 0000 0000 0000  DP P

00000020 1401 0205 1400 0001 0500  LABEL  AE
00000021 3440 0000 0000 0000 0000  15
00000022 0000 0006 0221 1524 1600     FBQMLN
00000023 0000 0000 0000 0000 0000
00000024 0000 0000 0000 0000 0000
00000025 0000 0000 0000 0000 0000
00000026 0000 0000 0000 0000 0000
00000027 0000 0000 0000 0000 0000

00000030 0000 0000 0000 0000 0000
00000031 0000 0000 0000 0000 0000
00000032 0000 0000 0000 0000 0000
00000033 0000 0000 0000 0000 0000
00000034 0000 0000 0000 0000 0000
00000035 0000 0000 0000 0000 0000
00000036 0420 0020 0000 0000 0000  DP P
00000037 0000 0000 0000 0000 0000
```

†This register does not appear on models 815, 825, 835, or 855.

Figure II-4-8. Extended Memory (M) Display

The format of each line of the display is:

address octal word display code equivalent

Central memory and extended memory can be displayed with absolute or relative addresses. The octal words in the C, D, and M displays are shown in five columns of four octal digits; words in the F and G displays have four columns of five digits. The character equivalent to the display-coded octal digits appear to the right of the octal word. Blanks appear for any character with an octal display code above 57, as well as for display codes 00, 53, and 55.

The FR field at the top of the M display shows the contents of the extended memory flag register as of the last status.† (Status is taken once every second by the monitor.) Extended memory parity errors in words on the M display are denoted by intensifying the address and data of the words in error.

The central memory displays C and D; and F and G, are exactly the same.

To bring the C, D, F, G, and M displays to the screens, enter one of the following commands.

xy.

Brings the x and y displays to the left and right console screens, respectively (x and y are C, D, F, G, or M). Unless a memory display for a specific job has previously been selected (refer to the following command), all words displayed represent absolute memory locations.

x,jsn.

Brings a memory display for the job specified to the left console screen. Either absolute addresses or those relative to a job sequence name can be displayed.

x Display identifier (C, D, F, G, or M).

jsn Job sequence name.

All words displayed are relative to the reference address (RA for central memory, RAE for extended memory) for the job specified by jsn. When addresses relative to a job's RA are displayed, the job sequence name appears next to the display identifier at the top of the screen (for example, D AQBV). If jsn is not specified, absolute memory locations are displayed. When absolute memory locations are displayed, the display identifier appears alone at the top of the screen.

xz,aa...aa.

Brings a specified memory display to the left console screen, if not currently selected, and provides display modification as follows:

x Display identifier (C, D, F, G, or M).

z Type of display modification:

z=0-3 Changes the specified word group (0 through 3) to display the eight words beginning at memory location aa...aa.

z=4 Changes the display so that all four eight-word groups are displayed as 32 contiguous memory locations beginning at location aa...aa.

†Models 815, 825, 835, and 855 do not have an extended memory flag register.

z=5 Advances the display by aa...aa locations.

z=6 Decrements the display by aa...aa locations.

aa...aa Location parameter (8 digits).

If a job sequence name appears with a memory display identifier (C, D, F, G, or M) at the top of the screen, the memory locations shown in the display are relative to that job's RA. If no job sequence name is indicated, all memory locations shown are absolute.

When a memory display is on the left screen, the address can be stepped forward or backward 40 octal locations by pressing the + or - key; the right screen is paged with the left and right parentheses keys. Memory displays can also be set to advance or decrement by a specified constant by using the x5,aa...aa. (8 digits) and x6,aa...aa. (8 digits) entries.

For example:

Carriage return Causes the REPEAT ENTRY message to appear (refer to section 1).

C5,101. Increments present C display by 101_8. Each successive carriage return increments the displays by 101_8.

x6,aa...aa. is used in the same manner to decrement by the value specified.

The selection of a memory display for a specific job and/or the selection of addresses for any word group on a memory display remain in force even though the display is not on either screen. For instance, if the standard format of xy. is used to recall the C display to the screen, the job sequence name and/or the addresses shown are those specified by the last call in the format C,jsn. and/or Cz,aa...aa. For example, if the A and B displays are on the left and right screens and you type in the following sequence, the displays change as follows:

C,jsn. The A display on the left screen is replaced by the C display showing the words at locations 0 through 37 relative to the RA of the job with job sequence name jsn.

C3,1234. The fourth group of words on the display changes from words at locations 30 through 37 to those at locations 1234 through 1243.

AB. The B display remains on the right screen; the C display is replaced by the A display on the left screen.

CB. The C display relative to the RA of the job previously specified by jsn is brought back to the left screen still showing the words at locations 0 through 7 (group 0), 10 through 17 (group 1), 20 through 27 (group 2), and 1234 through 1243 (group 3).

EQUIPMENT STATUS (E) DISPLAYS

The E display lists the status of peripheral equipment. The type of information supplied varies according to the subdisplay specified.

Command	Display
E,. or E,A.	Equipment status table (EST).
E,C.	Mass storage configuration.
E,M.	Mass storage status.
E,P.	Resource mounting preview.
E,T.	Tape status.

EST (E,. OR E,A.) DISPLAY

The EST display lists the status of all devices in the equipment status table. The first line of the E,. or E,A. display contains the table name, the central memory address where the EST begins, and an index EST ordinal. If the index field is zero the first page of the display is being presented. If the index field contains a nonzero number, some other page of the display is being presented. In this case, page forward or backward through the display using the + (plus) key or the - (minus) key on left screen displays. On the right screen displays, use the (key (opening parenthesis) or the) key (closing parenthesis).

The index EST ordinal is not necessarily the first EST ordinal presented on that page of the display. Rather, it is the lowest possible EST ordinal that is allowed on that page.

Figure II-4-9 illustrates the equipment status display.

```
                                    E

EQUIPMENT STATUS TABLE.  ADDRESS = 6500.  INDEX = 0.

EST. TYPE STAT JSN EQ UN CHANNELS

 0.  RD  ON         0. 0.  0.   .
 1.  DI  ON         1. 0.  3.   .
 2.  DJ  ON         6. 0.  4.   .
 3.  DJ  ON         6. 1.  4.   .
10.  DS  ON  ALRB   7. 0. 10.   .
11.  CR  ON         4. 0. 13.   .
12.  CP  ON         5. 0. 13.   .
13.  DE  DWN         .  . 22.   .
20.  LP  ON         6. 0. 13.   .
21.  LP  ON         3. 0. 13.   .
22.  LP  OFF        7. 0. 13.   .
50.  MT  ON         5. 0. 12.   .    .   .
51.  MT  ON  AMQX   5. 1. 12.   .    .   .
52.  MT  ON         5. 2. 12.   .    .   .
53.  MT  ON  BADC   5. 3. 12.   .    .   .
55.  CS  ON         1. 0.  5.   .     ID = 01 000.
56.  CT  ON         1. 1.  5.   .     ID = 01 001.
60.  MT  ON         4. 0. 12. 11*    .   .
61.  NT  ON         4. 1. 12. 11*    .   .
62.  NT  ON         4. 2. 12. 11*    .   .
63.  NT  ON         4. 3. 12. 11*    .   .
64.  NT  ON         4. 4. 12. 11*    .   .
75.  TT  ON         0. 0.  0.   .    .   .
76.  TE  ON         0. 0.  0.   .    .   .
77.  NE  ON         0. 0.  0.   .    .   .

EST ORDINAL ——————————————————— PHYSICAL UNIT NUMBER
DEVICE TYPE ———————————————————— EQUIPMENT NUMBER
EQUIPMENT STATUS ——————————————— JOB SEQUENCE NAME OF JOB TO
                                  WHICH EQUIPMENT IS ASSIGNED
```

Figure II-4-9. Equipment Status (E,. or E,A.) Display

Each entry in the display appears in the following format.

```
est   type   stat   jsn   eq   un   channels
```

est	EST ordinal.
type	Device type.
stat	Equipment status (ON, OFF, or DWN†).
jsn	Job sequence name.
eq	Equipment number.
un	Unit number (serves as ID code for unit record devices).
channels	Channel(s) on which equipment is available.

A job sequence name precedes the equipment number in each entry if that piece of equipment is assigned to a job. An asterisk (*) instead of a period (.) following the channel number entry indicates that the channel is down. The identifier code (un parameter) provides a method of grouping peripheral devices when a site has several units. Output from a job read in through a card reader with identifier un can only be directed to a device with the same identifier. Changing the identifier code via the ROUTE command can direct program output to a special printer (for example, for form control or multiple copy forms). The following device types can appear in the second column of the equipment status display.

CP	415 Card Punch.
CR	405 Card Reader.
CS	MSS Cartridge Selector.
CT	MSS Cartridge Transport.
DB_i	885-42 Disk Storage Subsystem (full-track).††
DE	Extended memory.
DI_i	844-21 Disk Storage Subsystem (half-track).
DJ_i	844-41/44 Disk Storage Subsystem (half-track).
DK_i	844-21 Disk Storage Subsystem (full-track).
DL_i	844-41/44 Disk Storage Subsystem (full-track).
DM_i	885-11/12 Disk Storage Subsystem (half-track).
DP	Distributive data path to extended memory.
DQ_i	885-11/12 Disk Storage Subsystem (full-track).
DS	Console display.

†DWN is DOWN status. An equipment cannot be logically turned ON when in DWN status.
††Not applicable for models 815, 825, 835, and 855.

DV 819 Disk Storage Subsystem (single-density).

DW 819 Disk Storage Subsystem (double-density).

LP Any line printer.

LR 580-12 Line Printer.

LS 580-16 Line Printer.

LT 580-20 Line Printer.

MT Magnetic Tape Drive (7-track).

NC 380-170 Network Access Device.

NQ NPU Entry for NPS Stimulation.

NP 255x Network Processing Unit.

NT Magnetic Tape Drive (9-track).

RM Two-port multiplexer (models 815, 825, 835, 855, 865, and 875).

TT Internal stimulation device.

The system creates the following device types at deadstart for internal use. Physical hardware does not exist for this equipment. The device types appear in the second column of the equipment status display along with the real device types.

NE Null equipment.

RD Used for on-line reconfiguration of mass storage.

TE Tape equipment.

TT Used for assignment of terminal files (equipment number 75).

If the display screen is full and more equipment entries remain to be displayed, the message

MORE

appears at the bottom of the display.

MASS STORAGE CONFIGURATION (E,C.) DISPLAY

The E,C display shows the current configuration of mass storage devices in the system.

Figure II-4-10 illustrates the mass storage configuration display.

```
                                        E

E,C   MASS STORAGE CONFIGURATION

EST     TYPE    CHAN      FM/PN-UN   IAM    DAM    DN    UNITS

 1.      DJ     26. 32.   SYST72     377    377     1.     6
 2.      DJ     26. 32.   SYST72       0      0     2.     7
 3.      DJ     26. 32.   SYST72       0      0     3.     1
 4.      DI     26. 32.   PACK8C     377    377     0.     2
 5.      DI     26. 32.               0      0     0.     3
 6.      DI     26. 32.               0      0     0.     4
 7.      DI     26. 32.   SYS172     377    377    40.     5
11.      DP     30.       SYS172       0      0    10.     0
```

Figure II-4-10. Mass Storage Configuration (E,C.) Display

Each line in the display appears in the following format:

est type chan fm/pn-un iam dam dn units

est EST ordinal.

type Device type.

DB_i	885-42 Disk Storage Subsystem (full-track).
DE	Extended memory.
DI_i	844-21 Disk Storage Subsystem (half-track).
DJ_i	844-41/44 Disk Storage Subsystem (half-track).
DK_i	844-21 Disk Storage Subsystem (full-track).
DL_i	844-41/44 Disk Storage Subsystem (full-track).
DM_i	885-11/12 Disk Storage Subsystem (half-track).
DP	Distributive data path to extended memory.
DQ_i	885-11/12 Disk Storage Subsystem (full-track).
DV	819 Disk Storage Subsystem (single-density).
DW	819 Disk Storage Subsystem (double-density).

chan	Channels.
fm/pn-un	Family name/packname-user name. An asterisk appears after the packname if the device is a private auxiliary device.
iam	Indirect access file mask.
dam	Direct access file mask.
dn	Device number.
units	List of units which are defined in the CMRDECK.

MASS STORAGE STATUS (E,M.) DISPLAY

The mass storage status display provides detailed status information about all mass storage devices. In addition, the secondary rollout sector threshold is displayed (refer to SRST, t command in section 3).

Figure II-4-11 illustrates the mass storage status display.

```
                                    E

E,M  MASS STORAGE STATUS

 SRST=7777.
EST.    TYPE        STATUS          FILES      TRKS     FAMC     DAFC

 1.      DJ      S-------------- --------T    2624.      0.       0.
 2.      DJ      S---------F---- --------T    2624.      0.       0.
 3.      DJ      -M--------F---- --------T    3137.      0.       0.
 4.      DI      --R-----X-FD--- ---------     503.      0.       0.
 5.      DI      --RU----------- ---------    3140.      0.       0.      NR
 6.      DI      --RU----------- ---------    3140.      0.       0.      NR
 7.      DI      ---------OF---- ---------    1101.     13.       5.
11.      DP      -------A------- ---------       7.      0.       0.      OF
```

Figure II-4-11. Mass Storage Status (E,M.) Display

Each entry in the display appears in the following format.

```
est   type   status   files   trks   famc   dafc
```

est EST ordinal.

type Device type:

DB_i	885-42 Disk Storage Subsystem (full-track).†
DE	Extended memory.
DI_i	844-21 Disk Storage Subsystem (half-track).
DJ_i	844-41/44 Disk Storage Subsystem (half-track).
DK_i	844-21 Disk Storage Subsystem (full-track).
DL_i	844-41/44 Disk Storage Subsystem (full-track).
DM_i	885-11/12 Disk Storage Subsystem (half-track).
DP	Distributive data path to extended memory.
DQ_i	885-11/12 Disk Storage Subsystem (full-track).
DV	819 Disk Subsystem (single-density).
DW	819 Disk Subsystem (double-density).

status Status conditions. Any combination of conditions can exist. The following codes are listed in the order in which they appear on the display.

S	System resides on this device.
M	Device is shared by more than one mainframe.††
R	Device is removable.
U	Device is unavailable.
L	Device is in local unload status and, therefore, not available for permanent file access.
C	Checkpoint requested for specific device. Ensure that C status is not present before dismounting a removable device, issuing an OFF command to logically remove a device, or attempting to perform deadstart.
Q	Outstanding I/O requests exist.

†Not applicable for models 815, 825, 835, and 855.

††If a device is shared by two or more mainframes (status M), the mainframe identification flashes on the far right of the screen as the mainframe accesses the shared device. Not applicable for models 815, 825, 835, and 855.

I Initialization requested or format is pending.

A Alternate system device.

X Device is an auxiliary permanent file device.

O Catalog track overflowed.

F CTI is installed on the device.

D System deadstart file is installed on the device.

* Reconfiguration is requested.

N Device is in global unload status (all machines sharing the device have it in local unload status). Do not physically remove a pack unless N status is displayed on all machines sharing the device.

P A permanent file utility is active.

files Types of files which are allowed on this device. Any combination of types can exist. The following codes are listed in the order in which they appear on the display.

S Secondary rollout.

B LGO.

L Local.

P Primary.

D User dayfile.

R Rollout.

O Output.

I Input.

T Temporary.

trks Number of tracks available on device.

famc Number of jobs in that device's family.

dafc Number of direct access files attached.

In addition, if an error is detected, the system displays (and periodically intensifies) an error code following the dafc field. The following error codes can appear during normal production.

LE Label error (unrecognizable label).

NR Not ready.

OF Device has OFF status.

PN Duplicate pack name exists.

The following error codes indicate more serious system or equipment errors.

CA Checkpoint abort (unable to checkpoint device).

CE Configuration error (active device has one of the packs mounted or defined incorrectly).

CS The size of permanent file catalogs on the device is incorrect for the current system.

DN Device number conflicts with that of another device in the family.

DW Device status is DOWN.

EI Error idle status has been set for the device as a result of some error.

FF Family ordinal table is full.

IL Incorrect label (the label on an active device is incorrect).

IN Device has initialize status set (only if set via deadstart).

LK Error in TRT linkage detected when recovering permanent files. No recovery possible. Can occur only when introducing removable devices after deadstart.

TL Length of device's TRT entry is in error; no recovery possible.

UM Sum of the device masks for family does not equal 377_8.

VE Error status set in MST because of failure during mass storage table validation.

NOTE

When a VE status error occurs, the device becomes interlocked. A PP program that attempts to access that device cannot complete until the interlock is cleared. Enter the DSD command VALIDATE to remove the VE error and interlock.

RESOURCE MOUNTING PREVIEW (E,P.) DISPLAY

The preview display identifies the tapes and packs needed to satisfy user's requests. In order for this display to be selected, the magnetic tape subsystem (MAG) must be executing.

Figure II-4-12 illustrates the preview display.

```
                                    E


        RESOURCE MOUNTING PREVIEW.

          JSN    EQ   PN/VSN  USERNUM RING LABEL STATUS

          AAAN   PE   TEST   = USER123  IN   YES   MOUNT
          AABG   MT   5037     UI10     IN   YES   MT60 RING CONFLICT
          AABK   MT   A        TTEST    --
          AABQ   HD   TAPE1B=  AJL25    OUT  YES
```

Figure II-4-12. Resource Mounting Preview (E,P.) Display

Each line in the display appears in the following format.

jsn eq pn/vsn usernam ring label status

jsn Job sequence name of the job the equipment is assigned to.

eq Resource type:

DBi	885-42 Disk Storage Subsystem ($1 \leq i \leq 3$) (full-track).†
DIi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$) (half-track).
DJi	844-41/44 Disk Storage Subsystem ($1 \leq i \leq 8$) (half-track).
DKi	844-21 Disk Storage Subsystem ($1 \leq i \leq 8$) (full-track).
DLi	844-41/44 Disk Storage Subsystem ($1 \leq i \leq 8$) (full-track).
DMi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$) (half-track).
DQi	885-11/12 Disk Storage Subsystem ($1 \leq i \leq 3$) (full-track).
DV	819 Disk Storage Subsystem (single-density).
DW	819 Disk Storage Subsystem (double-density).

† Not applicable for models 815, 825, 835, and 855.

GE Magnetic tape unit (6250-cpi, 9-track).

HD Magnetic tape unit (800-cpi, 9-track).

MT Magnetic tape unit (7-track).

PE Magnetic tape unit (1600-cpi, 9-track).

pn/vsn One- to six-character volume serial number of the required tape or one- to seven-character pack name of the required pack. The pn/vsn is obtained from the user's command.†

usernam User name of job.

ring Magnetic tape ring enforcement (if any):

IN Write enable required (ring in).

OUT Write disable required (ring out).

-- No ring enforcement.

label Magnetic tape label requirements (if any):

YES A labeled tape is required.

-- No label is required.

status Operator message indicating an error condition (refer to message's entry in appendix B) or a MOUNT request. If MOUNT appears in this field, the next volume of a multireel file should be mounted. Subsequent reels of a multireel file must be mounted on a drive of similar type and on the same channel(s) as the first reel of the file. That is, if the first reel of a file is on a 669 tape unit on channel 13 and 33, all subsequent reels must be on a 669 unit on channels 13 and 33. For purposes of reel swapping, models 679-2, 679-3, and 679-4 drives (800/1600-cpi) and models 679-5, 679-6, and 679-7 drives (1600/6250-cpi) are considered different drive types.

---

†If the user's VSN request is in the form VSN,file=vsn1=vsn2; or LABEL, file=vsn1=vsn2, the E,P display will display the first volume serial number (vsn1) as the VSN of the tape which is requested. An equal sign (=) appears as the seventh character of the VSN field. If tape with VSN of vsn2 is subsequently mounted, the system will assign it to the job, but assignment may not be immediate. The maximum delay is the time a job is rolled out waiting for a specific VSN (approximately 2 minutes). To avoid this delay, roll the job in using the ROLLIN command (refer to ROLLIN command in section 3).

TAPE STATUS (E,T.) DISPLAY

The tape status display summarizes the status of all magnetic tape units in the system.

Figure II-4-13 illustrates the tape status display.

```
                                    E

EST     VSN         DEN    RING   FMT          JSN     STATUS

NT50    ****50      1600                                IDLE
        UNLABELED                  REEL=          1     MODE=
NT51    ****51      1600   IN      SI           AABJ    LOADPT
        UNLABELED                  REEL=          1     MODE=AS
MT52                800                                 IDLE
```

Figure II-4-13. Tape Status (E,T.) Display

Each entry appears in the following format.

```
est  vsn      den  ring  fmt    jsn    status
     fileid                reel         mode
```

est — Identifies the equipment being used:

- MTuu — 7-track; uu is the EST ordinal.
- NTuu — 9-track; uu is the EST ordinal.

vsn — Volume serial number of the mounted tape. The E,T display shows a VSN of ****uu when the tape does not contain a recognizable label. The uu portion of the display is the EST ordinal.

den — Density (cpi):

- 200 — 200-cpi (implies 7-track).
- 556 — 556-cpi (implies 7-track).
- 800 — 800-cpi (7- or 9-track).
- 1600 — 1600-cpi (implies 9-track).
- 6250 — 6250-cpi (implies 9-track).

ring — Ring status (IN if the write enable ring is in; blank if the ring is out).

fmt — Data format:

- F — Foreign.
- I — Internal.
- L — Long block stranger.

S Stranger.

SI System internal (NOS/BE system default format).

jsn Job sequence name of the job to which the tape unit is assigned.

status Status of the tape unit:

READY Unit is ready.

IDLE Unit is idle.

LOADPT Tape is positioned at load point.

ROLLED Job using tape unit has been rolled out.

DOWN Unit has been logically removed from the operating environment via the DOWN command, or by the magnetic tape executive when it detects a hardware error in the unit.

NOTRDY Unit is not ready or is rewinding.

MOUNT Indicates that next reel† should be mounted. Reel to be mounted may be identified by VSN, or if tape is unlabeled, by reel number.

fileid File identifier obtained from tape label. No column heading is displayed for this field; it is the first field in the second line of the entry and appears under the vsn field. UNLABELED is displayed if the tape does not contain a recognizable label.

reel Reel number currently in use or reel to be mounted if MOUNT status is set. No column heading is displayed for this field although the characters REEL= identify its position in the second line of the entry.

mode Conversion mode of mounted tape. If tape is not assigned, this is the conversion mode of labels. If the tape is assigned, this is the conversion mode of labels and coded data. No column heading is displayed for this field although the characters MODE= precede the value for cv in the second line of the entry. Values for conversion mode are:

Blank No conversion (unlabeled and not assigned).

BC BCD (7-track).

AS ASCII (9-track).

EB EBCDIC (9-track).

If the display screen is full and more equipment entries remain to be displayed, the message

MORE

appears at the bottom of the display. Page through the display to view all equipment entries. Refer to section 1 for more information on paging displays.

---

†All subsequent reels of a labeled multireel file must have the same characteristics as the first reel of the file; that is, they must be labeled (at the same density), they must be the same track type, and they must have the same conversion mode.

SYSTEM FILE NAME TABLE (H) DISPLAY

Use the H display to obtain information about a system file.

More than one page exists if the message

MORE

appears at the bottom of the display.

The first line of the H display contains the table name, the central memory address where the system FNT begins, and an index FNT ordinal. If the index field is zero the first page of the display is being presented. If the index field contains a nonzero number, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or - key on left screen displays or the (key or) key on right screen displays.

The index FNT ordinal is not necessarily the first FNT ordinal presented on that page of the display. Rather, it is the lowest possible FNT ordinal that is allowed on that page.

Figure II-4-14 illustrates the file name table (H) display.

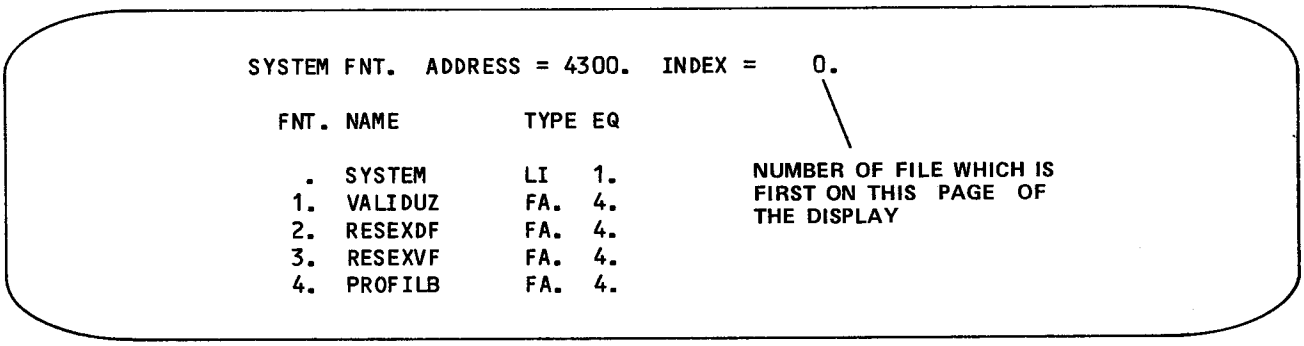


Figure II-4-14. System File Name Table (H) Display

The format of each line is:

fnt name type eq

fnt — Unique number (FNT ordinal) assigned to the system file by the system when the file is created and retained by that file as long as it is in the system.

name — File name.

type — File type (an asterisk following the file type indicates a read-only file):

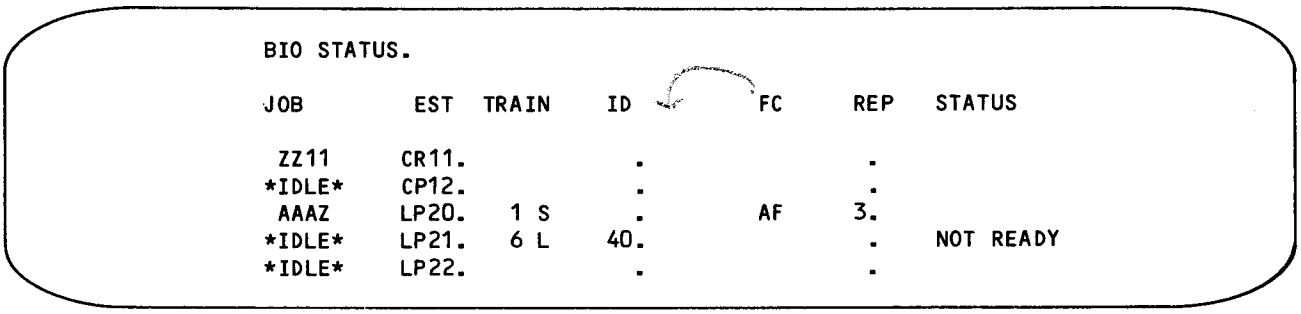
- FA — Fast-attach file.
- LI — Library file.
- SY — System file.

eq — EST ordinal of the device on which the file resides.

BIO (I) DISPLAY

The BIO display shows the status of BIO unit record devices.

Figure II-4-15 illustrates the BIO status (I) display.



```
BIO STATUS.

JOB        EST   TRAIN    ID      FC     REP   STATUS

 ZZ11     CR11.             .                .
*IDLE*    CP12.             .                .
 AAAZ     LP20.    1 S      .      AF        3.
*IDLE*    LP21.    6 L     40.               .    NOT READY
*IDLE*    LP22.              .                .
```

Figure II-4-15. BIO Status (I) Display

Each entry is in the following format.

jsn est train id fc rep status

jsn — Job sequence name of the job using the device. Card reader names, however, are of the form ZZeq where eq is the EST ordinal of the card reader. *IDLE* if no job is using the equipment.

est — Peripheral equipment (mnemonic and EST ordinal); for example:

- CR11 — Card reader, equipment 11.
- CP12 — Card punch, equipment 12.
- LP20 — Line printer, equipment 20.

Refer to the EST display description for a list of all equipment mnemonics.

train — Print train on the specified printer ($0 \leq$ print train ≤ 7) and the paper size on specified printer S specifies short paper and L specifies long paper. Refer to NOS 2 System Maintenance Reference Manual for information on short and long paper.

id — Equipment ID ($0 \leq id \leq 67_8$).

fc — Two-character alphanumeric forms code assigned to the line printer or card punch.

rep Repeat count (refer to the REPEAT command in section 3).

status Equipment status (for example, NOT READY; NOT READY status could be caused by pressing the STOP button on the device).

At the BIO control point (B display), a message appears whenever a device is active. The message appears as:

n **BUFFERS ACTIVE**

n Number of buffers reserved in BIO's field length.

JOB STATUS (J) DISPLAY

The J display shows the status of a specific job executing at a control point. To bring the J display to the console screen, enter the following.

```
J,jsn.
```

jsn is the job sequence name of the specific job that you wish to examine. If jsn is not specified, the screen is cleared.

The job sequence name of the job the J display is assigned to appears at the top of the screen next to the display designator (for example, J ABCD).

In addition to the status, any equipment assigned exclusively to the job are listed by EST ordinal, message 1 and message 2 from the control point area are displayed, and the current commands buffer is shown, allowing you to anticipate future job requirements.

Figure II-4-16 illustrates the job status (J) display.

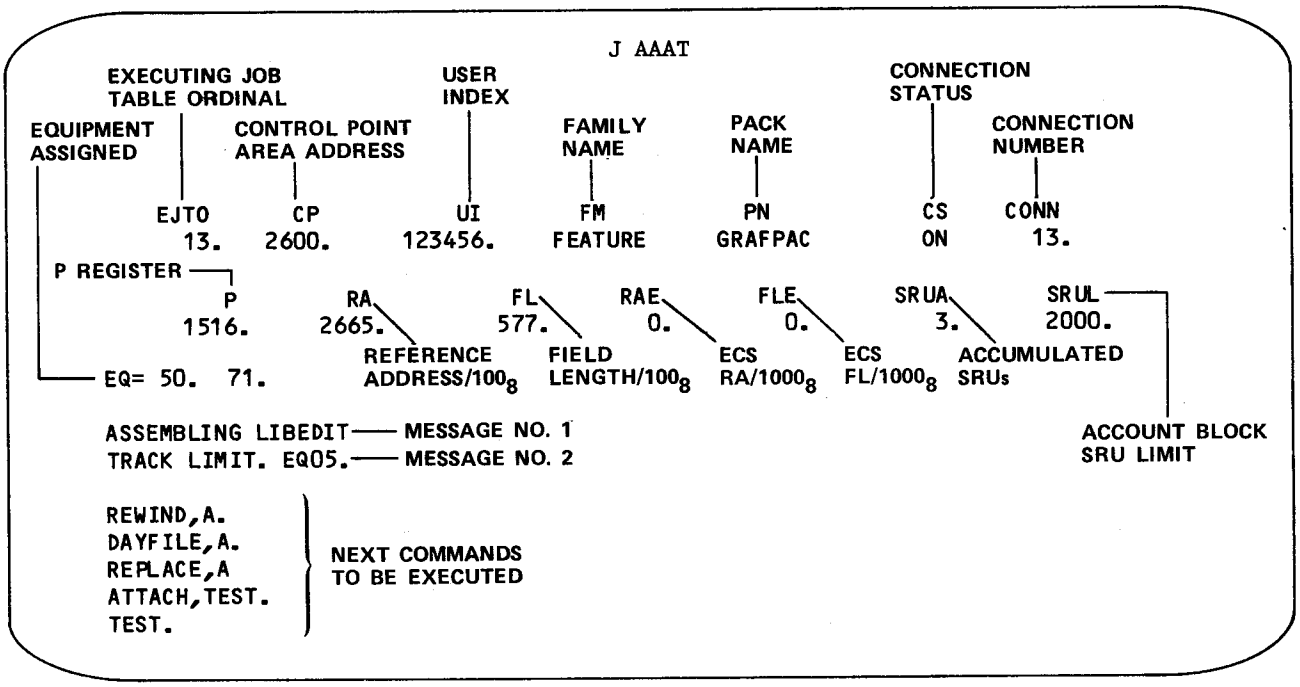


Figure II-4-16. Job Status (J,jsn) Display

The status portion of the J display has the following format.

```
ejto   cpaddr   ui   fm   pn   cs    conn
paddr  ra       fl   rae  fle  srua  srul
```

ejto	Executing job table ordinal.
cpaddr	Control point area address.
ui	User index.
fm	Current family name.
pn	Current pack name.
cs	Connection status (interactive jobs only).
conn	Connection number (interactive jobs only).
paddr	P address.
ra	Reference address.
fl	Central memory field length.
rae	Extended memory reference address.
fle	Extended memory field length.
srua	System resource units accumulator (estimated).
srul	System resource units account block limit.

TAF (O) DISPLAYS

The O displays give the status of the task library directory, transaction terminals, or subcontrol points depending on the command entered.

Command	Display
O,SCP.	Subcontrol point status.
O,TLD.	Task library directories.
O,TST.	Transaction status table.

When the transaction subsystem has no transactions active or is rolled out, the words

SUBSYSTEM INACTIVE

appear in the upper right corner of each display. The rest of the display is blank.

SUBCONTROL POINT STATUS (O,SCP.) DISPLAY

The subcontrol point status display lists subcontrol points, tasks which are currently active at specific subcontrol points, and information about those tasks.

Figure II-4-17 illustrates the subcontrol point status (O,SCP.) display.

```
SUB CONTROL POINT STATUS

SCP    NAME       RA     FL    NTR    T.NAME    RA+1    STATUS
 1.    ITASK    25400.   600.   4.    TAF5000   SCTP    ------UC----
 2.    KDIS     26300.   400.   1.              CTI     ------U-----
 3.    NEXT
 4.    NEXT
 5.    NEXT
 .
 .
 .
```

Figure II-4-17. Subcontrol Point Status (O,SCP.) Display

Each entry is in the following format.

```
scp  name  ra  fl  ntr  tname  ra+1  status
```

scp — Subcontrol point number.

name — Task name if active; NEXT if inactive.

ra — Reference address.

fl — Field length.

ntr — Number of transactions queued to use this copy of the task.

tname — Terminal name associated with the currently active transaction. Blank if none.

ra+1 — Address of last RA+1 request issued by the task.

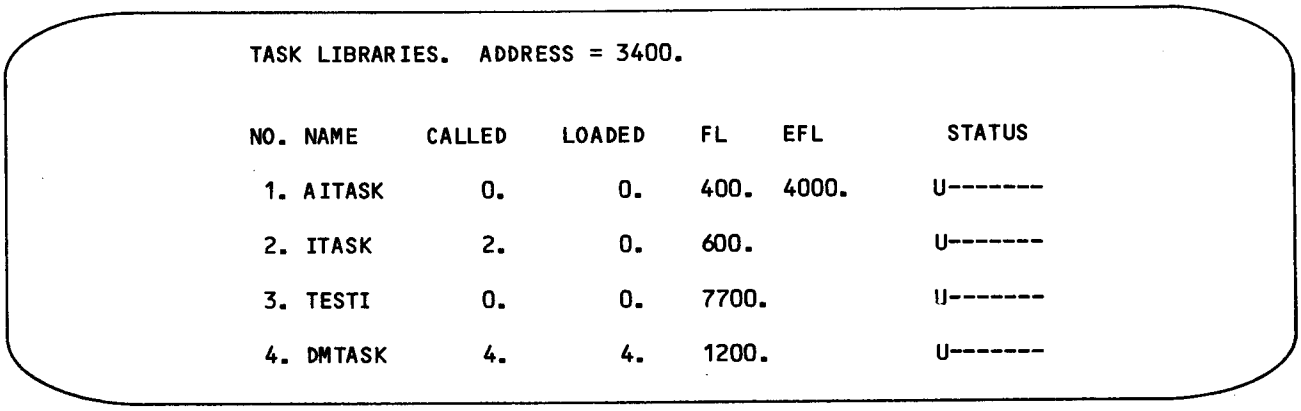
status — Subcontrol point status. The following codes are listed in the order as they appear on the display.

Code	Description
S	Storage move is not allowed.
F	Subcontrol point is available for release.
L	Task requested communication block.
M	Common memory manager currently controls the task program library.
B	Subcontrol point is occupied by data for processing a batch concurrency job.
U	Task is reusable.
C	Task is a central memory resident task.
E	Task is in recall condition.
A	Abort task.
T	Task is available for termination.
D	CDCS subsystem aborted.

TASK LIBRARY DIRECTORIES (O,TLD.) DISPLAY

The task library directories display provides information on each task within a library directory. The system task library directory, TASKLIB, is shown first by default. Each individual task library directory, xxTASKL, is displayed by paging through the display. Refer to section 1 for information on paging the display.

Figure II-4-18 illustrates a task library directories (O,TLD.) display.



TASK LIBRARIES. ADDRESS = 3400.

NO.	NAME	CALLED	LOADED	FL	EFL	STATUS
1.	AITASK	0.	0.	400.	4000.	U-------
2.	ITASK	2.	0.	600.		U-------
3.	TESTI	0.	0.	7700.		U-------
4.	DMTASK	4.	4.	1200.		U-------

Figure II-4-18. Task Library Directories (O, TLD.) Display

Each entry is in the following format.

```
no   name   called   loaded   fl   efl   status
```

no	Line number on display.
name	Task name.
called	Number of times task was requested.
loaded	Number of times task was loaded into memory.
fl	Field length.
efl	Extended memory field length.
status	Additional task information. Presence of a letter in a line indicates it applies to the corresponding task.

Code	Description
C	Central memory resident.
D	Task is logically deleted.
E	Extended memory resident library copy of task.
O	ON/OFF (presence of O indicates task OFF).
Q	Queuing forced (refer to the TAF Reference Manual for more information on the Q parameter for the LIBTASK * Input directive).
R	Reduce field length for central memory resident task.
S	Solicited communication block load requested.
U	Reusable (disk resident).

TAF STATUS TABLE (O,TST.) DISPLAY

The transaction status table display provides information about each active terminal. The number preceding TERMINALS in the title line indicates the number of transaction terminal lines currently in use. Refer to section 1 for information on paging the display.

Figure II-4-19 illustrates the transaction status table (O,TST.) display.

```
                TRANSACTION STATUS TABLE.    2. TERMINALS

 NO.   NAME      DB   STATUS          USER AREA   ACN   COUNT
  1.   TAF5000   TT   AL---T------    00000003     1.     1.
  2.   TAF5010   AA   AL----------    00000000     2.     1.
```

Figure II-4-19. Transaction Status Table (O,TST.) Display

Each entry is in the following format.

no name db status userarea acn count

no — Line number on display.

name — Terminal name.

db — Data base (two-character name).

status — The transaction terminal status. The status codes are listed in the order they appear on the display.

Code	Description
A	Terminal is active.
L	Terminal logged in.
C	Supervisory message CON/REG received.
R	Automatic recovery required.
T	A recoverable transaction is executing.
M	Multiple block input received.
I	Task is waiting for input.
F	Final message block sent for transaction.
P	Connection postponed.
D	CDCS subsystem aborted.

userarea — User-accessible argument area.

acn — Application connection number.

count — Number of transactions submitted.

PP COMMUNICATIONS AREA (P) DISPLAY

The P display shows the status of all the PPs in the system. The first line of the display includes the central memory address where the PP communications area begins.

Figure II-4-20 illustrates the PP communications area (P) display for a CYBER 170 Computer System with an S/C register†.

```
                                        P

                                                                                PROGRAM †
                                                                                ADDRESS
PP REGISTERS.      ADDRESS=6200.

    PP    PGM    CP      JSN     FCN     CH     OUTPUT REGISTER                P-ADDR

    0.    MTR    21.     AABR    0000           0000 2000 0000 0000 0000       1356.
    1.    DSD    30.     SYS     0000    *      0000 6370 0000 0000 0000       7057.
    2.                                                                          251.
    3.                                                                          251.
    4.                                                                          251.
    5.    PIP    2.      NAM     0000    *      0000 0003 0141 0001 6766       5765.
    6.    1MT    25.     AETC    0012    *      0012 0033 0000 2306 1503       1472.
    7.                                                                          251.
   10.                                                                          252.
   11.                                                                          251.
   20.                                                                          252.
   21.    1CD    26.     BIO     0000    *      0000 0012 0000 0000 0000       5663.
   22.                                                                          252.
   23.    ***    30.     SYS     0000    *      0000 0000 0000 0000 0000          1.
   24.                                                                          251.
   25.                                                                          252.
   26.    LFM    10.     CPB     0077    *      0077 0000 0000 0000 0000       5117.
   27.                                                                          252.
   30.                                                                          251.
   31.                                                                          252.

    PS     CIO   3.      ABCD    0024           0076 0000 0100 0302 0400
```

†This column does not appear on models 815, 825, 835, and 855.

Figure II-4-20. PP Communications Area (P) Display

†For models 865 and 875, S/C registers are maintenance registers.

Each entry is in the following format.

```
pp   pgm   cp   jsn  fcn  ch  regcont   paddr
```

pp — The logical PP number. PS is the CPUCIO pseudo PP and is always listed last.

pgm — PP program name. If the field is ***, this PP has logically been turned off.

cp — The control point number to which the PP is assigned.

jsn — The job sequence name of the job to which the PP is assigned.

fcn — The current monitor function being called by the PP program.

ch — An * appears in this field if channels are assigned.

regcont — The contents of the 60-bit PP output register are displayed in octal format.

paddr — The P address of the PP (this value appears only on CYBER 170 Computer Systems with an S/C register†).

If you enter the DSD command

```
P,jsn.
```

only those PPs assigned to the specified job sequence name jsn are displayed.

†For models 865 and 875,S/C registers are maintenance registers.

ACTIVE JOB QUEUES (Q) DISPLAYS

The Q displays show the status of the specified queue or the entire queued file table. The appropriate Q display is called when you enter

```
Q,qt.
```

where qt is one of the following queue types.

qt	Display Called
blank	All entries in the queued file table.
IN	Input queued file entries.
PL	Plot queued file entries.
PR	Print queued file entries.
PU	Punch queued file entries.
WT	Error or terminal wait files.

If the display screen is full and more queued file table entries remain to be displayed the message

```
MORE
```

is displayed at the bottom of the screen. The additional entries are brought to the screen by paging the display.

Figure II-4-21 illustrates the queued file table (Q,.) display and figure II-4-22 illustrates the print queue (Q,PR.) display.

```
                                   Q


Q, .                                FREE= 613.  ADDRESS= 24326.  INDEX=   0.

 JSN        SC   QFT    QP        QT   LID   DS   ID   FC   EC

SYS         S      0.    0.       IN   MQE
AABR        B      1.  212.       PR   MQG   BC   4.        A9
AACA        R      2.  172.       PR         RB   7.
AACB        T      4.  100.       PU         BC             PH
```

Figure II-4-21. Queued File Table (Q,.) Display

```
                                   Q


Q,PR.                                  FREE= 613.  ADDRESS= 24326.  INDEX=   0.

 JSN        SC   QFT    QP       QT   LID   DS   ID   FC   EC

AABR        B      1.  212.      PR   MQE   BC             A9
AACA        B      2.  172.      PR         BC
AADB        B      4.  100.      PR         BC   AC
```

Figure II-4-22. Print Queue (Q,PR.) Display

All the Q displays have a header line with the following format.

name FREE=num. ADDRESS=addr. INDEX=ind.

name — Name of the Q display (Q,.; Q,IN.; Q,PU.; Q,PR.; Q,PL.; Q,WT.)

num — Octal number of unassigned QFT entries. If this field is zero, the system cannot create any new queued files until an entry becomes available (for example, when a queued print file completes printing and is removed from the system).

addr — Central memory address where the queued file table begins.

ind — The lowest QFT ordinal that can be displayed on this page of the display. If this field is zero, the system is presenting the first page of the display. If this field is nonzero, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or - key on left screen displays; or the (key or) key on right screen displays to view all pages of the particular queue display.

Each entry on a Q display has the following format.

jsn sc qfto qp qt lid ds id fc ec

jsn — Job sequence name of the file in the queue.

sc — Service class of the job. Refer to the job status (B) display earlier in this section for a list of the various service class mnemonics.

qfto — Queued file table ordinal of the job.

qp — Queue priority.

qt — Queue type (IN, PU, PR, PL, WT).

lid — Destination logical identifier.

ds Destination (output files only).

BC Local batch.

RB Remote batch.

id File identification (output files only).

fc Forms code (output files only).

ec External characteristics (print and punch queue types only).

Punch Codes

Code	Description
PH	System default; set at installation time.
SB	System binary.
80	80 column.
26	026.
29	029.
AS	ASCII.

Print Codes

Code	Description
A4	NOS/BE; same as A6.
B4	NOS/BE; same as B6.
A6	ASCII graphic 63/64-character set.
B6	CDC graphic 63/64-character set.
A9	ASCII graphic 95-character set.

ROLLOUT (R) DISPLAY

The R display shows the current status of the executing job table entries that have been rolled out for any reason.

The first line of the R display contains the central memory address (ADDRESS=addr) where the executing job table begins and an index (INDEX=ind) executing job table ordinal. If the index field is zero, the first page of the display is being presented. If the index field contains a nonzero number, some other page of the display is being presented. In this case, page forward or backward through the display using the + key or - key on left screen displays or the (key or the) key on right screen displays.

Figure II-4-23 illustrates the Rollout (R) display.

```
                                   R


                                        ADDRESS= 21226.  INDEX=   0.

 JSN   SC    EJT     SPR    RO-FL     RO-FLE    ST

AABB   B      20.    1234.     114.       10.   RO
AABC   B      22.                              PF
AADE   S      25.                              SO
ACBC   T      27.                              DO
```

Figure II-4-23. Rollout (R) Display

Each entry is in the following format.

```
jsn   sc   ejt   spr   rofl   rofle   st   *
```

jsn Job sequence name of the executing job table entry.

sc Service class of the executing job table entry.

ejt Executing job table ordinal of the executing job table entry.

spr Scheduling priority of the executing job table entry. For extended time event jobs (status code TE) this is the time until rollin.

rofl Rollin central memory field length divided by 100_8.

rofle Rollin extended memory field length divided by 1000_8.

st Job status.

st	Description
AS	Waiting for account dayfile size exceeded condition to clear.
BS	Waiting for binary maintenance log size exceeded condition to clear.
CI	Waiting for CPD to be initiated.
CT	Waiting for CPD to be terminated.
DO	Disabled rollout.
DS	Waiting for system dayfile size exceeded condition to clear.
EJ	Waiting for executing job table full condition to clear.
ER	I/O error on rollout.
ES	Waiting for error log size exceeded condition to clear.
FN	Waiting for system file name table full condition to clear.
FO	Waiting for family ordinal table full condition to clear.
IN	Preinitial job step.
IO	Interactive rollout.
LD	Waiting for L display input.
MG	Waiting for MAG subsystem to be initiated.
MS	Waiting for MSS subsystem to be initiated.

st	Description
PF	Waiting for permanent file.
QF	Waiting for queued file table full condition to clear.
RO	Scheduler rollout.
RS	Waiting for resource.
SI	SCP rollin.
SO	SCP rollout.
SU	Suspended rollout.
TE	Extended time event. SPR is the number of seconds before the job can roll in.
TL	Waiting for track limit condition to clear.
TO	Timed/event rollout.
UA	Utility active.

* If present, it indicates the job was rolled out when you entered a ROLLOUT command. To clear this condition use the ROLLIN command (refer to section 3 for more information).

If more entries remain to be displayed when the screen is full, the message

MORE

appears at the bottom of the screen. To view these entries, page through the display. Refer to section 1 for information on paging displays.

SYSTEM CONTROL INFORMATION (S) DISPLAY

The S display shows the parameters used to control job flow for the various service classes. For each service class, queue priorities and service limits are shown.

The S display information does not all fit on one screen. The first line of the S display contains an index to tell you if you are on the first page of the display. If the index service class is system (INDEX=SY), you are viewing the first page of the display. If the index service class is any other legal service class mnemonic, you are looking at some other page of the display. To view the rest of the information, page through the display. Refer to section 1 for information on display paging.

Figure II-4-24 illustrates the system control information (S) display.

```
                                        S

                                                                  INDEX = SY

SC      QU   QUEUE VALUES                          SERVICE LIMITS
                                                     PR    CP    CM    NJ    TD
                                                     FL     AM          TP
             IL    LP    UP   WF     IP             EC     EM   DS  FC  CS  FS

SY      IN     .  700. 3000.    .                   30.  100.   20. 7777.   60.
        EX   700.  100. 7000.    .  5000.         3777.  7777.      4004.
        OT     .  100. 7700.    .                 3777.  7777.   .   .   .   .

BC      IN     . 2000. 4010.   1.                   30.  400.  200. 7777.   60.
        EX  2400. 1010. 4004.   1.  4000.         3777.  7777.      4004.
        OT     .  100. 7000.   1.                 3777.  7777.   .   .   .   .

RB      IN     . 2400. 4010.   2.                   30.  400.  200. 7777.   60.
        EX  3400. 1400. 4006.   2.  3000.         3777.  7777.      4004.
        OT     .  100. 7600.   2.                 3777.  7777.   .   .   .   .

TS      IN     . 3770. 7006.  10.                   30.   40.   10. 7777.   60.
        EX  4004. 3740. 7000.  10.  4400.         3777.  7777.      1000.
        OT     .  100. 7000.  10.                 3777.  7777.   .   .   .   .

DI      IN     .  100. 7000.   1.                   10.  100.   20. 7777.   60.
        EX   700.  100. 7000.   1.  7500.         3777.  7777.      4004.
        OT     .  100. 7000.   1.                 3777.  7777.   .   .   .   .

NS      IN     . 7360. 7500.  20.                   73.  400.  200. 7777.   60.
        EX  7374. 7350. 7500.  20.  7400.         3777.  7777.      4004.
        OT     .  100. 7700.  20.                 3777.  7777.   .   .   .   .

DELAYS
    JQ      JS      CR    AR    MX     MN

     2.      1.     30. 1000.  20.    10.

  SSTL= 0001 1200 0000 0002 0000        AJ    B
  INWL= 0000 0000 0000 0000 0000
```

Figure II-4-24. System Control Information (S) Display

Each field in the entry is described as follows:

sc	Service Class
BC	Local batch job.
CT	Communication task.
DI	Detached interactive job.
MA	Maintenance job.
NS	Network supervisor job.
RB	Remote batch job.
SS	Subsystem job.
SY	System job.
TS	Interactive job.
DS	Deadstart sequencing.

qu Queue type; one of each of the following for each job type:

qu	Job Type
IN	Input
EX	Executing
OT	Output

Queue values:

Each entry is in the following format:

il lp up wf ip

il Initial low priority (priority at which job is initially set in the queue). This is valid only for the EX queue type.

lp Lowest priority at which a job can be entered and aged.

up Highest priority a job can reach in the queue.

wf Weighting factor the scheduler uses to calculate queue priority.

ip Initial priority. This is the priority value the jobs of this service class have when they become available for scheduling to the CPU. This parameter is valid only for jobs with queue type of EX.

Service limits:

Each entry appears in the following format:

```
pr   cp   cm   nj   td

fl     am      tp

ec     em ds fc  cs fs
```

pr	CPU priority.
cp	CPU time slice (milliseconds x 100_8).
cm	Central memory time slice (seconds).
nj	Maximum number of jobs for this service class.
td	Timeout delay. This value is the number of seconds $/10_8$ before a suspended job is timed out.
fl	Maximum field length/100_8 for any individual job of the service class.
am	Maximum field length/100_8 for all jobs of the service class.
tp	Terminal priority. This is the priority assigned to an interactive job at the beginning of the job step or at completion of terminal I/O.
ec	Maximum extended memory field length/1000_8 for any individual job of the service class.
em	Maximum extended memory field length/1000_8 for all jobs of the service class.
ds†	Size in PRUs allowed for individual direct access permanent files for jobs of this service class.
fc†	Number of permanent files allowed for jobs of this service class.
cs†	Cumulative size in PRUs allowed for all indirect access permanent files for jobs of this service class.
fs†	Size in PRUs allowed for individual indirect access permanent files for jobs of this service class.

Refer to the QUEUE and SERVICE commands in section 3 for further information about these parameters.

---

†The entry in this field is not the actual value but an index to a table of values. Refer to the SERVICE command in section 3 and find the parameter which corresponds to the S display field (such as, the FCx parameter for the FC field). The table in the parameter description shows the actual value. If the zero is used, the entry does not appear in the display.

At the bottom of the display are five entries controlling the time or delay in system operations. These are installation parameters used to control system operation.

Each entry is in the following format:

jq js cr ar mx mn

jq Scheduler interval (seconds).

js Job scheduler delay interval (seconds).

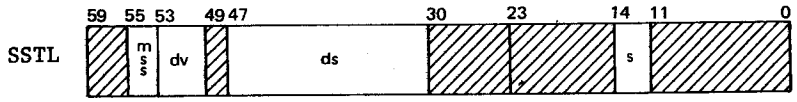
cr CPU program recall (milliseconds).

ar PP auto recall (milliseconds).

mx Maximum job switch time (milliseconds).

mn Minimum job switch time (milliseconds).

The system status (control) word (SSTL) and the system interlock word (INWL) are displayed at the bottom of the S display, each in five groups of four octal digits. The display code equivalent is shown at the right of each word. The following bits may be set in the control word. (The commands that can be used to change these conditions are described in section 3.)



mss Disable mass storage subsystem:

Bit Set	Significance
55	Disable MSSEXEC master mode.
54	Disable file staging.

dv Disable extended memory/validation:

Bit Set	Significance
53	Disable user extended memory.
52	Disable PF validation.
51-50	Disable MS validation.

ds Disable subsystem:

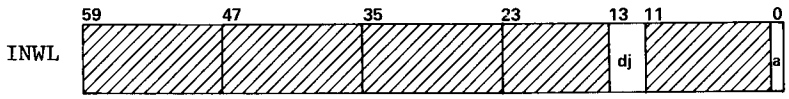
Bit Set	Significance
49	Disable STM subsystem.
48	Reserved.
47	Disable BIO subsystem.
46	Reserved.
45	Reserved.
44	Disable MAG.
43	Disable MAP III.

Bit Set	Significance
42	Disable removable device checking.
41	RHF.
40	Disable secondary USER commands.
39	Disable system control point (SCP) facility.
38	Disable TAF.
37	Disable NAM.
36	Disable RBF.
35	Disable subcontrol points.
34	Disable MCS.
33	Disable CDCS.
32	Disable MSS.
31	Disable IAF.
30	Disable PROBE.

s Console/system modification status:

Bit Set	Significance
16	Disable analyst logging.
15	Reserved.
14	System is in engineering mode.
13	Console is locked.
12	System is in debug mode.

The following bits may be set in the interlock word (INWL).



dj Disable job flow parameters:

Bit Set	Significance
13	Disable job scheduler.
12	Disable suspension timeout processing.

a Abort interlock.

Bit Set	Significance
0	SCP abort interlock is set.

IAF STATUS (T) DISPLAY

The T display shows the status of interactive users. The first line of the T display contains the number of successful logins since the IAF subsystem was activated (TOTAL=), the number of currently active users (ACTIVE=), and a connection number index (INDEX=ind). If this index field is 2, the first page of the display is being presented. If this index field is some other number, a different page of the display is being presented.

The number presented in the index field is not necessarily the first connection number presented on that page of the display. Rather, it is the lowest possible connection number that could be displayed on that page.

If more entries exist than fit on one screen, the message

MORE

appears at the bottom of the screen. To view more entries, page through the display. Refer to section 1 for information on paging displays.

Figure II-4-25 illustrates the IAF status (T) display.

```
                                    T


IAF STATUS.              TOTAL=     62. ACTIVE =   5. INDEX=   2.

CONN    USER    JSN  WARN          CONN   USER    JSN  WARN

   2.  MSIE63   CCDB
   3.  BCC3722  ABBF
   4.  TDK7     CCFC   *
   7.  FAMB62   CCGI
  13.  JOBUN    BTMA
```

Figure II-4-25. IAF Status (T) Display

Each entry is in the following format.

conn user jsn *

conn — Connection number.

user — User name.

jsn — Job sequence name assigned to this session.

* — If present, this indicates the user has not received the last warning message (refer to WARN,ccc...ccc. command in section 3).

CPUMTR/MTR QUEUES (W) DISPLAY

The W display shows the request queues for all jobs in the executing job table. This display is used by a site analyst to monitor the request flow (and bottlenecks) and CPU scheduling.

Figure II-4-26 illustrates the W display.

```
                                    W


SYSTEM REQUESTS

                                                    CIO          CIO
   CPU          RECALL          PP                PSEUDO-PP    BUFFER
---------    ----------    -----------            ---------    ---------
  CP   CPU     CP   TYPE     CP    PP                CP        CP  BUFF

  13.   0.     12.   CPU      7.   1SJ.             5.        2.   45.
PROG    1.     16.   1IO                           14.       23.  147.
CPUCIO  0.
IDLE    0.
```

Figure II-4-26. System Requests (W) Display

The header line shows the five types of requests that can be made.

CPU	WQRL requests
RECALL	RQRL requests
PP	PQRL requests
CIO PSEUDO-PP	CQRL requests
CIO BUFFER	BQRL requests

For the CPU (WQRL) requests each entry has the following form.

```
cp   cpu
```

cp — The control point from which the request was made. PROG appears here if the system control point made the request. IDLE appears here if the NOS idle routine is not executing in a CPU. CPUCIO appears here if the request is for the pseudo-PP.

cpu — If present, this is the CPU (0 or 1) to which the request is restricted.

For the RECALL (RQRL) requests each entry has the following form.

```
cp   type
```

cp — The control point from which the request was made.

type — The name of the PP program making the request. CPU appears here if the job is waiting for a completion bit to be set or for a recall interval to expire.

For the PP (PQRL) requests each entry has the following form.

```
cp   pp
```

cp — The control point from which the request was made.

pp — The name of the PP program making the request.

For the CIO PSEUDO-PP (CQRL) requests each entry is the control point from which the request was made.

For the CIO BUFFER (BQRL) requests each entry has the following form.

```
cp   buff
```

cp — The control point from which the request was made.

buff — The I/O buffer number for which the request was made.

MONITOR FUNCTION (Y) DISPLAY

The Y display lists all monitor function mnemonics and their respective codes. Codes 1 through 35 represent PP monitor functions; codes 36 and higher represent CPU monitor functions.

Figure II-4-27 illustrates the Y display.

```
                                Y

MONITOR FUNCTIONS.

      1.                CKSM 35.          SJCM  71.
CCHM  2.                CSTM 36.          SPLM  72.
DCHM  3.                ECSM 37.          TDAM  73.
DEQM  4.                PIOM 40.          TGPM  74.
DRCM  5.                RDCM 41.          TIOM  75.
DSRM  6.                     42.          TSEM  76.
EATM  7.                ABTM 43.          UADM  77.
ECXM 10.                BIOM 44.          UTEM 100.
REQM 11.                BMIM 45.          VFPM 101.
RJSM 12.                CCAM 46.               102.
SEQM 13.                CEFM 47.               103.
SFLM 14.                DCPM 50.
     15.                DFMM 51.
     16.                DPPM 52.
CDBM 17.                JACM 53.
DSWM 20.                LDAM 54.
HNGM 21.                MTRM 55.
PRLM 22.                PLFM 56.
RCHM 23.                RCLM 57.
RSTM 24.                RCPM 60.
AFAM 25.                RECM 61.
DLKM 26.                RLMM 62.
DTKM 27.                ROCM 63.
RTCM 30.                RPNM 64.
STBM 31.                RPPM 65.
VMSM 32.                RSJM 66.
ACTM 33.                SCDM 67.
BFMM 34.                SFBM 70.
```

Figure II-4-27. Monitor Functions (Y) Display

DIRECTORY (Z) DISPLAY

The Z display lists all the displays available under DSD control.

Figure II-4-28 illustrates the directory (Z) display.

```
                                Z


DIRECTORY

A       DAYFILES (A. A,. A,OPERATOR A,ERROR LOG
                  A,ACCOUNT DAYFILE,JSN)
B       EXECUTING JOBS
C,D     CM, 5 GROUPS OF 4
E       EQUIPMENT STATUS (E,A  E,C  E,M  E,P  E,T)
F,G     CM, 4 GROUPS OF 5
H       SYSTEM FILES
I       BIO
J       JOB DISPLAY
K       CM PROGRAM BUFFER
L       CM BUFFER
M       ECS
O       TAF (O,SCP  O,TLD  O,TST)
P       PP STATUS
Q       QUEUED FILES (Q,. Q,IN Q,PU Q,PL Q,PR Q,WT)
R       ROLLED JOBS
S       SYSTEM CONTROL INFORMATION
T       IAF
U       INSTALLATION USE
V       INSTALLATION USE
W       CPUMTR/MTR QUEUES
Y       MONITOR FUNCTIONS
```

Figure II-4-28. Directory (Z) Display

NETWORK OPERATION COMMANDS 5

The commands described in this section are used when the network access method (NAM) is being initialized or is active. They initialize and control the network processing units (NPUs), trunks, lines, terminals, and application programs under network supervision.

NETWORK ORGANIZATION

Initiating NAM (refer to the NAM command in section 3) causes NAM, the communications supervisor (CS), the network supervisor (NS), and the network validation facility (NVF) to be loaded and initiated at control points. CS provides the control status of the NPUs and all of their communication lines and terminals. NS loads and dumps all of the NPUs in the communication network. NVF validates terminal users and applications executing in the host as they access the network.

The network consists of, couplers, lines, logical links, NPUs, terminals, and trunks (refer to figure II-5-1) connected to the host computer by a channel.

- A channel is a data channel on which a peripheral device controller can be accessed.
- A coupler is a hardware element that links the NPU to the channel.
- A line is the circuit that connects a terminal to an NPU.
- A logical link is a logical path connecting a coupler and an NPU.
- An NPU is the communications controller that transmits data between terminals and a host computer.
- A terminal is a device by which a user supplies input messages to, and accepts output messages from, an application program.
- A trunk is the communication line connecting two NPUs.

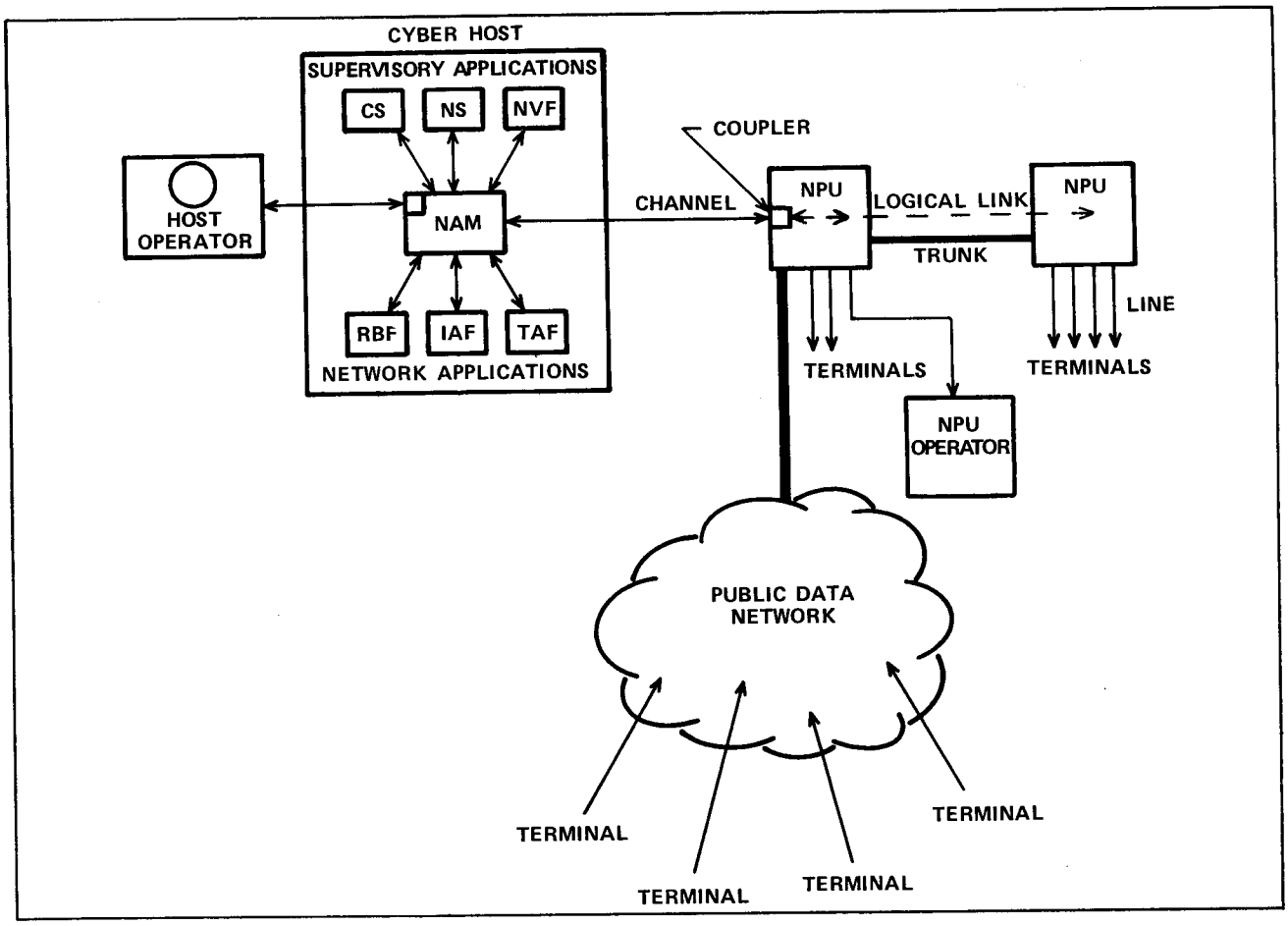


Figure II-5-1. Sample Network

The network recognizes two types of operators: the host operator and the NPU operator. A host operator (HOP) resides at the system console, initiates NAM, and can control network elements. An NPU operator (NOP) resides at a terminal and controls network elements (such as NPUs, trunks, logical links, lines, terminals).

The HOP is never prevented from performing NOP functions regardless of the existence of NOPs. CS supports up to ten concurrent NOP connections in addition to one HOP. NS and NVF support the HOP connection only.

NAM START UP

If the NPUs in the network were running Version 1.4 or earlier network products, you must master clear all NPUs before initiating NAM.

You initiate NAM by typing

```
NAM.†
 or
NAMNOGO.
```

NAM and NAMNOGO are names of procedure files that are called when the HOP initiates NAM.

The first time the network is initiated the NAMNOGO procedure must be used to create a memory file (refer to the NOS 2 Installation Handbook). The memory file contains the name of the master file, the last parameter record, and the network invocation number (NIN) used. The NIN is incremented by one every time NAM is started. The NIN is displayed in the NAM K display. If the network has been previously initiated, a memory file exists and the NAM procedure file may be used.

INITIATING NAM WITHOUT OPERATOR INTERVENTION

If you initiate NAM by typing

```
NAM.†
```

NAM is brought up without further operator action. This results in starting the network using the previously specified masterfile and the record name RESTRT.

†Any procedure file of the form NAMffff is allowed.

ALTERING THE MEMORY FILE

If you initiate NAM by typing

NAMNOGO.

NAM displays the message

ENTER DESIRED OPTION

You reply to this message with a CFO command in the following format:

CFO,NAM.keyword$_1$=param$_1$,keyword$_2$=param$_2$,...,keyword$_n$=param$_n$.

The following keyword and parameter combinations are allowed on the CFO command.

Parameters	Description
MFN=filename	Permanent file name of the master file to be used. The masterfile contains all the information needed to initiate the network. Once this parameter is specified all subsequent network initiations use this master file until a new master file is specified. The master file resides in the system default family.
UN=username	User name for the master file.
PW=password	Password associated with the master file user name.
RN=recordname	Name of the parameter record on the master file that is used for this network initiation. If this parameter is not specified, the previously specified parameter record is used. The parameter record specifies the characteristics of any particular network initiation. You can select one of the parameter record names listed in table II-5-1 to obtain the given combination of features.
OIN=xx	Previous network invocation number from which dumps/traces are collected. If this parameter is not specified, the current network invocation number minus one is used.

Table II-5-1. Parameter Record Feature Descriptions

Feature Descriptions	Parameter Record Name		
	INIT	RESTRT	RECOVR
This feature collects dumps/traces on tape before startup.	N†	Y††	N
This feature stops local NPUs at startup.	Y	N	N
This feature stops local NPUs at termination.	Y	Y	N
This feature takes host dumps when NPU fails.	Y	Y	Y
This feature takes NPU dumps before initial load.	N	Y	Y

†N indicates parameter record name causes the action not to occur.
††Y indicates parameter record name causes the action to occur.

You can enter all desired parameters with a single entry or enter several CFO commands. In this way you add (if the file is empty) or replace entries in the NAM memory file.

When you have finished adding or replacing data, enter the command

```
CFO,NAM.GO.
```

After typing this command, you cannot add or replace additional parameters during this NAM initiation.

HOP CONTROL

The commands described in this section are available to the HOP only. The HOP can perform all the functions of the NPU operator (refer to the NOP control commands) as well as those unique to the HOP. The commands unique to the HOP are processed by NS and NVF.

APPLICATION STATUS

Every application program is in one of four possible states. The four states are as follows:

State	Description
AC	Application is active.
DI	Application is disabled.
DN	Aplication is down.
EN	Application is enabled.

The application program is initially set to either a disabled or enabled state. Initially enabled application programs become active automatically.

DISABLING AND ENABLING OF COUPLERS

The HOP enables a coupler using the DSD ON command and disables the coupler using the DSD OFF command (refer to section 3). You can examine the NP equipment entry on the E,A display to determine the EST ordinal. When an active coupler is turned OFF, NAM stops communicating with that coupler. The coupler is not used again until it is turned ON while NAM is executing. When a coupler is turned ON while NAM is executing, NAM automatically begins to communicate with the NPU connected across the coupler.

HOP STATUS MESSAGE FORMATS

The commands described in the HOP control section cause various status messages to be displayed at the system console. The normal response to a STATUS command consists of a single status line for each referenced element, as shown below.

The format of the application status line is:

APPL: name,jsn,status,conncount.

The format of the terminal status line is:

TERM: name,username,hh.mm.ss,applname/acn,ah.am.as,dt.

The format of the user status line is:

USER: name,termname,hh.mm.ss,applname/acn,ah.am.as,dt.

acn	Connection number for the connected application.
ah.am.as	Time of connection to the application (hours, minutes, and seconds).
applname	Name of the connected application.
conncount	Count of active connections to this application.
dt	Device type.
hh.mm.ss	Time of system or host login (hours, minutes, and seconds).
jsn	Job sequence name of the application.
name	Name of the specified element.
status	Status of application (AC, DI, DN, EN).
termname	Name of the terminal at which user resides.
username	Login user name of the terminal user.

HOP UNSOLICITED STATUS

A number of events can occur in the network that are important enough to require immediate operator awareness. Each time one of the significant events occur, CS, NS, or NVF updates its recent history buffer (refer to Recent History Command later in this section) and logs the event in the network logfile. CS, NS, or NVF then sends the report of the event to the HOP. This report is called an unsolicited status report. The HOP can get unsolicited status from CS, NS, or NVF by assigning the NAM K display to that particular supervisory application. The unsolicited status reports are always time stamped whereas solicited reports are not time stamped.

A single unsolicited status report occurs as a result of an element recovery or failure. An unsolicited status message is sent when an NPU joins the network.

HOP COMMANDS

The HOP must assign the NAM K display to a supervisory application (CS, NS, or NVF) before entering any of the following commands. Refer to section 6 for information on how to assign the NAM K display.

All commands consist of a command verb and, sometimes, one or more parameters. The commands must begin in the first character position after K. and contain no blanks. The terminator (.) is optional. Some command verbs and parameters can be shortened to a two- or three-character abbreviation. You can intermix abbreviated and unabbreviated command verbs and parameters in all network commands. Parameters are order independent except where noted.

NS CONTROL COMMANDS

The HOP assigns the NAM K display to NS to enter the following commands.

Cancel Alternate NPU Load File Command

The HOP can instruct NS to return to the use of the default NPU loadfile for loading all NPUs, by specifying the NOFILE command.

The command format is:

```
NOFILE.
 or
NO.
```

Change NPU Load File Command

The HOP can assign an alternate load file to NS for loading a specific NPU with the FILE command.

The command format is:

```
FILE,NPU=npuname,NLF=pfn,UN=username,PW=password
    or
FI,NP=npuname,NL=pfn,UN=username,PW=password
```

npuname	Name of the NPU.
pfn	Name of the permanent file.
username	Username of the user to which pfn belongs.
password	Password of the specified user.

The next load of the specified NPU will be from the alternate load file.

NPU Load Status Command

The HOP can request the current load/dump status of a NPU using the STATUS command.

The command format is:

```
STATUS,NPU=npuname.
    or
ST,NP=npuname.
```

The normal response consists of four lines of information as shown below.

```
npuname     NN=nid    NBS=nid,nid,nid,nid,nid,nid       EC=errcnt
                      LDS=ldcnt          LD=yy/mm/dd LT=hh.mm.ss
            dflag     dmpfile HALT ffff DD=yy/mm/dd DT=hh.mm.ss
            message
```

npuname	Name of the network processing unit.
NN=nid	Node number of NPU identified by npuname.
NBS=nid,...,nid	Node numbers of up to six neighboring NPUs or couplers.
EC=errcnt	Protocol error count. Number of dump/load service messages received from the NPU that violates the NPU dump/load protocol.
LDS=ldcnt	Number of attempted loads of this NPU.
LD=yy/mm/dd	Date in year, month, and day when the most recent load attempt of this NPU occurred.
LT=hh.mm.ss	Time in hours, minutes, and seconds when the most recent load attempt occurred.
dflag	NPU memory dump indicator.
	DUMP — Dump NPU before a load.
	NODUMP — No NPU dump before a load.
	blank — NPU is not currently being loaded.
dmpfile	Name of the most recent NPU dump file.
ffff	Halt code (refer to NOS 2 System Maintenance Reference Manual for more information).
DD=yy/mm/dd	Date in year, month, and day when the most recent NPU dump occurred.
DT=hh/mm/ss	Time in hours, minutes, and seconds when the most recent dump of this NPU occurred.

message — Message is the NS activity and its associated status.

Activity	Status
SAMLOAD	STARTED COMPLETED ABORTED - error
DUMP/LOAD	REQUESTED
DUMP	STARTED COMPLETED ABORTED-error
LOAD	modname COMPLETE ABORTED - error

modname — Name of the system module being loaded.

error — One of the following:

error	Description
TIMEOUT	No response from the NPU during a preset timeout period.
RETRY TIMEOUT	Only abnormal responses were received from the NPU during a preset timeout period.
FILE ERRORS	Unrecoverable I/O error occurred on network configuration file or network load file.
PREEMPTED	An incomplete SAM load or dump/load sequence was interrupted by a request from the same NPU to initiate a new SAM load.

NS Recent History Command

The HISTORY command requests from NS, a display of recent unsolicited status reports (refer to Recent History Command in NOP section for further information).

NVF CONTROL COMMAND

The HOP assigns the NAM K display to network validation facility (NVF) to enter the following commands.

Disable Host Element Command

The DISABLE command is used by a HOP to force immediate, but normal, termination of a particular application or all host network operations.

The command format is:

```
DISABLE,operation.
    or
DI,operation.
```

operation is one of the following:

operation	Keyword Abbreviation
APPL=applicationname	AP
HOST	HO

applicationname is the name of the application to be disabled.

The DISABLE,APPL command has the following effects:

- The status of the named application is changed from enabled (EN), active (AC) or down (DN) to disabled (DI) thereby prohibiting the application from accessing the network.
- If the application is active at the time the command is entered, NAM requests the application to immediately terminate access to the network. If the application remains active for an undue period of time after entering this command, the HOP can resort to the DSD DROP or STOP command (refer to section 3).

The DISABLE,HOST command has following effects:

- NAM requests that all active applications in the host immediately terminate their access to the network.
- When all applications (including CS and NS) terminate their access to the network, NAM and NVF also terminate.
- If NAM or NVF do not terminate, enter the STATUS,appl command to determine which application has not terminated. You can then use the DSD DROP or STOP command to drop the application.

Enable Application Command

The HOP uses the ENABLE command to change the status of a network application from disabled (DI) to enabled (EN). The application status becomes active (AC) when the application begins to access the network.

The command format is:

```
ENABLE,APPL=applicationname.
    or
EN,AP=applicationname.
```

applicationname is the name of the application to be enabled.

Idle Host Element Command

The IDLE command terminates execution of an individual application or all host network operations.

The command format is:

```
IDLE,operation.
    or
ID,operation.
```

operation is one of the following:

operation	Keyword Abbreviation
APPL=applicationname	AP
HOST	HO

applicationname is the name of the application to be idled.

The IDLE,APPL command has the following effects:

- The application is warned of an imminent shutdown.
- The application completes any operations in progress but does not initiate any new activity.
- When all users are idle, the application terminates normally.

The IDLE,HOST command has the following effects:

- Applications are warned of an imminent shutdown.
- New application requests to access the network are rejected.
- New application to application connections are rejected.
- New terminal connections to the host are rejected by NAM.
- CS warns all connected NOPs that shutdown of the network is imminent. CS terminates when all NOPs end their connections to CS.

- NS ignores any new dump and load request from NPUs. Any ongoing dump and load processes are completed normally before NS terminates.
- When all applications (including NS and CS) terminate their access to the network, NAM and NVF also terminate. If an application does not terminate, the DISABLE command must be used to request immediate termination of network activity in the host.

NVF Recent History Command

The HISTORY command requests from NVF a display of the recent unsolicited status reports (refer to Recent History Command in NOP section for further information).

Status Host Element Command

Host elements are the applications associated with the host, terminals currently connected to the host, and users currently logged in to the host. With the STATUS command a HOP can status a single application, terminal, or username; all applications; all terminals or users connected to a given application.

There are five forms of the STATUS command.

The first form requests the status of a particular host element.

The command format is:

```
STATUS,element.
  or
ST,element.
```

element is one of the following:

element	Keyword Abbreviation
APPL=elementname	AP
TERM=elementname	TE
UNAME=elementname	UN

elementname is the name of the element whose status is desired.

The second form requests the status of all network applications in the host.

The command format is:

```
STATUS,APPLS.
  or
ST,APS.
```

The third form requests the status of all active network applications in the host.

The command format is:

```
STATUS,APPLS,AC.
  or
ST,APS,AC.
```

The fourth form requests the status of all the terminals connected to the specified application or logged in under the specified username.

The command format is:

```
STATUS,TERMS,termelement.
    or
ST,TES,termelement.
```

termelement is one of the following:

termelement	Keyword Abbreviation
APPL=elementname	AP
USER=elementname	US

elementname is the name of the desired application or user.

The fifth form requests the status of all the users connected to the specified application.

The command format is:

```
STATUS,USERS,APPL=applicationname.
    or
ST,USS,AP=applicationname.
```

applicationname is the name of the desired application.

Figure II-5-2 gives an overview of the status command formats described above.

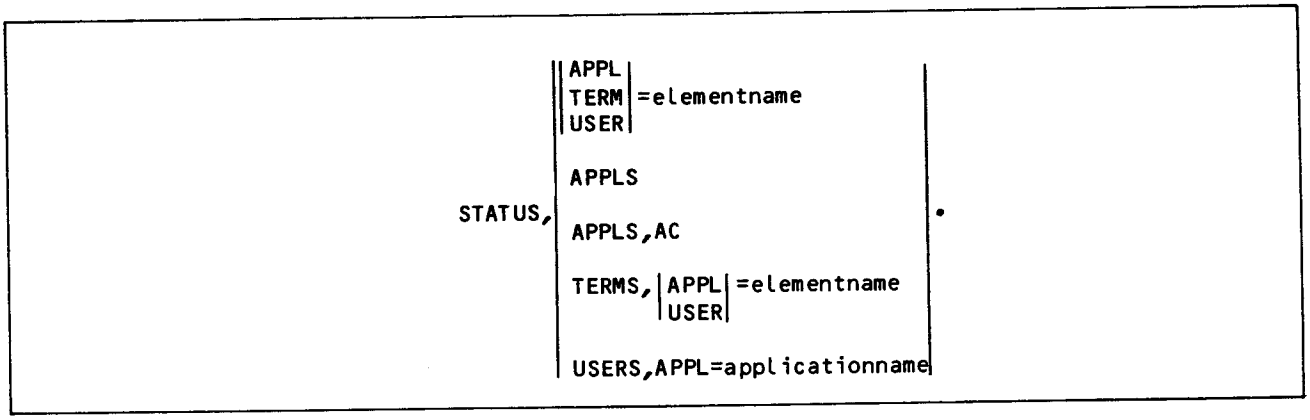


Figure II-5-2. STATUS Command Overview

NOP CONTROL

Although there can be many NOPs, there can be only one NOP responsible for control of network elements (such as lines, logical links, NPUs, terminals, and trunks). That person is called the controlling NOP.

The controlling NOP controls all NPUs supervised by CS, and shares that responsibility with the HOP. The controlling NOP and HOP must, therefore, coordinate their activities. All NPUs supervised by CS are always controlled by the HOP and can also be controlled by the controlling NOP.

All NOPs can obtain the unsolicited status reports or perform status and diagnostic commands.

NETWORK ELEMENT STATUS

Every network element (such as NPU, trunk, or logical link) is in one of five possible states. The five states are as follows:

State	Description
AC	The network element is active. An element becomes active when it is enabled and is handling network data traffic.
DI	The network element is disabled. The element cannot become active unless enabled by an operator command.
DN	The network element is down. A failure was detected which terminated data traffic for the element. If the failure condition ceases, the element returns to the enabled status.
EN	The network element is enabled when it is enabled by the operator and is in a physically operative condition.
NC	The network element is not configured. The NPU does not recognize the element.

Network elements are initially set to either a disabled or enabled state. Initially enabled elements become active automatically during the course of normal network operation.

NOP STATUS MESSAGE FORMATS

Some of the commands described in the NOP commands section cause various status messages to be displayed on your terminal. The normal response to a STATUS command is one line of text returned when status is requested for an NPU, coupler, line, or terminal. Two text lines are returned when status is requested for trunks or logical links (each response line corresponding to one end of the trunk or logical link). For multiple element status commands, a response is generated for all elements expressed or implied in the command. For example, a status request for all terminals on an NPU begins with a status report (text line) for the NPU. This is followed by a status report for the first active (AC) line on the NPU. A status report for each terminal configured on the line follows. This is followed by a status report of the next active line and so on. The response to a DISABLE or ENABLE command is a status report for each element affected by that command.

The following are the general formats for these status messages:

NPU status line:

```
NPU: name,status,nodenum,gostatus,dump
```

Coupler status line:

```
CPLER: name,status,nodenum,npuname1/cplnum
```

Trunk status line:

```
TRUNK: name,status,linetype,npuname1/port,npuname2/port
```

Logical Link status line:

```
LLINK: name,status,RL=n,loglinktype,npuname1/nodenum,npuname2/nodenum
```

Line status line:

```
LINE: name,status,linetype,npuname1/port
```

Terminal status line:

```
TERM: name,status,dt/tc,hostnid,linename/a1/a2
```

a1	First level address (cluster address, configuration ordinal, stream number).
a2	Second level address (terminal address, stream number).
cplnum	Coupler number for indicated NPU.
dt	Device type (CON, CR, LP, CP, PL).
dump	NPU dump flag (ON or OFF).
gostatus	Go status of NPU (if waiting for GO, NEEDGO appears).
hostnid	Host (coupler) node number of the host to which the terminal is currently connected.

linename	Name of the line to which the terminal is connected.
linetype	Line type (refer to NDL Reference Manual).
loglinktype	Logical link type (H-N for host to NPU, H-H for host to itself).
name	Name of the element.
nodenum	Node number of an NPU or coupler.
npuname1	Name of an NPU that supports or is connected to the element (also the name of the NPU that reported the status).
npuname2	Name of the NPU at other end of trunk or logical link.
port	Port number of the trunk or line on the indicated NPU.
RL=n	Regulation level currently in effect.
status	Refer to Network Element Status (AC, DI, DN, EN, NC).
tc	Terminal class.

NOP UNSOLICITED STATUS

There are a number of events that can occur in the network that are important enough to require your immediate awareness. Each time one of the significant events occur, CS updates its recent history buffer (refer to Recent History Command later in this section) and logs the event in the network logfile. CS then sends the report of the event to all NOPs. This report is called an unsolicited status report. The unsolicited status reports are always time stamped whereas solicited reports are not time stamped.

A single unsolicited status report occurs as a result of an element recovery or failure. An unsolicited status message is sent when an NPU joins the network. Batches of unsolicited status reports can occur as a result of an operator command to enable all elements of a given type (refer to enable network element command described later in this section).

BECOMING A NOP

To become a NOP you must be authorized by site personnel to use NOP commands.

After initiation of the network, you become a NOP (NPU operator) as follows:

1. Login as described in the NOS Version 2 Reference Set, Volume 1.
2. In response to the APPLICATION: prompt, enter

   CS

   and press CR.
3. The system responds:

   HELLO, YOU ARE NOW AN NPU OPERATOR

   This message is followed by the prompt

   READY..

You can then enter the commands described later in this section.

You can cancel a command that results in a large volume of output by entering the interruption or termination sequence (refer to the NOS 2 Reference Set, Volume 3).

NOTE

Use caution when cancelling output as unsolicited status messages could be discarded as well.

When you cancel output, the message

```
OUTPUT DISCARDED
READY..
  or
OUTPUT DISCARDED..
```

appears at the terminal at the point from which the data was discarded.

If the terminal is in page wait mode,† after every page of output you must press CR before more output can be sent to the terminal.

†It is suggested that a hard copy device be used for NOP terminals as this avoids the paging problem and provides a permanent log of network events.

To relinquish NOP status, you enter one of the following:

To logout and end the terminal connection to the host enter

```
GOODBYE
  or
BYE
  or
LOGOUT
```

To initiate a new login dialog enter

```
HELLO
  or
LOGIN
```

To remain logged in and be prompted for another application enter

```
END
```

To remain logged in and be automatically switched to the application named applname enter

```
END,applname
```

NOP COMMANDS

All commands consist of a command verb and, sometimes, one or more parameters. The commands must begin in the first character position and contain no blanks. The terminator (.) is optional. Some command verbs and parameters can be shortened to a two- or three-character abbreviation. You can intermix abbreviated and unabbreviated command verbs and parameters in all network commands. Parameters are order independent except where noted.

BECOMING A CONTROLLING NOP

After establishing communication with CS, a NOP gains or loses control of all NPUs supervised by CS with the CONTROL command.

The command format is:

```
CONTROL,status.
  or
CO,status.
```

status is either ON or OFF.

If no other controlling NOP exists, the response to a request for control consists of a list of the NPUs the NOP now controls followed by a READY.. prompt, otherwise you receive a diagnostic.

Since a HOP automatically controls all NPUs being supervised by CS, the CONTROL commands are not used by the HOP. Whenever the controlling NOP loses control for any reason (including ending the connection to CS or the failure of some network element that was supporting the connection to CS), CS informs the HOP and all other connected NOPs by sending an unsolicited status report.

CS Information Command

You can access information about all operators and NPUs with the INFO command.

The command format is:

```
INFO.
 or
IN.
```

The response lines are an operator information line and an NPU information line for each connected operator and for each NPU supervised by CS respectively.

The format of the operator information line is:

```
NOP:termname,username,acn,controlflag.
```

The format of the NPU information line is:

```
NPU:npuname,status,nodenum,dopname.
```

acn	CS application connection number.
controlflag	Control status of the NOP (if the NOP is a control NOP, CTL appears).
dopname	Terminal name of NOP that is connected to the diagnostic routine in the NPU.
nodenum	Node number of the NPU.
npuname	Name of the supervised NPU.
status	Status of the NPU.
termname	Name of the terminal at which the NOP resides.
username	User name of the NOP.

Disable Network Element Command

The controlling NOP changes the status of a network element from enabled (EN), active (AC), or down (DN) to disabled (DI) by the DISABLE command.

The command format is:

```
DISABLE,element.
    or
DI,element.
```

element is one of the following:

element	Keyword Abbreviation
LINE=elementname	LI
LLINK=elementname	LL
TERM=elementname	TE
TRUNK=elementname	TR

elementname is the name of the element to be disabled.

For a logical link or trunk, if the element is active when the command is entered, all data traffic through the element is terminated and the affected host application programs and terminal users are notified. For a line or terminal, if the element is active when the command is entered, all data traffic through the element is terminated and only the affected host application programs are notified.

NOTE

No attempt is made to protect you from disabling network elements that support your connection to the CS. You may lose contact with CS as a result of such a command. When this happens you may need to use another terminal or the host console to enable the disabled network element.

The NPUs affected by the command send an unsolicited status report indicating the new status for the element.

Trunks and logical links can have two owning NPUs (one at each end of the trunk or logical link). When two NPUs are involved, DISABLE,TRUNK and DISABLE,LLINK commands are processed as follows:

- If one of the NPUs is local and one is remote, the command is forwarded to the local NPU.
- If both of the NPUs are local or both are remote, the command is forwarded to the NPU with the lower node number.

In either case, the trunk or logical link enters the disabled (DI) state at the owning NPU that receives the DISABLE command and is detected as being down (DN) by the other NPU. Both of these changes are reported to CS which informs all operators of the changes by sending unsolicited status reports.

If a single NPU owns both ends of the link, the command is forwarded to that NPU. This status change is also reported by sending an unsolicited status report.

Disabling a trunk can cause one or more logical links to go down. The owning NPUs report the failure of these links by sending unsolicited status reports.

Enable Network Element Command

The controlling NOP changes the status of one or more network elements from disabled (DI) to enabled (EN), allowing the element(s) to become active for data traffic by the ENABLE command.

There are three forms of ENABLE command.

The first form enables a single element in the network.

The command format is:

```
ENABLE,element.
    or
EN,element.
```

element is one of the following:

element	Keyword Abbreviation
LINE=elementname	LI
LLINK=elementname	LL
TERM=elementname	TE
TRUNK=elementname	TR

elementname is the name of the element to be enabled.

The second form enables all disabled lines on an NPU.

The command format is:

```
ENABLE,LINES,NPU=npuname.
    or
EN,LIS,NP=npuname.
```

npuname is the name of the NPU.

The third form enables all disabled terminals on a line or NPU.

The command format is:

```
ENABLE,TERMS,termelement.
    or
EN,TES,termelement.
```

termelement is one of the following:

termelement	Keyword Abbreviation
LINE=termline	LI
NPU=termnpu	NP

termline Name of the line to which terminals are connected.

termnpu Name of the NPU to which terminals are connected.

Figure II-5-3 gives an overview picture of the ENABLE commands described above.

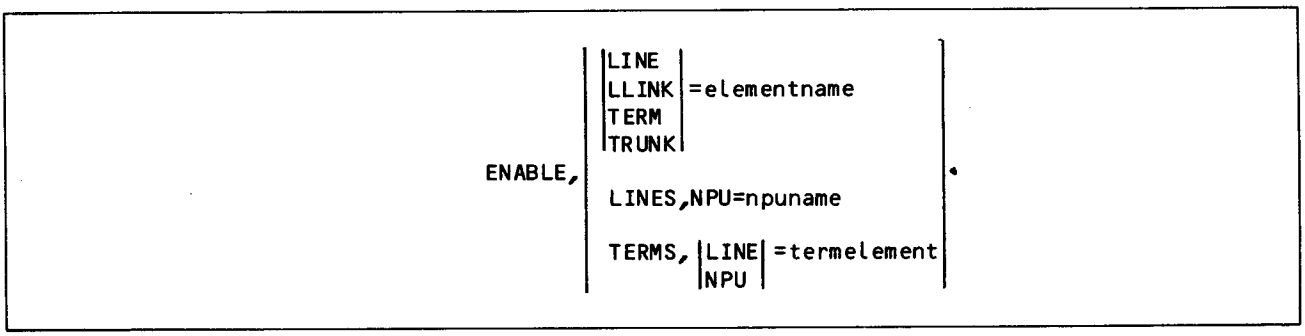


Figure II-5-3. ENABLE Commands Overview

The ENABLE,TRUNK and ENABLE,LLINK commands are forwarded to both of the owning NPUs (one at each end of the trunk or logical link). Enabling a trunk can cause one or more logical link with a down status to become enabled or active. Status changes resulting from enabling a trunk or logical link are reported by the owning NPUs by sending unsolicited status reports.

Enabling a trunk can cause CS to become available to an NPU and therefore, allow CS to gain control of an NPU.

The ENABLE command allows you to enable all lines or terminals on an NPU. When you enable all lines or terminals of a given type on an NPU or all terminals on a line, the NPU or line affected by the command sends an unsolicited status report telling you how many elements of the given type are currently disabled. The NPU then sends unsolicited status reports telling the new status of each element for which the command was executed. If, for a particular element, the command could not be executed, an unsolicited status report is sent to you giving the reason the command was not executed.

NPU Diagnostic Test Command

The TST command allows any operator to request, interact with, or terminate the diagnostic program within any NPU supervised by CS.

The command format is:

```
TST,NPU=npuname,option.
    or
TS,NP=npuname,option.
```

npuname is the name of the NPU containing the diagnostic program with which the operator wants to communicate.

option is one of the following:

option	Keyword Abbreviation
DROP	DR
MSG=command	MS
REQUEST	RE

command is the command that controls the execution of the diagnostic program in the NPU.

CS keeps track of which NPUs are currently running diagnostics and which operators are using them. A single operator is permitted to perform diagnostic tests in several different NPUs simultaneously, but only one operator at a time can interact with the diagnostics in a single NPU.

TST Drop Option

The DROP parameter cancels the diagnostic program in the specified NPU. All diagnostics currently being performed by the specified NPU are terminated. If the diagnostic program is not executing, the TST command is ignored and an error message is returned.

Unless the NPU diagnostic program is cleared by the drop option, the diagnostic program cannot be assigned to a different operator. The controlling NOP can force to release the diagnostic program by disabling the terminal of the operator who has the diagnostic reserved.

TST Msg Option

The MSG=command parameter to the TST command allows you to interact with an NPU diagnostic program. It allows you to send a command message in the form of a text string to the diagnostic in the specified NPU. Typical use of the command option is to initiate and terminate diagnostic tests. The option is accepted only if you previously entered and confirmed a REQUEST option (otherwise, an error message is received). Refer to CCP Diagnostic Handbook for more information.

The diagnostic program sends text messages through CS to you. The message is an unsolicited status report with the following format:

```
FROM npuname/DIAGNOSTIC: TO termname:
    message text
```

npuname	Name of the NPU.
termname	Name of your terminal.
message text	Message from the diagnostic program.

TST Request Option

The REQUEST parameter allows you to initiate interaction with an NPU diagnostic program. If the diagnostic program in the specified NPU is not in use, you are assigned the diagnostic program. If the diagnostic program is being used you receive an error message. An NPU diagnostic program is assigned to you until one of the following events occur:

- You drop the diagnostic program (by sending a TST command with the DROP option).
- Connection between you and CS is terminated for any reason.
- Supervision of the NPU is lost by CS.

NPU Go Command

After establishing a connection with CS, the newly loaded NPU may ask for a GO command from the controlling NOP.

The GO command format is:

```
GO,NPU=npuname.
    or
GO,NP=npuname.
```

npuname is the network defined name of the NPU.

If there is a controlling NOP when CS receives a GO request from an NPU, the GO request is relayed to the controlling NOP and to the HOP. If there is no controlling NOP, the GO request is relayed to the HOP and to all currently connected NOPs. The HOP or controlling NOP (if there is one) can, as needed, request status information or enable/disable network elements. Thus the controlling NOP can control the initial status of the network elements connected to or supported by a given NPU prior to that NPU beginning terminal operations.

Upon entry of the GO command the NPU proceeds to activate lines and accept terminal connections.

NPU Load Command

You must be the controlling NOP to enter this command.

The LOAD command causes an active (AC) NPU to be stopped, reloaded, and reactivated.

The command format is:

```
LOAD,NPU=npuname,dumpoption.
    or
LO,NP=npuname,dumpoption.
```

npuname is the name of the NPU.

dumpoption is optional and may be one of the following:

dumpoption	Keyword Abbreviation
DUMP	DU
NDMP	ND

If the DUMP option is specified, a memory dump of the NPU is taken prior to reloading. If the NDMP option is specified, the NPU is reloaded without taking a memory dump. If the dump status is not specified, the taking of a memory dump depends upon the setting of the dump flag described in NPU Memory DUMP Command. The DUMP or NDMP option is in effect only for the immediate load. It has no permanent effect on the NPU memory dump flag.

When an NPU executes a LOAD command, the CS connection to that NPU is lost during the dump/load process. The trunks and logical links supported by the NPU are detected as down (DN) by the NPUs at the other ends of the trunks and logical links. All the appropriate operators receive corresponding unsolicited status reports.

NPU Memory Dump Command

You must be the controlling NOP to enter this command.

The DUMP command causes a memory dump of the specified NPU to be taken whenever the NPU is reloaded (except when overridden by LOAD command). This condition is set independently for every NPU in the network and has an initial setting specified on the NPU statement (refer to the NDL Reference Manual for more information on NPU statements).

The command format is:

```
DUMP,NPU=npuname,status.
    or
DU,NP=npuname,status.
```

npuname is the name of the NPU.

status is either ON or OFF.

Recent History Command

The HISTORY command requests from CS a display of the recent unsolicited status reports.

The command format is:

```
HISTORY,ALL.
  or
HI,ALL.
```

If the ALL option is not used, only the last (most recent) page (based on your terminal's page size) of the unsolicited status reports is displayed.

Any NOP can enter the HISTORY command to obtain reports from CS.

A HOP can enter the HISTORY command described above to obtain reports from CS, NS, or NVF after assigning the NAM K display to the desired supervisory application (refer to section 6 for more information on the NAM K display).

Each supervisory application maintains a separate record of the most recent significant NPU load, NOP, or HOP events. The occurrence of these various significant events prompts the sending of an unsolicited status report to all appropriate operators. All reports are temporarily available through the HISTORY command and are permanently recorded in the network log file.

Send Message Command

A controlling NOP can send a message to any terminal user or group of terminal users using the SEND command. The NOP can address the message to a single user or to all users on a specified line, logical link, NPU, or all NPUs.

The command format is:

```
SEND,element,message.
    or
SE,element,message.
```

element is one of the following:

element	Keyword Abbreviation
LINE=elementname	LI
LLINK=elementname	LL
NPU=elementname	NP
TERM=elementname	TE
NPUS	NPS

elementname is the name of the element to which the message is addressed.

message is:

message	Keyword Abbreviation
MSG=text	MS

text is a text message of no more than 50 characters. If more than 50 characters are entered, an error message is issued. The MSG=text parameter is order dependent and must appear as the last parameter of the command.

Figure II-5-4 gives an overview picture of the SEND commands described above.

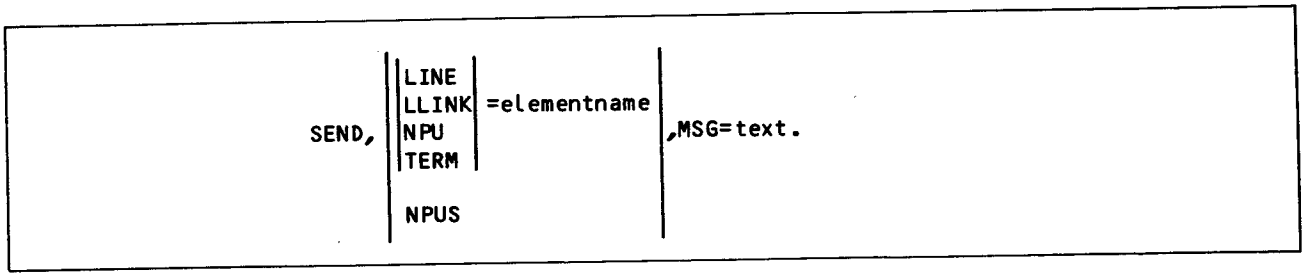


Figure II-5-4. SEND Commands Overview

If a terminal is specified as the network element, it must be an interactive terminal. The interactive terminal must be active (AC) or enabled (EN) to receive messages. Otherwise, an error message is issued to the sender.

In order to prevent an NPU from being flooded with operator messages, CS, upon accepting a SEND command, does not issue the READY.. prompt until the processing of the SEND command has completed. CS sends a message to you as each NPU receives the SEND command. When processing is complete CS sends READY.. message.

If the element referenced by a SEND command is not currently active or enabled, you receive an error message. This error message is followed by a normal status line for the element (the operator is thus informed why the message could not be delivered). The status text line is followed by the READY.. prompt.

Status Network Element Command

You request CS to display status information on the various network elements (such as NPUs, couplers, trunks) with the STATUS command.

There are four forms of STATUS commands.

The first form requests the status of a particular element in the network.

The command format is:

```
STATUS,element.
  or
ST,element.
```

element is one of the following:

element	Keyword Abbreviation
CPLER=elementname	CP
LINE=elementname	LI
LLINK=elementname	LL
NPU=elementname	NP
TERM=elementname	TE
TRUNK=elementname	TR

elementname is the name of the element whose status is desired.

The second form requests the status of all of the elements of a particular type on an NPU.

The command format is:

```
STATUS,linkelement,NPU=npuname,statuscode.
    or
ST,linkelement,NP=npuname,statuscode.
```

linkelement is one of the following:

linkelement	Keyword Abbreviation
CPLERS	CPS
LINES	LIS
LLINKS	LLS
TRUNKS	TRS

npuname is the name of the NPU.

statuscode is AC (active), DN (down), DI (disable), or EN (enable). Status code is optional. If specified only the elements with that status are reported.

The third form requests the status of all the terminals on a line or an NPU.

The command format is:

```
STATUS,TERMS,mode,statuscode
    or
ST,TES,mode,statuscode
```

mode is one of the following:

mode	Keyword Abbreviation
LINE=elementname	LI
NPU=elementname	NP

elementname is the name of the specified element.

statuscode is AC (active), DN (down), DI (disable), or EN (enable). Status code is optional. If specified only the elements with that status are reported.

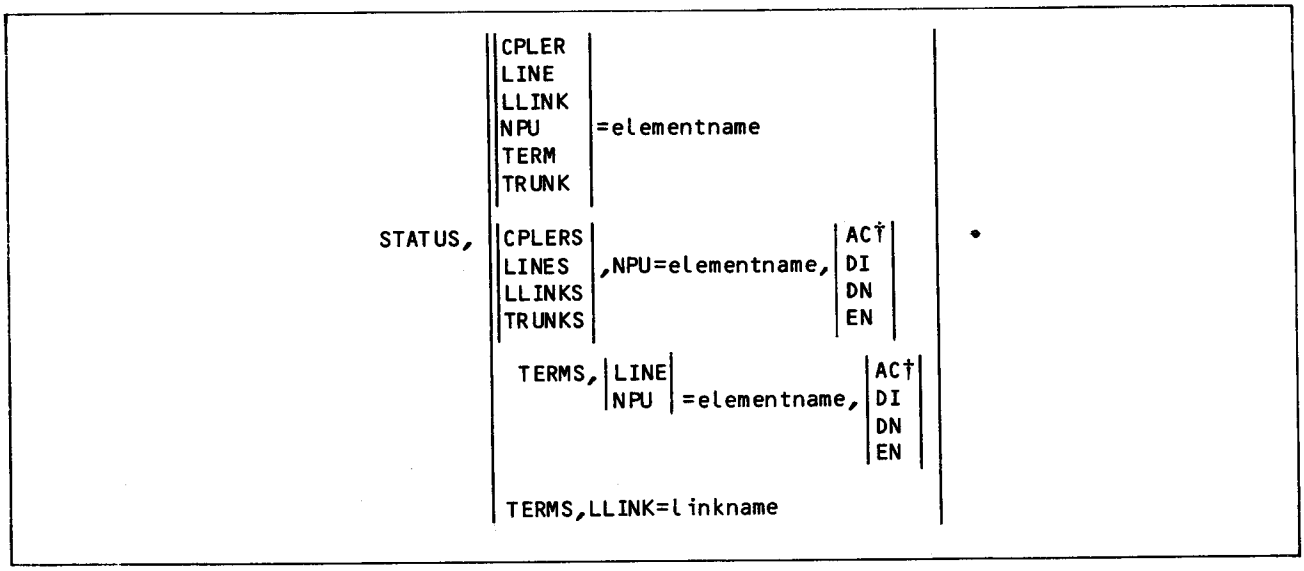
The fourth form requests the status of all the terminals connected to a particular logical link.

The command format is:

```
STATUS,TERMS,LLINK=linkname.
    or
ST,TES,LL=linkname.
```

linkname is the name of the specified logical link.

Figure II-5-5 gives an overview of the STATUS commands described above.



†Statuscode is optional

Figure II-5-5. STATUS Commands Overview

CS does not keep track of the status of the various network elements. NPUs supply the information required to satisfy the STATUS commands by sending messages to CS. In the case of a multiple-element status request the number of messages sent can become significant. You cannot enter another command until all the messages are delivered and a READY.. prompt is displayed. A NOP can cancel a STATUS command by entering the interruption or termination sequence (refer to the NOS 2 Reference Set, Volume 3 for details). A HOP can cancel a STATUS command by using the slant (/) key.

When status is requested for a NPU, coupler, line, or terminal the normal response to the STATUS command is one line of text. When status is requested for trunks or logical links two text lines are returned (each response line corresponding to one end of the trunk or logical link).

K DISPLAY 6

This section documents the following ten K displays and the utility used to present them.

K display	Description
CYBERLOG	Gathers information on system's performance.
Flaw	Disk flaw mapping.
Initialize	Disk initialization
Machine Recovery (MREC)	Multimainframe device recovery.
Mass Storage System (MSS)	K display of the MSS subsystem.
NAM K Display	Operator interface to the multihost facility.
Redefine	On-line reconfiguration display.
Remote Batch Facility (RBF)	K display of the RBF subsystem.
Remote Host Facility (RHF)	K display of the RHF subsystem.
Transaction Facility (TAF)	K display of the TAF subsystem.

By using the K display, a job can place information on the console screen and receive information from the keyboard. The information is passed to the job by DSD. Normally, these displays are used for utility programs.

The job first issues a request message on the B display, asking you to bring up the K display.

When this happens, type

```
K,jsn.
```

jsn Job sequence name of the requesting job.

Once the display is assigned to a job, you can enter data by typing K. followed by data. The data is transferred to a specified area of the job's field length when you press CR to terminate the entry. If more than 50 characters are entered as data, the message

```
LINE TOO LONG.
```

appears on the screen. DSD does not accept the entry until the data string is shortened.

K displays are job oriented. The job sequence name associated with each K display appears at the top of the screen next to the display designator.

All parameter entries must be prefixed by K period (K.). However, after pressing CR for the first parameter entry, everything but the K., is erased. This allows another parameter to be entered without entering K. first. All examples in this section show K. although you may not have to type it. If it becomes necessary to enter a DSD command during parameter entry, press BKSP to erase the K., enter the command, and then continue parameter entry by typing K. and the parameter.

CYBERLOG K DISPLAY

The CYBERLOG utility gathers information on system performance for use by site analysts. CYBERLOG gathers the information from operator responses after deadstart is complete. The information gathered contains the number and type of service interruptions, the elapsed and lost time from the interruption, and the level of severity or impact of each interruption.

At installation time CYBERLOG can be installed so it is automatically initiated for all subsequent deadstarts. Refer to the NOS 2 Installation Handbook for further information.

If CYBERLOG is not automatically initiated, you can initiate it when desired by typing

```
X.CYBRLOG.
```

When CYBERLOG appears at a control point, a request message on the B display asks you to assign the K display to the CYBERLOG job. Type

```
K,jsn.
```

jsn Job sequence name of CYBRLOG.

RESPONDING TO CYBERLOG DISPLAYS

The CYBERLOG displays request data about the event that causes the system to be down or degraded. Your selection of the event type, scheduled or unscheduled, determines the path through the displays. The data requested for the two event types are:

Event Type	Data Requested
Scheduled	Reason
	Elapsed time
Unscheduled	Reason
	Component
	Elapsed time
	Lost time
	Impact

EVENT TYPE

The initial display (figure II-6-1) requests the type of event being recorded. Enter 0 for a scheduled event and 1 for an unscheduled event.

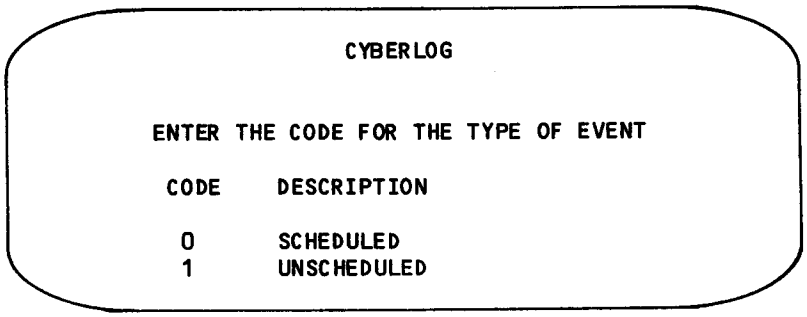


Figure II-6-1. CYBERLOG Display for Type of Event

In the resulting reason display, the item you select appears on the line labeled EVENT TYPE, and the next list of options appears on the bottom.

REASON

After you identify the type of event that occurred, a display appears that asks you to identify the reason for the event. The specific display depends on the type of event (figure II-6-2 or II-6-3).

For a scheduled event, enter the code that corresponds to the reason. On the resulting elapsed-time request display, the item you select appears on the line labeled REASON.

For an unscheduled event, select the most likely reason. In the resulting display, the item you select appears on the line labeled REASON. Selecting 0, 1, 2, or 3 leads to a display that requests the component causing the failure. Selecting 4 (UNKNOWN) causes a branch to the elapsed time request display.

NOTE

Exact information is required. If you do not know the reason for the event, enter the code for unknown.

```
                    CYBERLOG

EVENT TYPE:  SCHEDULED

ENTER THE CODE FOR THE REASON FOR THE EVENT

 CODE     DESCRIPTION

  0       BEGINNING OF NORMAL DAY
  1       HARDWARE RECONFIGURATION
  2       SOFTWARE RECONFIGURATION
  3       MAINTENANCE
  4       OTHER
```

Figure II-6-2. CYBERLOG Reason for Scheduled Event Display

```
                    CYBERLOG

EVENT TYPE:  UNSCHEDULED

ENTER THE CODE FOR REASON FOR EVENT

CODE      DESCRIPTION

 0        OTHER
 1        HARDWARE
 2        SOFTWARE
 3        COMMUNICATIONS
 4        UNKNOWN
```

Figure II-6-3. CYBERLOG Reason for Unscheduled Event Display

COMPONENT

After you enter the reason for an unscheduled event, a display appears that asks you to identify the component that caused the event. The specific display that appears depends on the reason you entered (figure II-6-4, II-6-5, II-6-6, or II-6-7). Enter the code of the component that caused the failure. The component you select appears on the line labeled COMPONENT on the resulting elapsed-time request display.

NOTE

Exact information is required. If you do not know the component causing the failure, enter the code for UNKNOWN.

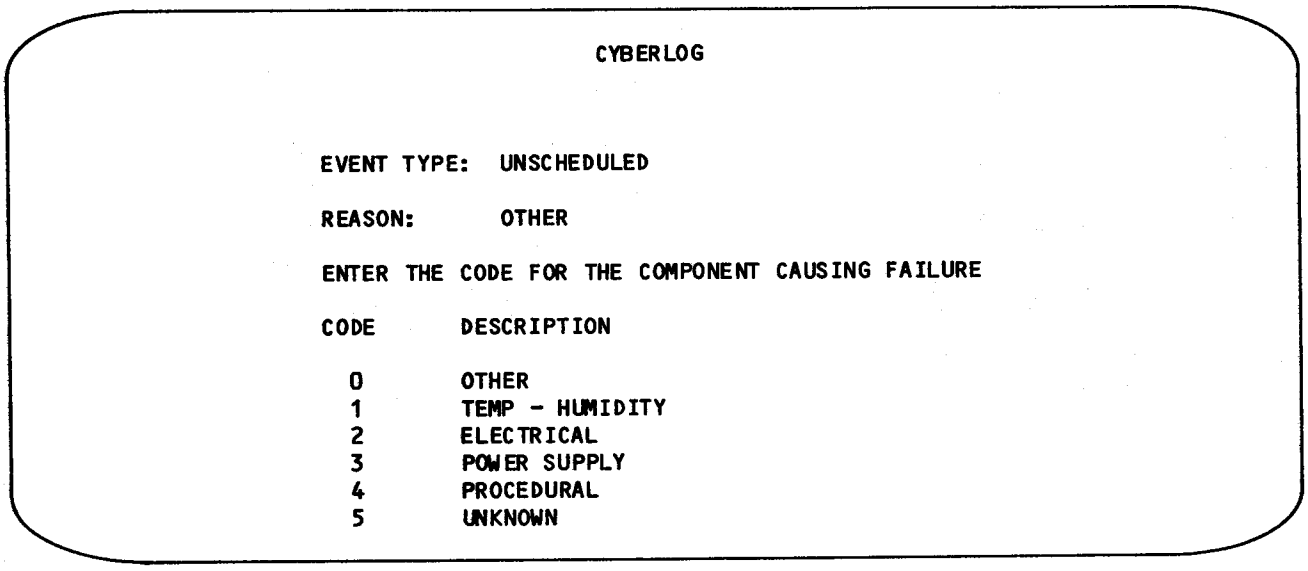


Figure II-6-4. CYBERLOG Component Request Display (Reason OTHER)

```
                    CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      HARDWARE

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE      DESCRIPTION

  0       OTHER
  1       CPU
  2       PPU/CHANNEL
  3       MEMORY
  4       EXTENDED MEMORY
  5       TAPE SUBSYSTEM
  6       DISK SUBSYSTEM
  7       MASS STORAGE SUBSYSTEM
  8       UNKNOWN
```

Figure II-6-5. CYBERLOG Component Request Display (Reason HARDWARE)

```
                    CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      SOFTWARE

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE      DESCRIPTION

  0       OTHER
  1       OPERATING SYSTEM
  2       COMPILER/ASSEMBLER
  3       APPLICATION PROGRAMS
  4       DATA MANAGEMENT
  5       UNKNOWN
```

Figure II-6-6. CYBERLOG Component Request Display (Reason SOFTWARE)

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      COMMUNICATIONS

ENTER THE CODE FOR THE COMPONENT CAUSING FAILURE

CODE      DESCRIPTION

  0       OTHER
  1       SUBSYSTEM HARDWARE
  2       HOST SOFTWARE
  3       LINE ADAPTER
  4       MODEM
  5       SUBSYSTEM SOFTWARE
  6       UNKNOWN
```

Figure II-6-7. CYBERLOG Component Request Display (Reason COMMUNICATIONS)

ELAPSED TIME

After you either enter the reason for a scheduled event or enter the component causing the failure for an unscheduled event, a display appears that asks you to record the amount of time that has elapsed since the event occurred (figure II-6-8).

Enter the elapsed time in hours and minutes in the format shown. The range of values for hours is 0 through 99 and the range of values for minutes is 00 through 59. A leading zero is not required for hours, but is required for minutes. A period is required to delimit the hours from the minutes. The time you enter appears on the line labeled ELAPSED TIME in the resulting display.

```
                              CYBERLOG

EVENT TYPE:  UNSCHEDULED

REASON:      HARDWARE

COMPONENT:   DISK SUBSYSTEM

ENTER THE ELAPSED TIME SINCE THE SYSTEM WAS FULLY OPERATIONAL
IN THE FORM

      HH.MM
```

Figure II-6-8. CYBERLOG Elapsed-Time Request Display

LOST TIME

After you enter the elapsed time for an unscheduled event, a display appears that asks you to enter the length of time during which the system or part of the system was down or degraded (figure II-6-9). For scheduled events the field is set to 00.00.

Enter the lost time in hours and minutes in the format shown. The same restrictions in format apply as in the elapsed-time entry.

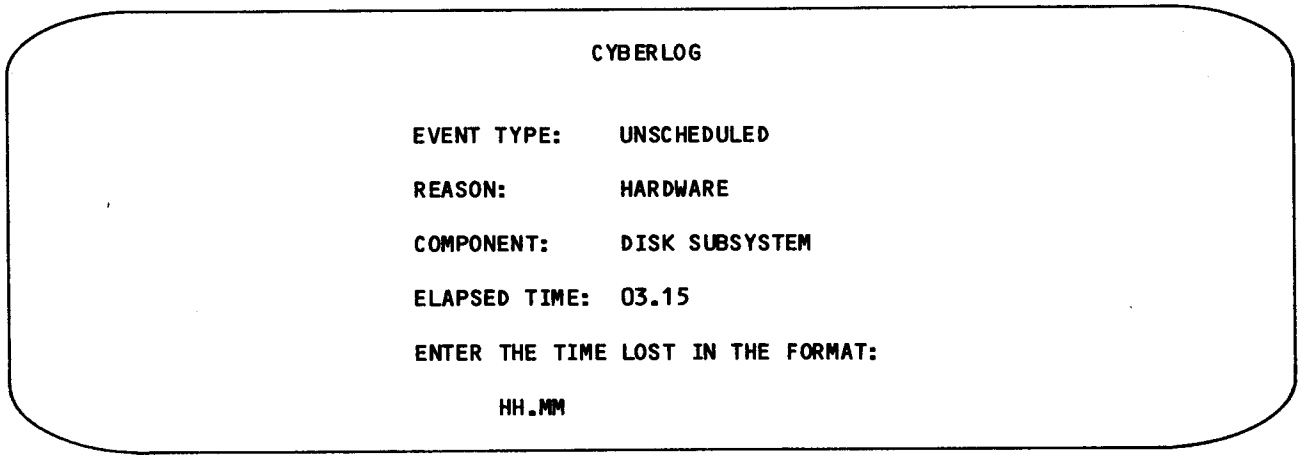


Figure II-6-9. CYBERLOG Lost-Time Request Display

IMPACT

After you enter the lost time for an unscheduled event, a display appears that asks you to identify the impact of the event (figure II-6-10). Enter the code for degraded if the system resources were reduced; enter the code for down if the system resources were unavailable). The item you select appears on the line labeled IMPACT on the resulting edit display.

```
                              CYBERLOG

EVENT TYPE:     UNSCHEDULED

REASON:         HARDWARE

COMPONENT:      DISK SUBSYSTEM

ELAPSED TIME:   03.15

LOST TIME:      03.15

ENTER THE CODE FOR THE IMPACT OF THE EVENT

CODE            DESCRIPTION

 0              DEGRADED
 1              DOWN
```

Figure II-6-10. CYBERLOG Request for Impact Display

EDIT

After you make all the entries, you have an opportunity to change any of your responses (figure II-6-11). By entering the number that now precedes each line with an entry, that line is blanked; subsequent lines that depend on the blanked line are removed from the display. Those choices are then presented again.

To add a comment to an entry, type

```
CYB, comment.
```

The maximum length of the comment (excluding CYB, and the period), is 35 characters. The system inserts the word COMMENT on the display before the comment (figure II-6-11).

After completing edit entries, enter NEXT or END to transfer the data to the error log dayfile. If you enter NEXT, the CYBERLOG program transfers the data to the error log dayfile and restarts from the beginning to allow a different event to be recorded. If you enter END, the CYBERLOG program terminates after the message is written to the error log dayfile.

```
                              CYBERLOG

0   EVENT TYPE:    UNSCHEDULED

1   REASON:        HARDWARE

2   COMPONENT:     DISK SUBSYSTEM

3   ELAPSED TIME:  03.15

4   LOST TIME:     03.15

5   IMPACT:  DEGRADED
    COMMENT CYB, THIS IS A SAMPLE COMMENT LINE.

TO CHANGE ANY LINE, ENTER THE LINE NUMBER

TO WRITE CURRENT MESSAGE AND REPEAT FOR NEW
MESSAGE, ENTER "NEXT"

TO EXIT, ENTER END

TO WRITE A COMMENT, ENTER *CYB,* FOLLOWED BY NO
MORE THAN 35 CHARACTERS, TERMINATED BY A PERIOD.
```

Figure II-6-11. Sample Completed CYBERLOG Entry

FLAW K DISPLAY

The FLAW utility reserves (flaws) tracks on any mass storage device during normal system operation. Each entry identifies an area of mass storage that is unusable (flawed area) and prevents the system from accessing it. Since 881 and 883 disk packs normally contain flaw information in the utility sector, the FLAW utility should be used on an 881 or 883 only to specify additional areas not currently in the utility sector. Obtain flaw addresses from the customer engineer or the system analyst.

Flawing tracks on mass storage devices is accomplished using the K display (figure II-6-12).

```
*** MASS STORAGE DEVICE INITIALIZATION ***

      CURRENT INITIALIZATION OPTIONS

       OPTION VALUE     DESCRIPTION
         FM = 0       FAMILY NAME/ PACK NAME
                      FM = PACK NAME FOR TYPE =X
         UN = 0       USER NUMBER
         TY = 0       ACCESS TYPE - F OR X
         DM = 0       DEVICE MASK
         SM = 0       SECONDARY MASK
         NC = 0       CATALOG TRACKS
         EQ = 0       EST ORDINAL OF DEVICE
         NP = 0       NUMBER OF PACKS
         DN = 0       DEVICE NUMBER
              SET FLAWS.


      RTK,STK AND TTK ENTRIES, ENTER SINGLY
                      GENERAL FORMAT- XTK=A.
                      WHERE, *XTK* IS-
                       RTK = RESERVE TRACK
                       TTK = TOGGLE TRACK
                       STK = SET LOGICAL TRACK
                      AND *A* = EQUIPMENT FORMAT-

                       DE/DP - A000000 = ADDR/10B
                       DI - 0000  STK ONLY
                       DJ - 0000  STK ONLY
                       DK - 0000  STK ONLY
                       DL - 0000  STK ONLY
                       DM - 0000  STK ONLY
                       DQ - 0000  STK ONLY



                      LIMIT = 20B ENTRIES.
```

Figure II-6-12. FLAW Utility K Display

All console entry is performed under DSD control. The sequence is as follows:

1. Call FLAW utility by typing

   X.FLAW.

2. Bring K display to left console screen by typing

   K,jsn.

   jsn Job sequence name of the job requesting the K display (message REQUEST*K*DISPLAY appears on the B display).

3. Specify mass storage device on which tracks are to be flawed. Enter

   K.EQ=eq.

   eq EST ordinal of the mass storage device.

4. Enter flaws. A maximum of 20_8 flaw entries is allowed for each call to the FLAW utility. In addition, there are three types of flaw entries that may be specified. The general format for K display entry is

   K.xtk=ta.

   xtk Specifies one of the following types of flaw entries.

Entry	Description
RTK	Sets the track reservation table entry for the specified physical block (track) address in extended memory or 819 disk to indicate that the block is unavailable for use.
STK	Sets track reservation table (TRT) entry for the specified logical track to indicate that track is unavailable for use.
TTK	Toggles track reservation table entry for specified physical extended memory or 819 disk track. If TRT indicates that track is currently unavailable, track is made available and vice versa.

ta Specifies track address to be reserved. ta can be one of the following.

ta	Description
tttt	Logical track address for 844 disk, 885-11/12 disk, or extended memory. (Use with STK.) The variable tttt can be any octal number in the specified range for the particular type of disk drive.
	4000_8-7137_8 844-21 disk (DI/DK)
	4000_8-7147_8 844-41/44 disk (DJ/DL)
	4000_8-7222_8 885-11/12 disk (DM/DQ/DB)
	4000_8-7620_8 2048K extended memory (DE/DP)
	4000_8-7154_8 819 disk (DV/DW)
Aaaaaaa	Physical block (track) address for extended memory. (Use with TTK or RTK.)
aaaaaa	Extended memory address divided by 10_8.
Ccyl,Ttrk, Ssec.	Physical track address for 819 disk (use with RTK or TTK).
	cyl Cylinder number. $0 \leq cyl \leq 633_8$ for single density (DV). $0 \leq cyl \leq 1466_8$ for double density (DW).
	trk Track number. $0 \leq trk < 12_8$ for single or double density (DV or DW).
	sec Sector number. $0 \leq sec \leq 24_8$ for single or double density (DV or DW).

5. Initiate flawing of specified device by typing

```
K.GO.
```

The FLAW utility provides two messages in the system dayfile which indicate the results of the flawing operation. The first message is

```
nn TRACKS FLAWED.
```

nn Octal number of tracks that were successfully flawed.

The second message appears only if some of the flaws specified were not processed. This occurs when the track specified for flawing is already reserved by the system (but not as a flawed track). In this case, the following message also appears in the system dayfile.

nn FLAWS NOT PROCESSED,list.

nn Octal number of flaws not processed.

list List of the logical tracks that were not flawed.

The entries described here are similar to those entered in APRDECK for flawing a device at deadstart time. However, the flaw entries specified using the FLAW utility or DSD command INITIALIZE (refer to section 3) are not recovered if the device is initialized at deadstart time. Only the flaw entries specified in APRDECK will be recovered. If a device is initialized during normal system operation (INITIALIZE command), all flaws specified in devices TRT, including those entered via FLAW utility or INITIALIZE command, will be recovered providing the device has a good label at the time of initialization. If the label is bad, or cannot be recognized, all current flaws are cleared. The right console screen (figure II-6-13) shows all flaw entries made through the FLAW utility and INITIALIZE command. It lists the flaw entry and its logical track equivalent, and indicates entries which duplicate setting flaws on the same logical track.

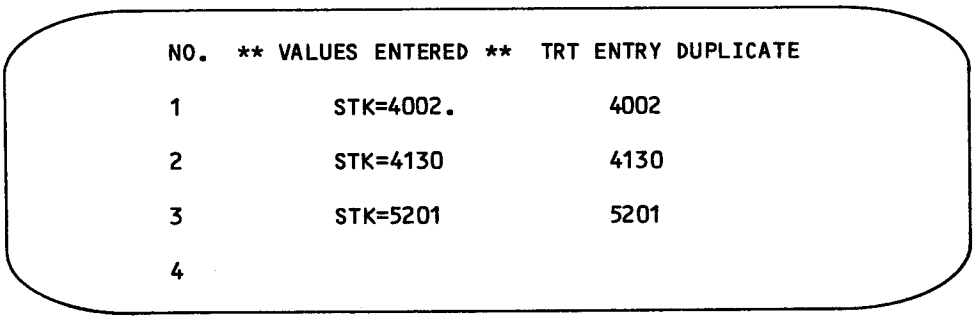


Figure II-6-13. Right Screen FLAW Utility K Display

INITIALIZE K DISPLAY

The INITIALIZE command can be used to reconfigure certain removable devices (844-21 and 844-41/44) to suit user needs. For example, if a user currently has two single unit 844 packs (DK-1s), both packs can be initialized and linked together to form a multispindle device (DK-2). However, this can only be done if the following requirements are met for the devices to be linked.

- Same device type.
- Same channels.
- Same share status (shared or nonshared).
- Removable.
- Not currently in use.

The INITIALIZE command must be entered to set initialize status for each device to be chained. Current multispindle devices can also be initialized providing all packs that form the device are mounted in logical order as determined by the unit list on the E,C display. It is only necessary to enter the INITIALIZE command for the first unit of a current multispindle device. The format of the INITIALIZE command is described in section 3 under Peripheral Equipment Control Commands.

NOTE

Examine the FAMC and DAFC fields in the mass storage status (E,M.) display before entering the INITIALIZE command. The user count for the device must be zero before this command is valid.

The following procedure describes the steps necessary to initialize and (if necessary) flaw tracks on a mass storage device.

1. Enter the INITIALIZE command for the device(s) to be initialized followed by a carriage return. Examine the B display for the following message.

   ```
   REQUEST*K*DISPLAY.
   ```

   Note the job sequence name of the job displaying the message.

2. Activate the K display for that job by typing

   ```
   K,jsn.
   ```

   jsn Job sequence name of the job.

   The K display (figure II-6-14) appears on the left console screen. All parameters required to initialize and (if necessary) flaw the specified device are entered through the K display.

```
*** MASS STORAGE DEVICE INITIALIZATION ***

          CURRENT INITIALIZATION OPTIONS
                     *TOTAL*
OPTION VALUE     DESCRIPTION
   FM = 0          FAMILY NAME/ PACK NAME
                   FM = PACK NAME FOR TYPE =X
   UN = 0          USER NUMBER
   TY = 0          ACCESS TYPE - F OR X
   DM = 0          DEVICE MASK
   SM = 0          SECONDARY MASK
   NC = 0          CATALOG TRACKS
   EQ = 0          EST ORDINAL OF DEVICE
   NP = 0          NUMBER OF PACKS
   DN = 0          DEVICE NUMBER
        INITIALIZE EQUIPMENT
        (list of equipment to be initialized)

RTK,STK AND TTK ENTRIES, ENTER SINGLY
                GENERAL FORMAT- XTK=A.
                WHERE, *XTK* IS-
                 RTK =     RESERVE TRACK
                 TTK =     TOGGLE TRACK
                 STK =     SET LOGICAL TRACK
                AND *A* =  EQUIPMENT FORMAT-

                 DE/DP - A000000 = ADDR/10B
                 DI/DJ -  0000   STK ONLY
                 DK/DL -  0000   STK ONLY
                 DM/DQ -  0000   STK ONLY
                 DX/DY -  0000   STK ONLY
                 DZ/DA -  0000   STK ONLY
                 DV/DM -  0000   STK ONLY
                 DB    - C000, T000, S000

                 LIMIT = 20B ENTRIES.
```

Figure II-6-14. K Display for INITIALIZE Command

The top half of the K display lists all valid parameters used in initializing a device (under OPTION column). Refer to table II-6-1 for a description of each option. Flaw entries (RTK, STK, and TTK) are described on the bottom half of the display. Refer to table II-6-2 for additional information. The EST ordinal of the device to be initialized is listed in the center of the display under INITIALIZE EQUIPMENT.

Table II-6-1. Device Definition Options†

Option	Description
FM=	One- to seven-character family name. Specifies the permanent file family in which the initialized device is to be included. All devices must have a family name or pack name. The name 0 (single character zero) is reserved and cannot be used. This parameter cannot be used to change the family name of the link device in a multimainframe environment. If TY=X, this option specifies a one- to seven-character packname to be associated with an auxiliary device. To clear an existing entry, FM=NULL must be entered.
UN=	One- to seven-character user name. This option is specified only when initializing an auxiliary device (TY=X). If specified, the device is considered to be a private auxiliary device. Only the user name specified will be allowed to create files on the device (perform SAVE, REPLACE, or DEFINE requests). To clear an existing entry, UN=NULL must be entered.
TY=F	Initialized device may contain direct and indirect access permanent files. However, if DM=0, only direct access files can reside on the device. If SM=0 and DM=0, the device can only contain special system permanent files. Indirect access files can only reside on a master device (that is, DM≠0).
TY=X	Initialized device is an auxiliary device. This is a mass storage device that is not part of a permanent file family. An auxiliary device is a supplementary permanent file storage device that may be privately owned (UN option specified) or can be shared by many users (UN not specified). Auxiliary devices can contain direct or indirect access permanent files.
DM=	Three-digit (octal) device mask (0 to 377_8). This option is required whenever a permanent file master device is being initialized. It defines which users will have this device as their master device. This option cannot be entered if TY=X.
SM=	Three-digit (octal) secondary device mask (0 to 377_8) used to control the residence of direct access files. This option is not entered if TY=x.
NC=	Octal number of catalog tracks (power of two). This option is used only if the number of catalog tracks specified as system default for the device type is not satisfactory. The maximum value is 200_8.
EQ=	EST ordinal of device to be initialized. For multispindle devices, this must be the first of NP consecutive removable units.
NP=	Number of physical units to be included in a multispindle device. The default value is 1. Each unit to be included in the multispindle chain must currently be defined as removable in the mass storage status (E,M.) display (refer to section 4).
DN=	Two-digit (octal) logical device number (1 to 77_8) that uniquely identifies the device in its permanent file family. This option is not entered if TY=X.

†Device definition may be changed only if AL initialization is specified.

Table II-6-2. Track Flawing Options†

Option	Description
RTK	Sets the track reservation table (TRT) entry for the specified physical block (track) address in extended memory or 819 to indicate that the block is unavailable for use.
STK	Sets the TRT entry for the specified logical track to indicate that the track is available for use.
TTK	Toggles the TRT entry for the specified physical extended memory block (track). If the TRT indicates that block is currently unavailable, the block is made available. If the TRT indicates that block is currently available, the block is made unavailable.

†Flawing of 881 and 883 disk packs is automatic; only flaws additional to current information should be entered.

3. Enter the INITIALIZE command for each additional device to be initialized. This can also be done before activating the K display. In either case, only the first device specified will initially be listed (by EST ordinal) in the K display. Thus, to update the K display to show additional devices, enter the following command.

   K.RERUN.

   If more than one device is listed, they are initialized one at a time as they appear in the list from left to right. Multispindle devices (more than one EST ordinal) are considered one device.

4. The system has already checked the label on each mass storage device. If the label was found to be good, it is necessary to enter parameters (requested in messages that appear in the K display) to identify the device. This is to ensure that the device selected is indeed the correct device to be initialized. The messages appear automatically and are displayed until the correct parameter is entered. If an incorrect parameter is entered, it is ignored. Refer to table II-6-1 for a description of each parameter.

   Examine the mass storage status (E,M.) and/or mass storage configuration (E,C.) display to determine the current parameter values.

   The following possible messages may be displayed and the appropriate response should be entered. If none of these appears, the device label was not recognized or was found to be bad. In this event, proceed to step 5.

   - ENTER OLD DEVICE NUMBER

     This message appears if the device to be initialized is a permanent file family device. Enter the following response.

     K.DN=devicenumber.

- **ENTER OLD FAMILY NAME**

  This message appears only if more than one family of permanent file devices are currently active in the system. Enter the following response.

  K.FM=familyname.

- **ENTER OLD PACK NAME**

  This message appears only if the device to be initialized is an auxiliary device. Enter the following response.

  K.PN=packname.

- **ENTER OLD USER NAME**

  This message appears only if the auxiliary device to be initialized is a private auxiliary device (associated with a specific user name). Enter the following response.

  K.UN=username.

  The user name is written to the account dayfile when the device is mounted.

  If it is discovered that the wrong device was specified in the INITIALIZE command, initialize status for that device can be cleared by entering

  K.CLEAR.

  The device to be processed by the clear entry must be a valid device. That is, the device cannot have a device number that conflicts with another device in its family name or a pack name that duplicates one already in the system. Its mask bits must meet standard requirements. The leftmost device in the list of devices to be initialized is cleared. One of the preceding messages will then be displayed for the next device to be initialized (if any) providing the label on that device is good.

5. When the following message appears on the K display, enter the parameters which specify the new characteristics to be associated with the device when it is initialized (refer to tables II-6-1 and II-6-2).

   - **ENTER PARAMETERS**

   The new parameters can be entered one at a time or as a string. For example:

   $K.option_1=value_1,...,option_n=value_n.$

   or

   $K.option_1=value_1.$

   $K.option_2=value_2.$

   $K.option_n=value_n.$

If flaw entries are to be specified (refer to table II-6-2), they must be entered singly as illustrated in the last example. If the label on the device being initialized was good, all current flaws on that device are normally recovered. However, if the label was not recognized or was bad, the flaw entries cannot be recovered and must be entered (if necessary) using this mechanism. A maximum of 20 octal flaw entries are permitted. In addition to RTK, TTK, and STK entries, the flaw information recorded in the utility sector on an 881, 883, or 885 disk pack is read during initialization of 844 equipment and the appropriate areas automatically reserved by the system.

If the NP option is specified (NP > 1), the device is to be initialized as a multispindle device. In this case, the number of packs specified by NP indicate the number of spindles to be linked. This is the next n number of devices waiting to be initialized. Each device must be defined as removable and mounted on consecutive physical unit numbers. To determine if a device is defined as removable, examine the mass storage status (E,M.) display (refer to section 4). If the units are configured correctly, the labels on each unit are checked. If any label is not recognized or is bad, that unit is free for initialization and chaining. However, if the label is good, the message

- **ENTER IDENTITY OF EQeq**

appears in the K display (eq is the EST ordinal of the device). One of the following responses is required.

- K.DN=devicenumber.
- K.FM=familyname,
  DN=devicenumber.
- K.PN=packname.
- K.PN=packname,UN=username.

This is a precautionary measure to ensure that the devices specified are the correct devices to be chained.

6. After all the necessary parameters have been entered for a specific device, enter the following command to proceed with initialization.

   K.GO.

   If there are remaining devices waiting to be initialized, steps 4 through 6 of this procedure are repeated for each device.

MACHINE RECOVERY (MREC) UTILITY K DISPLAY

When a machine that has been in a multimainframe configuration has a malfunction that requires a level 0 deadstart, before you can begin the deadstart, the machine recovery utility program (MREC) must be run on every machine which shares devices with the machine that is not working properly. MREC releases local mass storage space on the shared devices and clears interlocks set before the malfunction occurred.

For example, assume that machines A and B share disk unit 12 and machines B and C share disk unit 13 as shown in figure II-6-15.

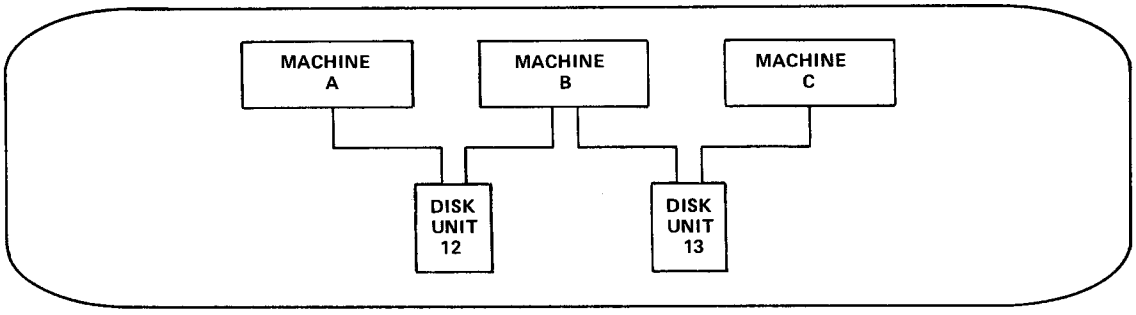


Figure II-6-15. Machine Configurations

If machine A must be deadstarted using a level 0 deadstart, MREC must be run on machine B to recover disk unit 12. Machine C need not be involved since it is not aware of the existence of disk unit 12. However, if machine B must be deadstarted using a level 0 deadstart, MREC must be run on machine A to recover disk unit 12 and on machine C to recover disk unit 13.

NOTE

Once MREC has been run for an inoperative machine, any level of deadstart on the machine other than 0 is illegal.

MREC PROCEDURES

Use of the MREC utility can be accomplished through keyboard entry to a K display or by direct keyboard entry under DSD or DIS.

Under DIS control, the command MREC. followed by a carriage return calls the MREC utility.

The following procedure describes K display usage for MREC operations under DSD control.†

1. Call MREC by typing

   X.MREC.

2. Examine the DSD job status (B) display. When MREC is scheduled to a control point, it is indicated on the B display. The message

   REQUEST *K* DISPLAY

   appears in the message field for that control point.

3. Activate the K display for that control point by typing

   K,jsn.

   jsn is the MREC job sequence name.

   The K display for MREC (figure II-6-16) appears on the left console screen.

```
                                K jsn

                  *** MACHINE RECOVERY UTILITY ***

              SHARED DEVICES MID = 72.

EQ  TYPE  UN  DN  FM/PN    STATUS  MID(S)  SHARING DEVICE

02  DI-2   0  40  SYS172   ----    27*     33

04  DJ     1  60  MMF       -R--   27*           42*

11  DE     0  12  SYSTEM    ----    27*     33    42*




ID =                                MID OF DOWNED MACHINE

EQ = ALL                            EQ(S) TO RECOVER
```

Figure II-6-16. MREC Left Screen K Display

† Under DIS control, the command MREC. followed by a carriage return calls the MREC Utility.

The MREC left screen K display lists all the devices that are shared by the machine on which MREC is being run. The machine ID of this machine is given in the second line of the display. Information describing the devices is given in the following format.

```
eq  type  un  dn  fm/pn  status  mid(s)
```

eq — EST ordinal of equipment.

type — Device type.

un — Unit number of device.

dn — Device number.

fm/pn — Family name/pack name.

status — Status bits from MST:

- U Unavailable.
- R Removable.
- N Global unload.
- X Auxiliary permanent file device.

mid(s) — Machine IDs of other machines that are currently accessing the device. If there is an * by the machine ID, the machine is determined to be down.

4. The right screen K display for MREC contains the commands and options which may be selected. To activate the right screen K display (figure II-6-17), type

   KK.

5. Enter MREC options in the following format.

   K.$option_1$=$value_1$,$option_2$=$value_2$,...,
   $option_n$=$value_n$.

   The options entered (and error messages, if any) are displayed on the lower portion of the left screen K display.

6. If it is desired to reset options to their default values or to refresh the device descriptions on the top portion of the left screen K display, type

   K.RERUN.

   Options can then be reentered.

7. After the desired options have been entered, initiate MREC processing by typing

   K.GO.

   When processing is complete, the message

   PROCESSING COMPLETE

   is displayed at the bottom of the left screen.

8. After all MREC operations are complete, end the utility by typing

   K.STOP.

It is also possible to call MREC and specify appropriate options without the use of the K display. This is accomplished via a single keyboard entry (under DSD or DIS) in the following format.

X.MREC($option_1$=$value_1$,$option_2$=$value_2$,..., $option_n$=$value_n$)

$option_i$=$value_i$ Options described in table II-6-3.

The ID=id option must be entered.

When the MREC command is entered with options, the K display is not activated but processing occurs automatically. If an error occurs using this procedure, the message

REQUEST *K* DISPLAY

appears on the DSD B display. Activate the K display and continue as described in the preceding procedure.

```
                                K jsn

                    *** MACHINE RECOVERY UTILITY ***

DESCRIPTION OF TABLE ENTRIES.

EQ - EST ORDINAL OF EQUIPMENT.
UN - UNIT NUMBER.
DN - DEVICE NUMBER.
FM/PN - FAMILY OR PACK NAME (IF ANY)
STATUS - U    UNAVAILABLE.
         R    REMOVABLE.
         N    GLOBAL UNLOAD.
         X    AUXILIARY PERMANENT FILE DEVICE.
MID(S) SHARING DEVICE - MACHINE ID(S) OF OTHER
                        MACHINES CURRENTLY SHARING DEVICE.
                        (* BY MID INDICATES MACHINE HAS
                        BEEN DETERMINED TO BE DOWN.)


DESCRIPTION OF PARAMETERS.

ID - MID OF DOWNED MACHINE TO PROCESS.
EQ - EST ORDINALS OF DEVICES SHARED BETWEEN THIS
     MACHINE AND DOWNED MACHINE TO PROCESS.  I.E.
     EQ=XX,XX,...,XX.   DEFAULT = ALL.  I.E. EQ=ALL.
OP=I AND OP=R ARE PARAMETERS WHICH MAY BE
 ENTERED IF 844 OR 885 RESERVE SITUATIONS OCCUR.  OP=I WILL
 CAUSE THE DEVICE TO BE IGNORED.  OP=R WILL CAUSE
 ALL UNIT RESERVES ON THAT CONTROLLER TO BE CLEARED.
 THESE PARAMETERS ARE ONLY VALID FOR THE CURRENT
 RESERVED 844 OR 885 UNIT AND MUST BE REENTERED
 UPON REOCCURENCE OF ANOTHER RESERVE SITUATION.

DESCRIPTION OF K DISPLAY COMMANDS.

GO - INITIATE PROCESSING OF DEVICES SPECIFIED.
RERUN - REINITIALIZE K DISPLAY AND RERUN PROGRAM.
STOP - TERMINATE PROGRAM.
+ - PAGE RIGHT DISPLAY IF .GT. 24D SHARED DEVICES.
```

Figure II-6-17. MREC Right Screen K Display

Table II-6-3 describes the options available and table II-6-4 describes the commands.

Table II-6-3. MREC Options

Option	Description
ID=	One- or two-character machine ID of the inoperative machine which is to be processed. This option must be entered before processing can take place.
EQ=	EST ordinals of devices to process. Only devices shared between the machine which is down and the machine on which MREC is running are processed. If the equipments are entered that cannot be processed, they are ignored. The form of the entry is EQ=eq_1,eq_2,...,eq_n. or EQ=ALL. The latter form means that all devices shared between this machine and the inoperative machine are to be processed. Default is EQ=ALL.
OP=x	This option may only be entered via the K display (that is, it cannot be used if MREC is called by a command) and is to be used only if a unit or controller cannot be accessed by MREC due to physical hardware reservations. Its use is illegal if a unit reservation is not in effect. x — Description R — Directs MREC to release all unit reservations (using the GRENADE function, refer to the NOS 2 Installation Handbook) for 844-41/44 or 885-11/12 equipment. Refer to the next note in this section. I — Directs MREC to ignore certain functions on the equipment for which the reservation message was issued. Functions that do not require the unit to be accessed are still performed. Refer to MREC Unit and Controller Reservation later in this section.

Table II-6-4. MREC Commands

Command	Description
GO.	Directs MREC to proceed with processing of the entered parameters.
RERUN.	Reinitializes the device descriptions and parameters on the K display.
STOP.	Terminates MREC and ends K display interaction.
+	Toggles the right screen K display between the K display instructions and the second page of device descriptions if there are more than 24 shared devices.

MREC UNIT AND CONTROLLER RESERVATIONS

When attempting to access a device, MREC may find the controller access or unit reserved by another machine. When this occurs, the following message is displayed on the left screen K display.

EQeq,CHcc, CONTROLLER RESERVED.

or

EQeq,UNuu, UNIT RESERVED.

eq EST ordinal of the device.

cc Channel number.

uu Physical unit number (0 through 77_8).

Assuming the inoperative machine is the machine holding the reservation, clear the reservation or direct MREC to clear it by using the following procedures.

To clear a controller reservation, activate the deadstart switch on the machine which is down.

To clear a unit reservation, perform one of the following procedures.

- On a device that is connected to a 7155 controller, activate the deadstart switch on the machine which is down.
- On a device that is not connected to a 7155 controller, toggle the OFF LINE/ON LINE switch on the back of the drive to OFF LINE and then back to ON LINE.
- If either of the preceding procedures cannot be performed, select the OP=R option to clear an 844 or 885 device reservation.

NOTE

Do not select the OP=R option unless the other procedures cannot be performed. It is recommended that all machines in the multimainframe environment be put in IDLE status or put in STEP mode when the OP=R option is selected.

Once the correct action has been taken, type

```
K.GO.
```

to continue processing. If the reservation is still not cleared, you are again notified. Repeat one of the steps above or type

```
K.OP=I.
```

This directs MREC to ignore certain operations on the device. Processing may then continue.

If a device or controller in an independent shared device multimainframe environment is reserved by a down machine, the previously mentioned messages appear on the job status (B) display instead of on the K display. Use the previous procedure to clear these reservations.

MASS STORAGE SYSTEM (MSS) K DISPLAY

The mass storage subsystem (MSS) uses the K display to present messages that require your action. You can use the MSS K display to reply to these messages and to control the rate that files are staged/destaged between MSF hardware and disk.

When MSS enters messages into the K display, a request for the K display flashes on the B display. Enter K,MSS. to activate the K display for MSS. After you have responded to all K display messages, the flashing B display message terminates.

The MSS K display provides space for four messages with up to three lines per message. If you enter an incorrect command, the incorrect command appears under a line containing *** REJECT ***. Figure II-6-18 illustrates a sample MSS K display.

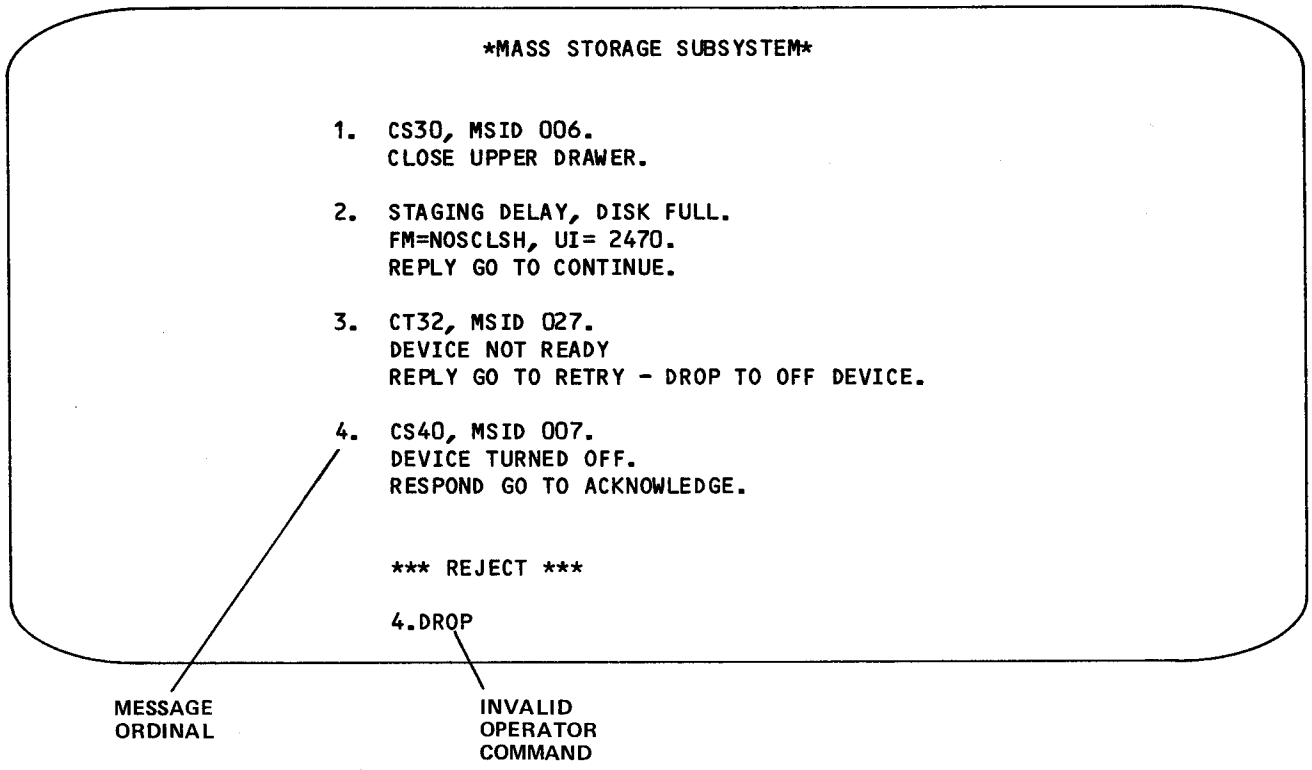


Figure II-6-18. MSS K Display

Valid MSS commands are as follows:

Command	Description
K.FILES,x.	Controls the rate that files are staged/destaged between MSS and disk by changing the number, x, of concurrent files staged/destaged between MSF and disk. Increasing or decreasing the number of concurrent files by one results in a corresponding increase or decrease in field length of approximately 6500_8 central memory words. x Single digit
K.m.GO.	Enters a GO response to the message at message ordinal m.
K.m.DROP.	Enters a DROP response to the message at message ordinal m.
K.	Clears the previously entered incorrect command and the *** REJECT *** line.

MSS clears a message when an acceptable action is taken. Usually this action is entering the K.m.GO or K.m.DROP commands. However, for actions such as closing or emptying the input or output drawers on a cartridge storage unit, the message is cleared automatically when the hardware status indicates the requested action has occurred.

If you enter an invalid command, the *** REJECT *** line and the command are both displayed. Valid commnds are those described previously. The K.m.GO and K.m.DROP commands are invalid if there is no message displayed at message ordinal m or if the GO/DROP response is not appropriate. Clear the *** REJECT *** line by entering a valid command. Refer to appendix B for the appropriate action for each message.

NAM K DISPLAY

The NAM K display provides a common, centralized interface by which network supervisory applications (CS, NS, NVF) can communicate with the host operator (HOP).

No part of the NAM K display overwrites or otherwise interferes with any areas of the display screen that are reserved for the operating system.

Figure II-6-19 shows the format of the NAM K display. Table II-6-5 explains the fields that appear on the display.

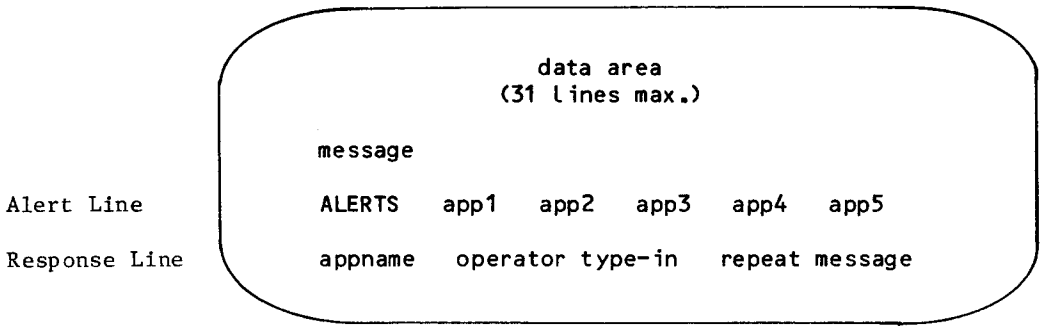


Figure II-6-19. NAM K Display Format

Table II-6-5. NAM K Display Fields

Field	Description
data area	Portion of the screen that receives the output or diagnostic message as a result of a command you entered. This portion of the NAM K display is operated as a scrollable paged device. Each line of data enters the display at the bottom of the data area and forces the previous 31 lines to shift up by one line. The previous top line is lost. However, whenever you turn page-wait ON and more than 31 lines of information are written to the data area, a prompt for a page turn, MORE DATA.., is displayed on the bottom line of the data area. The display remains fixed until the page turn is entered (refer to Display Control Characters).
message	System prompt (READY..) indicates you can make additional keyboard entries, or system prompt (MORE DATA..) indicates you can enter + to see more data.
appl...app5	Alert line is a list of supervisory applications requesting your attention.
appname	Name of the supervisory application (CS, NS, NAM, or NVF) with which you are currently interacting.
operator type-in	Last command entered. It contains 40 characters or less. Commands of more than 40 characters are not completely displayed.
repeat message	Whenever a command cannot be accepted because the system was not done processing a previous command, you get a response REPEAT.. in this field.

NAM supports one screen of the K display - either right or left. If you assign the NAM K display to both screens, the two are identical.

The NAM K display is available at all times during NAM execution, the message REQUEST K DISPLAY appears on the B display when the K display is not assigned to NAM and some supervisory application has requested operator intervention. You must assign the K display to NAM to interact with NAM or a supervisory application.

You assign the K display to NAM by entering

K,NAM.

and press CR.

Figure II-6-20 shows the NAM K display as it appears when initially assigned.

Figure II-6-20. NAM K Display

The NAM K display has two operating modes - NAM mode and application mode. Initially, the display is in NAM mode. The appearance of NAM indicates that you are interacting directly with NAM.

DISPLAY CONTROL CHARACTERS

There are four characters that control the NAM K display. They are valid in both NAM and application mode. Each character must be typed in the first character position after K.:

Character	Description
*	When entered in application mode, the * character causes the display to revert to NAM mode. The last command is aborted and any information generated by the application, after the asterisk is entered, is discarded by NAM. Page-wait is automatically turned on. * is ignored if the display is in NAM mode.
/	In application mode, aborts the last command without altering the assignment of the NAM K display. / character always results in a READY.. prompt. In NAM mode, the / character is ignored.
+	When in application mode, the + character turns the page-wait on, if the current page-wait status is off. If the current page-wait status is on, then the command K.+ displays the next available page of information. The page-wait is always on in NAM mode. The page-wait on/off status is initialized to off each time application mode is entered. Therefore, whenever you select a supervisory application, the page-wait status automatically changes from on to off and you can set it as desired. Whenever you return the display to NAM mode, page-wait returns to on status unconditionally.
-	The - character turns off the page-wait status. The - character is ignored if entered in application mode while the page-wait is off. Any attempt to turn page-wait off while in NAM mode is ignored without sending any diagnostic message.

NAM K DISPLAY OPERATION

Initially, the display is in NAM mode. In application mode, all type-ins except asterisk are passed by NAM to a previously designated supervisory application. An asterisk character returns the display to NAM mode. Application mode is invoked by a NAM mode command that indicates the supervisory application with which you wish to interact. Application mode is indicated by the appearance of the name of that application in the appname portion of the response line (refer to figure II-6-19).

The following events are common to the processing of all commands, processed either by NAM or by a supervisory application.

The entrance of any command immediately causes the command to appear in the operator type-in field. When the processing of the command completes, the prompt READY.. appears in the bottom line of the data area. If you key something in, other than one of the characters *, /, +, and - (refer to Display Control Characters) before the prompt READY.. appears, the character is displayed in your type-in field but the command is not acted upon and the message REPEAT.. appears to the right of your entry.

Table II-6-6 describes the commands for assigning the K display to supervisory applications CS, NS, and NVF. If appname is invalid or the supervisory application is not currently assigned to the network, you receive a diagnostic message. These commands are available in NAM mode only.

Table II-6-6. NAM Mode Commands

Command	Description
K.AP=appname	Assigns the NAM K display to the specified supervisory application. The application name appears in the appname portion of the response line (refer to figure II-6-19). appname is one of the supervisory programs CS, NS, or NVF. The command satisfies any alert request posted by the application. When you type the application name, that application name is removed from the alert line. Page-wait is turned off and the last page of the supervisory application's recent history buffer appears in the data area of the display (refer to Recent History Command in section 5).
K.AP	Assigns the NAM K display to the application whose name appears in the leftmost position of the alert line. Page-wait is turned off and the last page of the supervisory application's recent history buffer appears in the data area of the display (refer to Recent History Command in section 5).
K.IG=appname	Causes NAM to ignore all alert requests from the specified supervisory application. If the application had an alert request pending, its name is removed from the alert list. NAM informs the application that its alert request was acknowledged and ignored. The rest of the display remains unaltered. This command is automatically cancelled when you enter the command AP=appname. The assignment of the NAM K display is not altered by the IG=appname command.
K.IG	Assigns the NAM K display to the application whose name appears in the leftmost position of the alert line. NAM informs the application that its alert request was acknowledged and ignored. The rest of the display remains unaltered. This command is automatically cancelled when you enter the command AP=appname.
K.END	Clears the NAM K display. It causes the data area of the display to go blank but leaves the alert line and response line unaltered. The END command is used to stop the generation of the status display. Otherwise, if K display is dropped, NAM automatically ENDs after 60-90 seconds.

NAM MODE COMMANDS

While in NAM mode, the following network maintenance commands can be entered by the HOP. The commands are sent to supervisory applications CS, NS, and NVF to determine the status of the network, and aid in the debugging of network problems. The operator may select a single supervisory application or all supervisory applications by entering the following commands.

Command	Description
DB	Activates the in-line debug code.
DE	Deactivates the in-line debug code.
DU	Activates field length dump.
FL	Changes NAM's maximum field length.
LB	Begins the logging of the network traffic on the debug log file.
LE	Ends the logging of the network traffic on the debug log file.
LR	Releases the debug log file.
RS	Dumps the statistics data to the statistics file, resets the counters to zero, and continues gathering statistics.
ST	Causes NAM status display to appear on the K display screen (refer to figure II-6-21 later in this section).

If NAM reaches its maximum field length, NAM allows only one command, the FL=nnnnnn command to increase NAM's maximum field length. If the K display is in application mode when NAM reaches its maximum field length, NAM automatically switches the K display to NAM mode as if you had typed *. Until the field length (FL) command is typed in, all other commands are rejected and NAM stops servicing the network.

The command formats follow:

DB Command

The debug begin (DB) command causes NAM to request the application to turn on its in-line debug code.

The command format is:

DB=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to turn on their in-line debug code.
appname	NAM requests the specified application to turn on its in-line debug code. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

DE Command

The debug end (DE) command causes NAM to request the application to turn off its in-line debug code.

The command format is:

DE=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to turn off their in-line debug code.
appname	NAM requests the specified application to turn off its in-line debug code. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

DU Command

The dump (DU) command causes NAM to request the application to dump its field length.

The command format is:

DU=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to dump their field length to a permanent file.
appname	NAM requests the specified application to dump its field length to a permanent file. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

FL Command

The field length (FL) command changes NAM's maximum field length to the specified level. If the level specified is less than NAM's current maximum field length, you receive a diagnostic message.

The command format is:

FL=nnnnnnn

nnnnnnn is the new field length in octal.

LB Command

The log begin (LB) command causes NAM to request an application to log all network traffic to the debug log file (refer to NAM/CCP Reference Manual for creating the application's log file).

The debug log file is released when you enter the release command (described later in this section).

The command format is:

LB=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to log all network traffic on their debug log file.
appname	NAM requests that the specified application to log network traffic on its debug log file. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

LE Command

The log end (LE) command causes NAM to request an application to end the logging of network traffic to the debug log file.

The command format is:

LE=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to end logging of network traffic to their debug log files.
appname	NAM requests that the specified application end logging of network traffic to its debug log file. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

LR Command

The log release (LR) command causes NAM to request the application to release its debug log file. When the local debug log file is released, its contents are copied to a permanent file. Logging continues on a new local file.

The command format is:

LR=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to release their log files.
appname	NAM requests that the specified application release its debug file. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

RS Command

The reset statistics (RS) command causes NAM to request the application to dump statistics data to the statistics file, reset the statistics counters to zero, and continue gathering statistics (refer to Networks Reference Manual for description of network statistics).

The command format is:

RS=mode.

mode is one of the following:

mode	Description
ALL	NAM requests all supervisory applications to dump their statistics to a permanent file, reset the statistics counters to zero, and continue gathering statistics.
appname	NAM requests the specified application to dump its statistics to a permanent file, reset the statistics counters to zero, and continue gathering statistics. The specified supervisory application is currently accessing the network; if not, you receive a diagnostic message.

ST Command

The status (ST) command causes NAM status display to appear on the K display screen.

The command format is:

ST.

Refer to NAM Status Display in this section.

NAM Status Display

The NAM status display provides status information regarding all applications, couplers, and logical links currently active in the host. This display is periodically refreshed so that the current conditions of the applications and logical links are displayed.

Figure II-6-21 shows a typical status of the network. The first line of the display contains the network invocation number (NIN), host regulation level (REG LVL), the number of applications accessing the network, and the maximum field length of NAM.

```
      NIN = 014   REG LVL = 5       NO OF APPLS = 5   MAXFL = 100000

APP         JSN   STATUS      I     NCN    AC   NSM   NDM   TIME UP
IAF         AAAC  000000            30           5     2   07.54.35
RBF         AABC  000000             3           8     4   08.10.00
TAF         AABY  000000            10           1     0   08.25.46
TVF         AABA  001000             1           0     0   08.04.00
NVF         AAAM  000000       N     2           5     2   09.09.45


EST         HN    NSM   NHM   NLM   IVTSTAT      PRUST      NPUREJ
054         01      5                 0000       46125           5


LOG-LINK    HN    TN    H     N     S  T  NCN    AC   NHDQ  NLDQ  TIME UP
            01    01    0     0     S        44                   08.01.30
```

Figure II-6-21. NAM Status Display

There are three other parts of the status display in figure II-6-21.

The first part on the status display is the application status.

Each entry is in the following format.

```
app     jsn      status  i    ncn ac  nsm  ndm   timeup
```

app Name of the application.

jsn Job sequence name of the executing job table entry.

status Status of the application in octal. Each of the 18 bits (numbered left to right) represents the following condition.

Bit number	Description
0	Reserved.
1	Host regulation flag.
2	Rollout flag.
3	ON flag.
4	Wait flag.
5	Force flag.
6	Application to application regulation flag.
7	IN flag.
8	Low priority regulation flag.
9	Swap flag.
10-14	Reserved.
15	NVF response flag.
16-17	Reserved.

i Ignore alert flag. If set to Y, NAM ignores alert requests from the applications. If set to N, NAM accepts alert request from the application. This flag is set to blank if the application is not allowed to use the K display.

ncn Number of current connections to the application.

ac Reserved.

nsm Number of asynchronous supervisory messages currently queued for the application.

ndm Number of data messages and synchronous supervisory messages queued for the application.

timeup Time the application was netted on.

The second part on the status display is the equipment status.

Each entry is in the following format.

```
est   hn    nsm   nhm   nlm   ivtstat     prust   npurej
```

est	Equipment status table ordinal of the front end NPU.
hn	Host node number of the coupler.
nsm	Number of asynchronous supervisory messages currently queued for the coupler.
nhm	Reserved.
nlm	Reserved.
ivtstat	Number of characters transferred downline on interactive connections in the last 30 seconds.
prust	Number of characters transferred downline on PRU connections in the last 30 seconds.
npurej	Number of times data was rejected by the NPU.

The third part of the status display is the logical link status.

Each entry is in the following format.

```
hn    tn    h    n    s    t    ncn   ac    nhdq  nldq  timeup
```

hn — Host node number of the coupler.

tn — Terminal node number of the NPU.

h — Logical link regulation level as reported by host.

n — NPU regulation level as reported by the NPU. n can have the following values:

- 0 Logical link is down or disabled for data.
- 1 Only asynchronous supervisory messages are allowed.
- 2 Only asynchronous supervisory messages and high priority connections are allowed.
- 3 All network connections are allowed.

s — Supervision indicator. If CS is using this logical link to send supervisory messages, the field is set to S. Otherwise it is blank.

t — Reserved.

ncn — Number of current connections on the logical link.

ac — Reserved.

nhdq — Reserved.

nldq — Reserved.

timeup — Time the logical link was created.

REDEFINE K DISPLAY

Use the REDEFINE utility to reconfigure 844 and 885-11/12† disk drives on line and thus logically eliminate a unit which is malfunctioning without performing a level 0 initial deadstart. A single unit or multiunit device†† which fails can be replaced with an unused unit. Unused units must be available or made available across channels or on the same channel as the failing unit by physically moving the disk pack from the failing unit to the replacement unit. Table II-6-7 gives the equipment requirements for reconfiguration.

Table II-6-7. Equipment Requirements for Reconfiguration

Current Equipment		Replacement Equipment		Special Considerations
Operation To Be Performed	Must be unloaded, removable.	Must be in EST.	Must be unloaded, removable.	
Add or Return a Unit	Yes.	No.	Yes.	Equipment must have less than eight units.
Delete a Unit	Must be removable; if not unloaded, the unit must be in the EST.	NA	NA	Equipment must have at least one unit.
Replace a Unit	No.	Not necessary.	Yes, if in EST.	The system does not perform label verification on packs that are unloaded before the failing unit is replaced. If the unloaded pack is not moved from the failing unit or the wrong pack is moved, the system issues an error message the next time the replacement unit is accessed.
Recable a Unit	No.	NA	No.	None.

†When reconfiguring an 885-11/12 disk drive, a customer engineer must be present.
††When reconfiguring a multiunit device, all units of the device must be on the same controller(s).

NOTE

There are special cases when on-line reconfiguration cannot be performed. In these cases, the only reconfiguration possible is by performing a level 0 deadstart and defining the failing device to another drive. The special cases are:

- Reconfiguring an 885-11/12 disk drive that is the sole system device defined.
- Reconfiguring an 844 or 885-11/12 disk drive that is the sole temporary device defined.
- Reconfiguring a device designated as an independent shared device.

The reconfiguration sequence is as follows:

1. Request reconfiguration of the mass storage device defined by EST ordinal eq by entering:

   REDEFINE,eq.

   The message REQUEST*K*DISPLAY appears at the appropriate control point on the job status (B) display. Reentry of the REDEFINE command can be done as many times as there are devices to be reconfigured. Multispindle devices that include two or more units are considered one device.

   If an INITIALIZE command is being processed, the REDEFINE entry is not processed until the initialization is complete.

2. Redefine using the K display (figure II-6-22). Bring the K display to the left console screen by entering:

   K,jsn.

   jsn is the job sequence name of the job requesting the K display.

```
K  jsn

                ****  MASS STORAGE FAILURE RECOVERY  ****

LEGAL PARAMETER DEFINITIONS.

CLEAR           CLEARS IDLE AND SUSPEND ON CURRENT EQUIPMENT.
END             CLEAR ALL DEVICE IDLES, AND END *CONFIG*.
GO              INITIATES PROCESSING OF ENTERED CONFIGURATION.
RERUN           RESTARTS *CONFIG* UTILITY PROCESSING.
RESET           RESETS CURRENT EQUIPMENT TO DEFAULT PARAMETERS.
SUSPEND         SUSPEND ALL SYSTEM OPERATION ON CURRENT EQUIPMENT.
CH=C1,C2        C1 AND OPTIONALLY C2 ARE NEW CHANNELS FOR ACCESS.
EQ=EE           SET EQUIPMENT EE TO BE PROCESSED.
UL=U1,U2 ..UN   SET UNIT LIST AS SPECIFIED.
UR=UU           UNIT UU IS TO BE RECABLED WITH A NEW DRIVE.

CURRENT EQUIPMENT CONFIGURATION.
34.  DJ-1   CH05,07   UL=05  --  --  --  --  --  --  --     ST  =  I - - -

REQUESTED EQUIPMENT CONFIGURATION.
34.  DJ-1   CH05,07   UL=05  --  --  --  --  --  --  --     ST  =  I - - -
            CHANGED UNITS

IDLED EQUIPMENTS
27.  DJ-1   CH26,32   UL=07  --  --  --  --  --  --  --     ST  =  I - - -
```

Figure II-6-22. REDEFINE K Display

The current EST description of the device being reconfigured appears under the header CURRENT EQUIPMENT CONFIGURATION. The EST description of the device as changes are made appears under the heading REQUESTED EQUIPMENT CONFIGURATION. Any devices listed under IDLED EQUIPMENTS are devices that have been previously selected by your REDEFINE command but have yet to be processed in the reconfiguration run.

The K display may not list all relevant devices. If more than one device is listed, they are processed one at a time as they appear in the list with one exception: all shared devices are processed prior to nonshared devices.

You are guided through the reconfiguration process in two ways. First, by a list of commands and parameters shown on the K display under LEGAL PARAMETER DEFINITIONS. These are the only commands and parameters valid at that time. Second, by the system responses and error messages.

3. Enter all the valid parameters (table II-6-8) that define the reconfiguration characteristics for the specified device. Parameters are entered singly followed by CR. Parameters are processed left to right; no terminator is necessary.

   If you enter an incorrect parameter or option (for example, the wrong channel number), the error can be corrected by retyping the correct parameter and option(s).

4. Enter

```
K.GO
```

to initiate the processing of the parameters when all parameters and commands (table II-6-9) have been entered for specific device. This command is entered after each set of parameters to signal the system to go ahead with the reconfiguration you have defined. If more devices remain to be reconfigured, repeat steps 3 and 4.

5. Enter

```
K.END
```

to end a reconfiguration run when there are no more devices to be processed.

Table II-6-8. Reconfiguration Parameters

Parameter	Description
CH=c_1,c_2	Specifies the channel numbers (c_1 and, optionally, c_2) to be used under the new device definition. This parameter is used when the entire device is to be redefined to alternate channel number(s). It can also be used to add or delete channels from an equipment definition. New channels can be added by specifying new channel numbers for a defined equipment. Channels can be deleted by specifying CH=. when deleting a unit. Acceptable values for c_1 and, optionally, c_2 are 0 to 13_8 for systems having 10 or less PPs; 0 to 13_8 and 20_8 to 33_8 for systems having more than 10 PPs. Leading zeros can be omitted.
EQ=eq	Specifies the equipment with EST ordinal eq is to be processed. Enter this parameter when the processing of equipments is order dependent; for example, when a device must first be made available before it can replace a failing device. The system ignores all parameters not processed before you enter the EQ=eq parameter. Parameters entered after EQ=eq refer to the specified equipment until another EQ=eq is entered or a command is entered that causes the next equipment in the list to be selected for processing.
UL=u_1,u_2,...,u_n	Specifies the unit list for the new configuration. When a unit is to be replaced, added, or deleted the entire unit configuration must be entered with this parameter. The equipment must be unloaded (multimainframe mode) or otherwise have an unavailable status if a unit is to be added or deleted. Any number of units can be changed. By specifying UL=. the current unit configuration is deleted. **NOTE** If the unit number specified in the UL= parameter represents a unit which is not defined in the EST, the unit number is accepted without validation. Ensure that the unit number entered represents a valid device.
UR=eq	Specifies that the device with EST ordinal Rev is to be recabled. This parameter is used when a device is to be physically replaced by a new device with the same unit number. More than one device can be specified for recabling at the same time.

Table II-6-9. Reconfiguration Commands

Command	Description
ABORT	Discontinues processing of the current command. It is entered only in response to a detected error condition and is used to initiate error recovery procedures. This command cannot be followed immediately by an END command.
CLEAR	Clears the suspend and redefinition request status for the current equipment. Label and read/write verification of the device is performed. This command should be entered only when no further processing is desired for the current equipment.
END	Terminates reconfiguration processing. The K display parameters are set to the default values as control is returned. This command cannot be entered immediately after an ABORT command.
GO	Initiates processing of specified reconfiguration parameters previously entered.
IGNORE	Informs the system on which the command was entered to ignore processing on this device (multimainframe mode only). This should be entered during an add or delete unit reconfiguration run on the machine(s) within the multimainframe complex which, for control reasons, cannot add to or delete from the specified equipment. Also, you can use this command to ignore an error message pertaining to marginally unacceptable servo timing check which is performed automatically when reconfiguring an 885-11/12 disk drive.
NEXT	Is entered in response to an 885-11/12 disk drive servo timing check that meets requirements. Entry of this command causes processing to continue with the next device or the next step of processing. This command is valid only when reconfiguring 885-11/12 disk drives.
RECHECK	Retries a verification/diagnostic process which previously gave an error. Only the commands RECHECK, ABORT, and IGNORE are accepted by the system when an error message is issued.
RERUN	Sets the parameters to default values and updates the list of equipment to be reconfigured.
RESET	Resets the parameters to default values.
SUSPEND	Causes system processing on the specified device to be suspended indefinitely while the device is in a not ready state. Only diagnostic access to the device is allowed. All other jobs accessing the device will be unable to continue until the device is returned to a ready state. More than one equipment can be suspended at the same time.

You can stop the reconfiguration procedure by entering either the K.ABORT command or the K.CLEAR command (depending on which command is posted in the list of valid commands on the K display). In either case, processing advances to the next device in the list of devices under IDLED EQUIPMENTS.

If the device specified is a shared device in a multimainframe environment and reconfiguration is not desirable on one or more of the mainframes, use the following procedure.

1. Enter

   REDEFINE,eq.

   eq is the EST ordinal of the shared device.

   at the console of each mainframe for which reconfiguration of the shared device is not desired.

2. Enter

   K,jsn.

   jsn is the job sequence name of the job requesting the K display.

3. Enter

   K.IGNORE

   and processing on the shared device in the list is ignored by that mainframe. The machine must wait until the shared device is done with its processing.

4. Enter

   K.END

   to end the reconfiguration.

Enter either the RERUN or RESET command to clear the IGNORE command.

Figure II-6-23 shows the output for a sample reconfiguration run.

```
ORD     TYPE     CHANNELS     UNITS      STATUS

01      DJ-1     CH26,32      UL=06      ST = -----
02      DJ-1     CH26,32      UL=07    * ST = -----
03      DJ-1     CH32         UL=01      ST = -----
04      DJ-1     CH13         UL=02      ST = -----
05      DI-1     CH26         UL=03      ST = -----
06      DI-1     CH32         UL=11      ST = -----
07      DI-1     CH26,32      UL=04      ST = I----
11      DP-1     CH00,30      UL=12      ST = ----
```

Figure II-6-23. Reconfiguration Run Output

The following are examples of reconfiguration of mass storage devices and how their status changes in the EST display.

Example 1, Returning a unit to the system:

Assume the unit of equipment 2, the system's spare disk drive, was used to replace a failing disk drive. Now that the defective unit has been repaired, it is to be returned as the unit of the spare disk drive.

Mass storage configuration before the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
2	DJ-0	00	--	I---

Enter the following commands:

Commands	Description
REDEFINE,2.	
K,jsn.	jsn is the job sequence name of the job requesting the K display.
K.CH=32,26	32 and 26 are the channel numbers to be used by equipment 2.
K.UL=7	7 is the unit number of the device being returned.
K.GO	

The system responds with the message:

```
EQ 2 PROCESSING COMPLETE.
```

To end the reconfiguration, enter:

```
K.END
```

Mass storage configuration after the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
2	DJ-1	32,26	7	----

Example 2, Reconfiguring a failing unit:

Assume equipment 3 and equipment 4 are defined in the EST display. Equipment 3 is a spare unit currently not being used. Equipment 4 has a pack mounted and is the failing device. Before the failing device can be reconfigured, the spare unit must be removed from the EST. The following stipulations apply when deleting a unit from the EST:

- If the equipment is defined in a single mainframe environment or if it is not shared in a multimainframe environment, then having device unavailable status (U status in the E,M display) for that equipment is sufficient.
- If the equipment is shared in an extended memory multimainframe environment, then that equipment must have device unavailable status and be globally unloaded (U and N status in the E,M display) before a reconfiguration can be performed.

Mass storage configuration before the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
3	DJ-1	32	1	I---
4	DJ-1	13	2	----

To perform the reconfiguration, the following commands are used:

Commands	Description
REDEFINE,3.	
REDEFINE,4.	
K,jsn.	jsn is the job sequence name of the job requesting the K display.
K.CH=.	Deletes the channel number(s) assigned to equipment 3 from the EST.
K.UL=.	Deletes the unit number of equipment 3 from the EST.
K.GO	

The system responds with:

```
EQ 3 PROCESSING COMPLETE.
```

Enter the reconfiguration commands for the failing device as follows:

Commands	Description
K.CH=32	32 is the channel number that was assigned to equipment 3.
K.UL=1	1 is the unit number of equipment 3.
K.GO	

The system responds with:

```
SPIN DOWN UNIT 02.  02 is the unit number of equipment 4.
```

After the unit is spun down, the system responds with:

```
MOVE PACK FROM UNIT 02 TO UNIT 01 AND SPIN UP.
```

After the pack is moved and the new unit is spun up, the system responds with:

```
EQ 4 PROCESSING COMPLETE.
```

To end the reconfiguration, enter:

```
K.END
```

Mass storage configuration after the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
3	DJ-0	00	--	----
4	DJ-1	32	1	----

Example 3, Reconfiguring devices across channels:

Units may be reconfigured across channels with the REDEFINE command. Assume that equipment 5 is the failing unit (or possibly the failing channel) and is on channel 26. Equipment 6 is the spare unit on channel 32. The following commands illustrate a reconfiguration across channels:

Mass storage configuration before the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
5	DI-1	26	3	----
6	DI-1	32	11	----

Enter the following commands:

Commands	Description
`REDEFINE,5.`	
`REDEFINE,6.`	
`K,jsn.`	jsn is the job sequence name of the job requesting the K display.
`K.EQ=6`	Selects the spare unit to be processed first.
`K.SUSPEND`	Suspends the spare unit to clear it from the EST.

The system responds with:

```
SYSTEM USAGE OF EQ 6 SUSPENDED.
```

To continue with the reconfiguration on equipment number 5, enter:

K.EQ=5	Selects the failing unit for processing.
K.CH=32	Switches equipment 5 to the channel number of equipment 6.
K.UL=11	Assigns the old unit number of equipment 6 to equipment 5.
K.GO	

The system responds with:

EQ 5 PROCESSING COMPLETE.

Mass storage configuration at this point in example 3.

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
5	DI-1	32	11	I---
6	DI-1	32	11	IS--

All SUSPEND status flags must be cleared before a reconfiguration run can be ended. The system therefore automatically selects equipment 6 again for the next equipment to be processed.

To continue with the reconfiguration, enter:

Commands	Description
K.CH=26	Assigns the old channel number of equipment 5 as the channel number of equipment 6.
K.UL=3	Assigns the old unit number of equipment 5 as the unit number for equipment 6.
K.GO	

The system responds with:

EQ 6 PROCESSING COMPLETE.

To end the reconfiguration, enter:

K.END

Mass storage configuration after the REDEFINE:

EST Ordinal	Equipment Type	Channel Number(s)	Unit Number	Status
5	DI-1	32	11	----
6	DI-1	26	3	----

REMOTE BATCH FACILITY (RBF) K DISPLAY

Whenever RBF is in operation, a display of user connection and activity is available at the operator console through the RBF K display (refer to figure II-6-24).

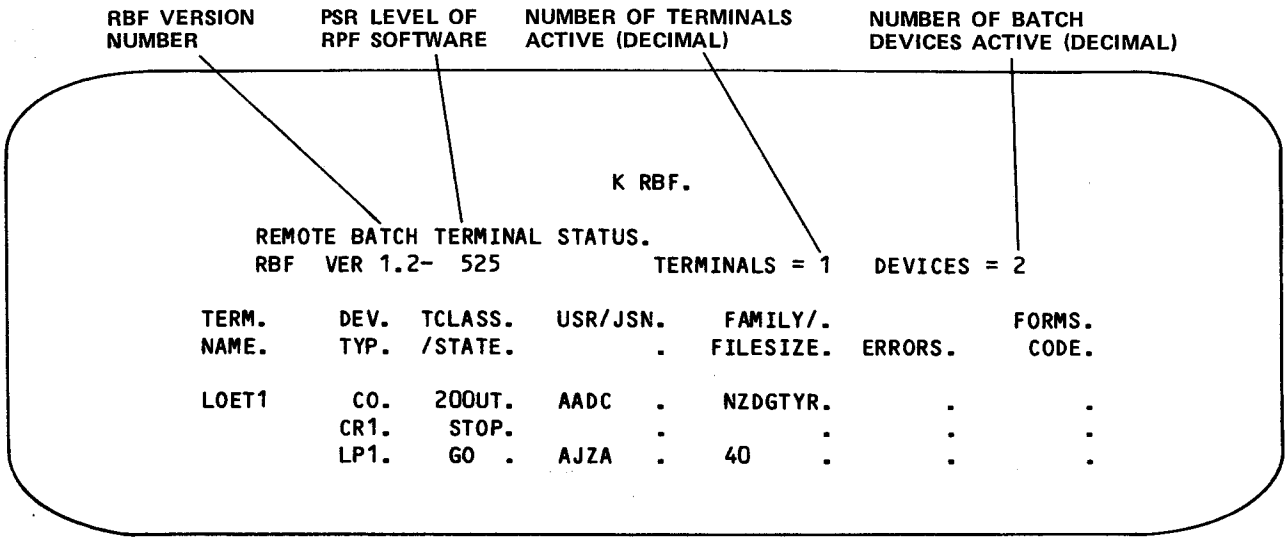


Figure II-6-24. RBF K Display

The use of the RBF K display is an operator option. To begin the RBF K display the operator enters the following:

```
K,RBF.
```

Data on the RBF display is updated at intervals in the main processing loop of RBF to reflect terminals becoming active or inactive.

Terminals are identified by termname, a unique name defined by the site. Terminals are displayed in alphabetical order. There are multiple lines on the K display per terminal; one line for the terminal console, and one line for each batch device (card reader, line printer, card punch, or plotter).

If there are more terminals and devices active than can be displayed on one screen, the message

```
MORE LINES FOLLOW.
```

appears at the lower left corner of the display. Additional screens can be displayed by entering:

```
K.+
```

The use of the K.+ command advances the display page-by-page and end-around from the last page to the first. All screens are displayed in a forward direction. The use of the console input K.- does not move the screen back to the previous display.

Entries in the display have the following format.

```
term   dev   tclass   usr/jsn   family/           forms
name   typ   /state             filesize  errors  code
```

Column Header	Description
term name	Name of the terminal. A unique name, termname, assigned by the installation during network startup. This field is filled only for console devices.
dev typ	Device type. The device type code is one of the following:

Code	Description
CO	Console device.
CPi	Card punch.
CRi	Card reader.
LPi	Line printer.
PLi	Plotter.

The ordinal number, i, of the device has a range of one to seven.

tclass /state — If this field is in the same line as the termname, the contents of the field is the terminal class mnemonic (refer to the Remote Batch Facility Reference Manual). If this field occurs in a line not containing a termname, the device status code is one of the following:

Code	Description
ABRT	File in transmission is to be discarded.
CONN	Device is connected (initial state).
END	Device stops transmission at EOI.
ENDA	File being aborted; device will stop at EOI.
ENDC	End connection.
ENDI	Device will stop at EOI; idle down requested.
GO	Device is ready for input.
NULL	Console is not connected, but RBF devices are. This code appears only when the device type is a console (device type code CO).
PREC	Preconnect status (device connection not complete).
STOP	Device is not ready for transmission of data.
STPA	Device is stopped; current file to be aborted.
STPE	Device is stopped.
STPI	Device is stopped due to idle down request.

Column Header	Description
usr/jsn	If the file transfer is in progress, jsn is displayed in this field. If no file is being transferred, then the user name appears in this field.
family/ filesize	If this field is in the same line as the termname, the content of this field is the family associated with the username. The user index and family combination determine terminal identifier (TID) used by the system for routing jobs. Otherwise, the contents of this field is the size of the output file in PRUs.
errors	Contents of this field, if present, is one of the following error messages:

Message	Description
DISK ERROR	Data has been lost due to an unrecoverable disk failure.
DISK FULL	A disk full indication was received while RBF was attempting to write to disk.
NOT READY	The device the user specified has become not available (for example, line printer out of paper or card jam in card reader).
QUEUE FULL	The system input queue has reached its limit of jobs waiting to begin execution.

forms code	Forms code for output devices as specified by the user and defined by the site.

REMOTE HOST FACILITY (RHF) K DISPLAY

The Remote Host Facility (RHF) links NOS to a loosely coupled network (LCN) providing transfer of permanent files, queued files, and maintenance facilities for the LCN hardware. Each system in an LCN configuration is connected to one or more LCN trunks by network access devices (NADs). Several types of NADs are available, allowing the connection of various types of computer systems to an LCN. Each system has an RHF that provides some or all of the following capabilities.

RHF runs at a control point and contains an operator interface package, control tables, and a network application code, and the PP routines that drive the RHF network hardware.

The following applications are also available as part of RHF:

Application	Description
PTF,PTFS	Permanent file transfer facility (PTF) and permanent file transfer facility servicer (PTFS). PTF and PTFS provide users access to remote permanent files. A local user activates PTF with the MFLINK command (refer to NOS 2 Reference Set Volume 3). When a remote user enters the MFLINK command, RHF activates a PTFS application on the local host to service the remote request.
MLTF	Maintenance log transfer facility (MLTF). MLTF provides maintenance logging capabilities for local and remote mainframe NADs. All local NAD errors are logged to the binary maintenance log (BML). All remote mainframe errors that have error logging enabled (refer to PATH display described later in this section) log errors. This application starts automatically when RHF is initiated.
QTF,QTFS	Queue file transfer facility (QTF) and queue file transfer facility (QTFS). QTF and QTFS allow the user to transfer input and output files to a remote system. When RHF is initiated, the system automatically activates QTF. When a remote host QTF application has a file to transfer, RHF initiates QTFS on the local host to service the remote request.

After initiation, both QTF and MLTF periodically roll in to check for files to transfer or to log NAD errors. You can change the time interval between periodic executions of either QTF or MLTF. For information on changing this time interval, refer to the NOS 2 Installation Handbook.

The next sections describe the initiation, operation, control, and termination of the NOS Remote Host Facility (RHF).

RHF INITIATION

Before network operation can begin, you must initiate RHF using RHFffff command (refer to section 3).

When RHF is initiated, RHF generates jobs for loading NAD controlware for all local NADs that are defined in RHF's configuration and have an EST status of ON.

When RHF is initiated, it starts all enabled applications defined by the network configuration as autostart applications (refer to RHF Configuration File Generation in the NOS 2 Installation Handbook). These applications are typically QTF and MLTF.

OPERATOR INTERFACE

The operator interface for RHF consists of using the following displays.

Display	Description
Application Table	Lists all active applications.
Network ID Table	Lists the logical and physical identifiers of the remote host.
Network Path Status	Shows how the remote host is connected to the local host.

An example of each display is shown later in this section. To understand how to use the information provided in the displays it is helpful to understand the sample LCN network described in figure II-6-25.

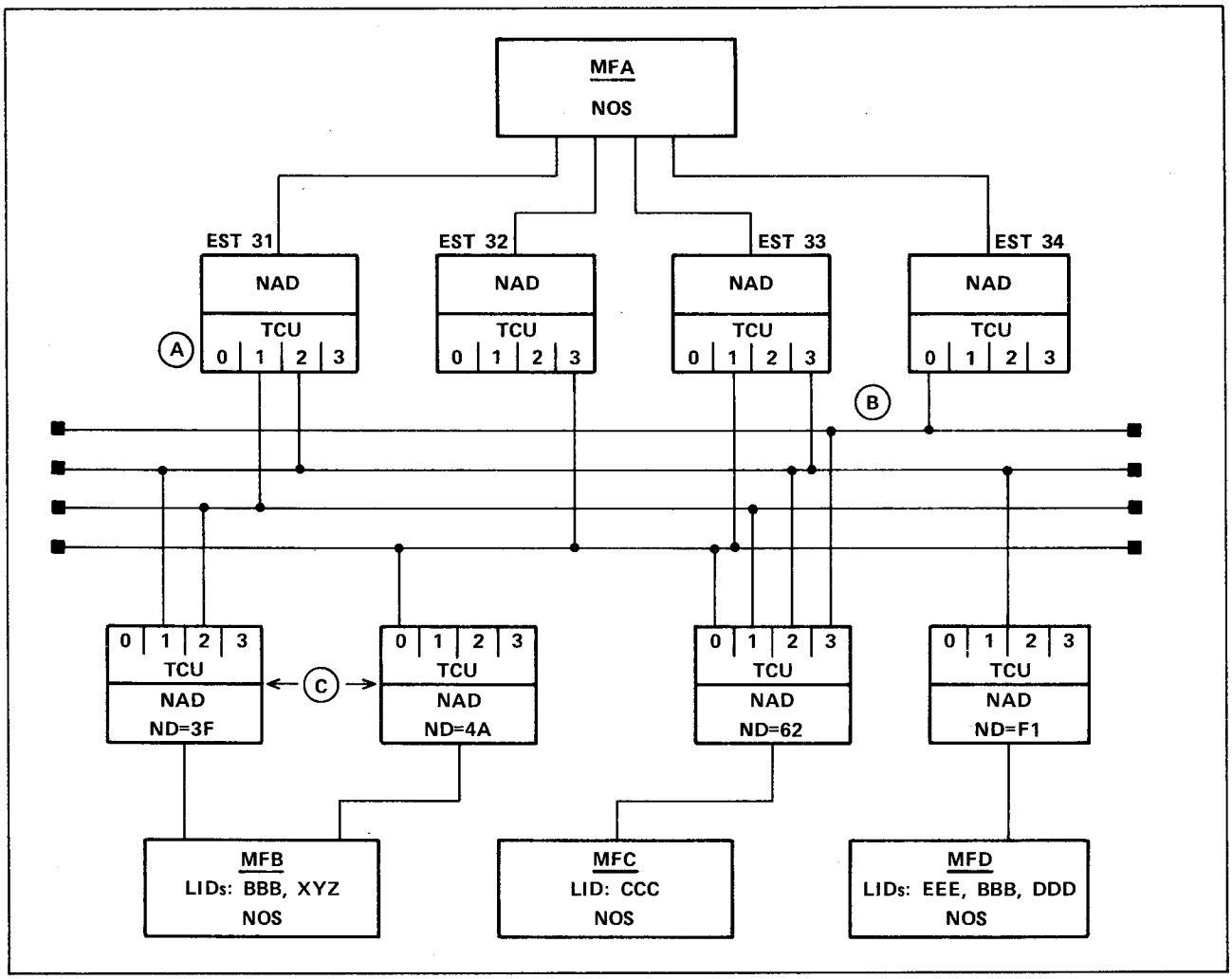


Figure II-6-25. Sample LCN Network

MFA is the local NOS host and MFB, MFC and MFD are the remote NOS hosts. MFA has four EST ordinals set up during installation (EST 31, 32, 33, and 34) to be used with the three remote hosts. Each NAD can connect to a maximum of four channels which can be used to communicate with NADs. These trunk control units (TCUs) are represented by the numbers 0, 1, 2, and 3 in the diagram (refer to A in the figure II-6-25).

The horizontal lines between the NADs of the local mainframe (MFA) and the NADs of the remote mainframe (MFB, MFC, and MFD) depict the connections between the NADs. For example, the top horizontal line shows the connections between the channels starting at TCU 0 of the local host and TCU 3 of the remote host (refer to B in figure II-6-25).

Also during the installation process each remote NAD is given a remote NAD address to uniquely identify that particular NAD. For example, the remote host MFB has two NADs associated with it. Their remote NAD addresses are 3F and 4A (refer to C in figure II-6-25).

RHF Commands Under K Display

Use the RHF K display to communicate with RHF. Bring up this display with the following DSD command:

```
K,RHF.
```

The following commands are available under RHF the K display:

Command	Function
APPL	Displays the application table (figure II-6-26).
ID	Displays the network identification table (figure II-6-27).
IDLE	Begins the idle down process of RHF and all its associated applications.
PATH	Displays the network path status (figure II-6-28).
ord,ND=rna,AC=rnac, DD=dd,RT=rteb, LT=lteb,LOG=status	Modify entries associated with path ordinal ord.
+	Pages the current display forward.
-	Pages the current display backward.

Application Table Display

The application table (figure II-6-26) lists all active applications.

ORD	APPL	ENABLED	MAX COPIES	ACTIVE COPIES	MAX CONNECTS
1	QTF	YES	1	1	4
2	QTFS	YES	4	3	1
3	PTF	YES	4	0	1
4	PTFS	YES	4	0	1
5	USRAP†	YES	1	1	6
6	MLTF	YES	1	0	0

ACTIVE APPLICATIONS (NETON PERFORMED)

JOB NAME	JOBORD	CONNECTS	JOB NAME	JOBORD	CONNECTS
ABCA	26	3	AARM	22	1
AAQT	31	1	ACAL	33	2
ACXQ	24	0			

†USRAP represents an application written by the site.

Figure II-6-26. Application Table Display

Each entry in the display appears in the following format.

```
ord   appl   enabled   maxcopies   activecopies   maxconnects
jobname   jobord   connects
```

ord	Path display ordinal.
appl	Name of the application.
enabled	Specifies whether the application communicates with RHF.
maxcopies	Maximum number of copies of the application that are simultaneously communicating with RHF.
activecopies	Number of copies that are currently connecting with RHF.
maxconnects	Maximum number of network connections allowed by each copy of the application.
jobname	Job sequence name of the application.
jobord	Excecuting job table ordinal of application.
connects	Number of network connections currently used by this copy.

Network Identification Table Display

The network identification table (figure II-6-27) lists the logical and physical identifiers of remote host.

ORD	PID	LID	ENABLED	MFTYPE
1	MFB	---	YES	NOS V2
2		BBB	YES	NOS V2
3		XYZ	YES	NOS V2
4	MFC	---	YES	NOS V2
5		CCC	YES	NOS V2
6	MFD	---	NO	NOS V2
7		DDD	NO	NOS V2
8		EEE	NO	NOS V2
9		BBB	YES	NOS V2

Figure II-6-27. Network Identification Table Display (on Mainframe MFA)

Each entry in the display appears in the following format.

ord pid lid enabled mftype

ord	Path display ordinal.
pid	Physical identifier of the remote mainframe.
lid	Logical identifier of the remote mainframe.
enabled	Specifies whether a connection is established using the remote pid/lid.
mftype	Type of mainframe. This field is for information only.

Network Path Status Display

The network path display (figure II-6-28) shows how the remote hosts are connected to the local host.

ORD	PID	EST	CH	ENABLED	LOCAL† TRUNK ENABLES	REMOTE† TRUNK ENABLES	REMOTE† NAD ADDR	DEST	ACCESS CODE	CON COUNT	LOG ERRS
1	MFB	31	6	YES	0110	0110	3F	0	F0F0	2	NO
2		32	7	YES	0001	1000	4A	0	F0F0	1	NO
3		33	10	NO	0001	0100	3F	0	F0F0	0	NO
4		33	10	YES	0100	1000	4A	0	F0F0	0	NO
5	MFC	31	6	NO	0110	0110	62	0	F0F0	0	NO
6		32	7	NO	0001	1000	62	0	F0F0	0	NO
7		33	10	YES	0101	1010	62	0	F0F0	2	NO
8		34	11	YES	1000	0001	62	0	F0F0	0	NO
9	MFD	31	6	YES	0010	0010	F1	0	F0F0	0	NO
10		33	10	YES	0001	0010	F1	0	F0F0	0	NO

†A one signifies that a TCU is enabled. A zero signifies that a TCU is not enabled. The leftmost digit of these entries corresponds with TCU 0, the next with TCU 1 and so forth. For example, if a NAD has TCUs 1 and 2 enabled, the corresponding entry should be 0110. Refer to figure II-6-25.

Figure II-6-28. Path Display

Each entry in the display appears in the following format.

```
ord  pid  est  ch  enabled local    remote   remote  dest  access  con    log
                     trunk   trunk    nad             code    count  errs
                     enables enables  addr
```

ord — Path display ordinal.

pid — Physical identifier of the mainframe to which the path is defined.

est — EST ordinal of the NAD that defines the local end of the path.

ch — Channel number of the NAD that defines the local end of the path.

enabled — Specifies whether RHF uses the path for starting new connections. For example, if a customer engineer wants to run diagnostics on a trunk connecting two NADs (local and remote), you would disable the appropriate path. When the connection count on that path falls to zero, the customer engineer can run concurrent diagnostics on that trunk without disturbing the operation of RHF.

local trunk enables — Bit pattern specifying which TCUs to use on the local NAD for communication with the remote NAD.

remote trunk enables	Bit pattern specifying which TCUs the remote NAD uses in returning communication to the local NAD.
remote nad addr	Hardware address (hexadecimal) of the remote NAD.
dest	Destination device address (hexadecimal).
access code	Access code of the remote NAD; the software access code is the first two characters and the hardware access code is the last two characters.
con count	Number of connections currently using this path.
log errs	Specifies whether the MLTF application logs trunk errors that are detected by the remote NAD in the binary maintenance log (BML).

When the path table is displayed you can enter the following command.

ord,ND=rna,AC=rnac,DD=dd,RT=rteb,LT=lteb,LOG=status.

ord	Path ordinal.
rna	New remote NAD hexadecimal address.
rnac	New remote NAD hexadecimal access code.
dd	New remote NAD destination device in hexadecimal.
rteb	New remote trunk enable bit pattern (nonzero 4-bit binary number with left-most bit representing TCU 0).
lteb	New local trunk enable bit pattern (nonzero 4-bit binary number with left-most bit representing TCU 0). The same number of bits must be set for both RT and LT or the command will be rejected.
status	Status of error logging for the remote NAD on path nn. Enter YES to have MLTF periodically copy the trunk errors occurring on the specified remote NAD to the binary maintenance log (BML). MLTF does not copy trunk errors when you enter NO.

ord is the only required parameter and it must come first. All other parameters are optional and can appear in any order, but at least one, besides ord, must be present.

NOTE

Any change to rna, dd, or status for a given path results in an equivalent change for all paths using that remote NAD. This is because rna, dd, and status are associated with the remote NAD rather than the path to the remote NAD.

When RHF determines a NAD or a NAD trunk control unit (TCU) on a path is bad it turns off the NAD or path and notifies you with a message on the B display. It displays either

```
RHF,NAD ON EST xx HAS BEEN TURNED OFF.
                or
RHF,BAD TCU ON PATH xxx, PATH TURNED OFF.
```

RHF Commands Available Under Application Path or Network Identification Display

When the application table, network identification table, or network path status table is displayed, you can enter the following commands to enable or disable the application, network identification, or network path.

```
ENABLE,ord.
    or
DISABLE,ord.
```

ord Ordinal of the application, network identification, or network path on the current display.

For example, if the application table display is up, ENABLE,ord enables the application specified by EST ordinal ord.

If an application is being enabled (whether currently enabled or disabled) and that application is defined as an autostart application, RHF initiates a copy of that application. This feature may be used, for example, if MLTF is normally disabled and you want to start logging NAD errors. It may also be used if the copy of QTF has been accidentally dropped and a new copy of QTF must be started.

RHF TERMINATION

You can terminate RHF operation using the IDLE command.

The command format is:

```
IDLE.
```

When you enter IDLE the system waits for applications to stop, the message IDLE-DOWN IN PROGRESS appears on the status display. When activity stops, the system drops RHF and message RHF ENDED appears. The IDLE command allows a gradual shutdown of RHF activities. No new connections are allowed.

QTF K DISPLAY

The following procedure describes K display usage for QTF operations under DSD control.

1. When RHF is initiated, QTF is automatically reinitiated. If QTF is no longer running and must be restarted, bring up the RHF Application display (described earlier in this section) and type

   ```
   ENABLE,ord.
   ```

   ord is the QTF ordinal in the application display.

   This starts a new copy of QTF.

2. Examine the DSD job Status (B) display. When QTF is scheduled to a control point, it is indicated on the B display. The message:

   ```
   REQUEST *K* DISPLAY
   ```

   appears on the B display.

3. Activate the K display for that control point by typing

   ```
   K,jsn
   ```

   jsn is the QTF job sequence name.

   The K display for QTF (figure II-6-29) appears on the left console screen.

```
                    K jsn

* QUEUE FILE TRANSFER FACILITY *

NUMBER OF FILES TRANSFERRED XXXX

ACTIVE TRANSFERS

FILE NAME       LID       PID       DC

ABCD            LD9       M90       LP
ABCG            LD1       M90       IN
ACCC            LD1       M90       PU
ADBA            LD9       M90       SB
```

Figure II-6-29. QTF K Display

Each entry in the QTF K display has the following form.

```
filename   lid   pid   dc
```

filename	Name of the file
lid	Logical identifier
pid	Physical identifier
dc	Disposition code

TRANSACTION FACILITY (TAF) K DISPLAYS

The following commands control operation of the TAF subsystem. Initiate TAF by using the TAFffff. command before issuing these commands.

INITIALIZATION K DISPLAY

When the transaction executive is brought to a control point, the message REQUEST *K* DISPLAY appears at the control point if a DISPLAY,ON command is specified in the TAF configuration file. Respond with the entry:

```
K,TAF.
```

Any of the following initialization options can then be entered. If no values are to be changed, enter the command:

```
K.END.
```

Values are decimal unless otherwise indicated.

K.CMB=n.

Changes the maximum number of communication blocks (7 to 40) allowed to the subsystem. Default = 40.

K.ECS=n.

Sets the extended memory field length to be used by the transaction executive; n is octal thousands of words. Default = 0.

K.END.

Ends input of the transaction executive initialization parameters. Initialization is completed when the normal running display appears.

K.ERO=CRF,op.

Specifies whether to override certain I/O and logic errors when processing the communication recovery files (CRF).

op	Description
NO	Aborts if I/O or logic errors are encountered while processing the communication recovery files. This is the default setting.
YES	I/O or logic errors encountered on a run unit header record result in the loss of that run unit with no indication to the terminal user. The loss is noted on the recovery report. I/O or logic errors encountered on a message record within a run unit result in a loss of that run unit. A status field is set in the run unit header allowing TAF to inform the terminal user of the run unit loss. I/O or logic errors encountered on the CRF header record result in an unconditional abort of TAF.

K.GO.

Ends input of the transaction executive initialization parameters. Initialization is complete when the normal running display appears.

K.INT=typ,fileid.

Specifies which communication recovery files (CRF) are to be initialized. This is the only way to initialize a CRF. Files specified on a RECOVER command in the TAF configuration file and specified in this command are initialized. Files specified on a RECOVER command but not specified in this command are used for recovery.

This command also specifies whether CYBER record manager (CRM) data base recovery files are initialized or recovered. For CRM recovery files, this command is valid regardless of TAF assembly options.

typ	Description
CRF	Communication recovery files. This option is valid only if the installation parameter IPTAR equals one.
CRM	CYBER record manager files.

fileid	Description
1 to 7	Each digit defines a CRF to be digits initialized. The digit corresponds to the ID parameter on the RECOVER command in the TAF configuration file. This option is not valid for CRM files.
ALL	When typ is CRF, all CRF defined by RECOVER commands in the TAF configuration file are initialized. When typ is CRM, all CRM recovery files are initialized.

CAUTION

This option must be used with caution when typ is CRM since the CRM update history currently on the long recovery files is lost.

NONE	If typ is CRF, communication recovery files are initialized; all communication recovery files specified in RECOVER commands in the TAF configuration file are recovered. If typ is CRM, all CRM data bases are recovered based on information in the existing recovery files. No CRM recovery files are initialized. This fileid is the default for both typ=CRF and typ=CRM.

K.MFL=n.

Sets the maximum field length (40 000 to 376 600) to be used by the transaction executive. Default = 376 600.

K.REC=a.

Specifies the setting of the recovery bit in the user area of each terminal status table entry (YES or NO). If YES, the user recovery bit is set. If NO, the value of the user recovery bit is not changed from what it was before the command was issued. Default = NO.

K.SCP=n.

Changes number of subcontrol points (2 to 31). Default = 31.

K.STOP.

Aborts TAF initialization unconditionally.

K.TLF=a.

Changes the name of the system task library file (any legal file name). Default = TASKLIB.

RESTART K DISPLAY

On level 3 recovery deadstarts, or if TAF aborts, the TAF procedure file automatically restarts TAF by transferring control to the TAF automatic recovery program. The TAF automatic recovery program recovers the central memory pointers and variables defined during TAF initiation.

If a DISPLAY,ON command is in the TAF configuration file, the automatic recovery program brings up the restart K display on the left console screen. This display is identical to the initial K display, except that values specified in the TAF initiation replace any default values that were in the initial display.

NORMAL RUNNING K DISPLAY

When the transaction subsystem is executing, the console K display indicates:

- Latest transaction sequence number.
- Number of words of unused memory.
- Maximum field length.
- Global task dump limit.
- Subsystem default values for memory dump arguments.

The K display appears on the system console as shown in figure II-6-30.

The subsystem default values are used to control memory dumps when explicit arguments are not included in the CMDUMP or DSDUMP command. Any of these default arguments can be changed by specifying the corresponding argument in the K.DSDUMP command.

The default values for CMDUMP and DSDUMP are given on the display. The parameters are:

```
TRANSACTION EXECUTIVE STATUS DISPLAY

   SEQUENCE NUMBER              1

   UNUSED FL   3000

   MAXIMUM FL  377700

   GLOBAL TASK DUMP LIMIT       0

   FW= 0       LW= 100000       EP= 1
   OQ= BC      QD= USER123      DB= 0
```

Figure II-6-30. Normal Running K Display

Parameter	Description
DB	Data base option: If DB=1, all data base file buffers held by this user are dumped. If DB=0, no buffers are dumped.
EP	Exchange package: 0 or 1 (1 indicates that the exchange package is to be dumped).
FW	First word address of task memory to be dumped.

Parameter	Description
LW	Last word address of task memory to be dumped.
OQ	Output queue: BC Local batch. RB Remote batch. PF Permanent file.
QD	Queue destination: User number (if OQ=BC). Equipment identification (if OQ=EI). Permanent file name (if OQ=PF).

RUN TIME K DISPLAY COMMANDS

When the transaction executive is at its control point, the following commands can be entered from the system console or submitted from tasks via the KPOINT request. Any task can issue the K.DUMP command. Only tasks that reside on the system task library can issue the other K display commands. (Refer to the TAF Reference Manual for additional information on the KPOINT request and the system task library.)

K.ASSIGN,eq.
K.ASSIGN,eq,db,n.

Assigns a magnetic tape unit to be used for a journal file. eq is the EST ordinal of the tape unit. The first form of the command makes unit eq available for the transaction executive to assign to the next tape journal file that encounters end of reel. Two tape units may be preassigned. If a tape has not been preassigned in this manner, an end of reel on a journal file causes subsequent entries for that file to be placed on disk.

The second form of the command forces journal file n (n=1, 2, or 3) for data base db, defined as a tape file, from disk to tape. The transaction executive copies the data from the disk journal file to tape eq and places all subsequent entries for that file on the tape. This command is necessary after the transaction executive initialization to assign tape units to the tape journal files or after an end of reel on a tape journal file when no tape had been preassigned to the transaction executive. All data residing on the disk for the tape journal file must be able to fit on the tape assigned by this command or else the transaction executive unloads the tape and issues the message *UNABLE TO USE TAPE*.

K.DEBUG.

Turns on the application interface program (AIP) debug option which logs all messages on trace file ZZZZZDN. Use this command only when TAFNAM is installed with the DEBUG option.

K.DROP,n.

Drops an executing task at subcontrol point n.

K.DSDUMP,FW=addr,LW=addr,EP=pkg,OQ=outq,
QD=qdest,DB=ob.

Allows you to modify the standard system default parameters controlling memory dumps. The command does not directly cause a dump. Rather, it sets default values to be used when a subsequent CMDUMP request is received or when abort conditions occur. Refer to the description of the normal running K display for explanations of the parameters.

K.DUMP,fwa,lwa.

Dumps all or part of the field length of the transaction facility from the first word address (fwa) to the last word address (lwa) of the area to be dumped. Default value for fwa is 0 and for lwa is 377 777$_8$. The default base is octal. If no parameters are specified, the entire field length is dumped. The output is routed to a printer that has an ID of zero.

Unlike other K display commands, the K.DUMP command can be issued from any task. Other K display commands can be issued by tasks only if they are on the system task library (refer to the TAF Reference Manual).

Since secure information may be contained in a dump of the transaction facility, the following safeguards have been taken to protect dumped information; however, the installation must take the ultimate responsibility for the protection of dumped information.

- The global task dump limit (GTDL) can be set by the K.DUMPLIM command to limit the number of times the K.DUMP command can be issued from tasks. The initial value of the GTDL is zero, so the K.DUMP command is disabled from use by a task by default. (Refer to the K.DUMPLIM command in this section.)

- For all dumps of the transaction facility, whether you initiated it or a task did, a one-page header precedes the dump. This header page indicates the output is secure and should be given only to the TAF central site systems analyst.

- When the transaction facility is dumped, the message TAF FIELD LENGTH DUMP RELEASED is issued to the system dayfile, the transaction facility dayfile, and line one of the control point.

K.DUMPLIM,n.

Sets GTDL to value n. If n is not specified, the GTDL is set to zero. The range for n is 0 through 9 999 999. The default base is decimal.

The GTDL is the number of times the K.DUMP command can be issued from tasks. This value is displayed on the normal running K display shown in figure II-6-30. The initial value of the GTDL is zero. When the GTDL is zero, no dumps of the transaction facility can occur from tasks. Thus, the K.DUMP command is disabled from tasks by default.

To enable the K.DUMP command for tasks, issue the K.DUMPLIM command to set the GTDL to a value greater than zero. Each time a task issues a K.DUMP command, the GTDL is decreased by one until it equals zero. When the first K.DUMP command is issued from a task with the GTDL equal to zero, the message

GLOBAL TASK DUMP LIMIT EXHAUSTED

is issued to the transaction facility dayfile, the system dayfile, and line one of the control point. Also, the message

DUMPS LOST

is displayed on the K display in place of the value of the GTDL. This message remains until the value of GTDL is set to a value greater than or equal to zero. The K.DUMPLIM command should be used with care in system tasks, since this might allow unauthorized users to alter the GTDL.

K.IDLE.

Idles down the transaction control point. Once idle down has been initiated, no new transactions will be permitted but currently executing transactions will be allowed to finish.

K.SEND,db,n.

Forces end-of-reel processing (writes EOI and rewinds file) on tape journal file n of data base db. If n is not a tape journal file, the command is ignored.

K.MAXFL,n.

Alters the transaction executive maximum field length. The transaction executive does not attempt to obtain more than n words of storage. This command is rejected if the value for n is more than 376 600_8 or less than the field length currently required for TAF.

K.MESSAGE,TN=b.
message.

Directs the transaction executive to send message to a terminal specified by terminal name b.

K.NODEBUG.

Turns off the application interface program (AIP) debug option which logs all messages on trace file ZZZZZDN. Use this command only when TAFNAM is installed with the DEBUG option.

K.OFFTASK,a,db.

Disables the use of task a, where a is the task name in the data base db task library directory (dbTASKL). The data base name db is not specified for tasks in the system task library.

K.ONTASK.a,db.

Reverses the effect of a previous OFFTASK for the specified task a in the data base db task library directory (dbTASKL). The data base name db is not specified for tasks in the system task library (TASKLIB).

K.SWITCH.

Causes the console K display to change to a display listing all allowable console commands. When K.SWITCH is entered a second time, the normal display returns. This command activates task KDIS and forces TAF to remain rolled in.

K.TST,TN=a,DB=db,U=nnnn,UL=mmmm,NN=b.

Changes entries in the terminal status table for terminal a. The following entries can be changed: data base name db, user area upper 12 bits (nnnn), user area lower 12 bits (mmmm), and new terminal name b. The changes do not affect the network and simulation files. Do not use this command if the terminal is logged in.

TAF/CRM STATUS K DISPLAYS

You can monitor the status of CRM, CRM data bases, or CRM data base permanent files while TAF/CRM is running using the K display if CRMTASK is present on the system task library. To get the CRM status K display enter

```
K.DIS,CRMTASK.
```

After the K display is assigned to the task, the display in figure II-6-31 is brought to the left screen.

```
                    CRMTASK

                AVAILABLE COMMANDS...

            K.CRMSTAT.
            K.CRMSTAT,DB.
            K.CRMSTAT,DBPFNXX.
            K.DBUP,DB.
            K.DBUP,DBPFNXX.
            K.DBDOWN,DB.
            K.DBDOWN,DBPFNXX.
            K.END.
```

Figure II-6-31. K.DIS,CRMTASK. or K.MENU K Display

The first commands allow you to check on the status of all CRM data bases (K.CRMSTAT.), a specific data base (K.CRMSTAT,DB.), or a specific data base permanent file (K.CRMSTAT,DBPFNXX.). The associated K displays are illustrated in figures II-6-32, II-6-33, and II-6-34.

```
                    **  CRM STATUS  **

            nnn TRANSACTIONS IN INPUT QUEUE.
             nn ACTIVE TRANSACTIONS.
            nnn TRANSACTIONS IN OUTPUT QUEUE.


                        CRM DATA BASES

DB  STATUS      DB  STATUS      DB  STATUS

AA   UP         BB   IDEL       CC   DOWN
DD   DOWN       EE   DOWN       FF   UP
GG   UP



VALID COMMANDS ARE -

CRMSTAT.  CRMSTAT,DB.  CRMSTAT,DBPFN.  END. +. -.
DBUP,DB.  DBUP,DBPFN.  DBDOWN,DB.  DBDOWN,DBPFN.
```

Figure II-6-32. K.CRMSTAT. Command K Display

```
                **  CRM DATA BASE STATUS  **

DATA BASE = db                  DATA BASE STATUS = UP
AFTER IMAGE FILE = arfname      PRU-S REMAINING = nnn

              BEFORE IMAGE FILES AND STATUSES

ZZAAB01-U ZZAAB02-U ZZAAB03-U ZZAAB04-D ZZAAB05-U
ZZAAB06-U ZZAAB07-D

   FILE     STATUS  FILE     STATUS  FILE     STATUS
   AAPFN01  UP      AAPFN02  DOWN    AAPFN03  DOWN
   AAPFN04  IDLE    AAPFN05  UP      AAPFN06  UP
   AAPFN07  UP



   VALID COMMANDS ARE -

   CRMSTAT.  CRMSTAT,DB.  CRMSTAT,DBPFN.  END. +. -.
   DBUP,DB.  DBUP,DBPFN.  DBDOWN,DB.  DBDOWN,DBPFN.
```

Figure II-6-33. K.CRMSTAT,DB. Command K Display

```
                    **  CRM FILE STATUS  **

                  FILE NAME = AAPFN01
                  FILE STATUS = UP
                  RECOVERABLE = YES

                  PACK NAME = PACKNAM
                  DEVICE TYPE = DJ3
                  ATTACH MODE = RM

                  SIZE OF PRIMARY KEY = 80
                  NUMBER OF ALTERNATE KEYS = 3

                  ACTIVE USERS = 4
                  ACTIVE LOCKS = 8


            VALID COMMANDS ARE -

            CRMSTAT.  CRMSTAT,DB.  CRMSTAT,DBPFN.  END.
            DBUP,DB.  DBUP,DBPFN.  DBDOWN,DB.  DBDOWN,DBPFN.
```

Figure II-6-34. K.CRMSTAT,DBPFN. Command K Display

For the K.CRMSTAT. AND K.CRMSTAT,DB. displays, if all the information does not fit on one screen, you can bring up additional pages by entering the following.

```
K.+.
```

To return to the first page of the display the following command is entered.

```
K.-.
```

The next four commands allow you to bring up or bring down a CRM data base (K.DBUP,DB., K.DBDOWN,DB.) or a data base permanent file (K.DBUP,DBPFN., K.DBDOWN,DBPFN.). The K display for these commands is illustrated in figure II-6-35.

```
                              CRMTASK


            VALID COMMANDS ARE -

            CRMSTAT.  CRMSTAT,DB.  CRMSTAT,DBPFN.  END.
            DBUP,DB.  DBUP,DBPFN.  DBDOWN,DB.  DBDOWN,DBPFN.

            REQUEST COMPLETE.
```

Figure II-6-35. K.DBUP or K.DBDOWN. K Display

At any time you can return to the initial CRMTASK K display (figure II-6-31) by entering the following.

```
K.MENU.
```

To end CRM K display processing, enter the following.

```
K.END.
```

TAF/CRM STATUS K DISPLAY COMMANDS

The following commands are used to monitor the status of all CRM data bases, a specific data base, or a specific file in a CRM data base.

```
K.CRMSTAT.
    or
K.CRMSTAT,db.
    or
K.CRMSTAT,dbpfnam.
```

Brings up the CRM status K display (figure II-6-32, II-6-33, or II-6-34) on the left console screen. This display shows the status of all CRM data bases (the first form of the command), the status of the specific CRM data base with identifier db (the second form of the command), or the status of the specific permanent file in a CRM data base with identifier dbpfnam (the third form of the command).

```
K.DBDOWN,db.
    or
K.DBDOWN,dbpfnam.
```

Makes a specific CRM data base with identifier db (first form of the command) unavailable for processing, or makes a specific file in a CRM data base with file identifier dbpfnam (second form of the command) unavailable for processing.

```
K.DBUP,db.
    or
K.DBUP,dbpfnam.
```

Makes a specific CRM data base with identifier db (first form of the command) available for processing, or makes a specific file in a CRM data base with file identifier dbpfnam (second form of the command) available for processing.

L DISPLAY 7

This section documents the following four L displays and the utilities used to present them.

Utility	Description
FOTD	Displays family ordinal table.
LIDOU	Displays LID table.
QDSPLAY	Displays the contents of a file in the queued file table (QFT).
SUBSYST	Displays subsystem information.

The L display is like the existing K display. The operator must start the program by typing the name of the utility. When the L display is ready for use, DSD assigns it to the left screen automatically. Only one L display program is active at a time. The program need not occupy a control point or memory while the operator is looking at the display.

Using the L display you can run any utility program you have created. The L display is an interface between your program and DSD. This interface allows the site analyst to write CPU programs, that show displays on the system console.

All entries must be prefixed by L period (L.). However, when pressing CR after the first entry, everything but the L. is erased. This allows another command to be entered without entering L. first. All examples in this section show L. although you may not have to type it. If it becomes necessary to enter a DSD command during parameter entry, simply press BKSP to erase the L., enter the command, and then continue by typing L. and the entry.

After you call a specific utility, the first command is entered in the following format.

L.commandstring.

commandstring is any input (command, data, or parameter) that is defined by the job as valid input.

You can execute your own L display utility by entering the following command

LDISopt.

opt The last three characters of the utility called LDIS.

FOTD L DISPLAY

The FOTD L display utility displays all the family names known to the system and the corresponding family ordinal. To begin the FOTD utility enter one of the following commands.

```
FOTD,L=outfile,LO=option.
      or
FOTD,outfile,option.
```

outfile — Output file name. This parameter is valid only if a list option is specified. The default outfile is file OUTPUT.

option — List option. Enter one or more of the following.

- D — Format the data for the DSD L display. This is the default list option if the parameters outfile and option are not specified.
- L — Format the data for a line printer.

If you do not specify outfile and option, the data is written to the L display buffer once and the utility then ends.

Figure II-7-1 illustrates the FOTD L display.

```
                                    L

          FAMILY ORDINAL TABLE.          AVAILABLE ENTRIES=  67B.

     ORD.       FM          ORD.          FM          ORD.    FM

     1      SYST72 .        2       SYS172 .        3       WBC    .
     4      AFAMILY.        5       BFAM   .        6       CFAM   .
     7      DFAM   .       10       EFAM   .
```

Figure II-7-1. FOTD L Display

The first line of the FOTD L display contains the table name and the octal number of FOT entries that remain available for assignment. Each entry has the following form.

ord family

ord — **Family ordinal.**

family — **Family name.**

LIDOU L DISPLAY

The LIDOU L utility displays the destination of the logical identifiers listed in the LID table and allows you to add, delete, or modify entries in the LID table.

To bring up the LIDOU display to the left screen, type:

```
LIDOU
```

and press CR.

The typical initial LIDOU L display shown in figure II-7-2 is automatically displayed on the left screen.

```
                                        L

LIDOU     -     LOGICAL     IDENTIFIER     OPERATOR     UTILITY.
L.END                     TERMINATES THE UTILITY.
L.OUT                     ROUTES A LISTING OF THE LID TABLE.
L.+                       PAGES THE L - DISPLAY FORWARD.
L.-                       PAGES THE L - DISPLAY BACKWARDS.
L.SA,XXX,YYYY             ADDS, DELETES, OR ALTERS ATTRIBUTES - YYYY - FOR LID - XXX-.
H - HOST                  LIDS WITH AN -H- ATTRIBUTE MUST
L - LINKED                ALSO HAVE A -V- ATTRIBUTE.
D - DISABLED              NULL ATTRIBUTES ON AN -SA- COMMAND
V - VALIDATE              DELETES THE LID FROM THE TABLE.

   LOGICAL IDENTIFIER TABLE      PAGE 1      82/12/19.  15. 25. 00
LID   AT   LID   AT   LID   AT   LID   AT   LID   AT   LID   AT
M64   H--V  LBK   HL-V  L01   -L--  L02   H--V  L03   -L--  L04   -L--
M06   -L--  M42   -L-V  MFF   -L--  ADB   -L--  C2C   -L--  501   -L--
M10   -L--  IBM   -L--  158   -L--
```

Figure II-7-2. LIDOU L Display

Valid LIDOU commands are:

Command	Description
L.END	The END command terminates the utility.
L.OUT	The OUT command routes a listing of the logical identifier table.
L.+	The + command pages the L display forward.
L.-	The - command pages the L display backwards.
L.SA,xxx,yyyy	The SA command adds, deletes, or alters the attributes yyyy for LID xxx.

The following attributes can be specified.

Attributes	Description
H (Host)	Specifies the host lid.
L (Linked)	Indicates that the lid is linked to the mainframe.
D (Disabled)	Indicates that the lid is disabled.
V (Validate)	Indicates that the lid is validated.

The lids with an H attribute must also have a V attribute. If no attributes are specified on the SA command, that lid is deleted from the table.

QDSPLAY L DISPLAY

The DSD utility QDSPLAY displays the content of a queued file listed in the queued file table (QFT).

To bring the QDSPLAY L display to the left console screen, type

```
QDSPLAY,jsn.
```

and press CR. jsn is the job sequence name of the queued file you want to examine. The initial QDSPLAY L display shown in figure II-7-3 is presented on the left screen.

```
                                    L


  QDSPLAY. JSN = AARG. QFT = 0013. STATUS =     .

THE FOLLOWING ARE VALID QUEUE DISPLAY COMMANDS -

COMMAND                          FUNCTION

L.HELP.       LIST L DISPLAY COMMANDS FOR QDSPLAY UTILITY.
L.DROP.       DROP FILE FROM QUEUE AND TERMINATE.
L.END.        RETURN FILE TO QUEUE AND TERMINATE.
L.LINE.       SET FILE DISPLAY MODE TO LINE FORMAT.
L.OCTAL.      SET FILE DISPLAY MODE TO OCTAL FORMAT.
L.SS.         DISPLAY IN OCTAL FROM BEGINNING OF SYSTEM SECTOR.
L.*.          RETURN FROM HELP/SS TO PREVIOUS FILE DISPLAY.
L.+.          ADVANCE DISPLAY FORWARD (CIRCULAR FOR SS).
L.BOI.        POSITION FILE TO BOI AND DISPLAY DATA.
L.DAY.        POSITION PRINT FILE TO DAYFILE AND DISPLAY DATA.
L.SL.         SKIP 1 LINE FORWARD IN FILE AND DISPLAY DATA.
L.SL,N.       SKIP N LINES FORWARD IN FILE AND DISPLAY DATA.
L.SP.         SKIP 1 PAGE FORWARD IN FILE AND DISPLAY DATA.
L.SP,N.       SKIP N PAGES FORWARD IN FILE AND DISPLAY DATA.
L.SR.         SKIP 1 RECORD FORWARD IN FILE AND DISPLAY DATA.
L.SR,N.       SKIP N RECORDS FORWARD IN FILE AND DISPLAY DATA.
L.SR,*.       SKIP TO EOI IN FILE.
L.BR.         SKIP 1 RECORD BACKWARD IN FILE AND DISPLAY DATA.
L.BR,N.       SKIP N RECORDS BACKWARD IN FILE AND DISPLAY DATA.

SKIP COMMANDS ARE NOT ALLOWED UNDER HELP/SS DISPLAY.
SKIP LINE/PAGE COMMANDS ARE NOT ALLOWED FROM OCTAL DISPLAY.
```

Figure II-7-3. Initial QDSPLAY Utility L Display

Valid QDSPLAY commands are:

Command	Description
L.BOI.	Positions the file to the beginning of information (BOI) and then displays the data from that point.
L.BR,r.	Skips backward r records in the file and displays the data from the beginning of that record. If r is not specified, the default is one record. The record count, r, is decimal unless a B postradix is specified to make the number octal. The maximum skip count is 377 777$_8$. A BOI terminates the skip regardless of the number of records specified or skipped. This command is not allowed when HELP display or system sector is being displayed.
L.DAY.	Positions the print file to the beginning of the dayfile record and displays the data from that point.
L.DROP.	Drops the file specified when the QDSPLAY utility was begun from the queue, and terminates the utility.
L.END.	Returns the file specified when the QDSPLAY utility was begun to its queue, and terminates the utility.
L.HELP.	Lists the L display directives for the QDSPLAY utility.
L.LINE.	Sets the file display mode to line format (not allowed when displaying the system sector).
L.OCTAL.	Sets the file display mode to octal format.
L.SL,n.	Skips n lines forward in the file and displays the data from the beginning of that line. If n is not specified, the default is one line. The line count, n, is decimal unless a B postradix is specified to make the number octal. The maximum skip count allowed is 377 777$_8$. A line can be up to 14 words in size. An EOR, EOF, or EOI ends the skip regardless of the number of lines specified or skipped. This command is allowed only when displaying data in line format and is not allowed when HELP display or system sector is being displayed.
L.SP,p.	Skips forward p pages in the file and displays the data from the beginning of that page. If p is not specified, the default is one page. The page count, p, is decimal unless a B postradix is specified to make the number octal. The maximum skip count allowed is 377 777$_8$. A page is based on a carriage control 1 as the first character in a line. An EOR, EOF, or EOI ends the skip regardless of the number of pages specified or skipped. The command is allowed only when displaying data in line format and is not allowed when HELP display or system sector is being displayed.
L.SR,r.	Skips forward r records in the file and displays the data from the beginning of that record. If r is not specified, the default is one record. If an asterisk (*) is specified for the record count, r, a skip forward to the EOI occurs. The record count, r, is decimal unless a B postradix is specified making the number octal. The maximum skip count allowed is 377 777$_8$. An EOI ends the skip regardless of the number of records specified or skipped. This command is not allowed when HELP display or system sector is being displayed.

Command	Description
L.SS.	Displays the data from the beginning of the system sector in octal display code format.
L.*.	Returns from the L.SS. or L.HELP. command displays and displays the contents of the file at the current position. This command is ignored if you are already displaying the contents of the file.
L.+.	Advances the display forward to the next screen of data. This command is ignored under the L.HELP. command where all information is presented on one screen. For the L.SS. command, after the last screen of data, the first screen of the system sector is displayed again.

SUBSYST L DISPLAY

The SUBSYST L display utility displays information about all the subsystems supported by NOS. To begin the SUBSYST utility enter one of the following commands.

```
SUBSYST,L=outfile,LO=option.
        or
SUBSYST,outfile,option.
```

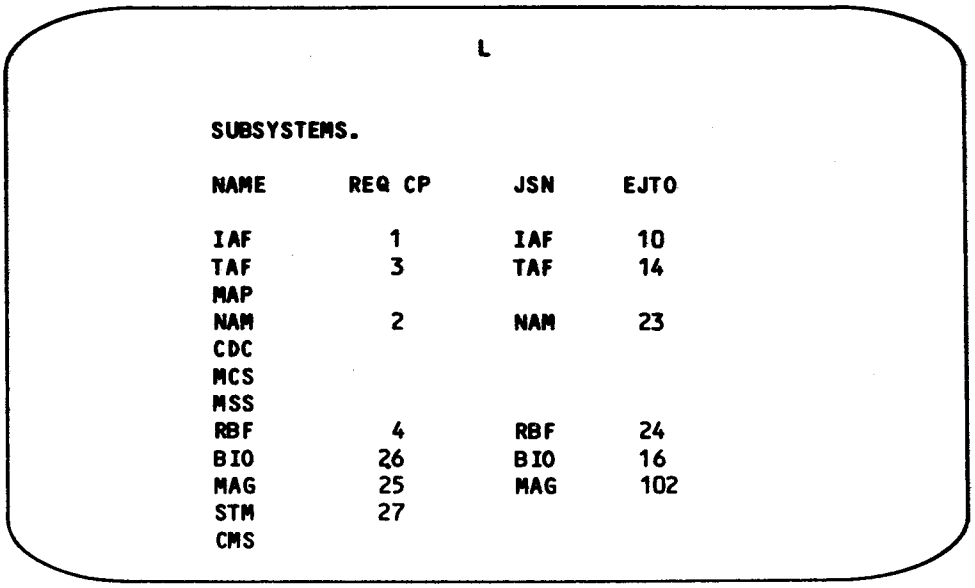
outfile — Output file name. This parameter is valid only if a list option is specified. The default outfile is file OUTPUT.

option — List option. Enter one or more of the following.

- D — Formats the data for the DSD L display. This is the default list option if the parameters outfile and option are not specified.
- L — Formats the data for a line printer.

If you do not specify outfile and option, the data is written to the L display buffer once and the utility ends.

Figure II-7-4 illustrates the SUBSYST L display.



```
L

SUBSYSTEMS.

NAME      REQ CP      JSN      EJTO

IAF          1        IAF       10
TAF          3        TAF       14
MAP
NAM          2        NAM       23
CDC
MCS
MSS
RBF          4        RBF       24
BIO         26        BIO       16
MAG         25        MAG      102
STM         27
CMS
```

Figure II-7-4. SUBSYST L Display

Each entry in the SUBSYST L display has the following form.

name req cp jsn ejto

name Three-character subsystem name.

req cp Required control point (set by the ENABLE or DISABLE command).

jsn Job sequence name of the subsystem if it is currently active.

ejto Executing job table (EJT) ordinal of the subsystem if it is currently active.

OPERATION UNDER DIS CONTROL 8

DIS displays information about a single job. Under DIS, the B display shows the exchange package area for the job. Central memory addresses relative to the job's reference address are used for the data and program displays.

Initiate DIS at a control point to monitor the progress of a job with any of the following methods.

- Command in the form DIS (job must be system origin or have system origin privileges).
- Operator call to DIS by typing DIS,jsn. for the job with job sequence name jsn.
- Operator call to DIS by typing X.DIS,fl. (fl=field length desired) or X.DIS. (field length of 60 000_8 assumed by default). This brings DIS to an empty control point to initiate utility programs.

When DIS is controlling the console, use the * key to alternate the display between DSD and DIS. DIS permanently returns control to DSD when DROP. is typed; the job is not dropped unless no commands remain.

When DIS is called to a control point, automatic command processing stops and the A and B displays for DIS appear on the left and right display screens, respectively. Keyboard entry is necessary to begin processing of subsequent commands. Unless automatic command processing is reenabled, the job is stopped after each command is processed. That is, only one command can be processed at a time. Under DIS, the B display shows only the condition of the job to which it is assigned, including upcoming commands. When the job is not using the central processor, a copy of its exchange package is displayed. Displays available under DIS are selected in the same manner as DSD displays. The PRESENTATION CONTROL switch on the CYBER 170 Computer Systems console enables you to display a left screen display only (switch in LEFT position), a right screen display only (switch in RIGHT position), or both left and right displays on a split screen (switch in MAINTENANCE position). Refer to section 1 for further information on the PRESENTATION CONTROL switch and Console Operation in this section for information concerning display selection commands and DIS keyboard entries.

The displays available under DIS are:

Display	Description
A	Dayfile. Messages and files (local FNT entries) attached to the job.
B	Job status. Individual job status, messages, commands, and the exchange package.
C,D	Central memory. Contents of 32 central memory words (four selectable eight-word groups) in five columns of four octal digits with display code equivalents (same as DSD C and D displays).

Display	Description
F	Central memory. Contents of 32 central memory words (four selectable eight-word groups) in four columns of five octal digits with display code equivalents.
G	Central memory. Contents of 32 central memory words (four selectable eight-word groups) in four columns of five octal digits with COMPASS instruction equivalents.
H	Job local files. All files assigned to the job as well as equipment assigned to files.
M	Extended memory. Contents of 32 60-bit words of extended memory (four selectable eight-word groups) in five columns of four octal digits with display code equivalents (same as DSD M display).
N	Blank screen.
T,U	Text display. Displays text from central memory in coded lines (up to 60 characters per line). The display terminates after 256 words have been displayed.
V	Central memory buffer. Displays directly from central memory. The display terminates after 512 words have been displayed.
Y	Monitor functions. Displays mnemonics and the values of all monitor functions (same as the DSD Y display).
Z	Directory. DIS displays available.

NOTE

Although all displays listed may appear on the left screen, only the B, C, D, N, T, and U displays may appear on the right screen. If you attempt to bring any other display to the right screen, the message ILLEGAL CONTROL CARD is issued to the job dayfile and is displayed in the message buffer of the B display.

DIS DAYFILE (A) DISPLAY

Figure II-8-1 illustrates the DIS dayfile (A) display. The figure shows the dayfile messages for the control point to which DIS is currently assigned and as many files attached to that control point as will fit in the display. All files attached to the job can be observed via the local file name table (H) display.

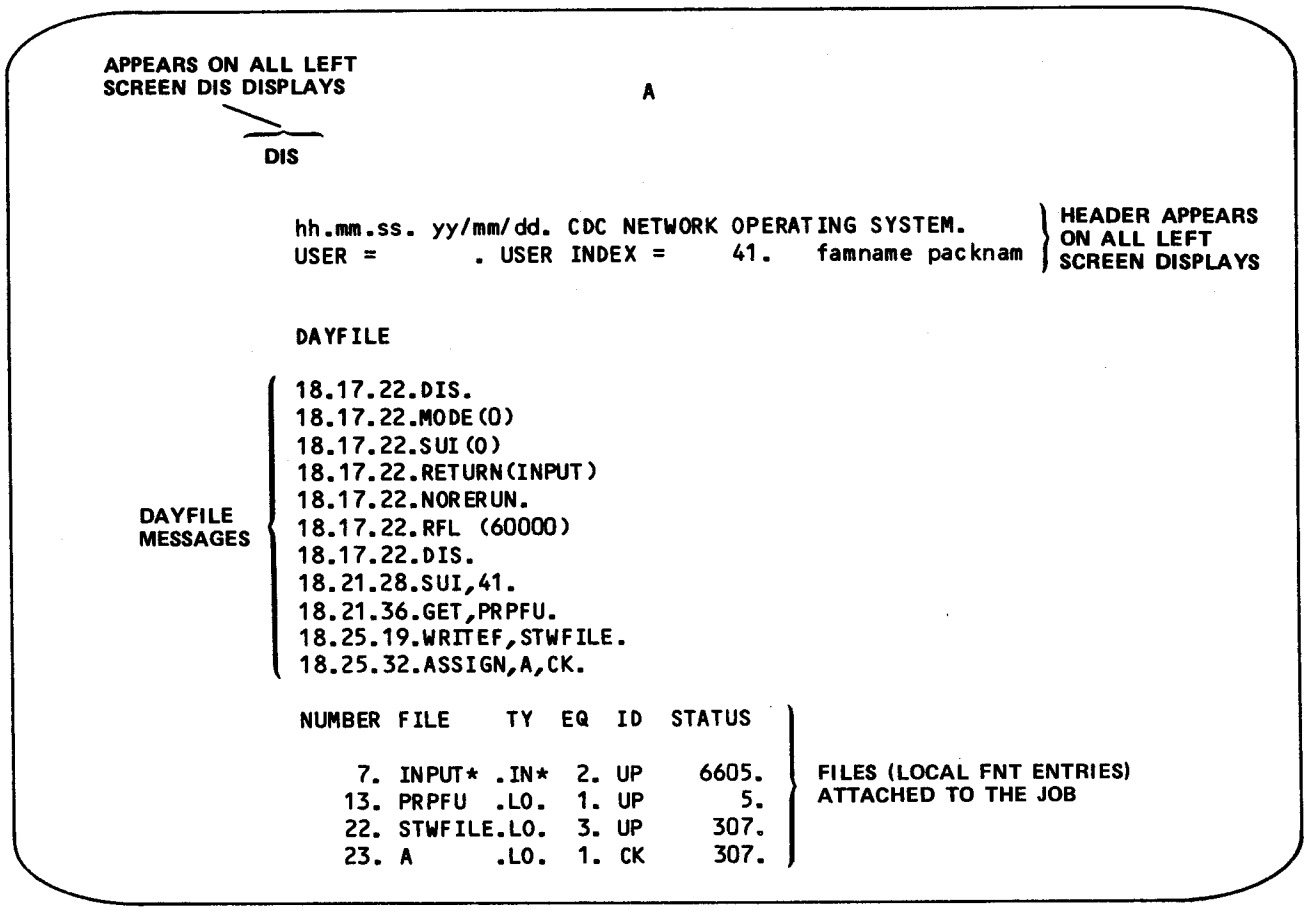


Figure II-8-1. DIS Dayfile (A) Display

The header information illustrated in figure II-8-1 appears on all left screen DIS displays.

DIS JOB STATUS (B) DISPLAY

Figure II-8-2 illustrates the DIS job status (B) display. The figure shows the job status, current message buffer, command buffer, and exchange package. The job status lines identify the job sequence name (JSN) of the DIS job, the executing job table ordinal (EJTO), the control point area address (CP), and the connection number (CONN) if the job is an interactive service class job. These lines also identify the P address (P), the central memory reference address (RA), the central memory field length (FL), the extended memory reference address (RAE), the extended memory field length (FLE), the SRU accumulator (SRUA), and the SRU limit (SRUL) for the job. Listed on the line below the job status area are all the equipment (by EST ordinal) assigned to the job.

Current messages from message 1 and message 2 in the control point area are displayed after the assigned equipment. The command buffer containing the next group of commands to be executed follows the current messages. After the command buffer contents, BKP=addr appears if a breakpoint was set at address addr. The last portion of the display is the job's exchange package.

Although figure II-8-2 shows the B display on the right console screen, it may also be displayed on the left screen. The header information illustrated in this figure appears on all right screen displays. In addition, at the bottom of the right screen, the job sequence name of any subsystem requesting operator attention appears followed by a short message.

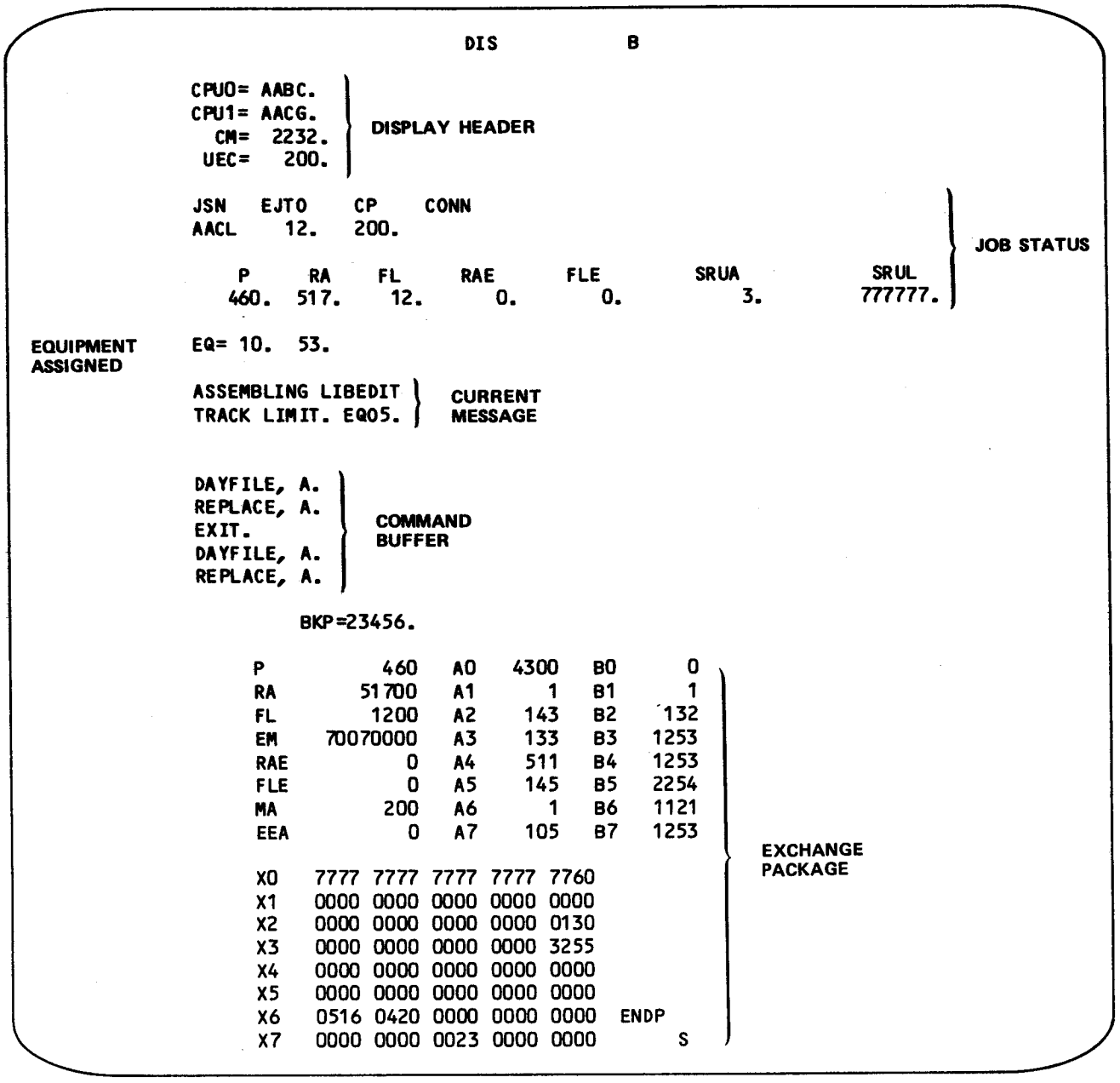


Figure II-8-2. DIS Job Status (B) Display

DIS MEMORY DISPLAYS

Figure II-8-3 illustrates the DIS data storage (F) display. The contents of each central memory word is displayed in four columns of five octal digits along with the display code equivalent. Refer to figure II-4-6 for an illustration of the DSD C displays (same as DIS C or D displays).

Figure II-8-4 illustrates the DIS program storage (G) display. The G display shows the contents of central memory and the COMPASS mnemonic translation.

```
                                F

hh.mm.ss. yy/mm/dd. CDC NETWORK OPERATING SYSTEM.
USER =         . USER INDEX =       0.    famnam

00000100  00000 00000 00000 00000
00000101  03171 51505 16240 00226  COMMENT BV
00000102  15170 40500 00000 00117  MODE    AO
00000103  16170 53011 24000 00126  NOEXIT  AV
00000104  17160 53011 24000 00133  ONEXIT  AO
00000105  17162 32700 00000 00134  ONSW    A1
00000106  17060 62327 00000 00156  OFFSW   A,
00000107  22061 40000 00000 00157  RFL     A.

00000110  22171 41417 25240 00166  ROLLOUT A
00000111  23052 42022 00000 00171  SETPR   A
00000112  23052 42414 00000 00200  SETTL   A
00000113  23251 10000 00000 00210  SUI     BH
00000114  23271 12403 10000 00134  SWITCH  A1
00000115  25230 50320 25000 00217  USECPU  BO
00000116  22061 45400 00000 00314  RFL=    CL
00000117  51200 00064 61100 00001  (P    H  A

00000120  73720 66700 51500 00002    F  (/  B
00000121  03070 00230 01000 00252  CG BXA   B)
00000122  03140 00230 72767 77767  CL BX
00000123  51000 00000 01230 00024  (    AS  T
00000124  02132 32000 00000 00175  BKSP    A
00000125  03171 51517 16000 00202  COMMON  BB
00000126  04112 32017 23050 00227  DISPOSE BW
00000127  05261 10324 00000 00352  EVICT   C)

00000130  14170 31300 00000 00357  LOCK    C.
00000131  17252 40000 00000 00364  OUT     C
00000132  22051 40501 23050 00371  RELEASE C
00000133  22051 60115 05000 00406  RENAME  DF
00000134  22052 71116 04000 00425  REWIND  DS
00000135  22052 42522 16000 00416  RETURN  DN
00000136  23131 12005 11000 00444  SKIPEI  D9
00000137  23131 12006 00000 00451  SKIPF   D(
```

Figure II-8-3. DIS Data Storage (F) Display

```
                                    G

hh.mm.ss. yy/mm/dd. CDC NETWORK OPERATING SYSTEM
USER =        . USER INDEX =      0.    famnam

00000100 00000 00000 00000 00000 PS             PS
00000101 03171 51505 16240 00226 NZ X           BXX+-X PS
00000102 15170 40500 00000 00117 BXX*-X FXX*X   PS
00000103 16170 53011 24000 00126 BXX+-X SAX+B   NX XB  PS
00000104 17160 53011 24000 00133 BXX--X SAX+B   NX XB  PS
00000105 17162 32700 00000 00134 BXX--X DXX+X   PS
00000106 17060 62327 00000 00156 BXX--X SBX+K           PS
00000107 22061 40000 00000 00157 LX XB  FXX*X   PS

00000110 22171 41417 25240 00166 SX XB  RXX*X   ZX XB  PS
00000111 23052 42022 00000 00171 AX XB  DXX*X   PS
00000112 23052 42414 00000 00200 AX XB  DXX*X   PS
00000113 23251 10000 00000 00210 AX XB  BX X    PS
00000114 23271 12403 10000 00134 AX XB  BXX+X   BX X   PS
00000115 25230 50320 25000 00217 ZX XB  SAA+K           PS
00000116 22061 45400 00000 00314 LX XB  RXX/X   PS
00000117 51200 00064 61100 00001 SAB+K          SBB+K

00000120 73720 66700 51500 00002 SXX+B  SBB+B   SAB+K
00000121 03070 00230 01000 00252 ZR X           RJ/RWE
00000122 03140 00230 72767 77767 NZ X           SXX+K
00000123 51000 00000 01230 00024 SAB+K          RJ/RWE
00000124 02132 32000 00000 00175 JPB+K          PS
00000125 03171 51517 16000 00202 NZ X           BXX+-X PS
00000126 04112 32017 23050 00227 EQ BB          AX XB  PS
00000127 05261 10324 00000 00352 NE BB          PS

00000130 14170 31300 00000 00357 BX -X  FXX-X   PS
00000131 17252 40000 00000 00364 BXX--X FXX*X   PS
00000132 22051 40501 23050 00371 LX XB  FXX*X   AX XB  PS
00000133 22051 60115 05000 00406 LX XB  SBA+K           PS
00000134 22052 71116 04000 00423 LX XB  SXB+K           PS
00000135 22052 42522 16000 00416 LX XB  DXX*X   BXX+-X PS
00000136 23131 12005 11000 00444 AX XB  BXX+X   BXX*X  PS
00000137 23131 12006 00000 00451 AX XB  BXX+X   PS

ADDRESS      MEMORY CONTENTS      COMPASS MNEMONIC TRANSLATION
```

Figure II-8-4. DIS Program Storage (G) Display

DIS DIRECTORY (Z) DISPLAY

Figure II-8-5 illustrates the DIS directory (Z) display. The Z display lists all displays available under DIS control. If the letter entered to select the left screen display is not a valid display identifier, the Z display is selected automatically.

```
                                Z


DIRECTORY.


A  DAYFILE MESSAGES.
B  SYSTEM STATUS.
C  CENTRAL MEMORY, 5 GROUPS OF 4.
D  CENTRAL MEMORY, 5 GROUPS OF 4.
F  CENTRAL MEMORY, 4 GROUPS OF 5.
G  CENTRAL MEMORY, 4 GROUPS OF 5.
H  FILE NAME TABLE.
M  ECS MEMORY.
N  BLANK SCREEN.
T  TEXT DISPLAY.
U  TEXT DISPLAY.
V  CENTRAL MEMORY BUFFER.
Y  MONITOR FUNCTIONS.
Z  ALL OTHER - THIS DISPLAY.
```

Figure II-8-5. DIS Directory (Z) Display

CONSOLE OPERATION

Unlike DSD, DIS is not interpretive. You must complete every type-in and signal DIS to act upon the message by pressing CR. The following rules apply to all DIS commands.

- Spaces in an octal field are ignored, but can be inserted for readability.
- All octal fields are right-justified with leading zero fill; excess octal digits are ignored.

In addition to the command entries, the following keys have special meaning to DIS when entered as the first character. The following paragraphs describe the action initiated when the key is activated.

* If DSD has relinquished the main display console to DIS, * acts as a quick hold, and DIS drops the display channel so that DSD can use it.

= Alternately selects relative or absolute mode for memory references made from the console keyboard (mode changes each time = key is pressed). There is no visual indication when relative mode is selected, and memory locations shown in the C, D, F, and G memory displays are relative to the reference address (RA) for the control point to which DIS is assigned. When absolute mode is in effect, the letters ABS appear at the top of the left screen next to the display identifier, and memory displays C, D, F, and G show absolute locations.

For example, 100,1,4000. is entered into memory at RA+100 in relative mode and at central memory address 100 in absolute mode.

NOTE

Central memory changes made while in absolute mode† are placed in absolute memory addresses.

+ Advances by 40 octal locations the address of any of the following displays: C, D, F, G, M, T, U.

†The keyboard must be unlocked under DSD to make memory changes while in absolute mode (refer to the UNLOCK command in section 3).

-	Decrements by 40 octal locations the address of any of the following displays: C, D, F, G, M, T, U.
(	Breakpoint program to (P+1).
)	Breakpoint program to (P-1).
/	Advances left screen memory display address by the value in the lower 18 bits of the first word displayed (applicable only to memory displays C, D, F, G, and M).
.	Set AUTO MODE (initiates automatic command processing). This key performs the same function as the RCS command described under DIS Keyboard Entries in this section.
8	Advances the pointer indicating the first address of managed tables for the left screen (applicable only to memory displays C, D, F, and G).
9	Decrements the pointer indicating the first address of managed tables for the left screen (applicable only to memory displays C, D, F, and G).
Right blank (display key)	Advances the left screen display sequence established by the SET,ssss...s. command (refer to Display Selection Commands).
CR (carriage return)	Sets the repeat entry flag; message REPEAT ENTRY is displayed on the error message line of the left screen. The subsequent command entry is processed but is not erased after completion. That command is processed each time the carriage return key is pressed. To clear the repeat entry mode, press the left blank (erase) key.

The following keys are interpreted as control characters by DIS.

Left blank (erase)	Clears current DIS keyboard entry and any resultant error message; AUTO MODE (automatic command processing) is also cleared.
BKSP (backspace)	Deletes last character displayed and clears error message (if one exists).
CR (carriage return)	Initiates processing of an entered command.

The following keyboard messages may appear above the type-in.

ILLEGAL ENTRY.	Command cannot be processed.
REPEAT ENTRY.	Command in command buffer is repeated each time carriage return is pressed; cleared by left blank key.
OUT OF RANGE.	Memory entry address is greater than the field length.
SYSTEM BUSY - DISK.	DIS is waiting for an overlay to be loaded from a mass storage device.
SYSTEM BUSY - PPU.	DIS is waiting for a PP to be assigned in order to process a keyboard entry.
JOB ACTIVE.	Previous request not completed; command must be reentered when job is not active.
AUTO MODE.	Command buffer is read automatically. Automatic command processing can be selected by the RCS command or by pressing the . key.
DIRECT CPU INPUT.	N. command has been entered and all data entered from the keyboard is being passed directly to central memory.

DISPLAY SELECTION COMMANDS

Indicate the displays to be shown on the left and right screens on the console with the following commands. Follow the type-in with a carriage return.

xy.

Brings the x and y displays to the left and right screens, respectively. Note that although all DIS displays may appear on the left console screen, only the B, C, D, N, T, and U displays may appear on the right screen. If you attempt to bring any other display to the right screen, the message ILLEGAL CONTROL CARD is issued. In addition, if the letter entered to select the left screen display (x) is not a valid display identifier, the Z display is selected automatically.

xz,aa...aa.

Brings specified memory display to the left screen, if not currently selected, and provides display modifications as follows:

x	Display identifier (C, D, F, G, or M).
z	Type of display modifications:
z=0-3	Changes the specified group to display the eight words beginning at location aa...aa.
z=4	Changes the entire display so that all four eight-word groups are 32 contiguous locations beginning at location aa...aa.
z=5	Advances the display by aa...aa locations.
z=6	Decrements the display by aa...aa locations.
aa...aa	Location parameter (maximum of eight digits for central memory address or seven digits for extended memory address).

x,addr.

If x specifies one of the memory displays (C, D, F, G, or M), addr is the address used to obtain the bias address for the managed table display. (The bias address is the lower 18 bits of the word at addr.)

SET,ssss...s.

Sets the left screen display sequence; ssss...s consists of one to eight display identifiers. Pressing the right blank (display) key after this command is entered causes the first display to appear on the left console screen. Pressing the key again selects the second display. The next display in the specified sequence appears on the left screen each time the right blank key is pressed, for example, SET,ACFDH.

DIS KEYBOARD ENTRIES

If a job is currently active (CPU active, waiting, on recall, or PP active), many commands are not accepted; JOB ACTIVE is displayed.

BEGIN,pname,pfile.

Sets AUTO MODE and calls the procedure pname that is on file pfile.

BKPA,addr.

Breakpoint to address addr in the program with assigned PPs. Central processor execution begins at the current value of P and stops when P=addr. PPs attached to the control point can still be active. DIS clears addr to stop the program at that point. The breakpoint may be cleared by setting the breakpoint address to a new value.

BKP,addr.

Breakpoint to address addr in the program. Central processor execution begins at current value of P and stops when P=addr, and DIS is the only PP active at the control point.

DCP.

Drops the central processor and displays the exchange package area on the B display.

DIS.

Reloads main DIS overlay.

DROP.

Drops DIS, but normal processing of the job continues (it does not drop the job until all commands are processed).

ELS.ccc...ccc.

Allows entry of command ccc...ccc after the last command in the command buffer, if there is space.

ENAi,addr.

Sets register Ai=addr in the exchange package area.

ENBi,addr.

Sets register Bi=addr in the exchange package area.

ENEM,m.

Sets CPU program exit mode to m ($0 \leq m \leq 7$).

ENFL,nnnnnn.

Sets central memory field length FL=nnnnnn in the exchange package area ($0 \leq$ nnnnnn $\leq 777\ 777_8$). nnnnnn $\geq$ 10000 if user extended memory is assigned.

ENFLE,nnnn.

Sets extended memory field length FLE to nnnn000 in the exchange package area ($1 \leq$ nnnn $\leq$ 7777). If user extended memory is assigned (nnnn $=$ 0), FL, set by the ENFL command, must be greater than or equal to 10000.

ENP,addr.

Sets P=addr (next instruction address).

ENPR,pp.

Sets job priority to pp ($2 \leq$ pp $\leq 70_8$).

ENS.ccc...ccc.

Allows entry of command ccc...ccc as the next unprocessed command in the command buffer. The command can then be processed using RNS, RSS, or DROP. Use of ENS. with CCL procedure files produces unexpected results. This command is valid only when AUTO MODE is not set.

ENTER./cccccc./ddddd./

Allows entry of commands cccccc and ddddd from the keyboard and sets AUTO MODE.

ENTL,timlmt.

Sets the job time limit to timlmt (77777_8 is infinite).

ENXi,xxx...xxx.

Sets register Xi=xxx...xxx in the exchange package area.

ENXi,Lxxx...xxx.

Sets register Xi=xxx...xxx, left-justified, in the exchange package area.

ENXi,Dccc...ccc.

Sets register Xi to ccc...ccc display code characters.

ENXi,b,xxxx.

Sets byte b of register Xi to xxxx.

ERR.

Sets error flag, terminates program execution, and clears AUTO MODE if set.

GO.

Restarts a program which has paused.

HOLD.

DIS relinquishes the display console, but the job is held at the present status. The console must be reassigned to continue the use of DIS.

M.ccc...ccc.

Enters ccc...ccc as a CPU program command. Data is stored at RA+CCDR.

N.ccc...ccc.

Sets DIRECT CPU INPUT mode. Characters entered from keyboard are passed one character at a time, right-justified, directly into central memory at RA+CCDR. Pressing the left blank (erase) key twice clears DIRECT CPU INPUT mode.

OFFSWs.

Turns off sense switch s for the job ($1 \leq s \leq 6$).

ONSWs.

Sets sense switch s for the job ($1 \leq s \leq 6$).

026.

Calls the 026 file editor to a control point. Refer to the NOS 2 Systems Programmer's Instant for complete operating instructions.

RCP.

Requests central processor. Depending on job priority, execution begins at the next program address for a job suspended by a DCP request.

RCS.

Sets AUTO MODE and initiates automatic command processing. All succeeding commands are read from the commands buffer and processed automatically until an SCS command or an error is encountered, or until job completion. A period (.) may also be used to initiate automatic command processing.

RNS.

Reads and processes the next command in the DIS command buffer.

ROLLOUT.

Allows the job to roll out. This should be issued when the message ROLLOUT REQUESTED appears (or * may be used).

ROLLOUT,spr.

Places job in rollout status for spr job scheduler delay intervals. The job is automatically rolled back in after this period of time. If a number greater than 777_8 is specified for spr, 777_8 is used.

RSS.

Reads the next command from the command buffer and stops prior to CPU execution. This is used to initiate breakpointing of a program.

RSS,ccc...ccc.

Reads command ccc...ccc and stops prior to CPU execution. Action is similar to ENS.ccc...ccc. followed by RSS. except that the command buffer is not cleared.

SCS.

Clears AUTO MODE and stops automatic command processing.

T,addr.

Changes the T display to start at address addr.

U,addr.

Changes the U display to start at address addr.

UCC=c.

Sets the uppercase character to c.

V,addr.

Changes the V display to start at address addr.

X.ccc...ccc.

Processes ccc...ccc as the next command. Only the first 50 characters following X are used. This may be used to enter a leading slant, or a command which is the same as DIS display.

* ccc...ccc.

If an asterisk (*) followed by a blank and ccc...ccc is encountered during automatic command processing (AUTO MODE), ccc...ccc is interpreted as a direct DIS command rather than a command. For example, * C4, 100. will set the left screen display to the central memory C display at address 100. Using this feature, it is possible to set up procedure files that use DIS to breakpoint a program to a desired stopping point.

ccc...ccc.

Processes ccc...ccc as a command if it is not a recognizable DIS command.

MEMORY ENTRY COMMANDS

The following commands are used in conjunction with the C, D, F, G, and M memory displays to change the contents of central memory and extended memory. Either absolute locations or those relative to the job's reference address (RA) to which DIS is assigned can be changed. When changing the contents of memory relative to a job, the negative field length area of the job can be accessed by specifying a negative address. For example, to change the content of RA-3, enter the address 777775_8.

When changing a memory location relative to the job's RA, the system does not check for field length violations. If you specify an address larger than your job's RA + field length you can change the content of a memory location in some other job's field length. Character values or numeric data can replace the current word contents. Either one 12-bit byte, one 15-bit parcel, one 30-bit parcel, or 60 bits can be changed. A single byte can be changed by inserting the byte number after the location to be changed; bytes are numbered 0 through 4 from left to right. The address and contents are assembled right-justified with leading zero fill. Leading zeros may be omitted in the entry.

CAUTION

Improper use of these commands may result in damage to the system or to user jobs.

When absolute mode is in effect, the letters ABS appear next to the display identifier at the top of the left screen. There is no visual indication when relative mode is in effect. Formats and descriptions of the memory entry commands are as follows:

```
aa...aa,yy.....yy.
     or
aa...aa+yy...yy.
```

Changes the contents of memory location aa...aa to yy...yy. The second form of the command performs essentially the same function but leaves the address at aa...aa+1 allowing immediate entry for the next memory location.†

```
aa...aa,b,yyyy.
     or
aa...aa+b,yyyy.
```

Changes the contents of byte b at memory location aa...aa (eight digits) to yyyy. Note that each location consists of five 12-bit bytes, numbered 0 through 4 from left to right. The second form of the command performs essentially the same function but leaves the address at aa...aa+1 allowing immediate entry for the next memory location.†

```
aa...aa,Dyy...yy.
     or
aa...aa+Dyy...yy.
```

Changes the contents of memory location aa...aa (eight digits) to display code characters yy...yy (left-justified and zero-filled). The second form of the command performs essentially the same function but leaves the address at aa...aa+1 allowing immediate entry for the next memory location.†

```
aa...aa,Lyy...yy.
     or
aa...aa+Lyy...yy.
```

Changes the contents of memory location aa...aa (eight digits), left-justified to yy...yy. The second form of the command performs essentially the same function but leaves the address at aa...aa+1 allowing immediate entry for the next memory location.†

```
aa...aa,In,yyyyy.
     or
aa...aa+In,yyyyy.
```

Changes the contents of instruction n (0 through 3 from left to right) at memory location aa...aa (eight digits) to yyyyy; yyyyy may be a 15- or 30-bit instruction. However, one or more bits must be set in the upper 15 bits of a 30-bit instruction or the entry will be treated as a 15-bit instruction. The second form of the command performs essentially the same function but leaves the address at aa...aa+1, allowing immediate entry for the next memory location.†

---

†If the message REPEAT ENTRY is displayed above the entry line, the yy...yy field is not cleared and may be entered in successive memory locations as many times as desired by pressing CR. The repeat entry mode is enabled by pressing CR before initial entry of the command. This is also applicable to the b and n fields of the second, fifth, and seventh commands.

Eaaaaaaa,yy...yy.
or
Eaaaaaaa+yy...yy.

Changes the contents of extended memory location aaaaaaa to yyy...yyy. The second form of the command performs essentially the same function but leaves the address at aaaaaaa+1 allowing immediate entry for the next extended memory location.

Eaaaaaaa,b,yyyy.
or
Eaaaaaaa+b,yyyy.

Changes the contents of byte b at extended memory location aaaaaaa to yyyy. Note that each location consists of five 12-bit bytes, numbered 0 through 4 from left to right. The second form of the command performs essentially the same function but leaves the address at aaaaaaa+1 allowing immediate entry for the next extended memory location.

Eaaaaaaa,Dyy...yy.
or
Eaaaaaaa+Dyy...yy.

Changes the contents of extended memory location aaaaaaa to display code characters yy...yy (left-justified and zero-filled). The second form of the command performs essentially the same function but leaves the address at aaaaaaa+1 allowing immediate entry for the next extended memory location.†

†If the message REPEAT ENTRY is displayed above the entry line, the yy...yy field is not cleared and may be entered in successive memory locations as many times as desired by pressing CR. The repeat entry mode is enabled by pressing CR before initial entry of the command. This is also applicable to the b and n fields of the second, fifth, and seventh commands.

PP CALL COMMANDS

Any PP program with a name that begins with a letter may be called to the control point by DIS. However, before entering any of these commands, it is necessary to have a working knowledge of the PP program to be called. This ensures correct use of the specified program.

CAUTION

Improper use of these commands may result in damage to the system or to user jobs.

In table II-8-1, prg denotes the name of the PP program, and n is the control point number.

Table II-8-1. PP Call Formats

Command	Description	Format of PP Call Initiated
prg.	Calls PP program prg to control point.	18/3Lprg,6/n,36/0
prg,xxx.	Calls PP program prg to control point; xxxx is an octal parameter required by prg.	18/3Lprg,6/n,18/0, 18/xxxx
prg,xxx,yyyy.	Calls PP program prg to control point; xxxx and yyyy are octal parameters required by prg.	18/3Lprg,6/n,18/xxxx, 18/yyy

CHARACTER SETS A

A character set is composed of graphic and/or control characters. A code set is composed of codes used to represent each character within a character set.

A graphic character may be displayed at a terminal or printed by a line printer. Examples are the characters A through Z and the digits 1 through 9. A control character initiates, modifies, or stops a control operation. An example is the backspace character that moves the terminal carriage or cursor back one space. Although a control character is not a graphic character, a terminal may produce a graphic representation when it receives a control character.

All references within this manual to the ASCII character set or the ASCII code set refer to the character set and code set defined in the American National Standard Code for Information Interchange (ASCII, ANSI Standard X3.4-1977). References in this manual to the ASCII character set do not necessarily refer to the ASCII code set.

NOS supports the following character sets:

- CDC graphic 64- (or 63-) character set
- ASCII 128-character set
- ASCII graphic 64- (or 63-) character set
- ASCII graphic 95-character set

Each installation selects either the 64-character set or the 63-character set. The differences between the two are described under Character Set Anomalies in this appendix. Any reference in this appendix to the 64-character set implies either the 63- or 64-character set unless otherwise stated.

NOS supports the following code sets:

- 6-bit display code
- 6/12-bit display code
- 7-bit ASCII code

Display code is a set of 6-bit codes from 00_8 to 77_8.

The 6/12-bit display code is a combination of 6-bit codes and 12-bit codes. The 6-bit codes are 00_8 through 77_8, excluding 74_8 and 76_8. (Refer to Character Set Anomalies for the interpretation of the 00_8 and 63_8 codes.) The 12-bit codes begin with either 74_8 or 76_8 and are followed by a 6-bit code. Thus, 74_8 and 76_8 are considered escape codes and are never used as 6-bit codes within the 6/12-bit display code set. The 12-bit codes are 7401_8, 7402_8, 7404_8, 7407_8, and 7601_8 through 7677_8. All other 12-bit codes ($74xx_8$ and 7600_8) are undefined.

The 7-bit ASCII code (as defined by ANSI Standard X3.4-1977) is right-justified in a 12-bit byte. Assuming that the bits are numbered from the right starting with 0, bits 0 through 6 contain the ASCII code, bits 7 through 10 contain zeros, and bit 11 distinguishes the 0000_8 code from the end-of-line byte. The 7-bit codes are 0001_8 through 0177_8 and 4000_8.

CHARACTER SET ANOMALIES

NOS interprets two codes differently when the installation selects the 63-character set rather than the 64-character set. In tables A-1 and A-2, the codes for the colon and percent graphic characters in the 64-character set are unshaded; the codes for the colon and percent graphic characters in the 63-character set are shaded.

If an installation uses the 63-character set, the colon graphic character is always represented by a 63_8 code. However, if the installation uses the 64-character set, output of 6/12-bit display codes 7404_8 or 6-bit display code 00_8 produces a colon. In interactive ASCII mode, a colon can be input only as a 7404_8 6/12-bit display code.

When using either the 63- or 64-character set, the use of undefined 6/12-bit display codes in output files produces unpredictable results and should be avoided.

Also, two 00_8 codes may be confused with an end-of-line byte and should be avoided (refer to Card File Data Conversion in the NOS 2 Reference Set, Volume 3 for further explanation).

CHARACTER SET TABLES

This appendix contains character set tables for batch users and magnetic tape users. Table A-1 is for batch users. Table A-2 is a conversion table used to cross-reference 7-bit ASCII codes and 6/12-bit display codes and to convert 7-bit ASCII codes from octal to hexadecimal.

Tables A-3, A-4, and A-5 list the magnetic tape codes and their display code equivalents.

The character set tables are designed so that the user can find the character represented by a code (such as in a dump) or find the code that represents a character. To find the character represented by a code, the user looks up the code in the column listing the appropriate code set and then finds the character on that line in the column listing the appropriate character set. To find the code that represents a character, he or she first looks up the character and then finds the code on the same line in the appropriate column.

BATCH USERS

Table A-1 lists the CDC graphic 64-character set, the ASCII graphic 64-character set, and the ASCII graphic 95-character sets. It also lists the code sets and card punch codes (026 and 029) that represent the characters.

The 64-character sets use display code as their code set; the 95-character set uses 7-bit ASCII code. The 95-character set is composed of all the characters in the ASCII 128-character set that can be printed at a line printer (refer to Line Printer Usage). Only 7-bit ASCII code files can be printed using the ASCII graphic 95-character set. To print a 6/12-bit display code file (usually created in interactive ASCII mode), the user must convert the file to 7-bit ASCII code. To do this, the user issues the FCOPY command (refer to the NOS 2 Reference Set, Volume 3). The 95-character set is represented by 7-bit ASCII codes 0040_8 through 0176_8.

LINE PRINTER USAGE

The batch character set printed depends on the print train used on the line printer to which the file is sent. The following are the print trains corresponding to each of the batch character sets.

Character Set	Print Train
CDC graphic 64-character set	596-1
ASCII graphic 64-character set	596-5
ASCII graphic 95-character set	596-6

The characters of the default 596-1 print train are listed in the table A-1 column labeled CDC Graphic (64 Char); the 596-5 print train characters are listed in the table A-1 column labeled ASCII Graphic (64 Char); and the 596-6 print train characters are listed in the table A-1 column labeled ASCII Graphic (95 Char).

If a transmission error occurs when printing a line, the system prints the line again. The CDC graphic print train prints a concatenation symbol (⌐→) in the first printable column of a line containing errors. The ASCII print trains print an underline (——) instead of the concatenation symbol.

If an unprintable character exists in a line (that is, a 7-bit ASCII code outside of the range 0040_8 through 0176_8), the number sign (#) appears in the first printable column of a print line and a space replaces the unprintable character.

Table A-1. Batch Character Sets (Sheet 1 of 3)

CDC Graphic (64 Char)	ASCII Graphic (64 Char)	ASCII Graphic (95 Char)	6-Bit Display Code	6/12-Bit Display Code	7-Bit ASCII Code	Punch Code	
						026	029
: colon†	: colon†		00†			8-2	8-2
Display code 00 is undefined at sites using the 63-character set.							
A	A	A	01	01	0101	12-1	12-1
B	B	B	02	02	0102	12-2	12-2
C	C	C	03	03	0103	12-3	12-3
D	D	D	04	04	0104	12-4	12-4
E	E	E	05	05	0105	12-5	12-5
F	F	F	06	06	0106	12-6	12-6
G	G	G	07	07	0107	12-7	12-7
H	H	H	10	10	0110	12-8	12-8
I	I	I	11	11	0111	12-9	12-9
J	J	J	12	12	0112	11-1	11-1
K	K	K	13	13	0113	11-2	11-2
L	L	L	14	14	0114	11-3	11-3
M	M	M	15	15	0115	11-4	11-4
N	N	N	16	16	0116	11-5	11-5
O	O	O	17	17	0117	11-6	11-6
P	P	P	20	20	0120	11-7	11-7
Q	Q	Q	21	21	0121	11-8	11-8
R	R	R	22	22	0122	11-9	11-9
S	S	S	23	23	0123	0-2	0-2
T	T	T	24	24	0124	0-3	0-3
U	U	U	25	25	0125	0-4	0-4
V	V	V	26	26	0126	0-5	0-5
W	W	W	27	27	0127	0-6	0-6
X	X	X	30	30	0130	0-7	0-7
Y	Y	Y	31	31	0131	0-8	0-8
Z	Z	Z	32	32	0132	0-9	0-9
0	0	0	33	33	0060	0	0
1	1	1	34	34	0061	1	1
2	2	2	35	35	0062	2	2
3	3	3	36	36	0063	3	3
4	4	4	37	37	0064	4	4
5	5	5	40	40	0065	5	5
6	6	6	41	41	0066	6	6
7	7	7	42	42	0067	7	7
8	8	8	43	43	0070	8	8
9	9	9	44	44	0071	9	9
+	+	+	45	45	0053	12	12-8-6
-	-	-	46	46	0055	11	11
*	*	*	47	47	0052	11-8-4	11-8-4

†The interpretation of this character or code may depend on its context. Refer to Character Set Anomalies elsewhere in this appendix.

Table A-1. Batch Character Sets (Sheet 2 of 3)

CDC Graphic (64 Char)	ASCII Graphic (64 Char)	ASCII Graphic (95 Char)	6-Bit Display Code	6/12-Bit Display Code	7-Bit ASCII Code	Punch Code	
						026	029
/	/	/	50	50	0057	0-1	0-1
(	(	(	51	51	0050	0-8-4	12-8-5
)	)	)	52	52	0051	12-8-4	11-8-5
$	$	$	53	53	0044	11-8-3	11-8-3
=	=	=	54	54	0075	8-3	8-6
space	space	space	55	55	0040	no punch	no punch
, comma	, comma	, comma	56	56	0054	0-8-3	0-8-3
. period	. period	. period	57	57	0056	12-8-3	12-8-3
equiv.	# num. sign	# num. sign	60	60	0043	0-8-6	8-3
[l. bracket	[l. bracket	[l. bracket	61	61	0133	8-7	12-8-2
] r. bracket	] r. bracket	] r. bracket	62	62	0135	0-8-2	11-8-2
%†	%†	%†	63†	63†	0045	8-6	0-8-4
: colon	: colon	: colon	63	63	0072	8-2	8-2
≠	" quote	" quote	64	64	0042	8-4	8-7
-	_ underline	_ underline	65	65	0137	0-8-5	0-8-5
	¬ !	¬ !	66	66	0041	11-0	12-8-7
	& ampersand	& ampersand	67	67	0046	0-8-7	12
|	' apostrophe	' apostrophe	70	70	0047	11-8-5	8-5
¦	?	?	71	71	0077	11-8-6	0-8-7
<	<	<	72	72	0074	12-0	12-8-4
>	>	>	73	73	0076	11-8-7	0-8-6
≤	@		74			8-5	8-4
≥	\ rev. slant	\ rev. slant	75	75	0134	12-8-5	0-8-2
¬	^ circumflex		76			12-8-6	11-8-7
; semicolon	; semicolon	; semicolon	77	77	0073	12-8-7	11-8-6
		@		7401	0100		
		^ circumflex		7402	0136		
		: colon†		7404†	0072		
		%		7404	0045		
		` grave accent		7407	0140		
		a		7601	0141		
		b		7602	0142		
		c		7603	0143		
		d		7604	0144		
		e		7605	0145		
		f		7606	0146		
		g		7607	0147		

†The interpretation of this character or code may depend on its context. Refer to Character Set Anomalies elsewhere in this appendix.

Table A-1. Batch Character Sets (Sheet 3 of 3)

CDC Graphic (64 Char)	ASCII Graphic (64 Char)	ASCII Graphic (95 Char)	6-Bit Display Code	6/12-Bit Display Code	7-Bit ASCII Code	Punch Code	
						026	029
		h		7610	0150		
		i		7611	0151		
		j		7612	0152		
		k		7613	0153		
		l		7614	0154		
		m		7615	0155		
		n		7616	0156		
		o		7617	0157		
		p		7620	0160		
		q		7621	0161		
		r		7622	0162		
		s		7623	0163		
		t		7624	0164		
		u		7625	0165		
		v		7626	0166		
		w		7627	0167		
		x		7630	0170		
		y		7631	0171		
		z		7632	0172		
		{ left brace		7633	0173		
		| vert. line		7634	0174		
		} right brace		7635	0175		
		~ tilde		7636	0176		

Table A-2. ASCII to 6/12 Display Code Conversion (Sheet 1 of 2)

ASCII Character (128 Char)	7-Bit ASCII Code		6/12 Bit Display Code	ASCII Character (128 Char)	7-Bit ASCII Code		6/12-Bit Display Code
	Octal	Hex			Octal	Hex	
NUL	4000	00	7640	0	0060	30	33
SOH	0001	01	7641	1	0061	31	34
STX	0002	02	7642	2	0062	32	35
ETX	0003	03	7643	3	0063	33	36
EOT	0004	04	7644	4	0064	34	37
ENQ	0005	05	7645	5	0065	35	40
ACK	0006	06	7646	6	0066	36	41
BEL	0007	07	7647	7	0067	37	42
BS	0010	08	7650	8	0070	38	43
HT	0011	09	7651	9	0071	39	44
LF	0012	0A	7652	: colon†	0072	3A	7404†
VT	0013	0B	7653	: colon	0072	3A	63
FF	0014	0C	7654	; semicolon	0073	3B	77
CR	0015	0D	7655	<	0074	3C	72
SO	0016	0E	7656	=	0075	3D	54
SI	0017	0F	7657	>	0076	3E	73
				?	0077	3F	71
DLE	0020	10	7660				
DC1	0021	11	7661	@	0100	40	7401
DC2	0022	12	7662	A	0101	41	01
DC3	0023	13	7663	B	0102	42	02
DC4	0024	14	7664	C	0103	43	03
NAK	0025	15	7665	D	0104	44	04
SYN	0026	16	7666	E	0105	45	05
ETB	0027	17	7667	F	0106	46	06
				G	0107	47	07
CAN	0030	18	7670				
EM	0031	19	7671	H	0110	48	10
SUB	0032	1A	7672	I	0111	49	11
ESC	0033	1B	7673	J	0112	4A	12
FS	0034	1C	7674	K	0113	4B	13
GS	0035	1D	7675	L	0114	4C	14
RS	0036	1E	7676	M	0115	4D	15
US††	0037	1F	7677	N	0116	4E	16
				O	0117	4F	17
space	0040	20	55				
!	0041	21	66	P	0120	50	20
" quote	0042	22	64	Q	0121	51	21
# number sign	0043	23	60	R	0122	52	22
$	0044	24	53	S	0123	53	23
%†	0045	25	63†	T	0124	54	24
%	0045	25	7404	U	0125	55	25
& ampersand	0046	26	67	V	0126	56	26
' apostrophe	0047	27	70	W	0127	57	27
(	0050	28	51	X	0130	58	30
)	0051	29	52	Y	0131	59	31
*	0052	2A	47	Z	0132	5A	32
+	0053	2B	45	[left bracket	0133	5B	61
, comma	0054	2C	56	\ reverse slant	0134	5C	75
-	0055	2D	46	] right bracket	0135	5D	62
. period	0056	2E	57	^ circumflex	0136	5E	7402
/	0057	2F	50	_ underline	0137	5F	65

†The interpretation of this character or code may depend on its context. Refer to Character Set Anomalies elsewhere in this appendix.
††Reserved for network use. Refer to Character Set Tables in this appendix.

Table A-2. ASCII to 6/12 Display Code Conversion (Sheet 2 of 2)

ASCII Character (128 Char)	7-Bit ASCII Code		6/12-Bit Display Code	ASCII Character (128 Char)	7-Bit ASCII Code		6/12-Bit Display Code
	Octal	Hex			Octal	Hex	
` grave accent	0140	60	7407	p	0160	70	7620
a	0141	61	7601	q	0161	71	7621
b	0142	62	7602	r	0162	72	7622
c	0143	63	7603	s	0163	73	7623
d	0144	64	7604	t	0164	74	7624
e	0145	65	7605	u	0165	75	7625
f	0146	66	7606	v	0166	76	7626
g	0147	67	7607	w	0167	77	7627
h	0150	68	7610	x	0170	78	7630
i	0151	69	7611	y	0171	79	7631
j	0152	6A	7612	z	0172	7A	7632
k	0153	6B	7613	{ left brace	0173	7B	7633
l	0154	6C	7614	| vertical line	0174	7C	7634
m	0155	6D	7615	} right brace	0175	7D	7635
n	0156	6E	7616	~ tilde	0176	7E	7636
o	0157	6F	7617	DEL	0177	7F	7637

MAGNETIC TAPE USERS

Coded data to be copied from mass storage to magnetic tape is assumed to be represented in display code. NOS converts the data to external BCD code when writing a coded 7-track tape and to ASCII or EBCDIC code (as specified on the tape assignment statement) when writing a coded 9-track tape.

Because only 63 characters can be represented in 7-track even parity, one of the 64 display codes is lost in conversion to and from external BCD code. Figure A-1 shows the differences in conversion depending on the character set (63 or 64) which the system uses. In parentheses is the ASCII character for the specified character set. The output arrow shows how the display code changes when it is written on tape in external BCD. The input arrow shows how the external BCD code changes when the tape is read and converted to display code.

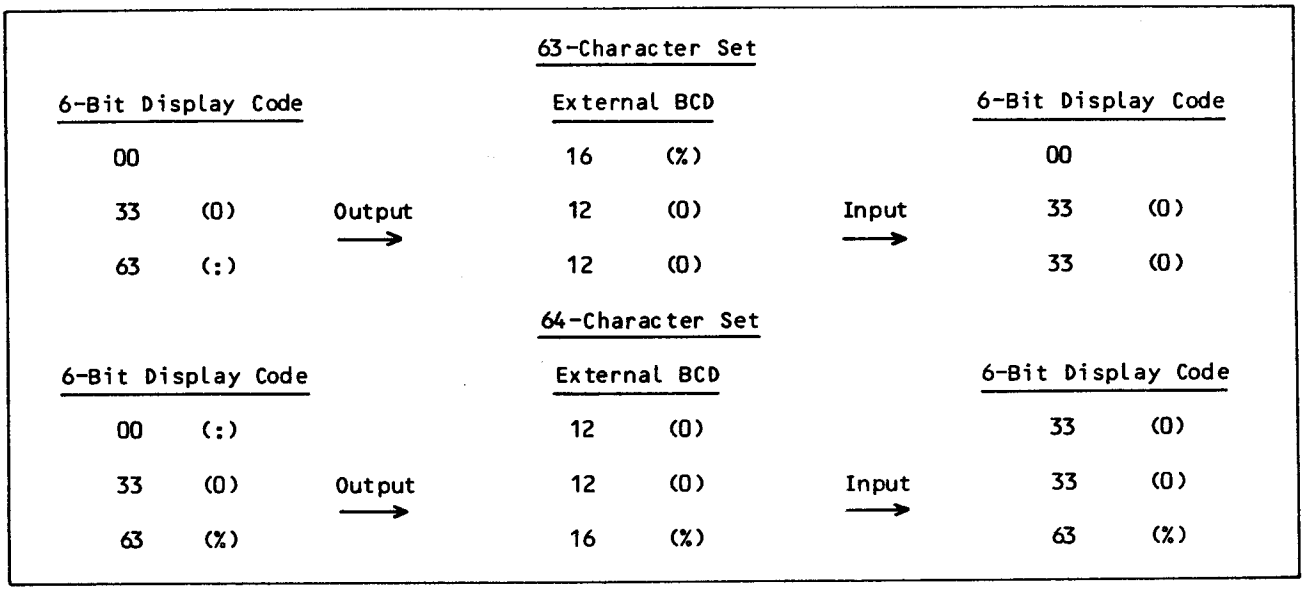


Figure A-1. Conversion Differences

If a lowercase ASCII or EBCDIC code is read from a 9-track coded tape, it is converted to its uppercase 6-bit display code equivalent. To read and write lowercase ASCII or EBCDIC characters, the user must assign the tape in binary mode and perform his or her own conversion of the binary data.

Tables A-3 and A-4 show the character set conversions for 9-track tapes. Table A-3 lists the conversions to and from the ASCII character code and display code. Table A-4 lists the conversions between EBCDIC character code and display code. Table A-5 shows the character code conversions between external BCD and display code for 7-track tapes.

Table A-3. Nine-Track ASCII Coded Tape Conversion

ASCII				6-Bit Display Code		ASCII				6-Bit Display Code	
Code Conversion†		Character and Code Conversion††				Code Conversion†		Character and Code Conversion††			
Code (Hex)	Char	Code (Hex)	Char	ASCII Char	Code (Octal)	Code (Hex)	Char	Code (Hex)	Char	ASCII Char	Code (Octal)
20	space	00	NUL	space	55	3E	>	1E	RS	>	73
21	!	7D	}	!	66	3F	?	1F	US	?	71
22	"	02	STX	"	64	40	@	60	`	@	74
23	#	03	ETX	#	60	41	A	61	a	A	01
24	$	04	EOT	$	53	42	B	62	b	B	02
25	%	05	ENQ	%	63	43	C	63	c	C	03
25	%	05	ENQ	space†††	55	44	D	64	d	D	04
26	&	06	ACK	&	67	45	E	65	e	E	05
27	'	07	BEL	'	70	46	F	66	f	F	06
28	(	08	BS	(	51	47	G	67	g	G	07
29	)	09	HT	)	52	48	H	68	h	H	10
2A	*	0A	LF	*	47	49	I	69	i	I	11
2B	+	0B	VT	+	45	4A	J	6A	j	J	12
2C	,	0C	FF	,	56	4B	K	6B	k	K	13
2D	-	0D	CR	-	46	4C	L	6C	l	L	14
2E	.	0E	SO	.	57	4D	M	6D	m	M	15
2F	/	0F	SI	/	50	4E	N	6E	n	N	16
30	0	10	DLE	0	33	4F	O	6F	o	O	17
31	1	11	DC1	1	34	50	P	70	p	P	20
32	2	12	DC2	2	35	51	Q	71	q	Q	21
33	3	13	DC3	3	36	52	R	72	r	R	22
34	4	14	DC4	4	37	53	S	73	s	S	23
35	5	15	NAK	5	40	54	T	74	t	T	24
36	6	16	SYN	6	41	55	U	75	u	U	25
37	7	17	ETB	7	42	56	V	76	v	V	26
38	8	18	CAN	8	43	57	W	77	w	W	27
39	9	19	EM	9	44	58	X	78	x	X	30
3A	:	1A	SUB	:	00	59	Y	79	y	Y	31
Display code 00 is undefined at sites using the 63-character set.						5A	Z	7A	z	Z	32
						5B	[	1C	FS	[	61
3A	:	1A	SUB	:	63	5C	\	7C	|	\	75
3B	;	1B	ESC	;	77	5D	]	01	SOH	]	62
3C	<	7B	{	<	72	5E	^	7E	~	^	76
3D	=	1D	GS	=	54	5F	_	7F	DEL	_	65

†When these characters are copied from/to a tape, the characters remain the same and the code changes from/to ASCII to/from display code.

††These characters do not exist in display code. Therefore, when the characters are copied from a tape, each ASCII character is changed to an alternate display code character. The corresponding codes are also changed. Example: When the system copies a lowercase a, 61_{16}, from tape, it writes an uppercase A, 01_8.

†††A display code space always translates to an ASCII space.

Table A-4. Nine-Track EBCDIC Coded Tape Conversion

EBCDIC				6-Bit Display Code		EBCDIC				6-Bit Display Code	
Code Conversion†		Character and Code Conversion††				Code Conversion†		Character and Code Conversion††			
Code (Hex)	Char	Code (Hex)	Char	ASCII Char	Code (Octal)	Code (Hex)	Char	Code (Hex)	Char	ASCII Char	Code (Octal)
40	space	00	NUL	space	55	C4	D	84	d	D	04
4A	¢	1C	IFS	[	61	C5	E	85	e	E	05
4B	.	0E	SO	.	57	C6	F	86	f	F	06
4C	<	C0	{	<	72	C7	G	87	g	G	07
4D	(	16	BS	(	51	C8	H	88	h	H	10
4E	+	0B	VT	+	45	C9	I	89	i	I	11
4F	|	D0	}	!	66	D1	J	91	j	J	12
50	&	2E	ACK	&	67	D2	K	92	k	K	13
5A	!	01	SOH	]	62	D3	L	93	l	L	14
5B	$	37	EOT	$	53	D4	M	94	m	M	15
5C	*	25	LF	*	47	D5	N	95	n	N	16
5D	)	05	HT	)	52	D6	O	96	o	O	17
5E	;	27	ESC	;	77	D7	P	97	p	P	20
5F	¬	A1	~	^	76	D8	Q	98	q	Q	21
60	-	0D	CR	-	46	D9	R	99	r	R	22
61	/	0F	SI	/	50	E0	\	6A	|	\	75
6B	,	0C	FF	,	56	E2	S	A2	s	S	23
6C	%	2D	ENQ	%	63	E3	T	A3	t	T	24
6C	%	2D	ENQ	space†††	55	E4	U	A4	u	U	25
6D	_	07	DEL	_	65	E5	V	A5	v	V	26
6E	>	1E	IRS	>	73	E6	W	A6	w	W	27
6F	?	1F	IUS	?	71	E7	X	A7	x	X	30
7A	:	3F	SUB	:	00	E8	Y	A8	y	Y	31
Display code 00 is undefined at sites using the 63-character set.						E9	Z	A9	z	Z	32
						F0	0	10	DLE	0	33
7A	:	3F	SUB	:	63	F1	1	11	DC1	1	34
7B	#	03	ETX	#	60	F2	2	12	DC2	2	35
7C	@	79	\	@	74	F3	3	13	TM	3	36
7D	'	2F	BEL	'	70	F4	4	3C	DC4	4	37
7E	=	1D	IGS	=	54	F5	5	3D	NAK	5	40
7F	"	02	STX	"	64	F6	6	32	SYN	6	41
C1	A	81	a	A	01	F7	7	26	ETB	7	42
C2	B	82	b	B	02	F8	8	18	CAN	8	43
C3	C	83	c	C	03	F9	9	19	EM	9	44

† When these characters are copied from/to a tape, the characters remain the same (except EBCDIC codes 4A, 4F, 5A, and 5F) and the code changes from/to EBCDIC to/from display code.

†† These characters do not exist in display code. Therefore, when the characters are copied from a tape, each EBCDIC character is changed to an alternate display code character. The corresponding codes are also changed. Example: When the system copies a lowercase a, 81_{16}, from tape, it writes an uppercase A, 01_8.

††† All EBCDIC codes not listed translate to display code 55_8 (space). A display code space always translates to an EBCDIC space.

Table A-5. Seven-Track Coded Tape Conversion

External BCD	ASCII Character	6-Bit Display Code (Octal)	External BCD	ASCII Character	6-Bit Display Code (Octal)
01	1	34	40	-	46
02	2	35	41	J	12
03	3	36	42	K	13
04	4	37	43	L	14
05	5	40	44	M	15
06	6	41	45	N	16
07	7	42	46	O	17
10	8	43	47	P	20
11	9	44	50	Q	21
12†	0	33	51	R	22
13	=	54	52	!	66
14	"	64	53	$	53
15	@	74	54	*	47
16†	%	63	55	'	70
17	[	61	56	?	71
20	space	55	57	>	73
21	/	50	60	+	45
22	S	23	61	A	01
23	T	24	62	B	02
24	U	25	63	C	03
25	V	26	64	D	04
26	W	27	65	E	05
27	X	30	66	F	06
30	Y	31	67	G	07
31	Z	32	70	H	10
32	]	62	71	I	11
33	,	56	72	<	72
34	(	51	73	.	57
35		65	74	)	52
36	#	60	75	\	75
37	&	67	76	^	76
			77	;	77

†As explained previously in this section, conversion of these codes depends on whether the tape is being read or written.

OPERATOR MESSAGES B

This appendix contains a sorted listing of all console messages and network messages which could be of importance to the operator. Each message is followed by an explanation of the message and/or the circumstances causing it to be issued, the recommended operator action, and the routine which issued the message. Messages beginning with numbers follow the alphabetical list.

If you encounter a diagnostic or informative message that does not appear in this appendix, refer to the NOS 2 Diagnostic Index. The Index catalogs all messages produced by NOS and its products and specifies the manual or manuals in which each message is fully documented.

Lowercase letters are used within a message to identify fields that are variable. All messages beginning with lowercase (variable) fields are listed alphabetically according to the first nonvariable field.

The messages in this appendix may appear on the following DSD displays.

- Job status (B) display.
- System dayfile (A,. or A.) display.
- System error log dayfile (A,ERROR LOG.) display.
- Resource mounting preview (E,P.) display.
- Utility (K) display.
- Console display during deadstart.

Network and local operator (NOP/LOP) error messages can also be issued to a terminal user who has network/local operator privileges.

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ABORT OF CDCS DETECTED.	Self-explanatory.	None.	TAF
ACN LOST - NVFCPUT.	For debug only. An ACN is not found in the ACN list. This message is generated by NVF procedure - NVFCPUT.	Inform site analyst.	NDL
ACTIVE FILES ON EQxx CANNOT INITIALIZE.	Informative message indicating that mass storage device with EST ordinal xx has initialize status set but cannot be initialized because permanent files are active on that device. The initialize request will be honored when the active file count reaches zero.	When active file count reaches zero, REQUEST*K*DISPLAY message appears on B display and initialization of device can proceed.	MSI
ADDRESS OUT OF RANGE.	A parameter block address was passed to CVL that was not within the job's field length.	Inform a site analyst.	CVL
ADL ASSIGNED PFN= filenam UN= usernam.	Informative message indicating the file name and user name of the application definition language (ADL) file attached by MCS. filename File name username User name	None.	MCS
ADL CREATED yy/mm/dd. hh.mm.ss.	Informative message indicating the creation date and time of application definition language (ADL) file.	None.	MCS
ADL NOT AVAILABLE PFN=filename, UN=username.	The system could not attach the named application definition language (ADL) file. filename File name username User name	Assign correct file.	MCS
AFD - LOCAL DAYFILE PROCESSED.	DAYFILE has successfully completed processing a local file as input (as in a terminated dayfile).	None.	DAYFILE
AFTER IMAGE ACCUMULATOR TABLE OVERFLOW.	When updating a file, the after image accumulation table was filled.	Increase size of table AAIT and inform site analyst.	DMREC (AAI)
AIP LOAD ERROR.	During an attempt to load network AIP relocatable subroutines, a loader error was returned.	Inform site analyst.	IAFEX
AIP TOO LARGE FOR LOADING.	A fatal error occurred causing TAF to abort.	Inform site analyst. TWFA must be increased in deck COMKTAF.	TAF
ALARM ON PORT nn LCN=numb PKID=id CAUSE=cc DIAG=dd.	CCP received an abnormal packet on a port serviced by the X.25 Terminal Interface Program. nn Port identifier numb Logical connection number id Packet identifier cc Cause identifier (first byte after packet header) dd Diagnostic identifier (second byte after packet header) This message is generated as the result of a mismatch between the packet switching network and Network Definition Language parameters.	Inform site analyst.	CCP
ALL CPUS OFF, OS LOAD IMPOSSIBLE	Self-explanatory.	At least one CPU must be turned on for the OS load to proceed.	CTI
filename ALLOCATED.	Informative message.	None.	DMREC
AMAS, es, vsn.	The magnetic tape equipment es is assigned with a volume serial number vsn. If the tape is unlabeled, vsn is not used.	None.	1MT
AMRT, es, onX.	Denotes magnetic tape equipment es returned from the user. onX specifies the type of drive returned and is specified as 66X or 67X.	None.	1MT
ANOTHER HOST BROADCAST IN PROGRESS AT NPU: xxxxxxx.	A host broadcast command entered while another host broadcast is in progress to an NPU.	Pause, reenter command.	CS
ANOTHER RBF ALREADY NETTED ON.	Another copy of RBF has entered the network.	No action required. The second copy of RBF will be dropped automatically.	RBF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ANOTHER STATUS REQUEST IN PROGRESS AT NPU.	A status request command to an NPU attempted while another status request is active.	Pause, reenter command.	CS
ANOTHER STATUS REQUEST IN PROGRESS AT NPU npuname.	A status command was entered while another status command is in progress to an NPU.	Pause, reenter command.	CS
APP SENT BLK ON BROKEN CONNECTION.	Informative message indicating that an application has sent a block on a broken connection.	No action is required. NIP discards the block in question.	NIP
APPL - applnam INITIALIZED.	Informative message indicating that named application was started and is now active. applnam Application name	None.	MCS
APPL - applnam JOURNAL journal DISABLED.	Because of CIO errors or an incorrect owner name, the recording of messages in the journal was disabled. applnam Application name journal Journal file name	Correct owner name if appropriate.	MCS
APPL - applnam MONITOR monitor DISABLED.	Because of CIO errors or an incorrect owner name, the monitor file was disabled. applnam Application name monitor Monitor file name	Correct owner name if appropriate.	MCS
APPL - applnam PROG prognam CONNECTED.	Informative message indicating that a test mode program has connected to MCS. applnam Application name prognam Program name	None.	MCS
APPL - applnam PROG prognam DISCONNECT.	Informative message indicating that a test mode program has disconnected from MCS. applnam Application name prognam Program name	None.	MCS
APPL - applnam PROG prognam REVOKED.	Informative message indicating that MCS aborted the named program. applnam Application name prognam Program name	None.	MCS
APPL - applnam Q queuenam FLUSHED.	Informative message indicating that the named queue file has been moved to disk. applnam Application name queuenam Queue file name	None.	MCS
APPL - applnam Q queuenam PURGED.	Informative message indicating that the named queue file was purged because it could not be verified upon recovery. applnam Application name queuenam Queue file name	None.	MCS
APPL - applnam QUEUE queuenam IN CM.	Named disk queue file was moved to central memory because of an incorrect owner name. applnam Application name queuenam Queue file name	Corect owner name.	MCS
APPL - applnam RECOVERED FILE filenam.	Informative message that is displayed for each file when the application is initiated. applnam Application name queuenam Queue file name	None.	MCS
APPL - applnam SHUTDOWN	Informative message indicating that the application was terminated successfully. applnam Application name	None.	MCS
APPL - applnam START FAILED, FILE BUSY.	Named application file is busy. This causes application initiation to be aborted. This message is preceded by a message specifying the name of the busy file. applnam Application name	Inform site analyst. Return the busy file and retry initiation.	MCS
APPL - applnam START FAILED, I/O ERROR.	Errors were encountered in trying to read application definition language (ADL) file for the named application. applnam Application name	Inform site analyst. Recreate ADL file.	MCS
APPL - applnam START FAILED, NO MEMORY.	No memory is available to start the application. applnam Application name	Retry later.	MCS
APPLICATION ALREADY RUNNING.	An attempt was made to start an application that was already active.	None.	MCS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
APR0000 MUST BE EMPTY.	The first APRDECK on the deadstart tape (first record following APRINST) must be on empty record, containing only record name APR0000.	Rebuild deadstart tape to conform to requirements.	SET
ARF BLOCK SIZE IS LARGER THAN BUFFER.	The maximum block length field in the header record for an ARF is larger than the maximum block length (installation parameter) allocated by TAF/CRM data manager.	The file must be dumped using DMREC and preallocated.	TAF
ARF DUMP TAPE HEADER ERROR.	No header found on ARF tape.	Use alternate tape if available.	DMREC
ARF ENTRY TABLE OVERFLOW	Too many recoverable file names exist on this ARF.	Increase the size of the TLOG table with installation parameter TLOGL.	AAMI
ARF FILE HEADER ERROR.	No header was found on the ARF file.	Down the data base, dump the data base, purge the old ARF, and create a new one.	DMREC
ARF HEADER ERROR.	No ARF header on what is supposed to be an ARF.	Check ARF for validity, inform data administrator.	DMREC
ARF HEADER STATUS (3) POSSIBLE ERROR.	ARF header status shows a possible error condition.	Inform data administrator.	DMREC
ARF ORDINAL MUST BE 01 OR 02.	ARFs can have only 01 or 02 as an ordinal.	Correct directive name (ARF/BRF).	DMREC
ARGUMENT ERROR.	Dayfile message indicating that the parameter list on the ISF entry contained an incorrect parameter.	Repeat the ISF entry with the correct parameter list.	ISF
ARGUMENT ERROR.	An incorrect parameter was entered on a command.	Reenter command using the correct parameters and syntax.	FOTD SUBSYST
ARGUMENT ERROR.	JSN was not entered in the command call or more than one parameter was entered.	Ensure proper command format.	QDSPLAY
ASSIGNED FOR DIAGNOSTICS, FILE filename AT address.	A MALET user attempted a CIO operation on a preassigned tape with file name filename and FET address.	Enter only CIO operations that remove the file from the system tables (for example, RETURN or UNLOAD).	1MS
ATTACH ERROR ON - filename.	The transaction executive cannot attach the file filename under present conditions. This usually implies that the file does not exist or permission has not been given to the TAF user name.	Correct error and reinitialize executive, or inform site analyst.	TAF
ATTACH ERROR ON PF xxxxxxx.	When attempting to attach a data file, an error was encountered.	Check for valid directive file name and presence of a direct access permanent file by that name.	DMREC
ATTACH MODE MUST BE W, M, R, OR RM.	The mode parameter on the CRM statement must be one of the specified values.	Correct the mode parameter on the CRM statement or inform site analyst.	TAF
AUTO MODE.	DIS is in AUTO command processing.	None.	DIS
n.nnn AVERAGE ACTIVE SUBCONTROL POINTS.	Average number of simultaneously active subcontrol points when TAF is not rolled out. An active subcontrol point is one which is in recall, is waiting to use the CPU, or is currently assigned the CPU. The sampling rate is once per second.	None.	TAF
n.nnn AVERAGE OUTSTANDING CDCS REQUESTS.	Average number of outstanding (uncompleted) SSC requests per second. The sampling rate is once per second.	None.	TAF
BACKUP DIRECTORY - xxxxxxx HAS BEEN RECONSTRUCTED.	No directory file for the specified data base. A new directory was generated from the information on the xxJ file.	Inform data administrator.	DMREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
BAD AN NET/ON SM RESPONSE FROM NVF.	Incorrect application number received on NETON response from NVF. NIP will abort if DEBUG is on.	Supply dumps to site analyst.	NIP
BAD DIRECTORY ON ADL.	An incorrect application definition language (ADL) file was encountered during MCS initiation.	Inform site analyst. Recreate ADL file.	MCS
BAD LCF.	For debug only. The LCF in use is bad.	Correct the LCF and restart the network.	NDL
BAD MINACN/MAXACN VALUE. JOBID = jobid.	Application used incorrect MINACN and/or MAXACN on NETON request. NAM will abort the application.	None.	NIP
BAD NCF.	The current NCF is bad.	Correct NCF and restart network.	CS
BAD NCF READ.	The NCF read is bad.	Correct NCF and restart network.	CS
BAD NETWORK BLOCK DISCARDED.	Informative message indicating that NIP has received a block from the network that it cannot recognize. NIP discards such blocks, and records in the dayfile the NAM block header word, followed by the network header word, followed by the text of the block. This message occurs when NAM stops running because of deadstart recovery or network shutdown for example, and the NPU remains active. With the host down, CCP places all upline messages in the input queue. When NAM is initialized again, all these messages are delivered to the host. NIP does not recognize most, if not all, of these messages because logical links, supervisory links, and logical connections are not reestablished yet. Ignore this message during NAM initialization; however, if the network is up and running, then this message indicates an error has occurred in the network. The error is not serious and the network need not be taken down, unless the error occurs consistently.	If during NAM initialization, ignore. Otherwise, inform site analyst.	NIP
BAD VERIFICATION RECORD ON ADL.	An incorrect application definition language (ADL) file was encountered during MCS initiation.	Inform site analyst. Recreate ADL file.	MCS
BATCH CONCURRENCY DISABLED.	TAF was brought up without BATCH concurrency enabled. CTBCON=Q).	Ask data administrator to bring up TAF with BATCH concurrency ENABLED.	BAAML
BEGIN CRM TASK RECOVERY.	TAF/CRM has received a recovery indication from TAF.	None.	AAMI
BKF eq, nn.	The operator requested a backspace of nn logical files on the print file on BIO equipment eq.	None.	QAP
BKP eq, nn.	The operator requested a backspace of nn sectors (PRUs) on the print file on BIO equipment eq.	None.	QAP
BKR eq, nn.	The operator requested a backspace of nn logical records on the print file on BIO equipment eq.	None.	QAP
BLANK LABELS DO NOT VERIFY.	This message can occur only during blank labeling of a tape and indicates that the tape label read does not match the label written.	Repeat the blank labeling operation or inform the site analyst.	BLANK
BLOCK BUFFER OVERFLOW.	When attempting a record load operation, the data block buffer was found to be too small.	Check for valid and correct dump tape and inform the analyst.	DMREC
BLOCK BUFFER TOO SMALL.	Tape block on ARF was too large for buffer.	Increase size of buffer and try again.	DMREC
BLOCK LOAD ERROR.	Block load of a file failed because no header was found on dump tape. Or, the targeted file or the tape does not match request file name.	Load from previous dump tape.	DMREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
BLOCK LOST - tn.	A NAK message was received from the network on connection # tn.	None.	IAFEX
BLOCK SEQUENCE ERROR.	For a specific block, the block number recorded on the tape did not match the block number expected by the system tape loader.	Perform either of the following actions. - Type GO. to continue deadstart. Further block checking is disabled and the information transferred from tape may not be valid. - Redeadstart using a different tape unit or a different deadstart tape.	DIO
BLOCKAGE AMONG CM RESIDENT TASKS.	The sum of initial field lengths for the CM resident tasks exceeds the minimum size of total task area.	Correct error.	TAF
BTASK - TAF AUTOMATIC RECOVERY NOT INSTALLED.	A keyword specified in a TSTAT request requires TAF automatic recovery to be installed.	Inform the data administrator.	BTASK
BTASK - TASK LOGICAL ERROR.	An unexpected error status was returned.	Inform the data administrator.	BTASK
BTASK - xxxxxxx TRANSACTION NOT RUNNABLE NOW.	This occurs when an I/O error is detected and the data base cannot be recovered for the user xxxxxxx.	Inform the data administrator.	BTASK
BTASK - USER NOT DEFINED IN NETWORK FILE.	The user is not defined in the NETWORK file on a TSTAT request.	Inform the data administrator.	BTASK
BUFFER ARGUMENT ERROR.	One of the FET pointers is outside the caller's field length.	Examine program to determine error.	LOADBC 1LC
BUFFER CONTROL WORD ERROR.	Dayfile message indicating that the word count in the disk linkage is greater than 100B.	Inform site analyst.	SLL
nn BUFFERS ACTIVE.	Issued to DSD B and J Displays, indicating the number of buffers currently in use by BIO.	None.	1IO
C. B. NOT AVAILABLE TO SCHEDULE CTASK.	Communication block not available to schedule CTASK.	Increase the number of communication blocks at initialization time using the K.MCB= command.	TAF
Ccc DOWNED.	Magnetic tape channel cc has been logically turned off by the system.	Inform site analyst.	1MT
Ccc, MTS FIRMWARE LOAD ERRORS.	Unable to load magnetic tape controller firmware on channel cc.	Inform customer engineer.	1MT
Ccc, Tt ATS CONVERSION TABLE LOAD ERRORS. or Ccc, Tt MTS CONVERSION TABLE LOAD ERRORS.	Errors occurred in loading of conversion table. cc Channel number t Conversion table (one of the following). 1 ASCII table 2 EBCDIC table 3 BCD table	Inform site analyst.	1MT
CANNOT ACCESS L-DISPLAY.	*DSD* detected an error condition when input was entered via the *L* display.	Check proper input procedure and retry.	QDSPLAY
CANNOT ALLOCATE DEVICE.	Cannot allocate a multispindle device for one of the following reasons. - Not enough spare spindles available - Spare spindles not up and allocatable - An attempt was made to allocate a nonremovable device	Perform one of the following. - Decrease pack count and enter GO. - Enter CLEAR to clear initialize status for the device.	MSI
CANNOT BROADCAST TO HOST-HOST LOGICAL LINK.	A send command was attempted across a host-host logical link.	Reenter command.	CS
CANNOT DEFINE REFORMATTED FILE - filename.	A reformat of the TAF COMMUNICATIONS recovery file was necessary, but when attempting to DEFINE the reformatted file (ZZCRFAi), an error occurred.	Purge the existing file indicated by filename.	TAFREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CARTRIDGE CONFLICT, X=x, Y=y. RESPOND GO TO ACKNOWLEDGE.	K display message indicating that the cartridge storage unit was unable to place the cartridge into cubicle X=x, Y=y because another cartridge is already there. Both cartridges were placed in the lower I/O drawer. x X coordinate of the cubicle (0-57) y Y coordinate of the cubicle (0-36)	Enter K.m.GO to clear the message. Run ASLABEL to restore the cartridge to the cartridge storage unit (refer to the NOS System Maintenance Reference Manual). m Message ordinal	EXKD
CARTRIDGE WEAR NOTED, X=x, Y=y. RESPOND GO TO ACKNOWLEDGE.	K display message indicating that the cartridge in the mass storage transport has been read with two tracks automatically corrected. Normally this indicates wear of the recording surface. Schedule the cartridge for replacement. This message is written in the error log file also. x X coordinate of the cubicle (0-57) y Y coordinate of the cubicle (0-36)	Enter K.m.GO to clear the message. m Message ordinal	EXKD
CEJ/MEJ NOT PRESENT OR DISABLED.	CEF/MEJ is either disabled on the deadstart panel or was logically turned off by the operator at CTI time. NOS no longer supports a non CEJ/MEJ mode of operation.	Redeadstart with CEJ/MEJ enabled.	SET
CEZ NOT FOUND ON TAPE DEADSTART ABORTED	CTI failed to find the MSL/HIVS tape bootstrap loader CEZ during a MSL/HIVS load from tape.	Inform site analyst or customer engineer.	CTI
CHcc,ABORT,Fffff.	Function ffff timed out while accessing the controller.	Inform customer engineer.	LOADBC
CHcc,ABORT,NO GENERAL STATUS.	After a download of controlware completed, the controller did not return a general status word after a status function.	Inform customer engineer.	LOADBC
CHcc,ABORT,Snnnn.	An error in the general status of the controller occurred after the controlware was loaded. cc Channel on which controlware was loaded. nnnn General status of the controller.	Inform customer engineer.	LOADBC
CHcc MAaaa - Ann.	Informative message indicating the controlware name and revision number for a 7054, 7154, or 7155 mass storage controller. cc Channel number. aaa Type of controlware. 710 7054/7154 controlware 401 7154 controlware 721 7155 controlware nn Controlware revision number in octal.	None.	6DI
CHcc,MAttt,Avv,LOAD COMPLETE.	Informative message indicating that the controlware was successfully loaded. cc Channel on which disk controlware was downloaded. ttt Controlware type (401, 710, or 721).. vv Version number (12, 13, 14, ...).	None.	LOADBC
CHcc, Unuu - Szzzz.	Operator message indicating the status zzzz of unit uu on deadstart channel cc. This message is significant only if the deadstart process halts.	If hardware malfunction is suspected, inform customer engineer. Otherwise, try a different deadstart tape or disk unit.	DIO
CHANGED TLD DETECTED - filename, username.	An unrecognizable library directory format was encountered during a library directory update attempt.	Inform site analyst.	TAF
CHANNEL ACTIVE ERROR.	The channel associated with a logically off PP is active when it should be inactive.	Redeadstart. If the condition persists, inform customer engineer or site analyst.	EBL
CHANNEL NUMBER ARGUMENT ERROR.	The ARG common deck routine reported an error in the channel number supplied on the LOADBC command.	Check the C=cc parameter and retry.	LOADBC
CHANNEL cc PARITY ERROR.	A parity error was detected on channel cc.	Inform site analyst and customer engineer.	SCE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CHECK *E,P* DISPLAY.	An error condition or request for operator action is currently being displayed on the E,P display. Operator action is required.	Bring E,P display to console screen and perform necessary action. (See status field of E,P display, section 4.)	1MT
CHECK PAPER ALIGNMENT.	The paper on the line printer is not aligned correctly.	Check paper alignment (refer to 580 line printer programmable control initialization in appendix D).	1IO
CHECKPOINT ABORTED.	The checkpoint operation was aborted by the operator, possibly by dropping the control point at which 1CK was executing or because of mass storage write errors.	Inform site analyst.	1CK
CHECKPOINT COMPLETE.	Informative message indicating the checkpoint operation completed successfully.	None.	1CK
CLEAN READ/WRITE HEAD ASSEMBLY. RESPOND GO AFTER CLEANING.	Contamination of the read/write head in the mass storage transport is causing data errors.	Clean the read/write head assembly and respond K.m.GO to retry the operation. m Message ordinal	EXKD
CLOSE DOOR ON UNIT.	K display message indicating that a door (not I/O drawer) is open on the cartridge storage unit or mass storage transport (as indicated in line 1 of message).	Close the door.	EXKD
CLOSE wwwww DRAWER.	K display message indicating that the upper or lower (wwwww) drawer of the cartridge storage unit is open or not closed securely.	Close and lock the indicated I/O drawer. Push the position switch to IN.	EXKD
CM FATAL ERROR.	1MB detected an uncorrected fatal memory error. Check the error log dayfile for further information.	Inform customer engineer and site analyst.	1MB
CM SHUTDOWN IMMINENT.	1MB detected bit 63 in the central memory status sumary register. This bit indicates that there is an abnormal environmental condition present for the central memory and it probably will shut down. Refer to appendix F for more information.	Verify that the system was able to complete checkpoint. Inform the customer engineer and site analyst.	1MB
CMC PARITY ERROR.	A central memory control (CMC) parity error has occurred.	Inform site analyst and customer engineer.	SCE
CMM ERROR.	A *CMM* error occurred. Memory cannot be granted to load *OPEN* routine.	Inform analyst.	AAMI
CMR LENGTH CHANGED.	The MST address determined by SET or the first word address of the RPL (REC) has changed on a recovery level deadstart. Possible causes include the following. - CMRDECK changes made on the initial deadstart were not made on the recovery deadstart. - MST pointer in EST was destroyed. - Condition of CM has changed (upgraded/ downgraded) since initial deadstart.	Correct CMRDECK and retry recovery deadstart or perform an initial (level 0) deadstart.	SET REC
CMR OVERFLOW.	The LWA of the EAT (equipment assignment table) is greater than 12 bits.	Inform site analyst.	SET ICM
CMRDECK NOT ON TAPE.	The specified text deck number is not contained on the deadstart tape being used.	Redeadstart and select the correct text deck.	SET
COMMAND ABORTED.	The redefinition procedure for the equipment was terminated by the operator.	None.	1RM
COMMAND ILLEGAL AFTER GO.	The command which was just entered is incorrect after the GO command has been entered.	None.	MCS
COMMAND MISSING PARAMETER.	A needed parameter is missing.	Attempt corrected command entry.	NVF
COMMAND PROCESSED.	The command entered was processed successfully.	None.	LIDOU

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
COMMAND RESTRICTED TO NPU OPERATORS.	The Host Operator (HOP) attempted a superfluous command.	Command not necessary.	CS
COMMAND RESTRICTED TO OPERATORS.	A command to gain operator privilege was entered by the host operator when it was not needed.	None.	CS
COMPARE FILE DEFINE ERROR. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because of a system error.	Submit a Programming System Report (PSR) with supporting material.	EXSTGE
COMPARE FILE PURGE ERROR. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because of a system error.	Submit a Programming System Report (PSR) with supporting material.	EXSTGE
CON eq.	The operator resumed printing on BIO equipment eq.	None.	QAP
CONFIG UTILITY COMPLETE.	All redefinition requested equipments have been processed.	None.	CONFIG
CONNECT REJECT, lfn AT addr.	The system was unable to connect a peripheral device.	Inform site analyst.	1MT
CONTROL CARDS ON FILE.	Processing of the ELS command is not valid while DIS is processing a procedure call.	None.	DIS
CONTROL STATEMENT PARAMETER SYNTAX ERROR.	Control statement parameter separator is not equal sign or control statement parameter value is missing.	Correct RBF2P0 control statement parameter.	RBF
CONTROLLER DID NOT TAKE ALL THE CONTROLWARE.	The controller did not accept all the data in the controlware record. The contents of a register did not equal zero after one of the OAM instructions in the PP.	Inform customer engineer.	LOADBC
CONTROLLER RESERVED.	Disk controller currently busy, waiting to access controller.	None.	CTI
CONTROLWARE LOAD ABORT, C=cc.	First line of a two-line message indicating that controlware was not successfully loaded on channel cc. The second line of the message indicates the reason for the abort.	Refer to the message given in the second line for information about appropriate action to be taken.	LOADBC
CONTROLWARE LOAD COMPLETE. yyyFIRMWARE MAttt-vvv,C=cc.	Informative message indicating that the controlware was successfully loaded. yyy Controller type. ttt Controlware type. vvv Version number. cc Channel number.	None.	LOADBC
COPYING SESSION DATA TO OUTPUT	DEMUX is copying the translated session output from the scratch file to the selected OUTPUT file.	None.	DEMUX
CPeq, CHcc Abbbb INCOMPLETE TRANSFER.	An incomplete data transfer occurred and involved the card punch equipment eq. eq EST ordinal of Card punch cc Channel number bbbb Octal byte count not transferred	Inform customer engineer.	QAP 1IO
CPeq, CHcc CONTROLLER HUNG BUSY.	The specified controller did not drop BUSY status for card punch equipment eq. eq EST ordinal of card punch cc Channel number	Inform customer engineer.	1IO QAP
CPeq, CHcc Fffff FUNCTION TIMEOUT.	No response (inactive) was received after a function code was issued to the specified card punch equipment eq (converter and equipment status unavailable). eq EST ordinal of card punch cc Channel number ffff Function code	Inform customer engineer.	QAP 1IO
CPeq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm.	Function reject or transmission parity error was detected on the specified card punch equipment eq. eq EST ordinal of card punch cc Channel number ffff Function code aaaa Driver (1CD) address bbbb Converter status mmmm Equipment status	Inform customer engineer.	QAP 1IO

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CPeq, CHcc RESERVED.	The 415 card punch eq is reserved and cannot be connected on channel cc.	Inform customer engineer.	1IO
CPeq, CHcc TURNED OFF.	The specified 415 card punch equipment eq was logically turned off (OFF status set in EST). This message is preceded in the error log by a message for the same equipment which specifies the failing condition. eq EST ordinal of 405 card punch cc Channel number	Inform customer engineer.	1IO QAP
CPeq, COMPARE ERROR.	BIO detected compare error on card punch with EST ordinal eq.	Job output must be repunched via DSD command REPUNCH.	QAP
CPeq, FEED FAILURE.	Card punch with EST ordinal eq experiencing card feed failure.	Inform customer engineer.	QAP
CPnn RA/MOVING/ROLLING.	Control point nn has a bad RA or was moving or rolling out when a level 3 deadstart was initiated. Recovery is aborted.	Level 0 deadstart is required.	REC
CPD - ALREADY ACTIVE.	An attempt to initiate CPD was made when CPD was already active.	Do not attempt to initiate second copy of CPD before the first copy is terminated.	CPD
CPD NOT ACTIVE.	SFM was called to set the CPD drop flag when CPD was not active.	None.	SFM
CPLER: coupler,status,node,npuname/xxy	Coupler status information Coupler coupler with status status, node number node at npu name npuname/SEC (secondary) or PRI (primary).	None.	CS
.CPU FATAL ERROR.	1MB detected an uncorrected fatal processor error (bit 61 of the processor status summary register). Check the error log dayfile for further information.	Inform customer engineer and site analyst.	1MB
CPU x P REGISTER PARITY ERROR.	A central processor P register parity error was detected on CPU x. x CPU number (0 or 1)	Inform site analyst and customer engineer.	SCE
CPU POWER FAILURE.	1MB detected an error bit in the CYBER 170 Model 835 processor status summary register (bit 59), signifying that the CPU had a power failure.	Inform customer engineer.	1MB
CPU SHUTDOWN IMMINENT.	1MB detected bit 63 in the central processing unit status summary register. This bit indicates that there is an abnormal environmental condition present for the central processing unit and it probably will shut down. Refer to appendix F for more information.	Verify that the system was able to complete checkpoint. Inform the customer engineer and site analyst.	1MB
CPUMTR ERROR EXIT.	CPUMTR has executed an error exit sequence. The exit mode condition bits of location zero of CMR contain the conditions causing CPUMTR to error exit.	Look at location zero of CMR (DSD C-display) to determine exit mode condition. Inform customer engineer. Redeadstart if necessary.	DSD
CReq, CHcc Abbbb INCOMPLETE TRANSFER. CReq, CHcc CONTROLLER HUNG BUSY. CReq, CHcc Fffff FUNCTION TIMEOUT. CReq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm. CReq, CHcc TURNED OFF.	Card reader messages. Refer to CPeq...	NONE.	1IO QAP
CReq, CHcc RESERVED.	The 405 card reader is reserved and cannot be connected on channel cc. eq EST ordinal of card reader cc Channel number.	Inform customer engineer.	1IO
CReq, COMPARE ERROR.	Compare error was detected on card reader with EST ordinal eq.	Reread deck.	QAP
CRF HEADER ERROR - filename.	I/O errors or logical errors were encountered in the header record of the named CRF. The file is unusable.	Initialize the file using the K.INT initial K display command.	TAFREC
CRF RECOVERY/INITIALIZATION ABORTED.	Informative message.	The action depends on the message preceding this one in the dayfile.	TAFREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CRF RECOVERY/INITIALIZATION COMPLETE.	Informative message.	None.	TAFREC
CRF RECOVERY UNIT ERROR - filename.	I/O errors or logical errors were encountered in a run unit of the named CRF.	Attempt to recover any good information using the K.ERO=YES initial K display command, or initialize the file using the K.INT initial K display command.	TAFREC TAF
CRM(...parameter-list...)	This is a copy of a CRM statement that is in error. A subsequent message follows.	Inform site analyst.	TAF
CRM DATA MANAGER SUCCESSFULLY LOADED.	Self-explanatory.	None.	TAF
CRM ERROR ENCOUNTERED.	A CRM error occurred while processing the directory. The CRM error is either an incorrect key or end of file when this is the only output message.	Inform data administrator.	DMREC
CRM ERROR xxx IN UPDATE PROCESSOR.	A CRM error has occurred during the application of the after image to a data file.	Note which error has occurred and locate references to the error in the CRM/AAM Reference Manual for appropriate action.	DMREC TAF
CRM ERROR IN ZZdbDIR (GET).	A CRM error was encountered when trying to retrieve a VSN record from the directory on a file load.	Inform data administrator.	DMREC
CRM TASK RECOVERY IMPOSSIBLE.	Recovery is not possible when the recovery file structure is found to be inconsistent with TAF/CRM tables and parameters specified on xxJ files.	The last reported BRF must be corrected or reallocated.	AAMI
CRMTASK - DATA BASE DOWNED BY OPERATOR.	DMREC notified TAF that the data base was recovered. But AAMI was not able to access it because it had been downed by the operator.	Only an operator may up the data base that he/she downed. It cannot be upped automatically.	CRMTASK
CRMTASK - DATA BASE/FILE BEING IDLED.	AAMI will not process any requests on an idle data base/file.	After the cause of the data base/file being idle has been fixed, the operator must bring it up.	CRMTASK
CRMTASK - DATA BASE/FILE CANNOT BE UPPED.	DMREC recovered the data base or file but AAMI was not able to bring it up.	Analyst must investigate the cause of AAMI inability to bring file/data base up.	CRMTASK
CRMTASK - DATA BASE/FILE NAME UNKNOWN.	DMREC request had a distorted data base or file name.	Call the analyst to investigate the cause.	CRMTASK
CRMTASK - INVALID REQUEST.	CRMTASK was not called correctly by DMREC.	There may be a transaction in the system attempting to use functions reserved for DMREC.	CRMTASK
CRMTASK - INVALID REQUEST FORMAT.	AAMI rejected this request.	An analyst should investigate the reason for this rejection.	CRMTASK
CRMTASK - INVALID TT SEQUENCE NUMBER.	AAMI does not recognize the TT sequence number returned by DMREC.	Call the analyst to investigate the discrepancy between DMREC and TAF.	CRMTASK
CRMTASK - NOT ALL DATA BASE FILES UPPED.	DMREC recovered the data base but AAMI was unable to attach/open all of data base files.	Analyst should investigate why only some of the data base files came up.	CRMTASK
CRMTASK TIMEOUT.	A terminal job timed out while waiting for the next command.	A valid command must be entered within the default time of 480 seconds.	CRMTASK
CRT - CIO ERROR.	A CIO error was generated when creating a log file.	Purge the log file and try again (check file name).	DMREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CS=ssss.	A coupler status error has occurred. ssss Status (four octal digits)	Redeadstart. If message persists, inform site analyst.	CDX
CS ATTEMPTING NETON.	Self-explanatory.	None.	CS
CS/CONTROL STATEMENT PARAMETER SYNTAX ERROR.	This CS command in the master file is formatted incorrectly.	Correct command in master file, restart the network.	CS
CS DISABLED.	CS is disabled.	Inform site analyst.	CS
CS/DUPLICATE CONTROL STATEMENT PARAMETER.	A duplicate parameter setting encountered on the CS command.	Correct command in master file, restart the network.	CS
CS DUPLICATE NETON.	CS has already netted on. A subsequent neton is illegal.	Inform site analyst.	CS
CS/ILLEGAL CONTROL STATEMENT PARAM VALUE.	An out-of-range value encountered for a CS command parameter.	Correct command in master file, restart the network.	CS
CSxx,MSID id.	K display message indicating that there is an error condition on the cartridge storage unit. xx EST ordinal id Cartridge storage unit identifier	Refer to the message(s) following this message for appropriate action.	EXKD
CS NETON SUCCESSFUL.	Self-explanatory.	None.	CS
CS/NIN IS NOT SPECIFIED.	The required NIN value on the CS command is missing.	Correct command in master file, restart the network.	CS
CS SHUTDOWN INITIATED, PLEASE TERMINATE CONNECT.	Self-explanatory.	Network operator must terminate connection to CS.	CS
CS/UNRECOGNIZED CONTROL STATEMENT PARAMETER.	An undefined parameter encountered on the CS command in the master file.	Correct command in master file, restart the network.	CS
CSDDNT - SM NOT ROUTED.	CS received an unexpected supervisory message.	Inform site analyst.	CS
CSM - ILLEGAL COMMUNICATION FUNCTION.	An incorrect or unrecognizable request was received by the transaction executive from the CPU monitor.	Inform site analyst.	TAF
CSSANS - DUPLICATE SUP/IN FROM npuname.	For debug only. CS received a duplicated SUP/IN supervisory message from NPU npuname.	Inform site analyst.	CS
CSSAST - INVALID CMD FORMAT.	A CS routed command is bad.	Inform site analyst.	CS
CSSDRC - BAD COMMAND.	A bad command is entered. The message is issued by CS procedure CSSDRC.	Inform site analyst.	CS
CSSTNS - NO NPUCB.	An NPUCB entry cannot be found.	Inform site analyst.	CS
CSU x ADDRESS PARITY ERROR.	A central storage unit (CSU) address parity error was detected on CSU x. x CSU number (0 or 1)	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	SCE
CSU EST ERROR xx. pfn FOR jsn NOT FOUND ON MSF. REPLY GO TO CONTINUE.	An error was detected on a cartridge label from the cartridge storage unit with EST ordinal xx. A probable cause of this error is entering the wrong identifier on the EST entry for the cartridge storage unit. pfn Permanent file name jsn Job sequence name	Enter K.m.GO to clear the message. m Message ordinal	EXKD
CSU x FAULT.	A central storage unit (CSU) hardware error was detected on CSU x. x CSU number (0 or 1).	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	SCE
CSU GROUP INITIALIZATION COMPLETE. CSUx, EST ORDINAL = yy.	The initialization of a CSU and its associated MSTs has been completed and cartridges in the output drawer have been processed.	None.	EXHLR

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CSU INITIALIZATION ABANDONED. CSUx, EST ORDINAL = yy.	The initialization of a CSU was abandoned.	Inform site analyst.	EXHLR
CSU INITIALIZATION COMPLETE. CSUx, EST ORDINAL = yy.	The initialization of a CSU was completed.	None.	EXHLR
CSU id INPUT DRAWER EMPTY.	A cartridge is needed from the input drawer of the cartridge storage unit (CSU id) to process the directive to ASLABEL or ASDEBUG. id CSU identifier (A through M).	Put the required cartridge into the input drawer.	ASLABEL ASDEBUG
CSU id OUTPUT DRAWER NOT EMPTY.	An empty slot in the output drawer of the cartridge storage unit (CSU id) is needed to process the directive to ASLABEL or ASDEBUG. id CSU identifier (A through M).	Remove cartridges from the output drawer.	ASLABEL ASDEBUG
CTxx,MSID id.	K display message indicating that there is an error condition on the mass storage transport. xx EST ordinal. id Mass storage transport identifier.	Refer to the message(s) following this message for appropriate action.	EXKD
CTASK - DATA BASE OR FILE DOWN.	The data base, TAF/CRM, or file is down on an RSTDBI request.	Inform the data administrator.	CTASK
CTASK - DATA BASE OR FILE IDLE.	The data base, TAF/CRM, or file is idle on an RSTDBI request.	Inform the data administrator.	CTASK
CTASK - FILE IS NOT INSTALLED.	The data base or file is not available in the xxJ file on a CRMSTAT request.	Inform the data administrator.	CTASK
CTASK - ILLEGAL RECOVERY CASE.	The recovery case selected for processing was incorrect.	Inform the data administrator.	CTASK
CTASK - NO CRM RECOVERY FILES FOR DATA BASE.	There is no recovery file assigned to the data base on an RSTDBI request.	Inform the data administrator.	CTASK
CTASK SYSTEM IDENTIFIER UNKNOWN.	The old system identifier is unknown when issuing a TINVOKE request.	Inform the data administrator.	CTASK
CTASK - TABLE AREA NOT LARGE ENOUGH.	Take table area supplied by CTASK for a CMRSTAT request is not large enough.	Inform the data administrator.	CTASK
CTASK - TASK LOGICAL ERROR.	An unexpected error status was returned.	Inform the data administrator.	CTASK
CTASK - TRANSACTION NOT RERUNABLE.	The TAF transaction was not rerunnable and a RERUN was attempted.	Inform the data administrator.	CTASK
CTASK - TRMREC ERROR.	One of the following occurred: - There was no outstanding DBEGIN request. - An error was encountered on a data base or recovery file. - The data base or TAF/CRM is down.	Inform the data administrator.	CTASK
CTASK - USER NOT DEFINED IN NETWORK FILE.	The user specified on a TSTAT, WSTAT, or RERUN request is not defined in the NETWORK file.	Inform the data administrator.	CTASK
CTI COMMUNICATION ERR-NO CPU.	The deadstart program SET was unable to find an entry in the CTI communication block for the CPU. SET needs this entry to form a connect code to start the CPU on a CYBER 170 Model 835 processor.	Inform customer engineer and site analyst.	SET
CTI CYLINDER OVERFLOW	CTI overflowed the area reserved on cylinder.	Redeadstart.	ICD
CVL CALL ERROR.	The validation routine, CVL, encountered one of the following errors while processing the CEVAL macro. - Recall bit was not set. - Illegal function number was specified. - Insufficient or improper combination of parameters was specified. - The user supplied mnemonic does not match the preassigned tape mnemonic when CVL was called by preassignment. - A tape was not preassigned when CVL was called by preassignment. - The user attempted to load tape controlware when CVL was called by preassignment. - A labeled tape was preassigned when CVL was called by preassignment.	Correct error and resubmit program.	CVL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
CYB, +35 CHARACTERS+*.*	A comment entry on the editing display for CYBERLOG is more than 35 characters.	Reenter the comment in 35 characters or less.	CYBRLOG
CYCLE NUMBER IS OUTSIDE LIMITS.	The specified cycle number is outside the limits set by the installation parameter (CYUCM).	Check the maximum cycle number and rerun.	DMREC (CYC)
DATA BASE/FILE ALREADY DOWN OR IDLE.	CRMTASK issued a DBDOWN request to AAMI, but the data base or file name was already down or idle.	Inform the site analyst.	CRMTASK
DATA BASE/FILE CANNOT BE UPPED.	CRMTASK issued a DBUP request but AAMI was not able to bring up the data base or file name.	Inform the site analyst.	CRMTASK
DATA BASE/FILE NAME UNKNOWN.	CRMTASK - issued a CRMSTAT, DBUP, or DBDOWN request but the data base or file name was not found.	Inform the site analyst.	CRMTASK
DATA BASE NAME IN CRM FILE NAME DOES NOT MATCH xxJ.	The two-character data base name from the file name on the CRM statement does not match the xxJ header.	Correct the CRM statement and try again.	DMREC
DATA BASE NAME OR FILE NAME MISSING.	No file name or data base name on directive.	Include file name or data base name on directive.	DMREC
DATA BASE NAME OR FILE NAME(S) BOTH SPECIFIED.	Self-explanatory.	Eliminate file name or data base name from the directive.	DMREC
DATA BLOCK BUFFER OVERFLOW.	ARF tape block size is too large for buffer allocated for it.	Inform site analyst and lengthen buffer (WBUF).	DMREC
DATA LOST DRIVER - tn.	A mux driver has detected a hardware data lost condition.	None.	IAFEX
DATA LOST IAFEX-tn.	The presented input was not accepted from connection number to because a driver reentry was waiting to be processed.	None.	IAFEX
DB - NAME MUST NOT START WITH THE LETTER Z.	A data base name was found which starts with the letter Z. These are reserved names.	Change the data base name to one not beginning with Z. If the name appears on an NCTF entry, contact the user and request a new identifier. If the name appears on the TCF, make the change on the applicable DMS statement or inform the TAF analyst.	TAFREC
DExx,Ccc,l,sec,ann,Stttt,Aaddress.	An error has been detected on extended core storage. The nature of the error is determined by examining each parameter in the message. xx EST ordinal of extended memory unit cc Channel number l Link code used to associate multiple lines of messages occurring for the same error. s Error recovery status (one of the following) blank Status of error (recovered or unrecovered) has not been determined R Error has been recovered U Error is not recoverable ec Error code (one of the following) PE Parity error AD Address error a Type of operation (one of the following) R Read W Write nn Retry count; error is considered irrecoverable after the following number of retries. PE 10 AD 10 tttt Device status; implies there was an incomplete transfer if tttt does not indicate an error address Physical address at beginning of block	Dump error log dayfile to printer (refer to description of X.ELD. command), and make it available to the customer engineer and/ or site analyst.	6DE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
DEADSTART DEVICE UNDEFINED.	The deadstart device is not defined in the CMRDECK or the operator attempted to down the deadstart device.	Redeadstart and enter the equipment definition for the deadstart device at CMRDECK time.	SET
DEFAULT FAMILY USED.	The execution of the FAMILYNAME command resulted in the job running with the system default familyname.	None.	ACCFAM
DEFINE ERROR ON FILE.	An error in defining PRU size or in trying to define the log file was encountered on a create directive.	Correct PRU length on create directive.	DMREC
DEFINED DEVICE ALREADY EXISTS.	The device as defined during initialization already exists in the multimainframe environment.	Remove the duplicate device from the complex or change the parameters for the device being initialized.	MSI
DELIMITER WAS NOT RECOGNIZED.	An incorrect delimiter or an unrecognizable delimiter was encountered on a directive.	Check directive format and rerun.	DMREC
DETACHING, JSN=jsn.	Informative message indicating that interactive subsystem is detaching active users during termination processing.	None.	IAFEX
DETECTED IN CLD.	Error was encountered during the building of the system library. Disk resident overlay (OVL) or absolute (ABS) program is not formatted correctly. Deadstart processing halts when this error is detected.	Redeadstart at a different tape density or use another tape unit or a different deadstart tape. If the error persists, inform the site analyst.	SYSEDIT
DETECTED IN DIRECTORY.	System file error occurred during the building of the system library. Start of the system library was not found. Deadstart processing halts when this error is detected.	Redeadstart at a different tape density or use another tape unit or a different deadstart tape. If the error persists, inform the site analyst.	SYSEDIT
DETECTED IN PLD.	System file error occurred during the building of the system library. Disk resident PP program or central memory resident PP program is not formatted correctly. Deadstart processing halts when this error is detected.	Redeadstart at a different tape density or use another tape unit or a different deadstart tape. If the error persists, inform the site analyst.	SYSEDIT
DETECTED IN RCL.	Error was encountered during the building of the system library. Central memory resident overlay (OVL) or absolute (ABS) program is not formatted correctly. Deadstart processing halts when this error is detected.	Redeadstart at a different tape density or use another tape unit or a different deadstart tape. If the error persists, inform the site analyst.	SYSEDIT
DETECTED IN RPL.	Error was encountered during the building of the system library. Central memory resident overlay (OVL) or absolute (ABS) program is not formatted correctly. Deadstart processing halts when this error is detected.	Redeadstart at a different tape density or use another tape unit or a different deadstart tape. If the error persists, inform the site analyst.	SYSEDIT
DEVICE DOES NOT EXIST. REPLY GO TO RETRY - DROP TO OFF DEVICE.	K display message indicating that the cartridge storage unit or the mass storage transport (as indicated in line 1 of message) is not configured as described in the EST entry.	Inform the site analyst and/or customer engineer. If the equipment can be attached, enter K.m.GO. Otherwise enter K.m.DROP. m Message ordinal	EXKD
DEVICE DOWN.	An attempt was made to MOUNT or INITIALIZE an allocatable device with a DOWN status set in the EST.	Inform site analyst before attempting to change the DOWN status.	DSD
DEVICE NOT FIRST IN CHAIN.	To prevent destroying the integrity of a chained multispindle device, initialization will take place only if the device is first in the chain.	The only input accepted at this time is RERUN or CLEAR. Enter RERUN to update list (on K display) of devices with initialize status set. If first device in chain is not included in new list, enter CLEAR to clear initialize status for the current device.	MSI

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
DEVICE NOT FIRST IN CHAIN.	An equipment other than the first equipment in a linked device was entered to be reconfigured. Linked device reconfiguration preserved.	Enter the CLEAR or RERUN command and redefine the first equipment in the linked device.	CONFIG
DEVICE NOT READY. REPLY GO TO RETRY - DROP TO OFF DEVICE.	K display message indicating that the cartridge storage unit or mass storage transport (as indicated in line 1 of message) returned a NOT READY response.	Either make the device ready and enter K.m.GO or enter K.m.DROP to logically turn off the device. m Message ordinal	EXKD
DEVICE NOT REMOVABLE.	A nonremovable device was selected for chaining in a multispindle string. Before initialization and chaining can be performed, it is required that all physical units to be included in the multispindle string be defined as removable.	Enter CLEAR to clear initialize status for nonremovable device.	MSI
DEVICE SET OFF - DEVICE UNAVAILABLE. RESPOND GO TO ACKNOWLEDGE.	K display message indicating that the cartridge storage unit or mass storage transport (as indicated by line 1 of this message) is being used through another interface, is off-line, is turned off, or is inoperative. The EST entry is set to OFF.	Enter K.m.GO to clear the message. m Message ordinal	EXKD
DEVICE TURNED OFF. ERROR=nnn. RESPOND GO TO ACKNOWLEDGE.	K display message indicating that the cartridge storage unit or mass storage transport (as indicated in line 1 of message) has its EST entry turned off.	Inform customer engineer and enter K.m.GO. On a cartridge storage unit, check for cartridges that are out of position before using again. m Message ordinal	EXKD
DIxx,Ccc,l,sec,ann,Stttt,FNqqqq. or DIxx,Ccc,l,sec,ann,Stttt,Uuu Cyyyy Sttss.	An error has been detected on mass storage device with EST ordinal xx. The message as illustrated indicates a half track 844-21 disk. Any of the following device types can appear in place of DI: DJ (half track 844-41/44 disk), DK (full track 844-21 disk), DL (full track 844-41/44 disk), DM (half track 885-11/12 disk), or DQ (full track 885-11/12 disk). The nature of the error is determined by examining each parameter in the message. xx EST ordinal of the disk. cc Channel number. l Link code used to associate multiple lines of messages occurring for the same error. s Error recovery status (one of the following): blank Status of error (recovered or unrecovered) has not been determined R Error has been recovered U Error is irrecoverable ec Error code (one of the following): PE Parity error/checkword error AD Address error ST Device status error FT Function timed out with no response RS Device reserved CR Controller reserved NR Device not ready a Type of operation (one of the following): R Read W Write nn Retry count; error is considered irrecoverable after the following number of retries. PE 10 AD 10 ST 64 FT 3 RS 64 CR 64 NR indefinite tttt Device status - implies there was an incomplete transfer if status does not indicate an error.	Dump error log dayfile to printer (refer to description of X.ELD. command), and make it available to the customer engineer and/or site analyst.	7DI

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	qqqq Function which timed out uu Physical unit yyyy Physical cylinder tt Physical track ss Physical sector		
DIxx,Ccc,l,sec,ann,Stttt,FNqqqq. or DIxx,Ccc,l,sec,ann,Stttt,Uuu Cyyyy Sttss.	An error has been detected on mass storage device with EST ordinal xx. The message as illustrated indicates a half track 844-21 disk. Any of the following device types can appear in place of DI: DJ (half track 844-41/44 disk), DK (full track 844-21 disk), DL (full track 844-41/44 disk), DM (half track 885-11/12 disk), orDQ (full track 885-11/12 disk). The nature of the error is determined by examining each parameter in the message. xx EST ordinal of the disk. cc Channel number. l Link code used to associate multiple lines of messages occurring for the same error. s Error recovery status (one of the following): blank Status of error (recovered or unrecovered) has not been determined R Error has been recovered U Error is irrecoverable ec Error code (one of the following): PE Parity error/checkword error AD Address error ST Device status error FT Function timed out with no response RS Device reserved CR Controller reserved NR Device not ready a Type of operation (one of the following): R Read W Write nn Retry count; error is considered irrecoverable after the following number of retries. PE 10 AD 10 ST 64 FT 3 RS 64 CR 64 NR indefinite tttt Device status - implies there was an incomplete transfer if status does not indicate an error. qqqq Function which timed out uu Physical unit yyyy Physical cylinder tt Physical track ss Physical sector	Dump error log dayfile to printer (refer to description of X.ELD. command), and make it available to the customer engineer and/ or site analyst.	6DI
DIxx,Lsss.....sss. DIxx,Lsss.....sss. DIxx,Lsss...sss.	This message may accompany the DIxx,Ccc,l,sec,... error log message to provide additional status information. The message as illustrated indicates a half track 844-21 disk. Any of the following device types can appear in place of DI: DJ (half track 844 41/44 disk), DK (full track 844-21 disk), DL (full track 844-41/44 disk), DM (half track 885-11/12 disk), or DQ (full track 885-11/12 disk). xx EST ordinal of the disk. s...s First and second lines of 32 digits and third line of 16 digits containing detail status. Refer to the appropriate disk storage subsystem operation and programming reference manual for a description of these bits.	Dump error log dayfile to printer (refer to description of X.ELD. command), and make it available to the customer engineer and/or site analyst.	6DI

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
DIxx, Uuu, PS=serialn.	Informative message indicating the pack serial number of the pack mounted on the device defined by EST ordinal xx. The message as illustrated indicates a half track 844-21 disk. Any of the following device types can appear in place of DI: DJ (half track 844-41/44 disk), DK (full track 844-21 disk), DL (full track 844-41/44 disk), DM (half track 885-11/12 disk), or DQ (full track 885-11/12 disk). xx EST ordinal of the disk. uu Physical unit number on which the pack is mounted. serialn Pack serial number.	None.	6DI
DIRECT CPU INPUT.	DIS is in Direct CPU Input mode. All date entered from the keyboard will be passed directly to the job step.	None.	DIS
DIRECTIVE CONTAINS AN ILLEGAL DATE/TIME.	A directive contains an unrecognizable date/time.	Correct the directive and rerun.	DMREC
DIRECTIVE FORMAT ERROR.	Error in one or more directive parameter formats.	Correct directive and rerun.	DMREC
DIRECTIVE KEYWORD NOT VALID.	The wrong delimiter on the directive parameter was used, or the directive keyword is not valid.	Correct directive and rerun.	DMREC (SPR)
DIRECTIVE NOT ALLOWED.	A skip command was entered when *SS* or *HELP* data was displayed, or *L* display format was in octal mode.	Enter a different directive.	QDSPLAY
DIRECTIVE NOT PRECEDED BY EDIT DIRECTIVE.	This directive must be preceded by an edit directive.	Include an edit directive.	DMREC
DIRECTORY HEADER FROM THE COPY.	Informative message.	None.	DMREC
DIRECTORY UNUSABLE.	Attempt to reconstruct the directory failed.	Check the output for the detailed error message.	DMREC
nnnn DISABLED ROLLOUT FILES RECOVERED.	nnnn jobs that were in a disabled job state have been recovered.	None.	REC
DISK BUSY.	System activity prevents DIS from completing the command last entered.	Retry.	DIS
DISK BUSY.	System device is busy. DSD cannot complete the loading of an overlay.	None. If message persists, however, inform the site analyst.	DSD
DISK RETRY COUNT ERROR	The system was unable to read from a disk before the retry counter exceeded its limit.	Inform site analyst.	CTI
DISK UNIT RESERVED.	Disk unit currently busy, waiting to access unit.	None.	CTI
DLxx, NO FT CONTROLLER.	The equipment with EST ordinal xx has been defined as a full track 844-41/44 disk but there is no 7154 full track controller present.	If a full track controller is not present, redefine the device as a half track device. If a full track controller is actually present but not detected, ensure the correct controlware is specified on the LBC CMRDECK entry.	STL
DMPNAD ABORTED - CVL ERROR CODE = nnB.	CVL did not allow the calling program to access the specified NAD. nnB is the CVL response code explaining why access was not granted.	Wait a few seconds and retry. If the same error occurs, inform site analyst.	DMPNAD
DMPNAD ABORTED - EQUIVALENCE MISSING.	The AC, CH, LT, and ND parameters must be followed by an equivalence character.	Correct command and retry.	DMPNAD
DMPNAD ABORTED - FILE NAME CONFLICT.	The B, I, and L parameters must have unique file names when used at the same time.	Correct command and retry.	DMPNAD
DMPNAD ABORTED - ILLEGAL CHANNEL NUMBER.	Channel number must be 0 to 13B inclusive or 20B to 33B inclusive.	Correct channel number and retry.	DMPNAD
DMPNAD ABORTED - ILLEGAL DIRECTIVE NAME.	Only AC, B, CH, I, L, LT, and ND are valid parameters for DMPNAD.	Correct command and retry.	DMPNAD

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
DMPNAD ABORTED - INVALID ACCESS CODE.	Command contained an AC=aaaa, where aaaa was not a valid hexadecimal number.	Correct access code and retry.	DMPNAD
DMPNAD ABORTED - INVALID NAD ADDRESS.	Command contained an ND=nn, where nn ws not a valid hexadecimal number.	Correct NAD address and retry.	DMPNAD
DMPNAD ABORTED - INVALID TRUNK ENABLES.	Command contained an LT=tttt, where tttt was not a valid binary number.	Correct command and retry.	DMPNAD
DMPNAD ABORTED - MORE THAN 10 CHARACTERS IN NAME.	DMPNAD command parameters must not exceed ten characters.	Correct command and retry.	DMPNAD
DMPNAD ABORTED - NLD ERROR CODE = nnB.	NLD was unable to dump the specified NAD. nnB is the NLD response code explaining why the NAD was not dumped.	Make sure the command is correct. Inform site analyst if the correct NAD information had been entered.	DMPNAD
DMPNAD ABORTED - NUMERIC FIELD MUST NOT BE BLANK.	DMPNAD expects a numeric value to follow the equivalence sign for the AC, CH, LT, and ND parameters.	Correct command and retry.	DMPNAD
DMPNAD COMPLETE.	Informative message indicating that DMPNAD was successful in dumping the requested NAD.	None.	DMPNAD
DMPNAD DUMPING REMOTE NAD xx - GO/DROP.	Informative message indicating that NAD is about to be dumped.	If correct NAD, type GO,jsn to dump the NAD. If incorrect NAD, type DROP,jsn correct command and retry.	DMPNAD
DMREC COMPLETE.	Informative message. The output file may contain other informative messages and should be reviewed.	None.	DMREC
DMREC FAILED - xxxxxxx ZZ.	The TAF submitted DMREC job failed, xxxxxx is the directive being processed and zz is the data base name.	Inform the Data Base Administrator, correct as directed.	DMREC
DMREC TAPE LABEL ERROR.	No tape header was found on ARF to be used for an update function.	Check for correct ARF tape. Use alternate ARF tape if available.	DMREC (UPD)
DN CANNOT BE ZERO.	DN=0 was entered to clear a duplicate device number error. The device number (DN) cannot be zero for a familyname type device.	Enter a nonzero value to continue or enter GO to override the error.	MSI
DOWN.	BIO equipment is down.	None.	1IO
DOWNED BRF TABLE OVERFLOW.	Table of downed BRFs has overflowed.	Inform data administrator.	DMREC (BRT)
DPxx,Ccc,l,sec,ann,Stttt,FNqqqq. or DPxx,Ccc,l,sec,ann,Stttt,Aaddress,Wwwww DPxx,Ccc,l,Gggg...g. DPxx,Ccc,l,Bbbb...b. or DPxx,Ccc,l,sec,ann,Stttt,Aaddr,Wwwww DPxx,Ccc,l,ddd...d.	An error has been detected on distributive data path (DDP). The nature of the error is determined by examining each parameter in the message. xx EST ordinal of DDP/extended memory cc Channel number l Link code used to associate multiple lines of messages occurring for the same error. s Error recovery status (one of the following) blank Status of error (recovered or unrecovered) has not been determined R Error has been recovered u Error is not recoverable ec Error code (one of the following) PE Parity error/checkword error AD Address error ST Device status error FT Function time out a Type of operation (one of the following) R Read W Write nn Retry count; error is considered irrecoverable after the following number of retries. PE 1 AD 10 ST 64 FT 3 tttt Device status; implies there was	Dump error log dayfile to printer (refer to description of X.ELD. command), and make it available to the customer engineer and/or site analyst.	6DP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	an incomplete transfer if status does not indicate an error qqqq Function rejected address Physical address at beginning of block wwww Word count of transfer q...q Good data which was transferred b...b Bad data which was transferred d...d State of data transferred is unknown		
DQxx, 2X PPU REQUIRED.	The equipment with EST ordinal xx requires 2X PPUs but 2X PPUs do not exist.	Redefine the device as a half track device.	STL
DRIVER STACK OVERFLOW.	Space sufficient to allocate the required stack area was not available. An internal change to IAF is necessary.	Inform site analyst.	IAFEX
DROP IGNORED.	K display message indicating that a K.DROP command was attempted but could not be performed because of one of the following. - The task was in recall. - The command was attempted during the initial load of the task.	Reenter K.DROP or K.DDROP command. When recall operation, time-sharing request, or initial load is complete, the command will be accepted and the task aborted.	TAF
DROP PROCESSED.	A DROP command was entered via *L* display. The file has been removed from the queue and the utility has terminated.	None.	QDSPLAY
DSD WAIT MTR.	A software or hardware failure has occurred. If the system has stopped running, there is a communication failure with CPU and PP monitor.	Inform site analyst. If system processing has stopped, deadstart is necessary. If the system continues to run, possible causes (such as PP saturation) should be investigated.	DSD
DUAL RECORDED FILE filenam NOT ATTACHED.	The user has neglected to attach file filename.	Batch data manager users must attach all data files.	TAF
DUMP NN COMPLETE.	Operator message indicating dump complete.	None.	EDD
DUMP NN STOPPED.	The operator has chosen to terminate the dump process because an error has been encountered.	None.	EDD
DUMP TAPE SPECIFIES NON-STANDARD COMPRESSION.	When trying to reload a record formatted dump tape, the compression mode was nonstandard.	Try loading from a previous dump tape and inform the data administrator.	DMREC
DUMPS LOST	K display message indicating that requests to dump the field length of the transaction facility have been ignored because the global task dump limit (GTDL) is not greater than zero.	Refer to the TAF K.DUMPLIM command; this command should be used only under the direction of the central site TAF systems analyst.	TAF
DUP NAME name.	The program or overlay name already exists on the disk.	Press the space bar to continue loading. name is not replaced with the program on the tape.	TDX
DUPLICATE BITS IN MASK.	Device mask for the familyname has duplicate bits set. This destroys the integrity of the permanent file system by creating an ambiguous mapping of user indexes.	Correct and enter GO, or enter GO to override. This is the only input accepted at this time.	MSI
DUPLICATE CONTROL STATEMENT PARAMETER.	Control statement parameter was specified more than once.	Correct RBF2PO control statement to specify the parameter only once.	RBF
DUPLICATE DATA BASE IN TCF - xx.	Active data base identifier, xx, in the TCF is not unique.	Fix TCF so that xx appears only once among active (ON) DMS statements.	TAF
DUPLICATE DN.	Device number specified is the same as that specified for another device in the familyname.	Correct and enter GO, or enter GO to override. This is the only input accepted at this time.	MSI

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
DUPLICATE DUMP ENTRY ON ADD.	When trying to add a file dump entry to the directory with an add directive, a duplicate entry was found.	List the directory for visual check and try again.	DMREC
DUPLICATE ENTRY ON ADD.	When trying to modify the directory a duplicate of the entry was found.	List the directory and check for the needed entry.	DMREC
DUPLICATE PARAMETER.	A duplicate VSN or duplicate file name was detected on a single directive.	Correct directive and rerun.	DMREC
DUPLICATE PN.	Another pack in the system has the same name.	Change the pack name or remove the other device from the system.	MSI
DUPLICATE VSN ENTRY ON ADD.	When trying to add a VSN entry to the directory with an add directive, a duplicate entry was found.	List the directory for visual check and try again.	DMREC
DUPLICATED VCB REQUEST - NVFVRVF.	For debug only. Duplicated request to read a VCB entry. The message is issued by NVF procedure NVFVRVF.	Inform site analyst.	NDL
DURATION TIME TERMINATE.	Time-sharing subsystem has aborted in less than 60 seconds after initialization or last recovery.	Inform site analyst.	IAFEX
DXB CONVERSION ERROR ON TRANSACTION SEQUENCE NUMBER.	An error occurred while converting the number in the table entry to binary.	Inform data administrator.	DMREC
ECeeee,ann,s,address,Ccccccc,Wwwwwww. ECeeee,ann,s,Bbbb...b. ECeeee,ann,s,Gggg...g.	An error has been detected on extended memory. The nature of the error is determined by examining each parameter in the message. eeee — Error incident number a — Type of operation (one of the following) R Read W Write nn — Retry count s — Error recovery status (one of the following) R Error has been recovered S Error has been recovered by single word transfers U Error has not been recovered address — extended memory address of block transfer ccccccc — CM address of block transfer wwwwww — Word count of block transfer bbb...b — Bad data which was transferred ggg...g — Good data which was transferred	Inform site analyst.	1MC
ECS ERROR.	An extended core storage (extended memory) hardware error has occurred.	Inform site analyst and customer engineer.	SCE
ECS ERROR.	An extended memory hardware error occurred during a transfer between CM and extended memory.	Inform site analyst and customer engineer.	CPUMTR
ECS ERROR - STORAGE MOVE.	An extended memory hardware error occured during a storage move through extended memory. Storage move is to be done through registers or the Compare/Move Unit (CMU).	Inform site analyst and customer engineer.	CPUMTR
ECS LABEL TRACK NOT FOUND.	Operator message indicating that CPUMTR preset routine was unable to find a valid label track in extended memory. Recovery is impossible.	Inform site analyst. It is necessary to deadstart with INITIALIZE and PRESET.	CPUMTR RMS
ECS READ ERROR.	Self-explanatory.	Inform customer engineer.	TAF
ECS READ/WRITE PARITY ERRORS.	Operator message indicating that error exit was taken during execution of RE/WE instructions in CPUMTR preset. Recovery is impossible.	Inform customer engineer.	CPUMTR RMS
ECS STORAGE NOT AVAILABLE.	The FL requested on the ENFLE, nnnn. command is not available.	Wait until FL becomes available or hit the left blank to clear command.	DIS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ECS TASK taskname NOW MS RESIDENT.	Task taskname could not be loaded into extended memory because of insufficient storage. It is loaded into mass storage.	If task must be resident in extended memory, more extended memory space must be allocated for the TAF user name. Refer to the NOS 2 Installation Handbook.	TAF
ECS WRITE PARITY ERROR ENCOUNTERED.	Self-explanatory.	Inform customer engineer.	TAF
EDITING COMPLETE.	Informative message.	None.	DMREC
EJT RA+1 ERROR xxxx, JSN=nsn, TN=nn.	Attempt to detach job jsn during IAF termination failed due to error xxxx. The connection number was nn. The job will remain in the system until deadstart and will not be recoverable.	None.	IAFEX
ELBP OUT OF RANGE	The external bootstrap loader parameter (EBLP) that determins whether to load the OS, HIVS, or MSL (if present) is out of range.	Inform site analyst.	CTI
EMPTY drawer DRAWER.	K display message indicating that the upper or lower drawer of the cartridge storage unit should be emptied. drawer UPPER or LOWER	Remove all cartridges from the octapack on the indicated drawer. Push the position switch to IN.	EXKD
END eq, nn.	The operator ended batch equipment eq for nn copies.	None.	QAP
END OF DAT TRACK CHAIN.	An attempt to introduce a new shared device into the multimainframe environment failed. The machine which preset extended memory did not reserve enough tracks in the DAT chain. Configuration error status is set by CMS.	Redeadstart removing some shared equipment from the configuration or preset extended memory to accommodate more shared devices.	CMS RMS
END OF FILE REACHED.	Informative message.	None.	DMREC
END PROCESSED.	An END command was entered via *L* display. The file has been returned to the queue and the utility has terminated.	None.	QDSPLAY
ENTRY FOUND IN EST.	An equipment was later found in the system tables after CVL initially replied to MALET that the equipment was not in the system tables.	Correct command parameters and reenter.	CVL
ENTRY NOT IN EST.	An incorrect EST ordinal was passed to routine CVL.	Correct the entry and retry the command.	CVL
EQxx Annnn PF RECOVERY ERROR.	In the recovery of mass storage device xx, an unidentified preserved file or preserved file with a system sector error was encountered. xx EST ordinal of device being recovered nnnn First track of file	Supply dumps of dayfile and error log to site analyst.	REC CMS
EQxx Annnn Ttttt Sssss LINKAGE ERROR.	A length or linkage error was detected while recovering preserved files on equipment xx. nnnn First track of file tttt EOI track ssss EOI sector	To alter EOI of the file and proceed with recovery, enter GO,CMS. To terminate recovery of the device, enter PAUSE,CMS.	CMS REC
EQxx,BAD SYSTEM SECTOR.	An irrecoverable error occurred during the reading of the system sector of the print or punch file. xx EST ordinal of device.	Inform site analyst.	XSP
EQxx BUSY ON ID=id.	An attempt has been made to initialize a shared device which is still being accessed by another machine. xx EST ordinal of device id Machine ID of mainframe on which device is still active	Clear initialize request or unload device on mainframe id. If the initialize request is cleared, CMS must be dropped from the control point.	IMS
EQxx,CHcc, CONTROLLER RESERVED.	Equipment xx could not be accessed because controller was reserved. xx EST ordinal of device cc Channel number	Refer to section 8 for possible action. Inform site analyst.	MREC 1MR

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
EQxx, CLEARING MST INTERLOCKS.	This mainframe is in the process of clearing hardware and software interlocks held by the downed machine.	None.	1MR
EQxx,DAF INTERLOCKS NOT CLEARED.	A permanent file catalog size error condition exists on device with EST ordinal xx causing interlocks in the system sectors of direct access files to not be cleared.	Inform site analyst.	1MR
EQxx nnnn DIRECT ACCESS FILE ERRORS.	Number of direct access files on mass storage device with EST ordinal xx that could not be recovered during mass storage device recovery (performed during deadstart or when a removable device is introduced into the system). The files in error are identified by LENGTH ERROR messages. In addition, the number of files in error (nnnn) should equal the number of LENGTH ERROR messages issued.	Inform site analyst; files should either be reloaded or redefined (refer to description of LENGTH ERROR message for additional information).	REC CMS
EQxx nnnn DIRECT ACCESS FILES RECOVERED.	Informative message indicating the number (nnnn) of direct access files that were successfully recovered on mass storage device with EST ordinal xx. Mass storage device recovery is performed during system deadstart or when a removable device is introduced into the system.	None.	REC CMS
EQxx EQyy CONFLICTING DN.	Two devices in the same familyname have the same device number and the system library resides on one of them. xx and yy are the EST ordinals of these devices. Recovery is impossible. This message is preceded by the message RECOVERY, dtxx. which indicates the equipment that is in error.	Inform site analyst; recommended action is one of the following. - Remove one of the specified devices and redeadstart. - Redeadstart and logically turn off one of the specified devices (via CMRDECK entry).	RMS
EQxx EQyy CONFLICTING PN.	Two auxiliary devices have the same pack name and the system library resides on one of them. xx and yy are the EST ordinals of these devices. Recovery is impossible. This message is preceded by the message RECOVERY, dtxx. which indicates the equipment that is in error.	Inform site analyst; recommended action is one of the following. - Remove one of the specified devices and redeadstart. - Redeadstart and logically turn off one of the specified devices (via CMRDECK entry).	RMS
EQxx EQyy CONFLICTING UM.	Two devices in the same familyname have the same bits set in the device mask, and the system library resides on one of them. xx and yy are the EST ordinals of these devices. Recovery is impossible. This message is preceded by the message RECOVERY, dtxx. which indicates the equipment that is in error.	Inform site analyst; recommended action is one of the following. - Remove one of the specified devices and redeadstart. - Redeadstart and logically turn off one of the specified devices (via CMRDECK entry).	RMS
EQxx FLAWING INCOMPLETE.	Flaw map could not be read during initialization. For multiunit 844 equipment, some flaws may not have been recorded.	Reformat 881 or 883 packs.	IMS
EQxx nn FLAWS NOT PROCESSED, list.	Informative message indicating the number of flaw entries not processed because the tracks specified (list) were in use. xx EST ordinal of device	Reenter list of tracks to be flawed at a later time.	IMS
EQxx,FM=familyname,PF=filename, UI=userindex.	Additional line is written only in error log after one of the following messages. - DATA TRANSFER ERROR. - EQxx,DNdn,DIRECT ACCESS FILE ERROR. - EQxx,DNdn,FILE LENGTH ERROR. - FILE BOI/EOI/UI MISMATCH. - EQxx,DNdn,MASS STORAGE ERROR. - EQxx,DNdn,RANDOM INDEX ERROR. - EQxx,DNdn,REPLACE ERROR. - EQxx,DNdn,SYSTEM SECTOR ERROR. - EQxx,DNdn,TRACK LIMIT. EQ Equipment type as defined in the EQxx,DNdn, DIRECT ACCESS FILE ERROR message. xx EST ordinal of device.	None.	PFM

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	familyname Family name. filename Permanent file name. userindex User index.		
EQxx LOCAL AREA OVERFLOW.	An attempt to checkpoint a new local area has resulted in overflowing the local area sector. The local area sector is a sector within the label track containing information from the MST local area. Each entry in this area is associated with a unique machine ID. This message is caused by the attempted recovery of a device by machines using more than 37B different machine IDs. xx EST ordinal of device	Inform site analyst. Either one of the following actions should be performed. - In order to access the device, change the machine's ID (via deadstart) to one that already exists on the device - Initialize the device to clear the entire local area.	1CK
EQxx LOCAL AREA SECTOR ERROR.	An unrecoverable error occurred while trying to read the local area sector (the sector within the label track containing information from the MST local area). xx EST ordinal of device	Inform site analyst. Device must be initialized and the label track flawed.	IMS 1CK
EQxx LOCAL AREA SECTOR RESET.	A local area sector contained incorrect information and the entire sector is disregarded. xx EST ordinal of device	Inform site analyst.	IMS
EQxx LOCAL AREAS INITIALIZED.	Informative message indicating that the inactive local areas on the device were initialized. xx EST ordinal of device	None.	IMS
EQxx,MRT PROCESSED BUT NOT REWRITTEN.	An unrecoverable write error was encountered on the link device while attempting to zero out the MRT for device with EST ordinal xx. Processing continued.	Inform customer engineer; error should also be logged in error log.	1MR
EQ OR DN ILLEGAL.	Either the specified EST ordinal (EQ) is greater than 77B or does not define a mass storage device, or the device number specified (DN) is greater than 77B.	Correct and enter GO.	MSI
EQxx, PF CATALOG SIZE ERROR.	The size of the permanent file catalogs on device with EST ordinal xx is incorrect for the current system.	Inform site analyst.	REC CMS
EQxx PF INITIALIZE COMPLETE.	Informative message indicating the permanent file initialization operation completed successfully. xx EST ordinal of device	None.	IMS
EQxx nnnn PRESERVED FILE ERRORS.	Message indicating the number of preserved files encountered during mass storage device recovery which had system sector errors or could not be identified. Mass storage device recovery is performed during system deadstart or when a removable device is introduced into the system. xx EST ordinal of device nnnn Number of files in error	Inform site analyst; supply dumps of dayfile and error log. Files that were in error (or the entire device) should be reloaded.	REC CMS
EQxx PROCESSING COMPLETE.	The redefinition procedure for equipment xx has completed successfully.	None.	1RM
EQxx nnnn QUEUED FILE ERRORS.	Message indicating the number (nnnn) of queue files which were found to have length errors or BOI/EOI mismatch.	Inform site analyst.	CMS REC
EQxx nnnn QUEUED FILES IGNORED.	Informative message indicating the number (nnnn) of queue files ignored because of lack of space on equipment xx in which to build the IQFT.	None.	CMS REC
EQxx nnnn QUEUED FILES RECOVERED.	Informative message indicating the number of queue files found on equipment xx and added to the IQFT.	None.	CMS REC
EQxx, RFER, TKtrac, ty, filenam.	An unrecoverable read error was encountered on the rollout file. xx EST ordinal of device trac Track number ty File type filename Name of file	Inform site analyst.	1RI

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
EQxx, SSER, TKtrac, ty, filenam.	An unrecoverable error occurred while attempting to read or write system sector on device with EST ordinal xx. Processing continued. xx EST ordinal of device trac Track number ty File type filename Name of file	Inform site analyst.	1RI 1MR
EQxx SYSTEM USAGE OF DEVICE SUSPENDED.	Device usage has been suspended as requested (the device appears to be Not Ready).	None.	1RM
EQxx,TKtrac, INVALID LOCAL FILE.	The MRT bit was set for track trac on device with EST ordinal xx but the track did not have a legal system sector for a local file. The track was not dropped.	Inform site analyst. The actual contents of the system sector at the specified address must be inspected to determine the error.	1MR
EQxx,TK=nnnn,SC=ssss.	Additional message written only in error log after the message - EQXX,DNdn, BAD CATALOG/PERMIT SECTOR. EQ Equipment type as defined in EQxx, DNdn, DIRECT ACCESS FILE ERROR message description. xx EST Ordinal of device. nnnn Track number of bad sector. ssss Sector number of bad sector.	Inform site analyst.	PFM
EQxx TRACK LIMIT.	There is insufficient space to allocate a catalog, permit, or indirect file chain needed to initialize device xx.	If attempting to initialize a device on-line, monitor the E,A. display and wait for tracks to become available. Then enter K.RERUN. If attempting to initialize a device during deadstart, redeadstart and check device usage.	MSI
EQxx TRACK LIMIT.	A track limit occurred on the system device with EST ordinal xx during a checkpoint.	Inform site analyst.	1CK
EQxx TRACK LIMIT ON IQFT.	There is not enough space on equipment xx to build the inactive queue file table (IQFT). Queue files remain inactive.	Inform site analyst.	CMS REC
EQxx nn TRACKS FLAWED.	Informative message indicating the number of tracks that were successfully flawed. xx EST ordinal of device	None.	IMS
EQxx TRKtrac SYSTEM SECTOR ERROR.	IMS could not read the system sector at this location while performing maintenance on direct access files. xx EST ordinal of device trac Track number of system sector	Inform site analyst.	IMS
EQxx,UNuu, CHECKING RESERVE.	Informative message indicating that controller and unit reservations are being processed for logical unit uu on equipment xx.	None.	1MR
EQxx,UNuu, UNIT RESERVED.	Logical unit uu on equipment xx could not be accessed due to physical unit reservation.	Refer to section 8 for possible action. Inform site analyst.	MREC 1MR
EQxx -- VALIDATION ERROR ec.	An error was detected on equipment xx during mass storage table validation. ec Error code; may be any one or a sum of the following. 1 Error in track count 2 Error in preserved file count 4 Error in permits chain 10 Error in catalog chain 20 Error in indirect chain PP programs that attempt to access equipment xx must wait until the validation error is corrected and the device is revalidated.	Inform site analyst.	5ME
EQUIPMENT SIZE ERROR.	K display message indicating that either the equipment from which to delete had no units, or the equipment to be added to already had eight units.	Correct K display input and retry.	CONFIG

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
EQUIPMENT STATUS INCORRECT.	The equipment being redefined is not unloaded and the number of units cannot be changed.	Correct K display input and retry.	CONFIG
divname-mmm ERROR AND nn WARNING MESSAGES ISSUED.	If mmm is not zero, the indicated number of fatal diagnostic message errors are described in the error summary listing produced by the NDL processor as part of the listing output file. A nonzero value for mmm indicates that any configuration file created by the job from the named division does not contain a verification record. If nn is not zero, the indicated number of nonfatal diagnostic message errors are described in the error summary listing. A nonzero value for nn does not affect the verification record of any network definition file created by the job.	Correct the NDL statements input and rerun the job if mmm is not zero.	DAYYES NDLLIST
ERROR IN ACCOUNT/USER CARD ARGUMENT.	The charge or user statement in the xxJ file is in error.	Correct the charge/user statement and try again.	DMREC
ERROR IN ADD/DELETE VSN.	The number of added or deleted entries does not match the number of active files.	Check edit directives and list the directory for a visual check.	DMREC
ERROR IN ATTRIBUTE.	An attribute was specified twice or an incorrect combination was specified.	Reenter L display input with correct attribute(s).	LIDOU
ERROR IN BUILDING DIRECTORY ENTRIES.	An error was encountered when DMREC attempted to add or update a directory record.	Inform data administrator, correct as directed and rerun.	DMREC (BBE)
ERROR IN BUILDING RECOVERY TABLES.	An error was encountered while attempting to retrieve a record from the directory file.	Try an update from an earlier file and inform the data administrator	DMREC (BRT)
ERROR IN CHANNEL NUMBER.	Indicates one of the following: - If system has 10 PPs or less, channel number was not in the range of 0 to 13B. - If system has more than 10 PPs, channel number was not in the range of 0 to 13B or 20B to 33B. - A channel with a DOWN status was specified during an attempt to REDEFINE a RMS device.	Correct K display input and retry.	CONFIG
ERROR IN CRM CARD ARGUMENTS.	The CRM statement in the xxJ file is in error.	Correct the CRM statement and try again.	DMREC
ERROR IN CRM -PUT- (RECORD LOAD).	An error was encountered while attempting to execute a CRM put onto the data file.	Try to load from previous dump tape.	DMREC
ERROR IN EDIT PROCESSING.	Editing processor has encountered an error in trying to execute the directive.	Check the edit directive parameters and inform analyst.	DMREC
ERROR IN ENTRY, NUMBER TOO LARGE	The number entered in response to the CYBERLOG display is not within the range of specified numbers for that program step.	Reenter a number in the range of specified values.	CYBRLOG
ERROR IN ENTRY, ONLY A SINGLE DIGIT ALLOWED	Something other than a number was entered for a CYBERLOG entry.	Reenter a number in the range of specified values.	CYBRLOG
ERROR IN EQUIPMENT NUMBER.	Indicates one of the following: - Equipment is not a mass storage device. - Equipment is not a 844 or 885 disk drive.	Correct K display input and retry.	CONFIG
ERROR IN IXN CARD ARGUMENTS.	The IXN statement in the xxJ file is in error.	Correct the IXN statement and try again.	DMREC
ERROR IN LCF -- SUMMARY SUPPRESSED.	NDLP attempted to list a file and found either the file was not in LCF format, or the NDL run was flagged unsuccessful.	Correct errors and rerun NDLP.	NDLP
ERROR IN LIST PROCESSING.	Errors in generating list as described on directive.	Check list directive for accuracy and retry.	DMREC
ERROR IN LOADING AAMI.	The loader encountered errors while loading the TAF CRM AAM interface (AAMI).	The site analyst should consult the CYBER Loader Reference Manual (listed in the preface).	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ERROR IN LOADING HASH CODE filename.	The loader encountered errors while loading the hashing routine code that is on file filename.	The site analyst should consult the CYBER Loader Reference Manual (listed in the preface).	TAF
ERROR IN LOADING TOTAL.	The loader encountered errors while loading Total and the data base descriptor modules (DBMODs).	The site analyst should consult the CYBER Loader Reference Manual (listed in the preface).	TAF
ERROR IN NCF -- SUMMARY SUPPRESSED.	NDLP attempted to list a file and found either the file was not in NCF format, or the NDL run was flagged unsuccessful.	Correct error and rerun NDLP.	NDL NS
ERROR IN PARAMETERS.	There is an error in the channel parameter (C=cc) on the LOADBC command or in the other required parameters if attempting to load NAD controlware.	Correct parameter and retry.	LOADBC
ERROR IN PERFORMING SERVO CHECK ON UNITxx.	The servo adjustment procedure has encountered a disk error condition on equipment xx.	Inform site analyst.	1RM
ERROR IN RATE PARAMETER.	The rate entered in the alternate format of the SMP call was incorrect.	Correct the rate parameter and retry.	SMP
ERROR IN READING TASKLIB-filename.	Error occurred during transaction executive initialization or extended memory-resident task loading. File specified as task library was incorrectly formatted; therefore, it could not be read or loaded into extended memory correctly.	Inform site analyst.	TAF
ERROR IN RECORD DUMP.	During a record dump, DMREC is unable to recognize the first record on the dump file as an FSTT.	Check structure of file to be dumped for IS, DA or AK type and try again.	DMREC
ERROR IN RETRIEVING VSN.	No VSN has been found in the directory that satisfies the directive.	Check directive parameters. If correct, inform data administrator.	DMREC
ERROR IN SECOND PPS.	An error in the second peripheral processor subsystem (PPS) has occurred.	Inform site analyst and customer engineer.	SCE
ERROR IN UNIT LIST.	Indicates one of the following: - A unit number was duplicated in the unit list. - More than three units are specified for an 885 disk drive.	Correct K display input and retry.	CONFIG
ERROR LOADING -DIO-.	The record on the deadstart file immediately following OSB is not DIO.	Select a different tape or disk from which to deadstart.	OSB
ERROR ON ACTIVE DEVICES.	Label checking has detected error on device with active files. Message indicates abnormal condition that should be corrected immediately (for example, wrong pack removed when interchanging devices).	Examine E,M display to determine type of error.	CMS
ERROR ON DEVICE WITH ACTIVE FILES.	This message is issued during level 1 or 2 recovery deadstart if label on mass storage device cannot be verified and active files are on the device. Recovery is impossible. This message is preceded by the message RECOVERY, dtxx. which indicates the equipment that is in error.	Attempt another deadstart with no recovery (level 0).	RMS
ERROR ON xxJ FILE ARGUMENTS.	The xxJ file contains statements in error, which causes the transaction subsystem to abort.	Examine xxJ file. Inform TAF data administrator.	TAF
ERROR ON LINK DEVICE.	An unrecoverable error occurred while reading the link device.	Inform customer engineer; error should be logged in error log.	IMS
ERROR ON LINK DEVICE.	An unrecoverable read error was encountered while reading the extended memory label track.	Inform site analyst; deadstart may be required.	1RM
ERROR ON ROLLFILE - EXEC RESTARTING.	MSSEXEC terminated because an unrecoverable error occurred while reading the rollfile. MSSEXEC restarts automatically.	None.	EXMAIN

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ERROR ON SYSTEM DEVICE.	A label error was encountered while attempting to recover a device with system status.	Redeadstart and initialize the device.	RMS
ERROR STATUS nnnB ON BACKUP DIRECTORY.	CRM error has occurred on directory file.	Inform site analyst.	DMREC (FER)
filename - xxx ERRORS AND yy WARNINGS.	Indicates count of errors or warning messages encountered. Files created with fatal errors do not contain verification records and are not usable by the network.	Correct errors and rerun NDLP.	NDLP
ERROR(S) ENCOUNTERED IN DMREC PROCESSING.	Fatal errors were encountered during processing.	Check the output file for the detailed error message.	DMREC
ERRORS IN INSTALL (CR) TO PROCESS DIFFERENT DEVICE	Self-explanatory.	Enter a carriage return to select a new device or press deadstart button to exit. Inform site analyst if the message persists.	CTI
EXCESS PARAMETERS.	A second parameter was specified on a command which was not a skip command.	Delete one of the parameters and retry the command.	QDSPLAY
EXEC IN SINGLE MAINFRAME MODE.	Informative message indicating that MSSEXEC is running in a single mainframe environment.	None.	EXINIT
EXEC MMF INITIALIZATION FAILED - - message.	MSSEXEC failed to establish communication with any of the slave machines in a multimainframe environment; message indicates the reason and can be one of the following: - ALL SLAVES OMITTED. - ATTACH MTOS FAILED. - DEFINE MTOS FAILED. - MTOS FILE BUSY. - SETPFP PROBLEM.	Inform site analyst.	EXINIT
EXEC MMF INITIALIZATION OK.	Informative message indicating that MSSEXEC is ready to run in a multimainframe environment.	None.	EXINIT
EXEC - SLAVE i xxxx.	MSSEXEC is ready to communicate with MSSSLV on mainframe i or that the status of MSSSLV on mainframe i has changed. The current status of MSSSLV is indicated by xxxx and can be ACTIVE or INACTIVE.	None.	EXINIT EXMAIN
EXEC - SLAVE i OMITTED - message.	MSSEXEC was unable to establish or maintain access to a communication file with MSSSLV on mainframe i; message indicates the reason and can be one of the following: - STOM FILE LENGTH PROB. - NO *STOM* FILE. MSSEXEC will continue to operate, but will not attempt to receive requests from MSSSLV on mainframe i.	If MSSSLV is to be run on mainframe i and the message is NO *STOM* FILE; idle MSSEXEC, purge the STOM file, initiate MSSSLV, and then initiate MSSEXEC. If the message is STOM FILE LENGTH PROB, purge the existing STOM file, and reinstall MSSEXEC and MSSSLV using identical values for NUMRB, MAXSLV, and NUMSLV in common deck COMEIPR and for RBSIZE in common deck COMAMSS.	EXINIT
EXEC - SLAVE i OMITTED - message - STOM FILE ERROR.	MESSEXEC was unable to establish or maintain access to a communication file with MSSSLV on mainframe i. MSSEXEC will continue to operate, but will not attempt to receive requests from MSSSLV on mainframe i.	If MSSSLV is to be run on mainframe i, idle MSSEXEC, purge the STOM file, initiate MSSSLV, and then initiate MSSEXEC.	EXMAIN
EXEC SMF MODE - ALL SLAVES OMITTED.	MSSEXEC has lost access to all of the MSSSLVs and is now running in single mainframe mode.	Inform site analyst.	EXMAIN
nnnn EXECUTING JOB FILES RECOVERED.	nnnn jobs at control points have been recovered.	None.	REC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
EXPECTING PERIOD.	A command string was not terminated properly.	Attempt corrected command entry.	NVF
EXPECTING PERIOD OR COMMA.	A command string is missing comma or period.	Attempt corrected command entry.	NVF
FAMILY FILES ACTIVE.	Dayfile message indicating that the direct access file count is greater than the number of fast attach files.	Use IDLEFAMILY, and wait for direct access file count to decrease until it equals the number of fast attach files.	ISF
FAMILY MASK NOT EQUAL TO 377.	The device mask for the familyname does not equal 377B.	Correct and enter GO or enter GO to override. This is the only input accepted at this time.	MSI
nnnn FAST ATTACH FILES RECOVERED.	nnnn jobs fast attach files have been recovered.	None.	REC
FATAL CIO ERROR STATUS.	A TAF CIO operation returned a fatal error status which aborted TAF.	Inform site analyst.	TAF
FATAL INITIALIZATION ERROR.	A fatal error occurred during initialization of MSSEXEC.	Examine the job dayfile for error messages.	EXMAIN
FATAL MAINFRAME ERROR.	One or more of the following has occurred. - CSU address parity error - CSU fault - PP stop on CM read error - PP stop on PP parity error - Double bit SECDED error - LCME double bit SECDED error (CYBER 176 only)	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	1MB
FATAL MAINTENANCE REGISTER ERROR.	A fatal parity error occurred during maintenance register access through the maintenance channel.	Inform customer engineer.	STL
FIELD LENGTH EXCEEDED FOR CMM.	TAF does not have enough field length to allocate the space potentially required by CMM.	Increase TAF initialization field length.	TAF
FIELD LENGTH EXCEEDED FOR LOCKS.	TAF does not have enough initialization field length for allocating lock tables.	Decrease the locks parameter on the CRM statement, increase the TAF initialization field length, or inform site analyst.	TAF
FIELD LENGTH EXCEEDED FOR RECORD.	TAF does not have enough field length to allocate the space for the record buffer.	Decrease the record size specified in the xxJ file or increase the TAF initialization field length.	TAF
FIELD LENGTH EXCEEDED FOR USERS.	TAF does not have enough initialization field length for allocating file control tables.	Decrease the users parameter on the CRM statement, increase the TAF initialization field length, or inform site analyst.	TAF
FILE BUSY PFN= filenam UN= usernam.	Informative message indicating that MCS attempted to attach the named file. filename File name username User name	None.	MCS
FILE xxJ NOT FOUND.	Transaction subsystem aborts. Data base in TCF file has no xxJ file, or a PFM error occurred.	Inform TAF data administrator or site analyst.	TAF
FILE/JOB NOT FOUND.	The specified file or job was not found in the system.	Use the ENQUIRE command to ensure job is still in the system.	CONTROL
FILE NAME CONFLICT.	The input file name specified on the KTSDMP command is the same as the output file name specified.	Correct error and rerun.	KTSDMP
FILE NAME MISMATCH ON TAPE HEADER RECORD.	File name on ARF tape and attached ARF don't match.	Check file name on ARF tape being used.	DMREC
FILE NAME MUST BE 2-7 CHARACTERS.	The xxpfni parameter on the CRM statement must be two to seven characters, the first two (xx) being the data base name.	Correct the xxpfni parameter on the CRM statement or inform site analyst.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
FILE hash NOT FOUND.	The indirect file named hash containing the binary code of the hashing routine was not found under the username parameter on the USER statement in the xxJ file or a PFM error occurred.	Ensure that file hash is saved under the username parameter or inform site analyst. Consult the CYBER Loader Reference Manual (listed in the preface).	TAF
FILE NOT FOUND.	User did not have a tape preassigned or the user-supplied mnemonic did not match the mnemonic of the preassigned tape.	Preassign a tape or correct command parameters and reenter.	CVL
FILE NOT IN ALTERNATE FAMILY.	The file specified via the *R* parameter is a default familyname file, but an alternate familyname was specified via the *FM* parameter.	Verify which familyname and file you want to return. Repeat the ISF entry with the correct combination of parameters.	ISF
FILE ORGANIZATION IS NOT IS, DA OR AK.	The file organization parameter on the CRM statement was not specified as either IS, DA or AK.	Correct the CRM statement and try again.	DMREC
FILE TCF EMPTY.	An empty TCF exists under the TAF user name.	Place the necessary information on TCF.	TAF
FILE TCF NOT FOUND.	The TCF was not found under the user name of the Transaction Facility.	Create a TCF file under the TAF user name.	TAF
FILE TYPE MUST BE AK, DA, OR IS.	The type parameter on the CRM statement must be AK (actual key), IS (indexed sequential) or DA (direct access).	Correct the type parameter on the CRM statement or inform site analyst.	TAF
FILE TYPE NOT ARF OR BRF.	On a create function a file name was used that does not conform to the ARF/BRF naming conventions.	Check file name on create directive.	DMREC
FIP - ABN MISCOMPARE ON filename.	A data transfer error has occurred. The system has halted the file transfer. filename The affected file.	Inform site analyst.	FIP
FIP - ACN acn NOT WITHIN RANGE.	A data transfer error has occurred. The system has halted the file transfer. acn Application connection number (octal).	Inform site analyst.	FIP
FIP - CIO ERROR code.	The system detected an error in an input/output request involving a local data file. The system has halted the file transfer. code CIO error code (octal). Refer to Volume 4 of the NOS 2 Reference Set for a description of CIO error codes.	Inform site analyst.	FIP
FIP - CONNECTION BROKEN ON ACN acn.	The network connection has been broken unexpectedly. The system has halted the file transfer. acn Application connection number (octal).	Rerun your job. Inform site analyst.	FIP
FIP - CTRL WORD FORMAT ERROR ON filename.	The data block being sent to or being received from the network has faulty internal control information. The system has halted the file transfer. filename The affected file.	Inform site analyst.	FIP
FIP - DISABLE WARNING RECEIVED.	The system has halted the file transfer because the network is shutting down immediately.	Retry the file transfer after the network is reactivated.	FIP
FIP - GT 4 FILE TRANSFERS INITIATED.	The system is attempting too many file transfers simultaneously. The system has not initiated the file transfer you are requesting.	Inform site analyst.	FIP
FIP - filename HAD RHF FET PARAMETER ERR.	The system detected an error in transferring data to or from the network. The system has halted the file transfer. filename File being transferred.	Inform site analyst.	FIP
FIP - INITIATING XFR OF filename.	The system has initiated the transfer of file filename. filename File being transferred.	None.	FIP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
FIP - filename IS AN EMPTY FILE.	The system attempted to transfer an empty file. The system has halted the file transfer. filename File being transferred.	Ensure that the file filename is not empty and rerun job. Inform site analyst if the problem persists.	FIP
FIP - LAST BLOCK TOO BIG ON filename.	The network block being transferred is too large. The system has halted the file transfer. filename File being transferred.	Inform site analyst.	FIP
FIP - LOGIC ERROR IN routine.	The system detected an error in the specified routine.	Inform site analyst.	FIP
FIP - NETOFF DURING FILE TRANSFER.	An internal error occurred during your file transfer. The file transfer was not completed successfully.	Inform site analyst.	FIP
FIP - filename ON INVALID DEVICE.	You have file filename assigned to an inaccessible device. The system has halted the file transfer. filename File being transferred.	Reassign file filename to an accessible device and rerun job. Inform site analyst if the problem persists.	FIP
FIP - OUTPUT BLOCK NOT DEL ON ACN acn.	The remote system did not receive the network message or data block before the time-out period elapsed. The system has halted the file transfer. acn Application connection number (octal).	Retry the file transfer. Inform site analyst if the problem persists.	FIP
FIP - PREMATURE TERMINATION RCVD ON acn.	The system detected an error during a file transfer and halted the file transfer. acn Application connection number (octal).	Retry file transfer. Inform site analyst if the problem persists.	FIP
FIP - PROTOCOL ERROR DETECTED.	An unrecognized or unexpected network message has been received. The file transfer is ended.	Retry file transfer. Notify system analyst if problem persists.	FIP
FIP - SECOND FILE XFR ON ACN acn.	The system attempted a file transfer on a connection that already has a file transfer in progress. The system halted the second file transfer. acn Application connection number (octal).	Inform site analyst.	FIP
FIP - TIMED OUT WAITING FOR NETWORK.	The network failed to respond before the time-out period elapsed. The system halted the file transfer.	Ensure that the network and remote system are active and retry the file transfer. Inform site analyst if the problem persists.	FIP
FIP - TRANSFER OF filename COMPLETE.	Self-explanatory. filename File being transferred.	None.	FIP
FIP - TRANSFER OF filename IN PROGRESS.	Self-explanatory. filename File being transferred.	None.	FIP
FIP - UNDEFINED ERROR.	The system encountered an unexpected error.	Inform site analyst.	FIP
FIP - XFR COMPLETE, NO ERR, IDLEDOWN.	The network is shutting down but your file transfer completed successfully.	None.	FIP
FIP - XFR TERM WITH ERR, IDLEDOWN.	The network is shutting down and your file transfer ended unsuccessfully.	Retry the file transfer when the network becomes active.	FIP
FIRMWARE LOAD, PART NO. - 12345678.	Informative message indicating that magnetic tape controller controlware has been loaded.	None.	1MT
FL TOO LARGE- nnnnnnB,taskname,tasklibrary.	The initial load field length, nnnnnnB, for task taskname on task library tasklibrary exceeds the minimum size of the transient task area (potential space available to contain transient tasks). Thus a situation could arise in which it would not be possible to load the task.	Correct error.	TAF
FL TOO SHORT FOR SAMPLES.	The field length of the job step is too small to allow SMP to execute.	Rerun job with larger field length assigned.	SMP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
FM OR PN MUST BE SPECIFIED.	Family name or pack name must be entered to initialize device.	Enter the required family name or pack name, and then enter GO.	MSI
FORCED SHUTDOWN REQUESTED.	RBF has stopped communications with the network and is performing clean-up operations.	No action required. RBF will be dropped automatically when clean-up operations are complete.	RBF
FORMAT ERROR.	An error exists in the syntax of the command or the values of the parameters.	Correct the command or parameters and retry operation.	TAF STIMULA
FORMAT ERROR IN TERMINAL DESCRIPTION FILE.	Statements on the NCTF file are in error.	Run VALNET on NETWid. Correct indicated errors. Reinitialize transaction subsystem.	TAF
FORMAT ERROR IN THE NETWORK DESCRIPTION FILE.	During transaction executive initialization, one or more errors were found to exist in the network description file.	Inform site analyst.	TAF
FORMAT UNIT FUNCTION REJECTED.	An alternate deadstart to a 67x tape unit is impossible.	Redeadstart.	SAD
FOT FULL.	The Family Ordinal Table (FOT) is not large enough to accomodate all family devices.	Redeadstart and specify a larger FOT.	RMS
FREE CHAIN ERROR.	NIP internal error issued if DEBUG defined (BFSC defined). This indicates a problem with the free buffer chain pointers. NAM takes an internal dump and terminates.	Supply dumps to site analyst.	NIP
FROM NOP..	This is the header of the message from network operator.	None.	CS
FSTT READ ERROR.	No FSTT found on a record load dump tape.	Load from previous tape.	DMREC
FULL INITIALIZE REQUIRED.	Operator message indicating an error was encountered and a total initialize is required on the pending device.	Specify AL initialization option (total initialize) on the INITIALIZE command.	MSI
FUNC REJECT ON DISK.	One of the following occurred: - An incorrect parameter was used when assigning the disk. - A hardware problem exists.	Check parameters used. If parameters are correct, inform site analyst.	TDX
FUNCTION REJECT, lfn AT addr.	Function was rejected (possible hardware problem).	Inform site analyst.	1MT
FUNCTION TIMED OUT = nnnn.	1LC timed out in the function routine while accessing the controller. nnnn Function code.	Inform customer engineer.	LOADBC
FWA .GE. LWA+1.	There is a logical error in the structure of the input file which implies that the first word address is greater than or equal to the last word address plus one.	Inform site analyst.	KTSDMP
GENERAL STATUS = nnnn.	The controlware load was not successful and the general status of the controller (nnnn) is not zero.	Inform customer engineer.	LOADBC
GET ERROR ON PF xxxxxxx.	No indirect access permanent file, for use as an own code file, has been found.	Check for the presence of the file and try again.	DMREC
GLOBAL TASK DUMP LIMIT EXHAUSTED.	A task issued a K.DUMP request when the global task dump limit (GTDL) is zero. No dump of the transaction facility occurred. No dumps of the transaction facility will occur from tasks until the GTDL is set to a value greater than zero.	Refer to the TAF K.DUMPLIM command; this command should be used only under the direction of the central site TAF systems analyst.	TAF
GO ALREADY RECEIVED.	Informative message.	None.	MCS
GO RECEIVED.	Informative message.	None.	MCS
GS=ssss.	A general status error has occurred. ssss Status (four octal digits)	Redeadstart, If message persists, inform site analyst.	CDX

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
HARDWARE PROBLEM. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because an MSF hardware problem was detected.	Inform customer engineer.	EXSTGE
HEADS CLEANED, MST ID = id.	MST with identification number id is on-line and the MSS transport heads were cleaned.	None.	ERO1
HELLO, YOU ARE NOW AN NPU OPERATOR.	Self-explanatory.	None.	CS
HIP NOT PRESENT.	Additional coupler status information when HIP is not configured in target NPU.	None.	CS
HLD eq.	The operator stopped printing on BIO equipment eq.	None.	QAP
HOST IDLE DOWN IN PROGRESS.	Self-explanatory.	None.	CS
HOST NOT AVAILABLE.	NAM is not communicating with the 255x communications processors. Either NAM was not initialized or has since failed.	Initialize NAM if it was not initialized previously; inform site analyst if NAM was active but a malfunction occurred.	TAF
HOST SHUTDOWN COMPLETE.	Informative message issued during network shutdown procedures after all the supervisors have terminated. NIP will terminate normally.	None.	NIP
HUNG PP.	An incorrect function has been attempted. The PP becomes hung because MTR does not clear the output register. Operator message.	The recommended procedure is as follows. 1. Perform a full dump to tape. 2. Attempt to redeadstart the system. 3. Retain dump tape to be examined by the site analyst.	MTR
nnnn I/A ROLLOUT FILES RECOVERED.	nnnn jobs that were in an interactive rollout job state have been recovered.	None.	REC
I/O ERROR ON MSFCATn, CATALOG CLOSED. RESPOND GO TO ACKNOWLEDGE.	An I/O error was encountered while an MSF catalog was being read or updated. The FET was dumped to LOGFILE. n number of the MSF catalog	Inform a site analyst. Enter K.m.GO to acknowledge the message. m message ordinal	EXKD
I/O SEQUENCE ERROR.	An attempt to update on FNT/FST entry during tape preassignment was rejected by the system.	Inform site analyst.	CVL
IAF NOT ACTIVE.	Informative message for interactive message commands.	None.	DSD
IAFEX ABNORMAL - xxx,nnnnnn.	IAF has encountered an abnormal situation. If sense switch 3 is set, IAF will abort, dump its FL, and reload automatically. xxx IAF routine requesting the abort nnnnnn Contents of the B2 register (usually contains a terminal number)	Inform site analyst.	IAFEX
IAFEX INITIALIZATION ABORT.	IAF could not be initialized properly. An additional dayfile message describing this error in more detail precedes this message.	Inform site analyst.	IAFEX
IDLE.	Issued to the DSD B and J displays, the BIO subsystem is idle (no I/O buffers in use).	None.	1IO
IGNORE TABLE OVERFLOW.	Ignore table, TTIG, is too small.	Inform site analyst to enlarge TTIG table.	DMREC
ILLEGAL APPLICATION.	Application name in application command is not defined.	Attempt new command entry.	NVF
ILLEGAL CMS CALL.	Calling job does not have deadstart sequencing or mass storage subsystem ID. Calling job has been aborted.	None.	CMS
ILLEGAL COMMAND	Informative message indicating that the network/local operator entered an incorrect command.	Enter correct command.	MCS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ILLEGAL CONTROL CARD.	DIS was called to a job that did not have the correct user validation.	None.	DIS
ILLEGAL CONTROL STATEMENT PARAMETER VALUE.	Control statement value is too large or contains invalid characters.	Correct RBF2PO control statement parameter value.	RBF
ILLEGAL DATA BASE IN xxJ FILE.	One of the statements in the xxJ file specifies an incorrect xx parameter and causes the transaction subsystem to abort.	Examine xxJ files. Inform the TAF data administrator.	TAF
ILLEGAL DEVICE TYPE.	Operator message indicating that the device type specified on the CMRDECK entry was not found in the table of legal device types.	Redeadstart and correct the CMRDECK entry.	SET ICM
ILLEGAL ECS REQUEST.	Either USER extended memory is not present or the CM field length is less than MCMX or the extended memory, FL requested is larger than 3777B when processing the ENFLE,nnn. command.	Correct error and retry.	DIS
ILLEGAL ENTRY.	K display message indicating that the processor could not recognize the specified utility option.	Correct and reenter K display input.	QFSP MSI MREC
ILLEGAL ENTRY.	One of the following: - A key word was not found. - Too many digits were entered as a parameter. - A nondigit character was found in a parameter. - A character was found after the postradix. - An 8 or 9 was found with a B postradix.	Correct K display input and retry.	CONFIG
ILLEGAL ENTRY.	The DIS command last entered was incorrect.	Correct command if possible and reenter.	DIS
ILLEGAL ENTRY.	A BIO Buffer Point Request from DSD is referencing an incorrect Buffer Point.	If the device is still active, retry the command making sure the EST ordinal is correct.	1DS
ILLEGAL ENTRY.	The command just entered is incorrect.	Correct command and retry.	DSD
ILLEGAL EQUIPMENT.	K display message indicating that the OP=R option was entered for a non-844 device.	Correct and reenter K display input.	MREC
ILLEGAL EQUIPMENT.	The equipment specified in a MOUNT or UNLOAD command is incorrect.	Specify valid equipment entry and retry the command.	DSD
ILLEGAL FAMILY NAME.	Dayfile message indicating that the familyname specified in the ISF entry is not defined in the running system.	Repeat ISF entry with correct familyname.	ISF
ILLEGAL FILE NAME.	Dayfile message indicating that the file name specified in the ISF entry (file to be initialized) was not available to the system. Valid file names include VALIDUs, PROFILa, RSXDid, and RSXVid.	Repeat the ISF entry with the correct file name.	ISF
ILLEGAL FL REQUEST.	The FL value entered on the ENFL, nnnn. command is greater than 131K.	Enter correct value.	DIS
ILLEGAL IMS REQUEST.	Incorrect function code or nonsystem origin caller detected in call to IMS (could be caused by hardware parity error or logic error in program).	Inform site analyst.	IMS
ILLEGAL LIBTASK ATTEMPT - filename, username.	The transaction executive validates all dynamic attempts to change the task library by comparing the user name of the requester against the list of data base user names. If it does not match, or if the library file is not attached by TAF, the transaction executive issues this dayfile message, where username is the user name of the incorrect attempt.	Correct and reinitialize transaction executive.	TAF
ILLEGAL NUMBER FOR LOCKS.	The locks parameter on the CRM statement is in error. One of the following format conditions exists. - A nonnumeric character. - A character after a postradix of B or D. - An 8 or 9 with a postradix of B.	Correct the locks parameter on the CRM statement or inform site analyst.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ILLEGAL NUMBER FOR USERS.	The user's parameter on the CRM statement is in error. One of the following format conditions exists. - A nonnumeric character. - A character after a postradix of B or D. - An 8 or 9 with a postradix of B.	Correct the user's parameter on the CRM statement or inform site analyst.	TAF
ILLEGAL OPTION.	Nonfatal K display message indicating that an incorrect keyboard entry was made.	Reenter the correct option.	STIMULA MREC
ILLEGAL ORIGIN TYPE.	MREC was run from a nonsystem origin job.	Rerun from system origin.	MREC
ILLEGAL PRIORITY.	The CPU priority entered with the ENPR, nn. command is incorrect.	Enter valid priority.	DIS
ILLEGAL ROLLOUT REQUEST.	SYSEDIT and routine SLL can not be rolled out during execution.	None.	SLL
.ILLEGAL SAMPLE RATE.	The user specified a sample rate in the SMP call request or command call that was less than 1 or greater than 50 octal.	Correct the SMP call and retry.	SMP
ILLEGAL SEPARATOR.	An = separator was found following a parameter value or command in the input string.	Correct K display input and retry.	CONFIG
ILLEGAL SLL REQUEST.	Dayfile message indicating an SLL with an undefined function code.	Inform site analyst.	SLL
ILLEGAL TERMINAL NAME.	A batch job submitted a transaction specifying a nonexistent terminal and/or user name.	Correct task or correct and reinitialize transaction executive with terminal and user name defined.	TAF
ILLEGAL TERMINAL REQUEST.	Informative message indicating that an unidentified request was encountered, the request was not from a terminal job, or auto recall was not requested by the calling job.	Correct erroneous request, run program from interactive terminal, or rewrite program to use recall.	TLX
ILLEGAL TIME ENTRY HOURS: 00 TO 99, MINUTES: 00 TO 59	The value for the hours and/or the minutes are not in the specified range for a CYBERLOG entry.	Reenter the value for hours and minutes in the specified range.	CYBRLOG
ILLEGAL TIME ENTRY PERIOD REQUIRED	The period preceding the minutes was not entered in an elapsed time or lost time entry in response to the CYBERLOG display.	Reenter the value for time with a period preceding the minutes.	CYBRLOG
ILLEGAL USER ACCESS.	You tried to perform an operation for which you are not authorized. Possible causes include attempts to - Run a system origin job from nonsystem origin. - Access a restricted subsystem without proper validation. - Enter an incorrect SRU value. - Use the V carriage control character without validation.	Ensure accuracy of command or macro, or determine proper validation requirements via LIMITS command.	DSD MSI QFSP RESEX 1MA IAFEX
ILLEGAL USER/FAMILY.	Dayfile message that may indicate that VALIDUs file is not present in the system or that the user has submitted an incorrect user name or family name.	Examine the EST (H,A.) display to determine if the VALIDUs file is active in the system (VALIDUs is a fast-attach file). If VALIDUs is active, no operator action is necessary; assume an incorrect user name or family name was entered. However, if VALIDUs is not active, it must be initialized (activated) via the console entry X.ISF.	ACCFAM
ILLEGAL VCB ORDINAL = xxx NVFUFVD.	For debug only. VCB ordinal xxx is illegal, so it cannot be freed up. The message is issued by NVF procedure NVFUFVD.	Inform site analyst.	NDL
ILLEGAL VCB ORDINAL = xxx NVFUMVD.	For debug only. VCB ordinal xxx is illegal, it cannot be marked. The message is issued by NVF procedure NVFUMVD.	Inform site analyst.	NDL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
ILLEGAL VCB ORDINAL = xxx NVFURDS.	For debug only. VCB ordinal xxx is illegal, so its data status cannot be returned. Message issued by NVF procedure NVFURDS.	Inform site analyst.	NDL
ILLEGAL VCB ORDINAL = xxx NVFUROS.	DEBUG only. VCB ordinal xxx is illegal, so its status cannot be returned. The message is issued by NVF procedure NVFUROS.	Inform site analyst.	NDL
ILLEGAL 1MR FUNCTION.	An incorrect function was issued to 1MR.	Inform site analyst.	1MR
INCOMPLETE PARAMETER.	A parameter on a DMREC directive was not completed correctly.	Correct the parameter on the faulty directive.	DMREC
INCORRECT FORMAT FOR EQ ENTRY.	K display message indicating that a syntax error was made when entering parameters for the EQ keyword.	Correct and reenter K display input.	MREC
INCORRECT FORMAT FOR MID.	K display message indicating the machine ID entered is either not two characters or not alphanumeric.	Correct and reenter K display input.	MREC
INCORRECT PAGING REQUEST.	A page specification error occurred in CRMTASK.	Inform the site analyst.	CRMTASK
INCORRECT POSITION IN THE DIRECTORY.	The directory structure is inconsistent or positioning is incorrect.	Inform data administrator.	DMREC (GPL)
INITIAL TASK NOT IN TASK LIBRARY DIRECTORY.	The task library file does not contain the initial task (ITASK).	Inform site analyst.	TAF
INITIALIZATION OPTIONS.	This message precedes messages indicating the values of the initial K display options either during initialization or recovery.	None.	TAF
INITIALIZE BIT NOT SET ON EQxx.	Device with EST ordinal xx is available and has a good label but cannot be linked to another device unless initialize status is set.	One of the following. - Enter INITIALIZE command to set initialize status for device and then enter RERUN to update list (on K display) of devices with initialize status set. - Enter CLEAR to clear initialize status for current device.	MSI
INITIALIZE PENDING.	The equipment entered in a UNLOAD,eq. command has an initialize pending.	Retry the command when the initialize clears.	DSD
INITIALIZE W/O PRESET OF LINK DEVICE ILLEGAL.	A full initialize was specified for the link device which, if allowed to continue, would destroy extended memory resident multimainframe tables. These tables are assumed to be intact in the absence of a PRESET command.	Redeadstart without initializing the link device if other machines are operating in a multimainframe mode; otherwise, specify PRESET in conjunction with the INITIALIZE command.	SET
INPUT FILE EMPTY.	There is no information in the input file.	Rerun NDLP with NDL input.	NDLP
nnnn INPUT FILES RECOVERED.	nnnn files in the input queue have been recovered.	None.	REC
INPUT MESSAGE TOO LONG.	An entered command exceeds the maximum allowed length.	Attempt corrected command entry.	NVF
INSUFFICIENT FIELD LENGTH.	The NDL processor requires additional central memory to completely process all input statements that cause table generation. Excessive use of the DEFINE statement can cause the processor to need additional table space.	Remove as many NDL DEFINE statements as possible from the input file or add an RFL statement to the command portion of the job. Rerun the job.	STORDEF STORNAM
INSUFFICIENT FIELD LENGTH.	NDLP tables overflowed.	Rerun NDLP with more field length.	NDLP
INSUFFICIENT FIELD LENGTH FOR THIS COMMAND.	CRMTASK issued a CRMSTAT request but AAMI was not able to complete it because the table area supplied by the user was not large enough.	Inform the site analyst.	CRMTASK

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
INSUFFICIENT FL FOR DATA MANAGER.	The transaction executive requires more field length at initialization time than is available.	Correct error and reinitialize executive.	TAF
INSUFFICIENT LOGICALLY ON PPS DEADSTART ABORTED	Too few peripheral processors are logically on to permit a successful deadstart.	Inform site analyst or customer engineer.	CTI
INSUFFICIENT MEMORY FOR CM RECOVERY.	During a level 3 recovery, not enough free memory (central memory not assigned to subsystem jobs) is available as is required for label MSTs. Recovery is impossible.	Redeadstart using a level 0 deadstart.	RMS
INTERMEDIATE IGNORE TABLE OVERFLOW.	Intermediate ignore table FTAB is too small. Too many potentially recoverable files have been encountered when reading ARF's.	Inform site analyst to enlarge table FTAB.	DMREC (BRT)
INTERNAL ERROR IN MSI.	MSI encountered an internal condition which could destroy permanent files.	Inform site analyst.	MSI
INTRODUCED UNIT IN USE.	A unit being introduced to an equipment is defined on another equipment.	Correct K display input and retry.	CONFIG
INVALID ATTRIBUTE.	An attribute entered was not recognized as a valid attribute.	Reenter L display input with valid attribute(s).	LIDOU
INVALID CEVAL REQUEST PARAMETERS.	An attempt was made to call routine CVL with an undefined function code.	Inform site analyst.	CVL
INVALID CHANNEL NUMBER.	The channel number specified by the C=cc parameter on the LOADBC command is incorrect.	Correct channel number and retry.	LOADBC
INVALID CN ON ICN/TE/R.	CCP error. An incorrect connection number received on ICN/TE/R. NAM will dump the NPU. (This message is issued on debug NAM only.)	Supply dumps to site analyst.	NIP
INVALID COMBINATION OF PARAMETERS.	A command contains an incorrect combination of parameter selections.	Attempt corrected command entry.	NVF
INVALID COMMAND.	One of the following errors occurred: 1. A command was entered other than what was on the menu. 2. A terminal CRMSTAT request did not request its own data base. 3. A terminal origin job tried to request the menu. 4. Unpack errors on the terminal message.	Ensure that the command is correct. If problem persists, inform the site analyst.	CRMTASK
INVALID COMMAND.	The command entered was not recognized as one of the available commands.	Reenter L display input with valid command.	LIDOU
INVALID CONTROL STATEMENT.	Arguments were entered on the command call to CONFIG.	Reenter command without arguments.	CONFIG
INVALID CONTROL STATEMENT OPTION.	The NDLP command used by the job contains a format or syntax error.	Correct the statement and rerun the job.	NDLMAIN
INVALID CONTROL STATEMENT OPTION.	An unrecognizable option was specified on the NDLP command.	Rerun NDLP with valid command parameters.	NDLP
INVALID DATA BASE NAME ON DMS STATEMENT.	A data base name associated with TAF, CRM, or OTHER exceeds two characters.	Correct the DMS statement on TCF file.	TAF
INVALID ENTRY.	Self-explanatory.	Clear message with left blank key and try a valid entry.	CTI
INVALID JSN.	The JSN was greater than four characters or less than three characters.	Specify a valid JSN and retry.	QDSPLAY
INVALID LID.	The LID specified was not a three-character alphanumeric LID.	Reenter L display input with valid LID.	LIDOU
INVALID OPTION.	Self-explanatory.	Clear message with left blank key and try a valid entry.	CTI
INVALID PARAMETER COMBINATION.	The parameters supplied in a call to routine CVL were out of order or missing.	Correct the entry and retry the command.	CVL
INVALID PROGRAM NUMBER.	The CTI module has requested the loading of an undefined module.	Redeadstart. If the message persists, inform customer engineer.	DHE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
INVALID SKIP COUNT.	An asterisk was present on a SKIP LINE, SKIP PAGE, or SKIP RECORD BACKWARD command or the skip count was greater than 377777B or the skip count was not numeric.	Determine the error and correct it before retrying the command.	QDSPLAY
INVALID TCF ENTRY.	The previous dayfile mesage is the statement in TCF which is incorrect.	Correct that statement in TCF or inform TAF site analyst.	TAFREC
INVALID TRANSACTION DIRECTORY HEADER - filename.	The transaction directory (TRD) header word is hot TRD.	Inform TAF site analyst.	TAF
INVALID TRIGGER NUMBER - xxSTTP.	NIP internal error. Invalid trigger number encountered in NIP state table. NIP aborts. xx First two characters of the name of the state table.	Inform site analyst.	NIP
INVALID USER ACCESS.	CONFIG was called from a nonsystem origin job or without mass storage subsystem priority.	Inform site analyst.	CONFIG
INVALID USER ACCESS.	Calling job was not system origin.	Correct the error and retry.	QDSPLAY
INVALID USER ACCESS.	The calling job was not system origin.	Ensure system origin.	LIDOU
IO ERROR ec ON filenam.	A CIO error ec was encountered on file filename.	Refer to the message following this message for the disposition of the file.	MCS
IO ERROR ec ON ROLLOUT.	Because of IO errors, the MCS subsystem could not roll out. cc CIO error code (refer to the NOS Reference Set, volume 3)	None.	MCS
IOU FATAL ERROR.	1MB detected a fatal IOU error which caused the PP that received the error to halt. Check the error log dayfile for further information.	Inform customer engineer and site analyst.	1MB
IOU MARGINS SELECTED DEADSTART ABORTED	IOU frequency margin status selected the maintenance registers.	Inform site analyst or customer engineer.	CTI
IOU SHUTDOWN IMMINENT.	1MB detected bit 63 in the input/output unit status summary register. This bit indicates that there is an abnormal environmental condition present for the input/output unit and it probably will shut down. Refer to appendix F for more information.	Verify that the system was able to complete checkpoint. Inform the customer engineer and site analyst.	1MB
IPL NOT FOUND	The initial program loader in CTI was not found.	Redeadstart.	ICD
xxxxxxx IS CONTROLLING NOP.	A CONTROL,ON Command attempted while control currently assigned to another NOP.	Wait for control to be released, reenter command.	CS
ISD ERROR, vvvvv. REPLY GO TO RETRY - DROP TO OFF DEVICE.	K display message indicating that an input or output (vvvvv) belt malfunction occurred on the mass storage transport.	Verify that the cartridges are aligned correctly on the input or output belt and enter K.m.GO. If any cartridge is not aligned, enter K.m.DROP and inform customer engineer. m Message ordinal	EXKD
ISF COMPLETE.	Dayfile message indicating that ISF operation is complete.	None.	ISF
xxJ FILE NOT FOUND.	When using the TAF's user name and password, an xxJ file for this data base was not found.	Ensure xxJ file exists for this data base and try again.	DMREC
JOB ACTIVE.	The DIS command last entered can not be processed because a job step is active.	Wait until the job step completes and reenter.	DIS
JOB NOT RERUN.	The system was unable to successfully rerun a job because of a mass storage read error or because the QFT is full.	Resubmit the job to the system.	1AJ

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
JOB RERUN.	The job has been terminated and requeued for input.	None.	1AJ
JOURNAL TYPE DOES NOT MATCH xxJ FILE.	TAF journal file entries in the xxJ file do not match the files themselves. This causes the transaction subsystem to abort.	Inform TAF data administrator. Examine xxJ file for the TAF journal file entries.	TAF
JSN XXXX NOT FOUND.	JSN XXXX was not found in input, print, plot, terminal wait, or punch queue.	Specify an appropriate JSN and retry.	QDSPLAY
K.BFL=n. K.CMB=nn. K.ECS=nnnK. K.ERO=a. K.ERO=CRF,xxx. K.INT=1. K.INT=CRF,xxxxxxx. K.INT=CRM,xxxx. K.MDM=n. K.MFL=nnnnnnB. K.REC=a. K.SCP=nn. K.TLF=a.	Values of the initial K display options at either initialization or recovery.	None.	TAF
K. COMMAND NOT VALID.	A K. command in the TCF file is improperly formatted.	Correct the statement in the TCF or inform the TAF analyst.	TAF
K.MAXFL,nnnnnnB.	The run-time K display command K.MAXFL was entered with the indicated value.	None.	TAF
K.MAXFL REJECTED.	A value was entered which caused potential blocked tasks to be detected.	Reenter K.MAXFL with a larger value.	TAF
KEYWORD IS ILLEGAL FOR THIS FUNCTION.	A keyword was used that is not valid for the selected directive.	Check format of directive and valid key words for that directive.	DMREC
n.nnn KILO CDCS REQUEST REJECTS FOR BUSY.	Total number of SSC rejects for busy when less than seven outstanding CDCS SSC requests existed at the time of the current request.	None.	TAF
n.nnn KILO CDCS REQUEST REJECTS FOR MAXR.	Total number of SSC attempts when there were seven (MAXR) outstanding CDCS SSC requests.	None.	TAF
n.nnn KILO CDCS REQUESTS FROM TASKS.	Total number of CDCS SSC requests issued by tasks. The number does not include terminate requests which are blocked by TAF.	None.	TAF
n.nnn KILO TRANSACTION ABORTS.	Upon transaction termination, this message indicates how many transaction tasks have aborted.	Data administrator may have to correct data base to account for transactions.	TAF2
n.nnn KILO TRANSACTIONS PROCESSED.	Upon TAF termination, this message indicates the number of TAF transactions processed.	None.	TAF2
KL PARAMETER OR CRM CARD NOT SPECIFIED PROPERLY.	The KL parameter or the CRM statement was specified improperly or specified as zero length.	Correct the CRM statement and try again.	DMREC
L-DISPLAY NOT ACTIVE.	No data was available to be displayed when the L display was requested at the console.	None.	DSD
L-DISPLAY NOT ASSIGNED.	No L display utility was active when input was entered at the console.	Ensure an L display utility has been initiated.	DSD
L-DISPLAY NOT AVAILABLE.	The L display is currently assigned.	Retry command when the L display is available.	DSD
LABEL READ ERROR Cnnnnn.	An error was encountered while attempting to read the label on a shared device. Cnnnnn is the number of times the MST/TRT have been updated for this shared device.	Enter GO,jsn. to allow the contents of this device to be dumped. jsn is the job sequence number of the job where the label read error occured.	PPR
LABEL TRACK CONFLICT.	While attempting to initialize a device at deadstart time, it has been determined that the track reserved via CPUMTR is not the first available track in the TRT. Recovery is impossible.	Inform site analyst. The TRT (and possibly a dump of RMS) must be interrogated to determine the conflict. A level 0 deadstart may	RMS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
		be necessary to allow deadstart initialization of the device.	
LABELED TAPE WAS PREASSIGNED.	User did not specify an unlabeled tape when using tape preassignment.	Specify an unlabeled tape in the command.	CVL
LACKING MEMORY FOR CM RECOVERY.	The system is unable to complete the deadstart because an insufficient amount of memory is available for system use during the deadstart.	Perform a level 0 deadstart.	SET
LBL - CIO ERROR.	A CIO error was encountered because no trailer record was found on a block load.	Load from previous dump tape.	DMREC
LCF DOES NOT EXIST.	For debug only. An LCF is not included in the network run.	Restart the network with an LCF.	NDL
LCM SECDED BIT ERROR - QUADRANT q, CSU x.	A large core memory (LCM) SECDED parity error has occurred (CYBER 176 only). q Quadrant (0, 1, 2, or 3) x CSU number (0 or 1)	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	SCE
ttt LENGTH CONFLICT.	The length of table ttt (EST, FNT, EJT, QFT, FOT) does not agree with information from the system table file. Recovery is aborted.	Level 0 deadstart is required.	REC
LENGTH IN 52 TABLE .NE. FET.	The controlware record length in the 52 table did not equal the controlware record length specified in the FET after the controlware was read into the LOADBC field length.	Check system controlware records.	LOADBC
LIBRARY DIRECTORY EMPTY - filename.	The task library file indicated does not contain a directory.	Inform site analyst.	TAF
LIBRARY DIRECTORY ERROR - filename.	The task library file indicated contains a nonrecognizable directory.	Inform site analyst.	TAF
LIBRARY DIRECTORY TOO LONG - filename.	The directory record on the task library file indicated exceeded the maximum length allowed by the transaction executive (398 entries).	Inform site analyst.	TAF
LIBRARY TABLE ERROR.	Dayfile message indicating that an error was encountered while building the system library. Blank entry was not found in the library table or in the directory within the field length at the deadstart control point.	Attempt another deadstart. If the problem persists, inform site analyst.	SLL
LID NOT CHANGED.	Informative message indicating an attempt to change a LID to it's current attributes.	None.	LIDOU
LID NOT FOUND.	An attempt was made to delete a LID that was not in the LID table.	Reenter L display input with correct LID to be deleted.	LIDOU
LID TABLE FULL.	The LID was not added since the LID table was full.	Contact site analyst to arrange a larger LID table or delete some LIDs from the table.	LIDOU
LIDOU UTILITY COMPLETE.	Informative message indicating normal termination.	None.	LIDOU
LINE: linno, ALREADY IN DESIRED STATE.	This message is a response to an enable or disable line command.	None.	CS
LINE: lineno, CE DIAG TEST IN PROGRESS.	This message is a response to an enable line command.	None.	CS
LINE: lineno, DUPLICATE CLA ADDRESS.	Line lineno has been found to have a CLA address in use by another line on the NPU.	Inform site analyst.	CS
LINE: lineno, TIP NOT CONFIGURED.	The terminal interface program (TIP) was not present to support line lineno.	None.	CS
LINE TOO LONG.	Operator attempted to enter a line over 50 characters long as input to a K or L display. DSD does not accept the entry.	Backspace and shorten entry to 50 characters or less.	DSD

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
LINE TOO LONG.	The CMR command buffer was not long enough to contain all the characters entered at the keyboard.	Enter fewer characters for L display input requests.	DSD
LINK DEVICE CANNOT BE ALTERED.	Informative message indicating that an incorrect attempt was made to change the characteristics of the link device using an on-line initialize.	None.	MSI
LINK DEVICE LABEL TRACK ERROR.	An attempt to locate a free track for link device label information within predetermined limits was unsuccessful, possibly because a large block of extended memory was flawed initially.	Inform site analyst and/or remove need for flawing of the device.	SET
LINK DEVICE READ ERROR.	An unrecoverable error occurred while attempting to read the link device.	Inform site analyst. The error log should be examined for further error description. The only K display entries allowed are K.RERUN. and K.STOP.	MREC
LINK DEVICE TABLE ERROR.	An error was encountered in link device tables which made further processing impossible.	Inform site analyst after stopping further system processing. The error log and link device tables must be examined to determine how to proceed.	1MR
LINK DEVICE WRITE ERROR.	An unrecoverable error occurred while attempting to write the link device.	Inform site analyst. The error log should be examined for further error description. The only K display entries allowed are K.RERUN. and K.STOP.	MREC
LINK RESET ON PORT nn.	An irrecoverable line error has occurred on port nn serviced by the CCP X.25 Terminal Interface Program. Following the error CCP automatically performed a link reset. The reset can cause packet level errors to occur. Repeated occurrences of this message may indicate software problems or poor transmission characteristics of the line.	None.	CCP
LIST COMPLETE.	Informative message.	None.	DMREC
LLINK: loglink, MESSAGE NOT SENT.	Broadcast message not delivered to terminals on logical link loglink.	Reenter command.	CS
LOAD ERROR DEADSTART ABORTED	An attempt to load a module from the Maintenance Software Library or the CTI/MSL Disk Area failed.	Inform system analyst or customer engineer.	CTI
LOAD ERROR IN HASHING ROUTINE.	When attempting to load the hashing routine on a record load operation, a load error or no entry point in the hashing routine was found.	Check for valid hashing routine, inform analyst.	DMREC
LOADBC ABORT - BAD INITIATION PARAMETERS.	The actual NAD memory size is smaller than the specified LOADBC default memory size.	Inform site analyst.	LOADBC
LOADBC ABORT - xxx ERROR CODE = yyy.	PP program xxx (either CVL or NLD) returned response code yyy when validating the NAD or when loading NAD controlware.	Inform site analyst.	LOADBC
LOADBC REMOTE NAD LOAD - GO OR DROP.	Flashing B display message indicating that CVL could not determine the status of the NAD.	Operator must determine status of the NAD. If NAD is not in use by remote mainframe or by customer engineers, enter GO,jsn. Otherwise, enter DROP,jsn.	LOADBC
LOADING Ccc,xxxx AUTOLOAD FAILURE, STyyyy.	Following the autoloading of controlware record xxxx to the buffer controller on channel cc, controller status indicated an error. yyyy Controller status. If status is 5020, the wrong controlware was loaded. If zero, the channel was disconnected without status being received. If not zero, a channel parity error or	Ensure the correct controlware is specified in the CMRDECK. To retry the autoload, type GO. If several retries continue to produce this message, check controlware record for validity. If the controlware record is	STL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	controlware checksum error occurred for the autoload.	known to be good, inform customer engineer to check the controller and channel.	
LOADING Ccc,xxxx TO CENTRAL MEMORY.	Informative status message indicating that controlware record xxxx is being loaded to central memory in preparation for autoloading the buffer controller on channel cc. If deadstart stops with this message displayed, there is insufficient central memory availble to contain the controlware record rcdname.	If a level 3 deadstart was in progress, attempt another level of deadstart. If other than a level 3 deadstart was in progress, the controlware record xxxx is bad.	STL
LOADING Ccc,xxxx TO CONTROLLER.	Informative status message indicating that controlware record xxxx is being autoloaded to the buffer controller on channel cc. If deadstart stops with this message displayed, the autoload program has hung due to one of the following conditions. - Another machine has the controller reserved - An incorrect CMRDECK equipment definition has been entered - A controller or channel malfunction has occurred - The controlware record xxxx is bad	If another machine has the controller reserved, the reservation can be cleared by deadstarting the other machine or master clearing the controller. If the CMRDECK and controlware record are known to be good, inform customer engineer to check the controller and channel.	STL
LOADING ECS taskname.	Informative message. The transaction subsystem is loading task taskname.	None.	TAF
LOCAL AREA SECTOR ERROR.	An error was encountered while reading the sector of local areas on the label track.	Redeadstart and initialize the device or inform site analyst.	RMS
LOG,nn.	Operator executed command.	None.	DSD
LOG ENTRY TABLE OVERFLOW.	Too many recoverable data base file names exist on ARF.	Increase size of table (TLOG).	DMREC (BLT)
LOGGING MAINTENANCE REGISTERS	CTI is writing the contents of the maintenance registers to the MSL dayfile.	None.	CTI
LPeq, CHcc Abbbb INCOMPLETE TRANSFER. LPeq, CHcc CONTROLLER HUNG BUSY. LPeq, CHcc Fffff FUNCTION TIMEOUT. LPeq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm. LPeq, CHcc TURNED OFF.	Line printer messages. Refer to CPeq...	Inform customer engineer.	1IO 1CD QAP
LPeq, CHcc PRINT ERROR LIMIT EXCEEDED.	Maximum number of consecutive print errors was detected on line printer. eq EST ordinal of line printer cc Channel number	Inform customer engineer.	QAP
LPeq, CHcc RESERVED.	The line printer is reserved and cannot be connected on channel cc. eq EST ordinal of line printer cc Channel number.	Inform customer engineer.	1IO
LPeq, nnnn PRINT ERRORS.	Print errors detected on line printer. eq EST ordinal of line printer nnnn Octal number of print errors	Inform customer engineer.	QAP
LReq, CHcc Abbbb INCOMPLETE TRANSFER. LReq, CHcc CONTROLLER HUNG BUSY. LReq, CHcc Fffff FUNCTION TIMEOUT. LReq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm. LReq, CHcc TURNED OFF.	580-12 line printer messages. Refer to CPeq...	Inform customer engineer.	1IO QAP
LReq, CHcc Emmmm PFC ERROR.	Detected PFC error on the specified local batch equipment. LR 580-12 line printer LS 580-16 line printer LT 580-20 line printer eq EST ordinal of local batch equipment cc Channel number mmmm Maintenance status; bits 10 and 9 as follows. 01 Valid format code was set but is not in PFC buffer 10 Internal PFC parity error 11 PFC load overflow // ACT Inform customer engineer.		QAP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
LReq, CHcc Emmmm PFC ERROR	Detected PFC error on the specified local batch equipment. LR 580-12 line printer LS 580-16 line printer LT 580-20 line printer eq EST ordinal of local batch equipment	Inform customer engineer.	1IO
LReq, CHcc PRINT ERROR LIMIT EXCEEDED.	Maximum number of consecutive print error was detected on 580-12 line printer. eq EST ordinal of line printer cc Channel number	Inform customer engineer.	QAP
LReq, CHcc RESERVED.	The 580-12 line printer is reserved and cannot be connected on channel cc. eq EST ordinal of line printer cc Channel number.	Inform customer engineer.	1IO
LReq, nnnn PRINT ERRORS.	Print errors detected on 580-12 line printer. eq EST ordinal of 580-12 line printer nnnn Octal number of print errors	Inform customer engineer.	QAP
LSeq, CHcc Abbbb INCOMPLETE TRANSFER. LSeq, CHcc CONTROLLER HUNG BUSY. LSeq, CHcc Fffff FUNCTION TIMEOUT. LSeq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm. LSeq, CHcc TURNED OFF.	580-16 line printer messages. Refer to CPeq...	Inform customer engineer.	1IO QAP
LSeq, CHcc Emmmm PFC ERROR.	580-16 line printer message. Refer to LReq...	Inform customer engineer.	1IO QAP
LSeq, CHcc PRINT ERROR LIMIT EXCEEDED.	Maximum number of consecutive print errors was detected on the 580-16 line printer. eq EST ordinal of the 580-16 line printer cc Channel number	Inform customer engineer.	QAP
LSeq, CHcc RESERVED.	The 580-16 line printer is reserved and cannot be connected to channel cc. eq EST ordinal of line printer cc Channel number.	Inform customer engineer.	1IO
LSeq, nnnn PRINT ERRORS.	Print errors detected on 580-16 line printer. eq EST ordinal of 580-16 line printer nnnn Octal number of print errors	Inform customer engineer.	QAP
LTeq, CHcc Abbbb INCOMPLETE TRANSFER. LTeq, CHcc CONTROLLER HUNG BUSY. LTeq, CHcc Fffff FUNCTION TIMEOUT. LTeq, CHcc Fffff REJ Paaaa,Cbbbb,Emmmm. LTeq, CHcc TURNED OFF.	580-20 line printer messages. Refer to CPeq...	Inform customer engineer.	1IO QAP
LTeq, CHcc Emmmm PFC ERROR.	580-20 line printer message. See LReq...	Inform customer engineer.	1IO QAP
LTeq, CHcc PRINT ERROR LIMIT EXCEEDED.	Maximum number of consecutive print errors was detected on the 580-20 line printer. eq EST ordinal of the 580-20 line printer cc Channel number	Inform customer engineer.	QAP
LTeq, CHcc RESERVED.	The 580-20 line printer is reserved and cannot be connected to channel cc. eq EST ordinal of line printer cc Channel number.	Inform customer engineer.	1IO
LTeq, nnnn PRINT ERRORS.	Print errors detected on 580-20 line printer. eq EST ordinal of 580-20 line printer nnnn Octal number of print errors	Inform customer engineer.	QAP
MACHINE ALREADY IN DIT.	The MID of this machine was found in the Device Identification Table (DIT). Either a PRESET command was not entered from the first machine to recover the device or two mainframes have the same machine identification.	Preset the device using the PRESET command (refer to the NOS 2 Installation Handbook for the correct form) to clear the machine identification from the DIT.	CMS RMS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MAGNET DROPPED DURING RECOVERY.	Informative message indicating the routine MAGNET1 was dropped while attempting clean-up or recovery of the magnetic tape subsystem.	None.	MAGNET
MAGNET TERMINATION/NO TAPE JOBS.	Informative message indicating the magnetic tape subsystem was dropped or aborted with no tapes assigned.	None.	MAGNET
MAINS POWER FAILURE.	Bit 36 of the status/control register (bit 0 of the interlock register) is set, indicating a main power failure. This message is preceded in the error log by the letters SR hh.mm.ss. (CYBER 170 machine) or IR hh.mm.ss. (CYBER 70 machine) where hh.mm.ss. is the time at which the condition was detected.	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	SCE
MAINTENANCE CHANNEL TIMEOUT DEADSTART ABORTED	The maintenance channel did not respond during an attempt to function or transfer data to a mainframe element.	Inform site analyst or customer engineer.	CTI
MAINTENANCE REGISTER ERROR.	A channel error is preventing access to the maintenance register on a model 815, 825, 835, or 855.	Inform customer engineer and site analyst.	SET
MAJPTR FOUND BAD BLK ID	NIP encountered a bad block in garbage collection processing. NIP aborts if debug is on.	Inform site analyst.	NIP
MASS STORAGE TABLE OVERFLOW.	Operator message indicating that the computed address of the mass storage table (MST) is not less than 100000B and cannot be placed in byte 4 of an equipment status table (EST) entry.	Inform site analyst.	SET ICM
MAX FL REACHED.	NIP has reached the maximum field length allowed by the installation.	Increase maximum field length using K display command.	NIP
MAXIMUM NUMBER MIDS ACTIVE.	The table in extended memory resident which contains machine IDs of the mainframes which have been active is full. Only four machine IDs are allowed. Operator message. Recovery is impossible.	Redeadstart with the correct machine ID.	CPUMTR RMS
MAXIMUM TERMINALS EXCEEDED.	More than IPTST transaction terminals have been defined in the Network File(s).	Reduce number of terminal definition statements or increase IPTST and reassemble TAFREC.	TAFREC
MCH FATAL ERROR.	1MB was not able to use the maintenance channel to check the status of the IOU, CM, and CPU maintenance registers.	None.	1MB
MCS DISABLED BY NETWORK.	MCS cannot NETON to NAM.	Enter the LOP command to enable MCS in the network.	MCS
MCS IDLE DOWN STARTED.	Informative message indicating that the CFO.IDLE command is being processed.	None.	MCS
MCS INITIATED INCORRECTLY - TRY N.MCS.	X.MCS was entered instead of MCS.	Enter MCS.	MCS
MCS NETON COMPLETE.	Informative message.	None.	MCS
MCS REPRIEVE.	A fatal error was encountered by MCS.	Inform site analyst.	MCS
MCS SHUTDOWN COMPLETE.	Informative message.	None.	MCS
MEMORY MARGINS SELECTED DEADSTART ABORTED	Central memory margin status selected the maintenance registers.	Inform site analyst or customer engineer.	CTI
MEMORY OVERFLOW DURING INITIALIZATION.	TAF aborted because its field length for initialization was insufficient.	Inform site analyst. IFL= in deck TAF should be increased. Increasing the central memory field length parameter on the RFL command in the TAF initialization procedure file (ffff) does not correct this problem.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
npuname MESSAGE SENT.	Indicates that a host broadcast to NPU npuname has completed.	None.	CS
MESSAGE STATUS TABLE OVERFLOW.	Space sufficient to allocate the required table was not available. An internal change to IAF is necessary.	Inform site analyst.	IAFEX
MFL TOO LARGE - nnnnnnB,taskname,tasklibrary.	The MFL (initial field length plus expandable field length) of the non-CM resident task (taskname) on task library (tasklibrary) exceeds the minimum size of the transient task area (potential space available to contain transient tasks). Thus a situation could arise in which it would not be possible to complete processing of this task.	Reduce the task FL or EF, or increase the TAF FL.	TAF
MFLINK-APPLICATION CONNECTION BROKEN.	The connection with the remote host was broken by the network or remote host, or an error occurred during the file transfer.	Inform site analyst.	MFLINK
MFLINK-APPLICATION CONNECTION REJECTED.	You are unable to connect with the remote host.	Inform site analyst.	MFLINK
MFLINK-APPLICATION CONNECTION TIMEOUT.	The remote host did not respond in the allotted time.	Inform site analyst.	MFLINK
MFLINK-APPLICATION DISABLED.	The operator has disabled the FTF application in the RHF Subsystem.	Inform site analyst.	MFLINK
MFLINK- BLOCK NOT ACKNOWLEDGED.	The network encountered an error.	Inform site analyst.	MFLINK
MFLINK-BLOCK NOT DELIVERED DURING FILE TRANSFER.	A network error occurred.	Inform site analyst.	MFLINK
MFLINK - BLOCK TOO LARGE.	The remote host or the network sent a block or message that was too large.	Inform site analyst.	MFLINK
MFLINK - CANNOT READ FROM "filename."	The file filename does not have read permission, or the file type is not supported by MFLINK.	Correct and resubmit.	MFLINK
MFLINK - CANNOT WRITE ON "filename."	The file filename does not have write permission, or the file type is not supported by MFLINK.	Correct and resubmit.	MFLINK
MFLINK-CIO ERROR DURING FILE TRANSFER.	A system error occurred.	Inform site analyst.	MFLINK
MFLINK-CONNECTING TO lid.	Informative message. You are being connected to the remote host you specified.	None.	MFLINK
MFLINK-CONNECTION BROKEN DURING FILE TRANSFER.	The connection with the remote host was broken by the network or remote host.	Inform site analyst.	MFLINK
MFLINK-CONNECTION REJECTED BY REMOTE HOST.	The remote host you specified has rejected the connection.	Inform remote analyst.	MFLINK
MFLINK - CONTINUATION BLOCK-DID NOT FOLLOW.	The continuation block did not follow.	Inform site analyst.	MFLINK
MFLINK - ERR/LGL RECEIVED FROM RHF.	The system detected a logic error in communication.	Inform site analyst.	MFLINK
MFLINK-FC/BRK RECEIVED RC=rc.	The remote host has sent a break with reason code rc.	Inform site analyst.	MFLINK
MFLINK-FILE RETRANSMIT REQUESTED.	The remote host has requested that the host retransmit the file.	None.	MFLINK
MFLINK - FILE TRANSFER IN PROGRESS.	The file requested to be transferred is in progress.	None.	MFLINK
MFLINK-IDLEDOWN ERROR DURING FILE TRANSFER.	A system error occurred during the file transfer and subsystem idle down is in progress.	Inform site analyst.	MFLINK
MFLINK-ILLEGAL NETON.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-INVALID ACCESS VALIDATION.	Your user name does not have required validation to access the remote mainframe.	Inform site analyst.	MFLINK
MFLINK-INVALID COMMAND cmd.	The system received an invalid command (cmd) from the remote host or received a command out of sequence.	Inform site analyst.	MFLINK

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MFLINK-INVALID CONNECTION REQUEST STATUS.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-INVALID CONTROL STATEMENT.	You are not allowed to use the MFLINK command.	Contact your site administrator to get the authorization.	MFLINK
MFLINK-INVALID DATA DECLARATION.	You specified an incorrect DD=dd parameter on the MFLINK command.	Correct the MFLINK command and retry.	MFLINK
MFLINK-INVALID FILE NAME.	The file name you specified on the MFLINK command is incorrect.	Correct the MFLINK command and retry.	MFLINK
MFLINK-INVALID FILE TYPE.	The file you attempted to transfer to a remote host does not have a local file type.	Ensure that the file has the correct type and retry.	MFLINK
MFLINK-INVALID LID.	No mainframe in the network has the specified logical identifier (LID).	Ensure that the LID you specify corresponds to a mainframe in your LCN and retry.	MFLINK
MFLINK-INVALID NETON STATUS.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-INVALID NETXFR STATUS.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK - INVALID SUPERVISORY MESSAGE.	The remote host or the network sent an incorrect or unsupported supervisory message.	Inform site analyst.	MFLINK
MFLINK-LID DISABLED, lid.	The mainframe with the specified logical identifier (LID) is not enabled for use.	Inform site analyst.	MFLINK
MFLINK - MAXIMUM CONNECTS EXCEEDED.	MFLINK has attempted a connection to the remote host after it has already obtained the maximum number of connects.	None.	MFLINK
MFLINK-NETON STATUS = 4.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETON STATUS = 6.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETON STATUS = 7.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETWORK RESOURCE LIMIT.	The resource limit for local or remote network access devices (NADs) has been reached.	Retry. If problem persists, inform site analyst.	MFLINK
MFLINK - NETWORK SEQUENCE ERROR.	A network message block was found for the connection before the connection was completed.	Inform site analyst.	MFLINK
MFLINK-NETWORK SHUTDOWN.	A local network shutdown is in progress and no additional connections can be established.	Retry after the network becomes active again.	MFLINK
MFLINK-NETXFR STATUS = 0.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETXFR STATUS = 2.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETXFR STATUS = 7.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETXFR STATUS = 8.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NETXFR STATUS = 9.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-NO LID SPECIFIED.	You failed to specify the ST=lid parameter on the first MFLINK command of the MFLINK session.	Correct the MFLINK command and retry.	MFLINK
MFLINK-PREMATURE TERMINATION DURING FILE TRANSFER.	A network error occurred.	Inform site analyst.	MFLINK
MFLINK-PROTOCOL ERROR DURING FILE TRANSFER.	A system or network error occurred.	Inform site analyst.	MFLINK
MFLINK-RECOVERING ST lid.	An informative message. The system is recovering the files for the mainframe specified by lid.	None.	MFLINK
MFLINK-REMOTE NOT RESPONDING.	The system cannot establish communication with the remote host.	Inform remote analyst.	MFLINK
MFLINK-REMOTE SHUTDOWN.	The Remote Host Facility (RHF) is shutting down on the remote host and no additional connection can be established.	Retry after the application becomes active again.	MFLINK

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MFLINK-SERVICER UNAVAILABLE.	The remote host is temporarily unable to accept any more connections.	Retry. If the problem persists, inform remote analyst.	MFLINK
MFLINK-SUBSYSTEM FULL.	The system is temporarily too busy to process your request.	Wait until system is less busy and retry.	MFLINK
MFLINK - SUBSYSTEM UNAVAILABLE.	The Remote Host Facility (RHF) subsystem is not active.	Inform site analyst.	MFLINK
MFLINK - TERMINATING CONNECTION.	The application is terminating its connection to the network.	None.	MFLINK
MFLINK-TIMED OUT DURING FILE TRANSFER.	The system timed out your MFLINK session because the remote host did not respond in the allotted time.	Inform site analyst.	MFLINK
MFLINK - USER REQUEST SENT.	The user request for file transfer has been sent to the network.	None.	MFLINK
MFLINK-USER TEXT TOO LONG.	One of your MFLINK directives is too long. A directive cannot exceed 80 characters.	Correct directive and retry.	MFLINK
MFQUEUE - COMPLETE. jsn = ROUTED FILE NAME.	Your job jsn was successfully routed.	None.	MFQUEUE
MFQUEUE - CONTROL STATEMENT ERROR.	MFQUEUE was unable to process the command. Usually an invalid character or successive separators is the cause of this problem.	Correct the command.	MFQUEUE
MFQUEUE - DUPLICATE PARAMETER.	Multiple occurrences are not allowed for any of the MFQUEUE parameters.	Correct the command.	MFQUEUE
MFQUEUE - FIRST PARAMETER NOT VALID LFN.	The first parameter must be a valid file name.	Correct the command.	MFQUEUE
MFQUEUE - ILLEGAL DD VALUE SPECIFIED.	Your DD=dd specification is not supported.	Correct the command.	MFQUEUE
MFQUEUE - ILLEGAL ST VALUE SPECIFIED.	The logical identifier (LID) you specified in the ST=lid parameter is not three alphanumeric characters.	Correct the command.	MFQUEUE
MFQUEUE - INVALID DIRECTIVE NAME.	The directive file name must be a valid file name.	Correct the command.	MFQUEUE
MFQUEUE - INVALID PARAMETER.	You specified a parameter that is not allowed on the MFQUEUE command.	Correct the command.	MFQUEUE
MFQUEUE - NO REMOTE DIRECTIVES FOUND.	The directive file was empty or you did not supply remote directives via the PC parameter.	Fix the job so that the directive file is not empty.	MFQUEUE
MFQUEUE - ST PARAMETER MUST BE SPECIFIED.	The ST parameter is not optional. It must appear on each MFQUEUE command.	Correct the command.	MFQUEUE
MICROCODE INITIALIZATION ERROR DEADSTART ABORTED	Processor microcode failed to complete its initialization in the prescribed time limit.	Inform site analyst or customer engineer.	CTI
MID CURRENTLY ACTIVE.	Extended memory resident indicates that the machine ID specified in the CMRDECK is in use by another mainframe. Operator message. Recovery is impossible.	Change machine ID.	CPUMTR RMS
MID NOT ACTIVE	During a level 1, 2, or 3 recovery, the machine identification specified was not found in the Device Access Table.	Inform site analyst.	PPR
MID NOT SPECIFIED.	K display message indicating that the machine ID of the machine on which to perform recovery processing was not entered.	Enter machine ID and type K.GO.	MREC
MID SPECIFIED NOT DOWN.	K display message indicating that the machine with the specified machine ID was not determined to be down.	Correct machine ID and reenter or type K.STOP.	MREC
MID SPECIFIED NOT FOUND.	K display message indicating that the machine with the specified machine ID was not found in the multimainframe complex.	Correct machine ID and reenter.	MREC
MID UNDEFINED IN ECS.	CPUMTR preset routine failed to find a copy of low core MMFL word in extended memory resident. This message implies that machine ID has changed and/or MMFL link tables have been destroyed. Operator message. Recovery is impossible.	Change machine ID or perform a level 0 deadstart.	CPUMTR RMS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MINIMUM TAF MFL NEEDED = nnnnnnB.	Potentially blocked tasks were detected at one of the following times: - TAF initialization - Attempted task library update - Attempt to change TAF maximum FL via K.MAXFL command The above operation did not complete normally. The maximum FL of TAF must be at least nnnnnnB. If nnnnnnB exceeds the largest field length possible for TAF (377700B), then other corrective action is needed.	Correct error.	TAF
MISSING AIP ENTRY POINT.	No entry point for a required AIP subroutine was returned by the loader.	Inform site analyst.	IAFEX
MISSING CARTRIDGE. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because a cartridge was missing.	When the cartridge is located, a site analyst should run ASLABEL to restore it to its proper cubicle. (Refer to section 3 of the NOS 2 System Maintenance Reference Manual.)	EXSTGE
MISSING HEADER WORD ON xxJ FILE.	The first statement on the xxJ file is in error, causing the transaction subsystem to abort.	Examine xxJ files for header xxJ. Inform the TAF data administrator.	TAF
MISSING HEADER WORD ON XXJ FILE.	No header word on xxJ was found.	Correct xxJ file and rerun.	DMREC
MISSING NCF RECORD.	A required record in the NCF is missing.	Correct NCF and restart network.	CS
MLTF, ERROR - BUFFER FOR NLD TOO SMALL.	The system could not write the specified NADs error log within the buffer specified.	Inform site analyst.	MLTF
MLTF, ERROR - CALLER NOT AUTHORIZED.	The system attempted to log a NAD that was reserved for another job.	Inform site analyst.	MLTF
MLTF, ERROR - CHANNEL NUMBER INVALID.	The system used an incorrect channel number while attempting to log errors from a NAD.	Verify the RHF configuration and specify the correct channel number.	MLTF
MLTF, ERROR - DEVICE ENABLE SWITCH OFF.	The system could not get the specified NAD's error log, because the device enable switch was turned off.	Inform site analyst.	MLTF
MLTF, ERROR - EST/CHAN UNAVAILABLE.	The equipment status table entry for the specified NAD is OFF or the entry had the Controlware Not Loaded flag set.	Load controlware in appropriate local NAD and retry.	MLTF
MLTF, ERROR - INVALID NLD RETURN CODE.	An invalid error code was returned.	Inform site analyst.	MLTF
MLTF, ERROR - NO MORE NADS IN EST.	There are no more NAD entries in the equipment status table.	Inform site analyst.	MLTF
MLTF, ERROR - REMOTE NAD UNAVAILABLE.	The error log from the specified NAD was not available.	Inform site analyst. Ensure the specified NAD is available via the specified path (see dayfile for logging information). Ensure the controlware is loaded in the local NAD and remote NAD (if appropriate).	MLTF
MLTF,LOG RN=nadid, LT=trunk, AC=nadaddr, CH=ch.	The remote NAD is on channel ch is currently being logged nadid — Remote NADs logical trunk address. trunk — Local trunk control unit. nadaddr — Remote NADs access code. ch — Channel number.	None.	MLTF
MLTF, LOGGING LOCAL NAD ON CHANNEL ch.	The local NAD on channel ch is currently being logged.	None.	MLTF
MLTF, NON FATAL ERRORS ENCOUNTERED.	At least one NAD was not successfully logged.	Check the system dayfile to see what NADs were not logged.	MLTF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MLTF, NORMAL TERMINATION.	All requested local and remote NADs have been succesfully logged.	None.	MLTF
MLTF, RHF MUST BE STARTED, NO NDT FILE.	The system was unable to NETON to RHF. The Network Description Table was not saved on disk.	Start up RHF and make sure MLTF is enabled.	MLTF
MMF DEVICE ACCESS ERROR.	Verification of this machine's access to a given mass storage device failed during a level 3 recovery. Possible causes are the following. - The CMR copy of the MST has been destroyed (specifically, the DAT index in MDGL). - MREC was inadvertently run on another mainframe. Recovery is impossible. This message is preceded by the message RECOVERY, dtxx. which indicates the equipment that is in error.	Perform a level 0 deadstart.	RMS
MNEMONIC/DEVICE CODE INCOMPATIBLE.	User requested an equipment found in the system tables, but the user-supplied mnemonic or device code did not match the equipment's mnemonic or device code.	Correct the command parameters and reenter.	CVL
MODULE NOT ON LIBRARY DEADSTART ABORTED	An attempt to find a module on the Maintenance Software Library failed.	Inform site analyst or customer engineer.	CTI
MONITOR CONDITION REGISTER =xxxx	During central memory initialization, a nonzero monitor condition register appeared in the job exchange package after reverting to monitor mode.	Inform site analyst or customer engineer.	CTI
MORE THAN ONE ARF SPECIFIED.	More than one ARF was specified on the DUMP directive.	Correct the directive and rerun.	DMREC
MORE THAN 4 TAPE CHANNELS.	More than four channels are currently defined in the system for magnetic tape equipment.	Inform site analyst.	1MT
MOVE PACK FROM UNIT xx TO UNIT yy AND SPIN UP.	Operator message indicating that pack can be moved.	Move physical pack and activate unit xx.	1RM
MR hh.mm.ss. CPU POWER FAILURE.	1MB detected the short power warning bit (bit 59) in the processor status summary register at time hh.mm.ss. After the power returned to normal and the operator entered the UNSTEP command, the system sends this message to the error log dayfile.	Give the customer engineer a copy of the error log dayfile.	1MB
MR-In-rr ddddddddddddddd.	An input/output unit error has been detected. n Element part number. rr Register number. For each message, rr can be one of the following: 00 Status Summary 10 Element Identifier 30 Dependent Environmental Control 40 Status Register 80 Fault Status 1 81 Fault Status 2 A0 Test Mode d...d Contents of the dump register.	Inform customer engineer.	1MB
MR-Mn-rr ddddddddddddddd.	A central memory error has been detected. n Element part number. rr Register number. For each message, rr can be one of the following: 00 Status Summary 10 Element Identifier 20 Environmental Control A4 Uncorrected Error Log 1 A8 Uncorrected Error Log 2 d...d Contents of the dump register.	Inform customer engineer.	1MB
MR-Pn-rr ddddddddddddddd.	A central processor error has been detected. n Element part number. rr Register number. For each message, rr can be one of the following: 00 Status Summary 10 Element Identifier 30 Dependent Environment Control	Inform customer engineer.	1MB

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	80 Processor Fault Status 81 Control Store Parity Error 92 Cache Corrector Error Log 93 Map Corrected Error Log d...d Contents of the dump register.		
MR POWER/ENVIRONMENT NORMAL.	1MB detected that either bit 59 of the processor status summary register or bit 63 of the processor, memory, or input/output status summary register was cleared.	Ensure that all equipment is ready. With the site analyst's approval, enter the commands: 99. UNSTEP. 99.	1MB
MR hh.mm.ss nnn SHUTDOWN IMMINENT.	1MB detected bit 63 in the status summary register for nnn (CPU, IOU, CM). This bit indicates that an abnormal environmental condition is present for nnn and it is likely that nnn will have to shutdown. hh.mm.ss is the time the bit was set. Refer to appendix F for more information.	Verify that the system was able to complete the checkpoint. Inform the customer engineer and site analyst.	1MB
MR,nnnn SINGLE MEMORY ERRORS.	1MB detected nnnn nonfatal memory errors during the past hour. If nnnn is 7777, then 7777 or more nonfatal memory errors were detected.	If nnnn is not 0000, give the customer engineer a copy of the error log dayfile.	1MB
MREC ABNORMAL TERMINATION.	An error condition occurred which caused MREC to abort.	Inform site analyst.	MREC
MRL PARAMETER ON CRM CARD NOT SPECIFIED PROPERLY.	The MRL parameter on the CRM statement was specified improperly or specified as zero length.	Correct the CRM statement and try again.	DMREC
MS REDUCTION INVALID - filename.	The maximum message size, specified via the MS parameter on the RECOVER directive, was less than the actual message record size on the named CRF.	Correct the RECOVER directive or select initialization of the named CRF via the K.INT initial K display command if reducing the message size is actually required. (Note that K.INT will destroy the current recovery information).	TAFREC
MSA DEFINED ON TWO CHANNELS.	MSSEXEC has encountered an MSA that is defined on more than one channel.	Inform site analyst.	EXINIT
MSER, EQxx, CATALOG CHAIN.	During mass storage table validation, an error was encountered in the catalog chain on equipment xx. The error was caused by one or more of the following. - Label track was not linked to first catalog track. - Number of catalog tracks was not a power of 2. - Catalog chain was not reserved. - Length of catalog chain was incorrect. - Catalog chain was noncontiguous.	Inform site analyst.	CMS 5ME
MSER, EQxx, INDIRECT CHAIN.	The first track of the indirect chain on equipment xx is not reserved or set as a preserved file in the TRT.	Inform site analyst.	CMS 5ME
MSER, EQxx, PERMITS CHAIN.	The first track of the permits chain on equipment xx is not reserved or set as a preserved file in the TRT.	Inform site analyst.	CMS 5ME
MSER, EQxx PF COUNT.	During mass storage table validation, the number of preserved files indicated in the TRT for equipment xx did not match the number in word ACGL of the MST.	Inform site analyst.	CMS 5ME
MSER, EQxx, TRACK COUNT.	During mass storage table validation, the number of available tracks (word TDGL in the MST) for equipment xx was found to be incorrect.	Inform site analyst.	CMS 5ME
MSF CATALOG CHAIN LINKAGE BAD. filename STAGING ERROR, JSN=jsn, FM=familyname, UI=userindex, CSU=id, MST=n, VSN=vsn, ASA=addr, STRM=s.	A linkage error was encountered on the MSF catalog.	A site analyst should run ASVAL to report on the problem and take appropriate corrective action. (Refer to section 3 of the NOS 2 System Maintenance Reference Manual.)	EXSTGE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MSF CATALOG NOT ONLINE. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because the MSF catalog was not on line. This condition exists when a removable familyname is mounted after MSSEXEC was initiated or when an I/O error occurred on the MSF catalog.	A site analyst should ensure that the MSF catalog is on line and recover from the I/O error, if necessary. Then restart MSSEXEC.	EXSTGE
MSI ABORTED INITIALIZE MAY NOT BE COMPLETE.	Initialization of mass storage device did not complete due to hardware/software failure.	Inform site analyst.	MSI
MSID CONFLICT WITH SENSE DATA. EST ORDINAL = xx. MSA MSID = y. UNIT MSID = z.	A conflict between the device MSID recorded in the EST of an MSS device and the sense information returned by MSSDRVR has been detected.	Inform site analyst.	EXHLR
MSSEXEC TERMINATING.	Informative message indicating that termination is in progress. The next line gives the reason for termination.	None.	EXMAIN
MST ERROR-ENTER GO OR DROP.	MST has detected an irrecoverable READ error.	Enter GO,jsn. or DROP,jsn command for the job sequence name at which the message appears.	MST
MST INITIALIZATION ABANDONED. CSU x, MST y, EST ORDINAL=zz.	The initialization of an MST has been abandoned.	Inform site analyst.	EXHLR
MST INITIALIZATION COMPLETE. CSU x, MST y, EST ORDINAL=zz.	The initialization of an MST has been completed.	None.	EXHLR
MT,Ccc,Eec,Hhhhhhhhh,B.C.RESTART.	Magnetic tape controller controlware restarted.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,BAD ERASE.	Error detected after an erase was attempted to recover a write error.	Inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,BID RECOVERY-x.	A single block mispositioning error was recovered by block ID recovery. If x is B, the error was caused by backspacing the tape too far; if x is F, the tape was not backspaced far enough.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,BLOCK TOO LARGE.	Data block is at least one byte longer than length bbbb shown in third line of message.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,BUSY.	Unit was still busy after one second.	Inform customer engineer.	1MT
MT,Ccc,Eec,Hhhhhhhhh,CHANNEL ILL.	Channel is not accepting function for status requests properly.	Inform customer engineer.	1MT
MT,Ccc,Eec,Hhhhhhhhh,CON.REJ.	Connect reject; unable to connect to the unit.	Inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,CON REJ. MDI.	Connect reject; unable to connect to unit because of marginal detection indication (thermal warning). Unit turned off.	Inform customer engineer.	1MT
MT,Ccc,Eec,Hhhhhhhhh,CON.REJ.OFF.	Connect reject; unable to connect to unit. Unit turned off.	Inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,FNff,Pyyyy.	Function ff was rejected by the controller; yyyy is the address in 1MT where the function was initiated.	Inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,Lbbbb,Bnnnnnn.	The length (bbbb) and block number (nnnnnn) read from trailer bytes in block did not match the actual length or the block number read; given in previous message line.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,LOAD CHECK.	Load sequence failed on the unit.	Push CLEAR button and reload tape, or inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,MARGINAL DOWN.	Indicates controller failure. Channel has been logically turned off and maintenance is required.	Inform customer engineer.	1MT
MT,Ccc,Eec,Hhhhhhhhh,MARGINAL OFF.	Unit has been logically turned off because of read/write failure. This occurred when a special function to check the read/write path to a unit failed during initial label scan. Maintenance is required.	Inform customer engineer.	1MT

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
MT,Ccc,Eec,Hhhhhhhhh,NO EOP.	No end-of-operation detected from unit within 1 second.	Inform customer engineer.	1MT
MT,Ccc,Eec,Hhhhhhhhh,NOISE.	A noise block was skipped on the tape.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,NOT READY.	Tape unit dropped ready status.	Make unit ready.	1MT
MT,Ccc,Eec,Hhhhhhhhh,ON THE FLY.	Error was corrected as the data was read.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,POSITION LOST.	The last good block written cannot be found during write recovery.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,RECOVERED.	Previously reported error has been successfully recovered.	None.	1MT
MT,Ccc,Eec,Hhhhhhhhh,STATUS.	Error type cannot be determined so actual controller status is returned.	Inform site analyst.	1MT
MT,Ccc,Eec,Hhhhhhhhh,WRONG PARITY.	Tape was written in parity opposite that being read.	None.	1MT
MT,Ccc-e-uu,vsn,rw,xx,Ss,GSgggggggg. MT,Ccc,Dddd...d. MT,Ccc,Uuu...u,Ttttt. MT,Ccc,Fff,Iii,Bnnnnnn,Lbbbb,Pppppppppp. MT,Ccc,Eec,Hhhhhhhhh,type. or MT,Ccc-e-uu,vsn,rw,xx,Ss,GSgggggggg. MT,Ccc,Dddd...d. MT,Ccc,Fff,Iii,Bnnnnnn,Lbbbb,Pppppppppp. MT,Ccc,Eec,Hhhhhhhhh,type.	Four or five-line message describing a magnetic tape hardware malfunction on a 66x or 67x tape unit. Message as illustrated indicates 7-track, model 667 or 677 unit. If NT appears in place of MT, message indicates 9-track, model 669 or 679 unit. Message is issued to error log and dayfile. The first line of each message provides the following information. cc-e-uu — Channel, equipment (tape controller), and physical unit number of tape unit on which error was encountered. vsn — Volume serial number associated with tape on the specified unit. rw — Read (RD) or write (WR) operation; any operation not involving an actual read or write is listed as a read. xx — EST ordinal of the unit on which the tape was written. This is provided only for labeled tapes generated under NOS; otherwise, the field is blank. s — Channel status. gggggggg — General status of magnetic tape unit. Last byte is block ID. The MT,Ccc,Dddd...d line of the message provides the following information. cc — Channel number; the channel number is repeated to allow the analyst to associate this message with the first message if errors are occurring on more than one tape channel at the same time. ddd...d — Detailed status of magnetic tape unit. The MT,Ccc,Uuu...u,Ttttt line of the message provides the following information. cc — Channel number; repeated to associate this message with the previous messages. uu...u — Unit status of the magnetic tape unit. tttt — Third byte of the tape unit format parameters (refer to the magnetic tape subsystem reference manual for descriptions of unit format parameter fields). The MT,Ccc,Fff,...,Pppppppp line of the message provides the following information. cc — Channel number; repeated to associate this message with the previous messages. ff — Software function on which the error occurred. ii — Error iteration; number of times error has been encountered on this unit without successful recovery. nnnnnn — Block number on which error	Refer to the separate listing of the last line message (MT,...,type.) for the appropriate action.	1MT

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	occurred. bbbb Length of block on which error occurred in octal bytes. pppppppp 1MT internal error parameters. The last line of each message provides the following information. cc Channel number; repeated to associate this message with the previous messages. ec Octal error code value. hhhhhhhh Parameters passed to the tape unit for the format function (refer to the tape drive's hardware reference manual for descriptions of the unit format parameter fields). type Additional description of the error. Refer to individual listing of the last line message.		
MTxx,Ccc, TURNED OFF.	A 7-track magnetic tape unit xx has been logically turned off due to function reject. If NT appears in place of MT, the message indicates a 9-track tape unit. xx EST ordinal of magnetic tape unit cc Channel number	Inform customer engineer.	1MT
MTxx, CAN'T ACCESS DATA.	Tape mounted on 7-track magnetic tape unit with EST ordinal xx has label information that does not allow the user access to data on that tape. If NT appears in place of MT, the message indicates a 9-track tape unit.	Mount correct tape or drop the job (refer to n.DROP command).	1MT
MTxx, NEEDS LABEL.	Tape mounted on 7-track magnetic tape unit with EST ordinal xx is unlabeled and the job requires a labeled tape. On labeled multireel files, all subsequent reels must be labeled. If NT appears in place of MT, the message indicates a 9-track tape unit. For a 9-track tape unit, this message can mean that a subsequent reel was mounted on the same unit as the previous reel, and it is labeled in the wrong conversion mode.	Mount correct tape.	1MT
MTxx, RING CONFLICT.	Ring status for 7-track tape mounted on magnetic tape unit with EST ordinal xx conflicts with ring status requested by the job. If NT appears in place of MT, message indicates a 9-track tape unit.	Correct ring status (insert or remove write ring) and remount tape.	1MT
MT STAT ERR.	The status from the tape controller is not correct.	Press the space bar to skip to the next program on tape.	TDX
MTxx, WRONG VSN.	Tape mounted on 7-track magnetic tape unit with EST ordinal xx does not have the volume serial number (VSN) requested by the job. If NT appears in place of MT, the message indicates a 9-track tape unit.	Mount tape with correct VSN as shown on the resource mounting preview (E,P.) display.	1MT
MTR BUSY.	PP MONITOR is temporarily unable to process a MONITOR function from DSD.	None.	DSD
MTS FIRMWARE NOT FOUND.	Magnetic tape conroller controlware is not in the system.	Inform site analyst.	1MT
NAKY PARAMETER ON THE IXN CARD NOT SPECIFIED PROPERLY.	The NAKY parameter is not specified properly or of zero length.	Correct the IXN statement and try again.	DMREC
NAM ERROR - ILLEGAL ABH.	The application block header (ABH) sent to TAF by NAM is unrecognizable.	Inform site analyst.	TAF
NAM ERROR - ILLOGICAL ABT.	The application block type (ABT) sent to TAF by NAM is unrecognizable.	Inform site analyst and refer to the NAM Reference Manual.	TAF
NAM FUNCTION NOT FOUND.	TAF received a supervisory message from NAM which had an unrecognizable primary or secondary function code.	Perform a dump of TAF and NAM or inform site analyst.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NAM LOGICAL ERROR.	NAM sent TAF a message out of order or an unrecognizable message.	Inform site analyst.	TAF
NAM NOT AVAILABLE.	Informative message indicating that TAF is currently at a control point but NAM is not. TAF transactions can be initiated from batch only, or TAF-CRM data bases may be accessed from batch or interactive jobs.	Bring NAM to a control point, if desired.	TAF
NAM PHYSICAL ERROR EC=ec.	NAM has detected a physical error indicated by error code ec.	Refer to the NAM Reference Manual for the meaning of this error code.	TAF
NAM REG LEVEL reglvl.	NIP initialization is complete. reglvl Regulation level (decimal).	None.	NIP
NAM REJECT.	During login processing, NAM rejected the terminal.	Inform site analyst.	TAF
NAM VER x.x - nnnn.	Informative message indicating that NIP has initialized successfully and is ready to process applications (including the supervisors). nnnn Current integration or PSR level x.x Version of NAM	None.	NIP
NC EXCEEDS 200B TRACKS.	The number of catalog tracks specified for device exceeds the limit allowed.	Correct and enter GO.	MSI
NC IS NOT A POWER OF 2.	The number of catalog tracks specified must be a power of two.	Correct and enter GO.	MSI
NDL COMPLETE.	The NDL processor has finished all possible work on its input and ended its execution.	None.	NDLMAIN
NDLP COMPLETE.	NDLP has finished processing.	None.	NDL NS
NDR - ADDRESS ERROR.	The calling program specified an invalid address.	Inform site analyst.	NDR
NDR - ILLEGAL CALLER.	Only RHF is allowed to call NDR.	Inform site analyst.	NDR
NDR - ILLEGAL FUNCTION.	RHF specified an invalid function.	Inform site analyst.	NDR
NDR - INVALID CONNECT REQUEST.	A NAD sent an invalid reply to a system connect request.	Inform site analyst.	NDR
NEED AT LEAST xx SUBCONTROL POINTS.	There are more CM resident tasks defined than subcontrol points. If non-CM resident tasks exist, there must be at least one more subcontrol point than there are CM resident tasks.	Reinitialize the transaction executive and assign more subcontrol points, or reduce the number of CM resident tasks.	TAF
NETOFF COMPLETE.	Informative message indicating that TAF is no longer communicating with NAM. NAM initiated shutdown procedures prior to loss of communications.	When NAM is available, the central site console operator command K.NAMON can be used to resume communications between TAF and NAM.	TAF
NETON ACCEPTED.	Informative message indicating that RBF entered the network successfully.	None.	RBF
NETON COMPLETE.	Informative message indicating that TAF is communicating with NAM.	None.	TAF
NETON REJECTED, TVF ALREADY PRESENT.	The NETON was aborted. Routine TVF was already present when the NETON was attempted.	None.	TVF
NETVAL NETON REJECTED.	Dayfile and operator message indicating that NAM is either not running or has not yet been initialized.	Perform one of the following. - Initiate NAM if it is not running. - Wait for initialization to complete. - Drop NVF.	NETVAL
NETWORK ACTIVITY TABLE OVERFLOW.	Space sufficient to allocate the required table was not available. An internal change to IAF is necessary.	Inform site analyst.	IAFEX

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NETWORK FILE NOT FOUND - filename.	The network description file, NCTFi, could not be found.	Check that correct parameters were specified on the NETWORK directive corresponding to filename.	TAF TAFREC
NETWORK SHUT DOWN DETECTED.	Self-explanatory.	None.	TAF
NIP RECEIVED DBG/STOP.	DBG/STOP sent to NIP indicates a NAM problem. NIP will abort if DEBUG is on.	Supply dumps to site analyst.	NIP
NIP DUMP TAKEN.	NIP detected potential operating system problem (that is, bad reason code from operating system). NIP will take an internal dump.	None.	NIP
NIP FATAL ERROR PROC = name.	NIP has detected a fatal error and will abort after taking a dump. This message usually indicates an internal problem within NIP or the operating system. name First 4 characters of the NIP procedure from which the message was issued	Supply dumps to site analyst.	NIP
NIP INTERNAL ERROR - xxxxx.	NIP internal error in routine xxxxx. If debug is on, NIP aborts.	Inform site analyst.	NIP
NIP/ MISMATACHED EST/NCF.	NAM will halt the NPU.	No action is required. The NPU should automatically be reloaded.	NIP
NIP RECEIVED BAD BSN.	Informative message indicating that the block sequence number that NAM expected and what it actually received were different. If compiled with DEBUG on, NIP aborts; otherwise, NIP continues.	None.	NIP
NIP RECEIVED BAD PWL.	NIP received a bad PRU worklist which cannot be processed. The reason code is specified in the error code field of the PRU worklist. The PRU worklist received by NIP follows this message. If NIP is compiled with the DEBUG option on, NIP aborts; otherwise, NIP continues.	Inform site analyst.	NIP
NIP RECEIVED BLOCK ON PRU CONNECTION.	NIP received a data block on a PRU connection. All data blocks on a PRU connection are transferred directly between a mass storage device and an NPU. This error causes NIP to abort.	Inform site analyst.	NIP
NIP/SCP ERROR RC=ec JOBID=jobid.	Informative message indicating that NIP has received an error response with code ec from the operating system as the result of a system control point call. NIP takes a dump; if DEBUG is on and the error was fatal, NIP aborts. Fatal error codes usually indicate an internal problem within NIP or the operating system. ec Error code which caused response 41 Invalid job identifier; fatal. 42 Bad NIP address; fatal. 43 Application passed bad address to NIP; fatal for application. 44 Application rolled out; nonfatal. 45 Specified application is not found in system; nonfatal. 57 Long term connection already exists between NIP and application; fatal. 60 Long term connection request rejected; fatal. 61 Long term connection does not exist between NIP and application; fatal. 62 Number of words transferred between subsystem and application is over allowed limit; fatal. 63 Short term connection does not exist between NIP and application; fatal or nonfatal. 64 NIP is not established with application; fatal.	Supply dumps to site analyst.	NIP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	65 NIP attempted to set incorrect error flag; fatal. 66 NIP attempted to set incorrect dayfile processing flag; fatal. jobid Job identifier passed to NIP from the operating system		
NIP/SST RC=ec, JOBID=jobid.	NIP received an error response with code ec from the operating system as a result of issuing a SST call to transfer a file to or from the application's control point. If the returned error code indicates a NIP error or an operating system error, NIP aborts; otherwise NIP continues. ec Error code. 1 The file FNT entry was busy. If the request was to transfer a file from the application's control point, the error is nonfatal. If the request was to transfer a file to the application's control point, the error is fatal. 2 The application was swapped out; nonfatal error. 3 The file FNT entry was an invalid file type. If the request was to transfer a file from the application's control point, the error is nonfatal. If the request was to transfer a file to the application's control point, the error is fatal. 4 The specified application was not found in the system; nonfatal error. 5 The application's FNT space was filled; nonfatal error. 6 The control point's assigned file limit was reached; nonfatal error. 7 The specified file FNT entry was not found in the system; fatal error. jobid The job identifier of the application to or from which a file is to be transferred.	Inform site analyst.	NIP
NIP/xxSTTP ERR AN=aaa, CN=bbb, cc,dd.	NIP Internal error in the state table. NIP aborts. xx Name of the host state table (HC/HB) aaa Application number. bbb Connection number. cc Trigger number. dd State of the connection.	Inform site analyst.	NIP
NIP/xxSTTP ERR HN=aa, TN=bbb, ccc,dd,ee.	NIP Internal error in the state table. NIP aborts. xx Name of the network state table (NC/NB) aa Host node. bbb Terminal node. ccc Network connection number. dd Trigger number ee State of the connection.	Inform site analyst.	NIP
NIP UNABLE TO FIND FAILED APP jobid.	Informative message indicating the operating system informed NIP that an application failed but NIP is unable to locate the application specified. NIP assumes the application is not on the network or has already terminated. jobid Job identifier passed to NIP from the operating system	None.	NIP
NLD01 - FET ADDRESS ERROR.	The calling program specified a FET pointer that was not within the calling program's field length.	Inform site analyst.	NLD
NLD02 - NOT CALLED FROM SYSTEM LIBRARY.	The calling program did not have system origin privileges.	Inform site analyst.	NLD

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NLD03 - INVALID FUNCTION CODE.	The calling program specified a function code that does not exist.	Inform site analyst.	NLD
NLD04 - WAITED TOO LONG FOR SHARED ACCESS.	The equipment specified by the EST ordinal appears to be reserved by another job.	Retry job. If job fails again the same way, inform site analyst.	NLD
NLD05 - BUFFER ARGUMENT ERROR.	The calling program specified a FET buffer pointer that was not valid.	Inform site analyst.	NLD
NLD06 - ABORTED BY SYSTEM.	One of the error flags in the calling program's control point area was set.	None.	NLD
NM=filename.	File filename is not found on deadstart device.	Redeadstart. If message persists, inform site analyst.	CDX
NM REDUCTION INVALID - filename.	The maximum number of user messages, specified via the NM parameter on the RECOVER directive, was less than the actual number of user messages on the named CRF.	Correct the RECOVER directive or select initialization of the named CRF via the K.INT initial K display command if reducing the number of user messages is actually required. (Note that K.INT will destroy the current recovery information).	TAFREC
NO ACCOUNT/USER CARD IN xxJ FILE.	The USER statement in the xxJ file is not present, causing the transaction subsystem to abort.	Add USER statement in xxJ file. Inform the TAF data administrator.	TAF
NO ACCOUNT/USER CARD ON XXJ FILE.	No user statement exists on the xxJ file.	Correct the xxJ file and rerun.	DMREC (CXJ)
NO ALTERNATE KEY SPECIFIED ON IXN CARD.	Self-explanatory.	Correct the IXN statement and try again.	DMREC
NO ARF DUMP ENTRIES - DUMP IGNORED.	When trying to build directory entries for an ARF dump function, no ARF file was found.	Include ARF file name on dump.	DMREC
NO ARF DUMP ENTRIES IN DIRECTORY.	A search of the directory for the targeted VSNs of ARF tapes was unsuccessful.	Check time and data or VSN used to delineate update.	DMREC
NO BC LOAD ON PREASSIGN.	User requested to load tape controlware when using tape preassignment.	Correct control statement parameters and reenter.	CVL
NO CONTROLWARE ON CHANNEL.	The channel controlware table indicates that no controlware exists on the requested channel.	Check the C=cc parameter on the LOADBC command and retry.	LOADBC
NO CRM CARD FOUND IN xxJ FILE.	Self-explanatory.	Correct the CRM statement and try again.	DMREC
NO DATA BASE ID FOR DATA MANAGER.	At least one data base identifier must be specified on each active (ON) DMS statement.	Add data base identifier to DMS statement(s) or specify status as OFF.	TAF
NO DATA BASE NAME IN xxJ FOR TOTAL.	Self-explanatory.	Add data base name to xxJ file.	TAF
NO DAYFILE FOUND.	Dayfile for job does not exist.	None.	QDSPLAY
NO DIRECTIVES.	No directives were supplyed to DMREC.	Supply the correct directives and rerun.	DMREC
NO DUMP RECORD WITH SPECIFIED VSN.	DMREC could not locate a dump record with the specified VSN.	Check directory with list directive for proper VSN.	DMREC
NO EQUIPMENT AVAILABLE.	BIO determined that no equipment (card reader, card punch, and/or line printer) is defined in system.	Inform site analyst; system must be deadstarted to define equipment in EST.	1IO
divnam-NO ERRORS ENCOUNTERED.	A properly verified network and/or local configuration file has been created or listed from the indicated division by the NDL processor.	None.	DAYNNO NDLLIST
filename - NO ERRORS ENCOUNTERED.	There were no errors in this division and the configuration file which was created is valid.	None.	NDLP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NO FILE NAME SPECIFIED ON CRM CARD.	A CRM statement in the xxJ file did not contain a file name.	Correct the xxJ file and try again.	DMREC
NO FILE NAME SPECIFIED ON IXN CARD.	The xxJ file has an IXN statement that does not contain a file name.	Correct IXN statement on xxJ file and rerun.	DMREC (RXJ)
NO FILES TO DUMP.	No files have been specified on a dump directive.	Include file name on directive.	DMREC
NO GENERAL STATUS RECEIVED.	After the function was performed, no status word was received.	Inform customer engineer.	LOADBC
NO INITIALIZE REQUESTS SET FOR MSI.	MSI was called by some means other than the INITIALIZE command (for example, X.MSI.), and initialize status is not currently set for any mass storage devices.	None.	MSI
NO INTERLOCK.	PIP did not acknowledge a NIP interlock request within two seconds.	Inform site analyst.	NIP
NO KEY LENGTH SPECIFIED ON CRM CARD.	The KL parameter on the CRM statement was not specified.	Correct the CRM statement and try again.	DMREC
NO LINK DEVICE DEFINED.	A link device (extended memory) was not identified in CMRDECK during an attempt to deadstart into a multimainframe environment or extended memory was DOWNed while in multimainframe mode.	Redeadstart and identify the link device with LINK=xx. command.	SET
NO MAXIMUM RECORD LENGTH SPECIFIED ON THE CRM CARD.	The MRL parameter on the CRM statement was not specified.	Correct the CRM statement and try again.	DMREC
NO ONLINE DIAGNOSTICS PRESENT.	An online diagnostic test request command was entered for NPU without online diagnostic test capability.	None.	CS
NO PARAMETER SUPPLIED (C=cc).	There was no channel parameter (C=cc) specified on the LOADBC command.	Add the C=cc parameter to the LOADBC command.	LOADBC
NO RECORD FOUND FOR GIVEN VSN - DATE/TIME.	The file specified or implied on the load cannot be found on the directory.	Check load directive for correct file loading parameters.	DMREC
NO SHARED DEVICES FOR THIS MACHINE.	The machine on which MREC is being run is not in multimainframe mode; therefore, it cannot access any devices on an inoperative machine.	None.	MREC
NO SPACE FOR ARF/BRF BUFFER.	No space was available for an ARF or BRF buffer.	Increase field length of DMREC.	DMREC
NO SPACE IN DIT.	More than sixteen mainframes are trying to access this independent shared device.	Inform site analyst.	RMS CMS
NO SYSTEM DEVICE DEFINED.	Operator message indicating that the mass storage device on which the system is to be loaded has not been defined.	Define the system device with the SYSTEM=n. command.	SET ICM
NO TAPE EQUIPMENT.	There is no magnetic tape equipment currently defined in the system.	Inform site analyst.	1MT
NO TERM UNDER THIS USER.	Host operator entered a command to get the status of all terminals that this user is logged into, but there is no terminal under this user.	Select another user and reenter command.	NDL
NO TERM/USER CONNECTED TO THLS APPLICATION.	Host operator entered a command to get the status of all terminals/users connected to a specific application, but there is no terminal/user connected to this application.	Select another applicaton and reenter the command.	NDL
NO TERMINALS DEFINED.	A terminal count of zero was determined during initialization.	Check which devices are on inthe EST; at least one TT device must be on.	IAFEX
NO TERMINALS IN NETWORK FILE - filename.	A valid network file was found but no transaction terminals were defined in it.	Ensure the network file is correctly named. The network file is NCTFi (i = id specified on network directive in TCF).	TAFREC
NO 52 TABLE IN CONTROLWARE RECORD.	The controlware read from the specified file (system file by default or F=filename) did not contain a 52 table entry.	Check the controlware file being used.	LOADBC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NO 667x MULTIPLEXER.	Either the multiplexer defined in the equipment status table (EST) failed to respond to initializaton status check, or no multiplexer is on channel.	Inform site analyst or customer engineer.	1TN
NO 77 TABLE IN CONTROLWARE RECORD.	The controlware read from the specified file (system file by default or F=filename) did not contain a 77 prefix table entry.	Check the controlware file being used.	LOADBC
NON-ZERO EQ. NUMBER FOR RMS DEVICE.	A nonzero value is specified on the EQ parameter by a MALET user when requesting access to a disk device.	Correct the parameter on the statement and retry.	CVL
NON-ZERO EQ. NUMBER FOR RMS DEVICE.	A nonzero value is specified on the EQ parameter by a MALET user when requesting access to a disk device.	Reenter the parameter with correct command.	CVL
NONSHARED DEVICE ACTIVE IN DAT.	A nonshared device accessed by another mainframe (as determined by MID/machine index) is described in the device access table with the same family name and device number as the device being recovered. Recovery is impossible. Preceded by message RECOVERY,dtxx. which indicates the equipment in error.	Redeadstart with correct configuration for equipment in error.	RMS CMS
NOP: xxxxxxx, ASSIGNED CONTROL.	Network operation at terminal xxxxxxx is assigned control of all NPUs being supervised by CS.	None.	CS
NOP: xxxxxxx, CONTROL RELEASED.	Network operator has released control of all NPUs being supervised by CS.	None.	CS
NOT ALL DATA BASE FILES UPPED.	CRMTASK issued a DBUP request but AAMI was unable to attach/open all of the data base files.	Inform the site analyst.	CRMTASK
NOT AUXILIARY PACK.	An attempt was made to define a nonauxiliary device as a private pack.	Correct and enter GO.	MSI
NOT AVAILABLE.	The equipment specified in the ASSIGN,jsn,eq. command is currently unavailable.	Retry command when equipment becomes available.	DSD
xxxxxxx: nnnnnnn, NOT DEFINED.	An erroneous element name nnnnnnn of type xxxxxxx entered on command.	Reenter corrected command.	CS
xxxxxxx NOT FOUND IN DIRECTORY.	Specified file is not found in the directory.	Check the file name and the list directory.	DMREC
xxx NOT FOUND ON DEVICE. ENTER ALTERNATE DEVICE LOCATION.	The deadstart file does not contain the operating system or the HVS module. xxx Significance DSB HVS module OSB Operating system	Entry of alternate device location is not supported for NOS. Install the operating system or HVS module on the device and redeadstart.	CTI
xxxxxxx NOT IN DIRECTORY.	Error - The task or named TAF transaction unit, xxxxxxx, was specified in the TN parameter but was not found on the task library or transaction unit directory.	Ensure the correct task or transaction name was specified with the TN parameter. Check task or transaction listing for presence of specified unit.	TAF
xxx NOT IN PP LIB.	Dayfile message indicating that PP package xxx was not found in PP libraries.	Ensure that the correct PP package name was specified.	SFP
xxx NOT IN PP LIB. CALLED BY yyy.	Dayfile message indicating that PP package xxx, which was called by package yyy, was not found in the PP libraries.	Ensure that the correct PP package name was specified or inform site analyst.	SFP
xxxxxx NOT INITIALIZED BY TOTAL. STATUS IS yyyy.	An error was encountered on the TOTAL data base.	Regenerate TOTAL data base. Refer to TOTAL Reference Manual for status.	TAF
type element NOT SUPERVISED.	An element name element of the specified type entered on the command is not supervised by this NOP.	Reenter corrected command.	CS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NOT SYSTEM ORIGIN JOB	Dayfile message indicating that an attempt was made to initiate CYBERLOG from a job other than a system origin job. The job aborts.	None.	CYBRLOG
xxxxxxx: nnnnnnn, NOT UNDER YOUR CONTROL.	An element name nnnnnnn of type xxxxxxx was entered on command, and the element is not being controlled by operator.	Enter CONTROL, ON command and reenter command.	CS
NOTE FAILURE, THEN TYPE IN CFO,JSN.GO.	An error that the Data Base Administrator needs to know about has occurred.	The operator should log the failure and inform the Data Base Administrator.	DMREC
NP GREATER THAN 8.	Number of packs specified for multispindle device cannot exceed eight.	Enter correct number of packs and then enter GO.	MSI
NP NOT ALLOWED.	The NP parameter (number of packs) was specified and the device to be initialized is not a pack type device.	Correct and enter GO.	MSI
NPU: npuname, status, node GO IS REQUIRED.	GO is required on NPU npuname in order to start the terminal interface packages.	Enter GO command.	CS
NPU: npuname, status, node. CONNECTION BROKEN, SUPREVISION LOST.	Supervisory connection to NPU npuname has been broken.	None.	CS
NPU: npuname, status, node. NCF MISMATCH/CCP NCF VERSION: ve1 ve2, LEVEL: le1 le2, VARIANT:va1 va2.	An NPU has requested supervision with a different version than CS.	Inform site analyst.	CS
NPU: npuname, st, node.	Indicates NPU npuname with status and node number node.	None.	CS
NPU: npunanme, status, node. SUPERVISION GAINED. CCP VERSION: ve1ve2, LEVEL: le1le2, VARIANT: va1va2, PREVIOUS CS NODE: pcn, PREVIOUS NS NODE: pnn.	Supervision of NPU npuname was gained.	None.	CS
NPU: npuname, DUMP OPTION CHANGED.	Self-explanatory.	None.	CS
NPU: npuname, nl LINES DISABLED.	Indicates that nl number of lines supported by NPU npuname are disabled.	None.	CS
NPU: npuname, nll LOGICAL LINKS DISABLED.	Indicates that nll number of logical links supported by NPU npuname are disabled.	None.	CS
NPU: npuname, nnn, MESSAGE MAY HAVE BEEN LOST.	The broadcast message sent to a NPU may have been lost.	Pause. Reenter command.	CS
NPU: npuname, MESSAGE NOT SENT.	Broadcast message was not sent to terminals on NPU npuname.	None.	CS
NPU xxxxxxx, NCF VERSION MISMATCH.	An NPU has requested supervision with an NCF version different than CS.	Inform site analyst.	CS
NPU: xxxxxxx/OVERLAY: OLD - IN USE.	An OLD request command entered while OLD was in an NPU already actively connected to another operator.	Await OLD in NPU to become available, reenter OLD request.	CS
NPU: xxxxxxx/OVERLAY: OLD - NO PRIOR REQUEST COMMAND.	An OLD drop or data command attempted before OLD request command entered.	Attempt OLD request command, retry command.	CS
NPU: xxxxxxx/OVERLAY: OLD - REQUEST IN PROGRESS.	An OLD data command attempted prior to the response to an OLD request command.	Await request response, reenter command.	CS
NPU: npuname, nt TERMINALS DISABLED.	Indicates that nt number of terminals supported by NPU npuname are disabled.	None.	CS
NPU: npuname, nt TERMINALS DISABLED ON LINE: line.	Indicates that nt number of terminals on the specified line are supported by NPU npuname are disabled.	None.	CS
NPU: npuname, ntr TRUNKS DISABLED.	Indicates that ntr number of trunks supported by NPU npuname are disabled.	None.	CS
NS/ npuname, activity ABORTED - error.	Informative message. The dumping or loading of NPU was aborted because an error condition occurred. The host operator is alerted by the alert line on the NAM K display. npuname — Name of the NPU. activity — NPU dump/load activity that was aborted. SAMLOAD — Loading of the system autostart DUMP — Dump NPU.	Inform site analyst.	NS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	LOAD Load NPU. error Reason an NPU dump/load aborted. Error is one of the following messages. ABNORMAL RESPONSE Received an abnormal response from the NPU. BAD DPCB There is a bad dump procedure control block in the CCP load file. BAD LOAD MODULE NS detected a format error on a CCP load module record in the CCP load file. BAD LPCB There is a bad load procedure control block in the CCP load file. BAD NCB SIZE NCB exceeds the maximum size allowed. BAD PICB A bad program initiation control block in the CCP load file. BAD PICB DIRECTIVE NS detected incorrect directives in the program initiation control block. BAD SPCB There is a bad SAM load procedure control block in the CCP file. DUMP INDEX FULL Indicates all the available dump indexes (00-FF is hexadecimal) for the NPU dump file are in use. A dump index is made available by purging an existing dump file. LOAD MOD NOT FOUND NS cannot locate the CCP load module specified on the program initiation control block in the CCP load file. PICB NOT FOUND The program initiation control block record is not found in the CCP load file. PREEMPTED Indicates the current activity is preempted by a new load request. RETRY LIMIT Number of attempts exceeds the maximum number allowed. TIMEOUT One or more messages resulting in no response during a preset timeout period.		
NS/ BAD NCF DIRECTORY RECORD.	The directory record of the network configuration file is not valid.	Assign a valid network configuration file.	NS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NS/ BAD NCF NPU XREF RECORD.	NS detected an error on the NPU cross reference table of the network configuration file.	Assign a valid network configuration file.	NS
NS/ BAD NCF PHYLINK RECORD.	NS detected an error on the physical link cross reference table of the network configuration file.	Assign a valid network configuration file.	NS
NS/ BAD NLF DIRECTORY RECORD.	The directory record of the network load file is not valid.	Assign a valid network load file.	NS
NS/ CONTROL STATEMENT PARAMETER SYNTAX ERROR.	NS detected syntax error(s) in the NS control statement.	Correct the NS control statement.	NS
NS DISABLED.	The NETON request was not successful because NS has been disabled.	Enable NS using NVF's enable application commands.	NS
NS/ npuname, DUMP/LOAD (xxxxxx) REQUESTED.	NS received a load request from the NPU. npuname — Name of the NPU. xxxxxx — NPU variant assigned to the NPU in the network configuration file.	None.	NS
NS/ npuname, DUMP NPyyxxx COMPLETED.	Dumping of the NPU to the direct access permanent file NPyyxxx was successfully completed. npuname — Name of the NPU. yy — Unique dump number (hexadecimal). xxx — Network invocation number (decimal).	None.	NS
NS/ npuname, DUMP NPyyxxx SAVED.	Dumping of the NPU was prematurely terminated and the partial NPU dump file NPyyxxx was saved as a direct access permanent file. npuname — Name of the NPU. yy — Unique dump number (hexadecimal). xxx — Network invocation number (decimal).	None.	NS
NS/ npuname, DUMP STARTED.	Dumping of the NPU has started. npuname — Name of the NPU.	None.	NS
NS/ DUPLICATE CONTROL STATEMENT PARAMETER.	An NS control statement parameter is specified more than once.	Correct the NS control statement.	NS
NS DUPLICATE NETON	The NETON request was not successful because a second copy of NS tried to NETON.	None.	NS
NS/ GRADUAL SHUTDOWN REQUESTED.	NS received an idle network shutdown request.	None.	NS
NS/ npuname, HALT code AT address.	The NPU has halted. npuname — Name of the NPU. code — CCP halt code (hexadecimal). address — NPU P-register address.	None.	NS
NS/ ILLEGAL CONTROL STATEMENT PARAMETER VALUE.	NS detected an illegal value assigned to an NS control statement parameter.	Correct the NS control statement.	NS
NS/ npuname, ILLEGAL xpcb DIRECTIVE.	NS detected an illegal directive in the program initiation control block while it was dumping or loading the NPU. npuname — Name of the NPU. xpcb — Directive. DPCB — Dump procedure control block. LPCB — Load procedure control block. SPCB — SAM load procedure control block.	Assign a valid network load file.	NS
NS/ ILLEGAL USER ACCESS.	NS does not have a system job origin type.	Assign a system job origin type to NS.	NS
NS/ IMMEDIATE SHUTDOWN REQUESTED.	NS received a forced network shutdown request.	None.	NS
NS/ npuname, LOAD COMPLETED.	Loading of CCP software into the NPU was completed successfully. npuname — Name of the NPU.	None.	NS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NS/ npuname, LOADING (xxx).	A CCP load module is being loaded into the NPU. npuname Name of the NPU. xxx CCP load module name (display code).	None.	NS
NS/ LOGICAL ERROR RC=rc.	Indicates NIP has detected a logical error on a supervisory message. This message is immediately followed by the two-word text of the ERR/LGL supervisory message. The host operator is alerted by the alert line on the NAM K display. If DEBUG is on, NS is aborted. rc Reason code (refer to NAM/CCP Reference Manual for further information).	Inform site analyst.	NS
NS/ NCB ENTRY NOT FOUND IN NCF.	NS cannot locate the NPU configuration block of all the NPUs specified in the NPU cross reference table of the network configuration file.	Assign a valid network configuration file.	NS
NS/ NCF - yy/mm/dd, hh.mm.ss.	Indicates the creation date and time of the current network configuration file.	None.	NS
NS/ NCF NOT AVAILABLE.	The network configuration file is not at NS control point. NS expects the network configuration file to be available as local file NCF.	Assign the network configuration file to NS as local file NCF.	NS
NS/ NDLP VERSION n.n, LEVEL mln.	Indicates version and modification level number of the network definition language program that creates the current network configuration file. n.n Version level. mln Modification level number.	None.	NS
NS/ NIN IS NOT SPECIFIED.	The network invocation number is not specified in the NS control statement.	Correct the NS control statement.	NS
NS/ NLF - yy/mm/dd, hh.mm.ss.	Indicates the creation date and time of the current network load file.	None.	NS
NS/ NLF NOT AVAILABLE.	The network load file is not at NS control point. NS expects the network load file to be available as local file NLF.	Assign network load file to NS as local file NLF.	NS
NS/ PROTOCOL ERROR - NP=xx, NB=yy, SM=hhhh, STATE=pss.	NS received an unexpected supervisory message from an NPU. The host operator is alerted by the alert line on the NAM K display. xx Node number (hexadecimal) of the NPU. yy Node number (hexadecimal) of the source node. hhhh Primary function code/secondary function code (hexadecimal) of the unexpected supervisory message. pss Current state of the NPU. p Primary State 1 Loading SAM 2 Dumpind NPU 3 Loading NPU 4 Dumping network dump control block ss Secondary state. 10 Waiting for load response. 20 Waiting for dump response 30 Waiting for start response. 40 Waiting for load network dump control block response.	Inform site analyst.	NS
NS/ npuname, RECEIVED NPU/DT/A code RC=rc.	NS received an abnormal response from an NPU while the NPU was being dumped or loaded. npuname Name of the NPU that sends the abnormal response. code Code value. 0 Dump response. 1 Load response. 2 Start response. rc Reason code. 1 Invalid NPU address specified on the dump/load command.	Assign a valid CCP load file or inform customer engineer.	NS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	2 Checksum error on load data. 3 NPU not equipped with 8K micromemory. 4 Load batch count mismatch, load data may be lost.		
NS/ npuname, SAM LOAD COMPLETED.	The system autostart module was successfully loaded into the NPU. npuname Name of the NPU.	None.	NS
NS/ npuname, SAM LOAD STARTED.	Loading of the system autostart module into the NPU has started. npuname Name of the NPU.	None.	NS
NS/ SHUTDOWN COMPLETED.	Indicates the shutdown processing has completed.	None.	NS
NS/ SM ABH ERROR.	NS received an invalid application block header from NAM. This message is immediately followed by the application block header plus up to four words of the text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS/ SM NETWORK ABH ERROR.	NS received a supervisory message with a bad network header from an NPU. This message is immediately followed by the application block header plus up to four words of the supervisory message text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS/ SM NETWORK ADDRESS ERROR.	NS received from an NPU a supervisory message with bad NPU addressing information. NS cannot locate a configured NPU with the information contained in the supervisory message. This message is immediately followed by the application block header plus up to four words of the supervisory message text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS/SM NETWORK DUMP RESPONSE ERROR.	NS received a bad dump response supervisory message from an NPU during the NPU dump sequence. This message is immediately followed by the application block header plus up to four words of the supervisory message text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS/ SM NETWORK PFC/SFC/LT/CC ERROR.	NS received a bad supervisory message from a NPU during the NPU dump/load sequence. This message is immediately followed by the application block header plus up to four words of the supervisory message text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS/ SM PFC/SFC ERROR.	NS received a supervisory message with an invalid primary function code/secondary function code from NAM. This message is immediately followed by the application block header plus up to four words of the supervisory message text. The host operator is alerted by the alert line on the NAM K display.	Inform site analyst.	NS
NS TRYING NETON.	NS is initiating a NETON request.	None.	NS
NS/ UNRECOGNIZED CONTROL STATEMENT PARAMETER.	NS detected an unrecognized parameter in the NS control statement.	Correct the NS control statement.	NS
NTxx,Ccc, 200 IPS GCR UNIT ON 1X PPS.	A 679 magnetic tape unit capable of 6250 cpi is configured on a system with 1X PPU speed. 6250 cpi operations may not be valid. xx EST ordinal of tape unit cc Tape unit channel	Inform site analyst.	1MT
NTxx DENSITY MISMATCH.	The tape mounted on magnetic tape unit xx has a density which cannot be read by this particular unit. An input tape of 800 cpi is mounted on a 1600/6250 cpi unit, or an input tape of 6250 cpi is mounted on an 800/1600 cpi unit.	Remount the tape on a tape unit capable of reading the density, or, if tape is to be written instead of read, remount with write ring in.	RESEX

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NTxx DRIVE CONFLICT.	A tape with 1600 cpi density is mounted on magnetic tape unit xx but actual assignment of the tape to unit xx would result in a resource deadlock for the job.	Unload the tape and mount it on a unit with opposite density (that is, if the tape is on an 800/1600 cpi unit, mount it on a 1600/6250 cpi unit).	RESEX
NULL DESCRIPTION FILE.	Self-explanatory.	Create a description file (NCTFi where i is the machine identifier specified on the network statement in the TCF).	TAF
NV/CONTROL STATEMENT PARAMETER SYNTAX ERROR.	The NVF command in the master file is formatted incorrectly.	Examine command in master file, correct problem, revise master file, and attempt to restart network.	NVF
NV/DUPLICATE CONTROL STATEMENT PARAMETER.	A duplicate parameter setting encountered on the NVF command.	Examine command in master file, correct problem, revise master file, and attempt to restart network.	NVF
NV/ILLEGAL CONTROL STATEMENT PARAM VALUE.	An out-of-range value encountered for an NVF command parameter.	Examine command in master file, correct problem, revise master file, and attempt to restart netwrok.	NVF
NV/NIN IS NOT SPECIFIED.	A required NIN value for the NIN parameter on the NVF command is missing.	Examine command in master file, correct problem, revise master file, and attempt to restart network.	NVF
NV/UNRECOGNIZED CONTROL STATEMENT.	An undefined parameter encountered on the NVF command in the master file.	Examine command in master file, correct problem, revise master file, and attempt to restart network.	NVF
NVF ATTEMPTING NETON.	Self-explanatory.	None.	NDL
NVF FAILURE.	The Network Validation Facility (NVF) has aborted. NAM takes an internal dump and terminates.	Reinitialize NAM. Supply dumps to site analyst.	NIP
NVF NETON ATTEMPT FAILED.	NVF unable to successfully NETON to NAM.	Consult site analyst.	NVF
NVF NETON ATTEMPT FAILED.	Self-explanatory.	Inform site analyst.	NDL
NVF NETON SUCCESSFUL.	Self-explanatory.	None.	NDL
NVFALAP - NO AST ENTRY.	For debug only. An AST entry for the application is not found. This message is generated by the procedure NVFALAP.	Inform site analyst.	NDL
NVFOROC - PARAMETER LIST TOO SHORT.	For debug only. The parameter list array for the parameterized host operator command is too short. This message is generated by NVF procedure NVFOROC.	Inform site analyst.	NDL
NVFTACC - CANNOT FIND PDCT ENTRY FOR termname.	For debug only. A PDCT entry for terminal termname cannot be found. The message is generated by NVF procedure NVFTACC.	Inform site analyst.	NDL
NVFTACC - CANNOT FIND PTAC ENTRY FOR termname.	For debug only. A PTAC entry for terminal termname cannot be found. The message is generated by NVF procedure NVFTACC.	Inform site analyst.	NDL
NVFTETC - CANNOT FIND PDCT ENTRY FOR termname.	For debug only. A PDCT entry for terminal termname cannot be found. The message is generated by NVF procedure NVFTETC.	Inform site analyst.	NDL
NVFTPVD - CANNOT FIND AST ENTRY FOR termname.	An AST entry for terminal name termname cannot be found. The message is generated by NVF procedure NVFTPVD.	Inform site analyst.	NDL
NVFTURT - CANNOT FIND PTAC ENTRY.	A PTAC entry cannot be found. The message is generated by NVF procedure NVFTURT.	Inform site analyst.	NDL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
NVFTURT - CANNOT FIND RAU ENTRY.	For debug Only. A RAU entry cannot be found. The message is generated by NVF procedure NVFTURT.	Inform site analyst.	NDL
NVFVDCD - ERRONEOUS READLS CALL.	Attempt to reissue CIO READLS call, while the complete list is read. The message is issued by NVF procedure NVFVDCD.	Inform site analyst.	NDL
NWO1,hhhh,FFcc sss.	Error log message indicating that the interface between PIP and the NPU/coupler is not working properly. hhhh Coupler node cc One of the following error codes. 1 Channel empty too long or inactive 2 Channel active too long after function 3 Channel full after output 4 (Reserved) 5 Coupler did not put status on channel 6 Error retry on input transmission 7 Channel full after activate on channel 8 Channel inactive after output 9 Channel full before function tried A Read interrupted by disconnect B Waited for NPU status change too long C Incorrect coupler status after write D NPU dead E Inbound message too long F Abnormal coupler status register contents (sss = 12-bit register contents in hexadecimal code). 11 NPU load memory compare error. sss Contents of 12-bit register if cc=F. Otherwise 000.	Inform site analyst.	PIP
OBSOLETE MSF CATALOG ONLINE. filename FOR jsn NOT STAGED.	The staging of file filename for job jsn was abandoned because an obsolete MSF catalog was used.	Recover the current copy of the MSF catalog. A site analyst should run ASVAL to analyze the MSF catalog and the PFC entries (refer to section 3 of the NOS 2 System Maintenance Reference Manual).	EXSTGE
OFF TASK taskname-LIBRARY libraryname.	Task taskname in task library libraryname could not be loaded from extended memory or recovered and loaded from mass storage. Task was turned off. TAF transactions using tasks will abort.	Inform site analyst. Library must be recreated.	TAF
OFFLINE MAINTENANCE NOT AVAILABLE	The operator unsuccessfully tried to initiate the off-line maintenance system during deadstart.	Inform site analyst or customer engineer.	CTI
ONLY *BLOCK* or *RECORD* CAN FOLLOW FILE NAME.	Self-explanatory.	Correct error and rerun.	DMREC
ONLY 0-9,*NEXT*,*END*, OR *CYB*, ALLOWED	A format error was made for an entry on the editing display in response to the CYBERLOG display.	Reenter the digit or command in the correct format.	CYBRLOG
OPEN ERROR ON COPY OF THE DIRECTORY.	An open error was generated when trying to access the directory file.	Inform data administrator.	DMREC
OPERATOR DROP.	Informative message indicating that the operator dropped the job.	None.	1AJ
OPERATOR IDLE OF EXEC.	Informative message indicating that the operator has idled MSS.	None.	EXMAIN
OPERATOR OVERRIDE.	Operator has overridden TAF.	None.	TAF
OPERATOR TERMINATION.	Operator typed in K.STOP in K display command.	None.	TAFREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
OSB NOT FOUND ON DEVICE. ENTER ALTERNATE DEVICE TYPE - M 1=66X, 2=67X, 3=DISK	The deadstart tape does not contain the operating system.	Verify that the operating system is on the deadstart device and redeadstart. If message persists, inform site analyst.	EBL
OUT OF RANGE.	The address entered on a BKP command was out of the job's FL, or the M. command was entered and the job DIS is assigned to has no Field Length.	Enter a correct address.	DIS
ovlnam OVERLAY LOAD ERROR.	The MCS overlay could not be loaded so MCS aborted. ovlnam Overlay name	Inform site analyst.	MCS
overlay OVERLAY NOT FOUND.	CS program tried to load a CS overlay, but it could not be found.	Inform site analyst.	CS
overlay OVERLAY NOT FOUND.	The specified NVF overlay was not found.	Inform site analyst.	NDL
npuname/OVERLAY: OLD NO PRIOR REQUEST CMD.	A diagnostic command attempted without a preceded request for the use of diagnostics in NPU npuname.	Enter diagnostc test request command.	CS
PACKED DATE/TIME CONVERSION ERROR.	An error was generated when converting the directive date/time to a packed data/time.	Check the data and time used on directive and rerun.	DMREC
PAGE TABLE AREA VERIFY ERROR DEADSTART ABORTED	A data error occurred during a ones/zeros page check of the central memory area in which the page table will be built.	Inform site analyst or customer engineer.	CTI
.PARAMETER ADDRESS ERROR.	The parameter address specified in the SMP monitor request call is not within the job's field length.	Correct the SMP call and retry.	SMP
PARAMETER FORMAT ERROR.	The input directive contains an incorrect file name - too many characters or non-alphanumeric characters.	Correct directive and rerun.	DMREC
PARAMETER TOO LONG.	A command parameter value exceeded maximum length.	Attempt corrected command entry.	NVF
PARITY ERROR ON DATA RCVD FROM EXT CHANNEL.	A parity error was detected on data received from an external channel.	Inform site analyst and customer engineer.	SCE
PARITY ERROR ON DATA XMTD FROM EXTERNAL PP.	A parity error was detected on data transmitted from a PP.	Inform site analyst and customer engineer.	SCE
.PAST ATTACH FILES ON DEVICE.	An attempt was made to initialize a mass storage device on which one or more fast-attach files are currently active. This message also appears in the comment field of the system control point in the job status (B) display.	Inform site analyst; the fast-attach files will have to be released, via ISF function, before the device can be initialized. The recommended procedure is as follows. - Examine the FNT (H) display to determine the names of the fast-attach files on the device (typically, VALIDUZ, PROFILB, or RSXDid). - Release those files via ISF entries in the following format. X.ISF,R=filename. If fast-attach files are to be reloaded after the device is initialized, those files must be initialized via the entry X.ISF.	1DS
nnnn PER CENT CPU USAGE.	Summary message indicating CPU usage by the transaction subsystem.	None.	TAF2
nnnnnn.nnn PERCENT CPU UTILIZATION.	Summary message indicating CPU utilization by the magnetic tape subsystem.	None.	MAGNET
PERCENT PARAMETER NOT SPECIFIED PROPERLY.	The percent parameter was not of the correct format or was specified greater than 100.	Correct directive and rerun.	DMREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
PERIOD REQUIRED	A comment entry on the editing display for CYBERLOG did not terminate with a period.	Enter a period.	CYBRLOG
PF LENGTH ERROR userindex filename.	Interlock data in system sector of direct access permanent file indicates that the last sector of the file (specified by TRT) was not an EOI sector. userindex User index of file in error filename Name of file on which error was encountered	Inform site analyst.	REC CMS
PF LINKAGE ERROR.	Operator message indicating that an error was encountered while recovering a preserved file during a level 0 deadstart. Preceded by message RECOVERY,dtxx. which indicates the equipment in error. dt Device type xx EST ordinal	Redeadstart and initialize device. Preserved files on device are lost, and must be reloaded.	RMS
PF xxxxxxx - NOT ON xxJ FILE.	The xxJ file does not have the specified CRM data file defined.	Make necessary xxJ file entry (CRM statement).	DMREC (RXJ)
PF xxxxxxx - READ ONLY.	An attempt has been made to write on a file defined in the xxJ file as read only.	Change the xxJ file access mode.	DMREC
PFC RELOAD ERROR. pfn FOR jsn NOT FOUND ON MSF. REPLY GO TO CONTINUE.	K display message indicating that the PFC entry for a file being staged from MSF to disk did not correspond to the file data on MSF. A probable cause of this system error is the use of obsolete permanent file dump tapes for reloading a device or a set of permanent files. pfn Permanent file name jsn Job sequence number	Ensure that obsolete dump tapes were not used and if they were, take appropriate action. Enter K.m.GO to clear the message. m Message ordinal	EXKD
PFM ERROR ec PFN= filename UN= username.	MCS could not attach indicated file. ec PFM error code filename File name username User name	Refer to the NOS Reference Set, volume 4 for a list of the error codes.	MCS
PIP - BUFFER CHAIN ERROR.	PIP has detected errors in the outbound buffer chain in NIP's field length. This message ususally indicates a buffer management error in NIP. If DEBUG is defined at assembly time, PIP hangs the PP; otherwise, PIP aborts NAM.	Supply dumps to site analyst.	PIP
PIP - CM ADDRESS OUT OF RANGE.	PIP has detected a CM address with a field length that is too large. If DEBUG is defined at assembly time, PIP hangs the PP; otherwise, PIP aborts NAM.	Supply dumps to site analyst.	PIP
PIP - FET IN PTR EXCEEDS LIMIT PTR.	PIP has detected the IN pointer exceeding the LIMIT pointer in the NPU's input FET. This message appears if PIP is assembled with DEBUG defined. PIP hangs the PP.	Supply dumps to site analyst.	PIP
PIP - INVALID ACT.	PIP has detected an incorrect application character type value in a downline block. If DEBUG is defined at assembly time, PIP hangs the PP; otherwise PIP aborts NAM.	Supply dumps to site analyst.	PIP
PIP - MESSAGE EXCEEDS BUFFER SIZE.	PIP cannot transfer an upline message to NIP's inbound buffer because the message is too large for NIP's current inbound buffer. This message usually indicates a PIP error in upline transmission and appears only if PIP is assembled with DEBUG defined. PIP hangs the PP.	Supply dumps to site analyst.	PIP
PIP - MESSAGE EXCEEDS MAX LENGTH.	PIP has detected an upline block that is larger than 2043 characters. If DEBUG is defined at assembly time, PIP hangs the PP; otherwise, PIP aborts NAM.	Supply dumps to site analyst.	PIP
PIP - NPU FET ERROR.	PIP cannot locate an NPU FET in NIP's field length. This message usually indicates a NIP error in building the NPU FET. If DEBUG is defined at assembly time, PIP hangs the PP; otherwise, PIP aborts NAM.	Supply dumps to site analyst.	PIP
nnnn PLOT FILES RECOVERED.	nnnn files in the plot queue have been recovered.	None.	REC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
POINTER ERROR - RECOVERY IMPOSSIBLE.	The time-sharing subsystem has encountered incorrect internal pointers during recovery. These pointers could be the terminal table pointer or the pot pointer. Recovery terminates and reloading is attempted.	Restart the time-sharing subsystem.	IAFEX
ttt POINTER WORD ERROR.	The number of assigned entries in managed table ttt (FNT, EJT, QFT) pointer word does not agree with what is in the table. Recovery is aborted.	Level 0 deadstart is required.	REC
POSSIBLE BLOCKAGE AMONG CM RESIDENT TASKS.	The sum of the maximum field lengths (MFLs) for the CM resident tasks exceeds the minimum size of the total task area (potential space available to contain tasks). Thus one or more CM resident tasks could be blocked from completing.	Correct error.	TAF
POT LINK TABLE OVERFLOW.	Space sufficient to allocate the required table was not available. An internal change to the time-sharing executive is necessary.	Inform site analyst.	IAFEX
POTENTIALLY BLOCKED TASKS DETECTED.	During TAF initialization, potentially blocked tasks were detected. Preceding error messages contain additional details.	Correct error.	TAF
POWER DOWN. REPLY GO TO RETRY - DROP TO OFF DEVICE.	K display message indicating that the cartridge storage unit or mass storage transport (as indicated in line 1 of message) is defined as available in the EST, but the power is turned off.	Verify that the device has the power turned on and enter K.m.GO. If the device is not to be used, enter K.m.DROP. m Message ordinal	EXKD
POWER DOWN.	Bits 36 and 37 of the status/control register are set, indicating detection of a power failure and abnormal environmental condition. This message is preceded in the error log by the charcters SR hh.mm.ss. where hh.mm.ss is the time at which the condition was detected.	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	1MB
POWER/ENVIRONMENT NORMAL.	Bits 36 and 37 of the status/control register (bit 0 of the interlock register) are clear after one or both were set. This message is preceded in the error log by the letters SR hh.mm.ss (CYBER 170 machine) or IR hh.mm.ss. (CYBER 70 machine) where hh.mm.ss is the time at which the condition was detected.	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	1MB
POWER ENVIRONMENT NORMAL.	1MB detected that either bit 59 of the processor status summary register or bit 63 of the processor, memory, or input/output unit status summary register was cleared.	Ensure that all equipment is ready. With the site analyst's approval, enter the commands: 99. UNSTEP. 99.	1MB
POWER FAILURE.	Bit 36 of the status/control register (bit 0 of the interlock register) is set, indicating a main power failure. This message is preceded in the error log by the letters SR hh.mm.ss. (CYBER 170 machine) or IR hh.mm.ss. (CYBER 70 machine) where hh.mm.ss. is the time at which the condition was detected.	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	1MB
PP BUSY.	System activity prevents DIS from completing the command last entered.	Retry.	DIS
PP HUNG.	One or more PPUs have attempted to perform an incorrect operation. The PP becomes hung because CPUMTR does not clear the output register. Operator message.	The recommended procedure is as follows. 1. Perform an express deadstart dump. 2. Attempt level 3 deadstart; if not successful, try level 0. 3. Retain dump tape for site analyst.	CPUMTR
PP pp STOPPED ON PARITY ERROR - PPM.	Peripheral processor pp has stopped because of a memory parity error.	Inform site analyst and customer engineer. (For further explanation and procedures, refer to S/C Register Error Detection, appendix F.)	SCE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
PPU BUSY.	PPU is currently busy and has not been able to respond to the request.	If message persists, inform site analyst.	DSD
PPU ERROR.	A hardware error was detected in a PPU.	Inform site analyst and customer engineer.	SCE
nnnn PREINITIAL JOB FILES RECOVERED.	nnnn jobs that were in a pre initial job state have been recovered.	None.	REC
PRESET NOT ALLOWED.	This is not the first machine being deadstarted in a multimainframe environment and the PRESET command is not needed.	Attempt another deadstart without entering the PRESET command.	RMS
PREVIOUS COMMAND INCOMPLETE, TRY AGAIN.	Host Operator entered a command before previous command completed.	Wait for command completion, reenter command.	NVF
nnnn PRINT FILES RECOVERED.	nnnn files in the print queue have been recovered.	None.	REC
PROCESSING COMPLETE.	Informative message.	None.	MREC
PROCESSOR FAULT STATUS ERROR DEADSTART ABORTED	A fault status error occurred during processor initialization.	Inform site analyst or customer engineer.	CTI
PROCESSOR NOT RESPONDING FATAL ERROR - DEADSTART ABORT	A peripheral processor will not accept idle loop package or a processor (CP or PP) has not completed execution within a predefined time period.	Inform site analyst or customer engineer.	CTI
PTFS-APPLICATION CONNECTION BROKEN.	The host or the network ended the MFLINK session.	Inform site analyst.	PTFS
PTFS-APPLICATION CONNECTION TIMEOUT.	The MFLINK session is being timed out because of slow response time on the part of the host.	Inform site analyst.	PTFS
PTFS-CHARGE REQUIRED.	You must specify a CHARGE directive and you did not do so.	Restart your session and include a CHARGE directive.	PTFS
PTFS-CONTINUATION BLOCK DID NOT FOLLOW.	Your continuation line does not complement the previous line.	Ensure that the syntax of your lines are correct and retry. Inform site analyst if the problem persists.	PTFS
PTFS-ERROR MESSAGE RETURNED BY PFM.	Solely informative message.	None.	PTFS
PTFS-EXECUTE ONLY FILE.	You attempted to transfer an execute-only file.	Inform site analyst if you must transfer this file.	PTFS
PTFS-FC/BRK RECEIVED RC=rc.	The host sent the remote host a break with reason code rc.	Inform site analyst.	PTFS
PTFS-FILE ALREADY PERMANENT.	You attempted to save a file that is already permanent.	Purge the file and retry.	PTFS
PTFS-FILE IS DIRECT ACCESS.	You attempted to alter a direct access file with a REPLACE or APPEND directive. This is not allowed.	Change directive and retry.	PTFS
PTFS-FILE TRANSFER ERROR.	A network error occurred.	Inform site analyst.	PTFS
PTFS-FL TOO SHORT FOR PROGRAM.	There is a system error in the remote host.	Inform site analyst.	PTFS
PTFS-HOST NOT SPECIFIED TYPE.	Your job assumes a non-NOS remote host and you have been linked to a NOS remote host.	Inform site analyst.	PTFS
PTFS-INCOMPLETE CONTINUED DIRECTIVE.	The remote host expected the text string to be a continuation of the previous string and it was not.	Correct the syntax of your directives record with emphasis on the continuation lines.	PTFS
PTFS-INVALID ACCESS VALIDATION.	Your USER directive has an incorrect user name or the specified user name does not have job processing privileges on the remote host.	Ensure that the user name is correct and retry. Inform site analyst if the problem persists.	PTFS
PTFS-INVALID BACKUP/RESIDENCE REQUIREMENT.	You specified an incorrect BR=br or PR=pr parameter on one of your directives.	Correct the parameter and retry. Inform site analyst if the problem persists.	PTFS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
PTFS-INVALID COMMAND cmd.	The remote host received an incorrect command (cmd) from the host or received a command out of sequence.	Inform site analyst.	PTFS
PTFS-INVALID COMMAND.	You entered PTFS as a command and PTFS is not a system command.	Enter a system command.	PTFS
PTFS-INVALID DATA DECLARATION TYPE.	You specified an incorrect DD=dd parameter.	Correct the DD=dd parameter and retry.	PTFS
PTFS-INVALID DEVICE SPECIFICATION.	You specified an incorrect R=r parameter on your directive.	Correct and retry.	PTFS
PTFS-INVALID DIRECTIVE.	The remote host does not recognize the directive you specified.	Ensure that the syntax of the directive is correct and retry. Inform site analyst if the problem persists.	PTFS
PTFS-INVALID MODE/CATEGORY.	The mode and category you specified for the file are not defined.	Correct and retry.	PTFS
PTFS - INVALID xxxxxx=NO VALUE.	Argument xxxxxx was entered without a value.	Correct remote directive and reissue.	PTFS
PTFS-LID UNAVAILABLE.	The mainframe with the specified logical identifier (LID) is not a host or is disabled.	Inform site analyst.	PTFS
PTFS-MISSING CHARGE/PROJECT.	The CHARGE directive did not have the required charge and project number.	Correct and retry.	PTFS
PTFS-MISSING USER NAME.	The USER directive did not contain the required user name.	Correct and retry.	PTFS
PTFS-MULTIPLE FILE TRANSFERS REQUESTED.	You have more than one file transfer directive in a given directive record. This is not allowed.	Place the file transfer directives in separate records, one file transfer directive per record.	PTFS
PTFS-NETON REJECTED BY SUBSYSTEM.	Network error.	Inform site analyst.	PTFS
PTFS-PF NAME REQUIRED.	You did not specify the permanent file to be processed.	Correct and retry.	PTFS
PTFS-PF REQUEST COMPLETE.	The remote host successfully processed your permanent file request.	None.	PTFS
PTFS-RECOVERY DIRECTIVE AFTER FILE TRANSFER.	Your MFLINK directives are not in the proper sequence. If a file transfer directive is in the same record as a USER, CHARGE, or PACKNAM directive; the USER, CHARGE, or PACKNAM directive must precede the file transfer directive.	Resequence your directives and retry.	PTFS
PTFS-SECONDARY USER DIRECTIVES DISABLED.	You are not authorized to specify secondary USER directives.	Get site personnel to so authorize you or do not attempt to use secondary USER directives.	PTFS
PTFS-USER DIRECTIVE REQUIRED FIRST.	You must first specify a USER directive to access permanent files on remote NOS hosts.	Correct and retry.	PTFS
nnnn PUNCH FILES RECOVERED.	nnnn files in the punch queue have been recovered.	None.	REC
PUT DEVICE ON LINE. RESPOND GO TO RETRY - DROP TO OFF DEVICE.	K display message indicating that the cartridge storage unit or mass storage transport (as indicated in line 1 message) is off line.	Verify that the device is on line and enter K.m.GO. If the device is not to be used, enter K.m.DROP. m Message ordinal	EXKD
PUT FAILURE, X=x, Y=y. RESPOND GO TO ACKNOWLEDGE.	K display message indicating that the cartridge storage unit was unable to place the cartridge into cubicle X=x, Y=y because of a hardware error. The cartridge was placed in the lower I/O drawer. x X coordinate of the cubicle (0-57) y Y coordinate of the cubicle (0-36)	Enter K.m.GO to clear the message. Run ASLABEL to restore the cartridge to the cartridge storage unit (refer to the NOS System Maintenance Reference Manual). m Message ordinal	EXKD

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
QAP - BUFFER ARGUMENT ERROR.	One of the following conditions occurred. - The buffer did not contain all the data required by the calling function. - One or more of the buffer pointers (FIRST, IN, OUT, or LIMIT) is out of the acceptable range.	Inform the site analyst.	QAP
QAP - ILLEGAL REQUEST.	Bad parameter in QAP call.	Inform site analyst.	QAP
QF LENGTH ERROR filename.	Interlock data in system sector of queued file indicates that the last sector of the file (specified by TRT) was not an EOI sector. filename Name of file on which error was encountered	Inform site analyst.	REC CSM
QFT FULL.	DSP cannot route the file since there are no available entries in the QFT.	Inform site analyst.	DSP
QTF, -n- qfn ACQUIRED, DC=dc, ST=did, DO=sid.	The system has acquired local queue file qfn on connection number n from the local queue with disposition code dc for transfer to destination LID did with source LID sid.	None.	QTF
QTF, -n- qfn CONNECTING TO pid.	The system is attempting to establish communications with remote host pid.	None.	QTF
QTF, -n- qfn CONNECTION REJECTED.	The system was unable to establish a connection to the remote host partner.	If problem persists, contact remote operator to ensure remote subsystem and QTFS are operational; otherwise contact site analyst.	QTF
QTF, -n- qfn EVICTED.	The system evicted the local queue file qfn to connection number n from the local queue.	None.	QTF
QTF, nnnn FILES TRANSFERRED.	Informative message issued at end of QTF session. nnnn is the number of files successfully transferred.	None.	QTF
QTF, -n- qfn INVALID QUALIFIER OR PARAMETER.	The system received an invalid network message from the remote host.	Inform site analyst.	QTF
QTF, PLT LENGTH ERROR.	The system detected an inconsistency in the network description table obtained from the subsystem.	Inform site analyst.	QTF
QTF, -n- qfn QUEUED AS xxxxxxxx ON pid.	File has been successfully queued on remote host pid with name xxxxxxxx.	None.	QTF
QTF, -n- qfn REQUEUED.	The system returned the local queue file qfn on connection number n to the local queue if it was unable to successfully transfer the file to a remote host.	None.	QTF
QTF, -n- qfn REQUIRED PARAMETER MISSING.	The remote host failed to send a required parameter on a network message.	Inform site analyst.	QTF
QTF, -n- qfn SENT TO PID xxx, PID yyy RESPONDING.	The subsystem network description table does not agree with the remote host PID returned by the remote host QTFS. The file transfer may complete.	Inform site analyst.	QTF
QTF, -n- qfn UNEXPECTED ACQUIRE ERROR CODE = nnnB.	A system error.	Inform site analyst.	QTF
QTF, -n- qfn UNRECOGNIZED DISPOSITION CODE.	The system has acquired a file from the local queue with an unrecognized disposition code. See previous message for disposition code value.	None.	QTF
QTF(S), -n- qfn CONNECTION BROKEN.	The remote host partner or the remote subsystem broke the network connection usually due to an involuntary termination or failing network hardware.	If error persists, inform site analyst and customer engineer.	QTF QTFS
QTF(S), CONNECTION NUMBER NOT IN SUPERVISORY MESSAGE.	The connection number is missing from the supervisory message received from the subsystem.	Inform site analyst.	QTF QTFS
QTF(S), -n- qfn CONNECTION TIMED OUT.	Remote host partner did not respond within the allowed time span. Transfer will be retried.	If error persists, inform site analyst and disable remote host pid in subsystem ID table.	QTF QTFS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
QTF(S), -n- qfn CONNECTION TO pid ESTABLISHED.	Indicates state of connection to remote host partner.	None.	QTF QTFS
QTF(S), -n- qfn CONNECTION TO pid ABORTED.	Indicates state of connection to remote host partner.	None.	QTF QTFS
QTF(S), -n- qfn CONNECTION TO pid ENDED.	Indicates state of connection to remote host partner.	None.	QTF QTFS
QTF(S), -n- qfn ERROR IN FILE TRANSFER.	Transfer of file qfn was unsuccessful.	If error persists, inform site analyst.	QTF QTFS
QTF(S), FATAL LFM ERROR = nnB.	Error code nn was returned on a call to LFM.	Inform site analyst.	QTF QTFS
QTF(S), -n- qfn FC/BRK RECEIVED.	The remote host partner broke the network connection usually because of an unrecoverable protocol anamoly detected.	If error persists, inform site analyst.	QTF QTFS
QTF(S), -n- qfn FC/NAK RETRY COUNT EXCEEDED.	The subsystem was unable to deliver a network message.	Inform site analyst.	QTF QTFS
QTFS, -n- qfn INVALID ATTRIBUTE IGNORED.	QTFS received a network message from the remote host QTF with an unrecognized parameter. Transfer may complete.	Inform site analyst.	QTFS
QTF(S), -n- qfn INVALID SEQUENCE RECEIVED.	A network message from the remote host partner was received that was not in sequence.	Inform site analyst.	QTF QTFS
QTF(S), JOB ORIGIN ERROR.	QTF or QTFS was improperly initiated by user command.	None.	QTF QTFS
QTF(S), -n- qfn MESSAGE FROM REMOTE HOST - QTF(S), -n- qfn xxx.	xxx is the text of a message received from the remote host partner.	None.	QTF QTFS
QTF(S), NETON REJECT, CODE nn - xxxx.	QTF or QTFS was unable to establish communications with the RHF subsystem due to one of the following conditions: nn xxxx 01 SUBSYSTEM UNAVAILABLE. 02 SUBSYSTEM FULL. 03 APPLICATION DISABLED. 04 APPLICATION NAME UNKNOWN. 05 ILLEGAL NETON. 06 INVALID ACN VALUE. 07 ALREADY NETTED ON. other (UNRECOGNIZED CODE).	If SUBSYSTEM UNAVAILABLE, initiate subsystem. If APPLICATION DISABLED, enable application in subsystem application table. Otherwise, inform site analyst.	QTF QTFS
QTF(S), -n- qfn NETWORK BLOCKS OUT OF SEQUENCE.	A network message from the remote host partner was received that was not in sequence.	Inform site analyst.	QTF QTFS
QTF(S), NETWORK IDLEDOWN IN PROGRESS.	The operator has initiated subsystem idledown. QTF will not initiate any new transfers and will terminate upon completion of any transfers in progress.	None.	QTF QTFS
QTF(S), NETWORK MESSAGE BLOCK SIZE ERROR.	QTF/QTFS was unable to receive a network message due to its size.	Inform site analyst.	QTF QTFS
QTF(S), NETWORK SHUTDOWN.	The subsystem is terminating immediately. All transfers are aborted and QTF will requeue any files in progress.	None.	QTF QTFS
QTF(S), -n- qfn NETXFR - xxxx.	Fatal connection error indicating an abnormal condition was detected by NETXFR during file transfer. xxxx may be one of the following: - UNDEFINED ERROR. - CONNECTION BROKEN. - PROTOCOL ERROR. - TIMEOUT EXPIRED. - BLOCK NOT SENT. - ERROR 7. - ERROR 8. - ERROR 9. - CIO ERROR. - REMOTE TERMINATED. - IDLEDOWN ERROR. - SHUTDOWN.	If error persists, inform site analyst.	QTF QTFS
QTFS, -n- qfn QUEUED AS xxxx FROM pid.	File qfn on connection number n has been successfully queued locally with name xxxx.	None.	QTFS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
QTFS, -n- qfn RECEIVING, DC=dc, ST=did, DO=sid.	QTFS is receiving file qfn on connection number n from the remote host QTF with disposition code dc, destination lid did, and source lid sid.	None.	QTFS
QTF(S), -n- qfn TRANSFER xxxxxxxxxx BY REMOTE HOST. QTF(S), -n- qfn REASON CODE = nnnnnn. or QTF(S), -n- qfn REASON CODE = nnnnnn - yyy.	QTF or QTFS has been informed by its remote host partner that the current file transfer cannot be initiated or completed. xxxxxxxxxx may be either REJECTED, TERMINATED, or ABORTED. nnnnnn is the reason code and yyy is one of the following: - (CONTACT SITE ANALYST). An unexpected reason code was received. - PROTOCOL ERROR. The remote host partner detected a protocol anamoly. - TIME-OUT MATURED. Remote host partner did not receive message within the allowed time span. - SENDER PROBLEMS. Unspecified problems were encountered on the sending (QTF) side. - RECEIVER PROBLEMS. Unspecified problems were encountered on the receiving (QTFS) side. - FILE SIZE TOO BIG. The file is too large to be accommodated on the remote host or not enough space was preallocated. - INVALID USERNAME/ACCOUNT. An invalid or missing account or username was detected by the remote host partner. - UNSPECIFIC TRANSFER Insufficient information was received by the remote host partner to allow the transfer to continue. - QUEUE TYPE UNAVAILABLE. The disposition code requested on the ROUTE command or MFQUEUE routing directive could not be processed on the remote host. For example, a print file was attempted to be transferred to a CYBER 200 remote host. - UNACCEPTABLE ATTRIBUTES. An invalid attribute value was received by the remote host partner.	If fatal transfer error, file is evicted and QTF log file returned to originator. In all other cases, transfer will be retried. If error persists, inform site analyst.	QTF QTFS
QTF(S), qfn UNKNOWN STATE-OF-TRANSFER SENT BY REMOTE HOST. QTF(S), qfn REASON CODE = nnnnnn - (CONTACT SITE ANALYST).	An unrecognized value, nnnnnn, for the state-of-transfer attribute was received on a network message from the remote host partner.	Inform site analyst.	QTF QTFS
QTF(S), -n- qfn UNRECOGNIZED COMMAND RECEIVED.	The command sent by the remote host partner is not recognized.	Inform site analyst.	QTF QTFS
QTF(S), -n- qfn UNRECOGNIZED MESSAGE RECEIVED.	The network message received from the subsystem is not recognized.	Inform site analyst.	QTF QTFS
RANDOM ADDRESS ERROR.	Dayfile message indicating that an error was encountered while building the system library. The random address is not on file.	Attempt another deadstart. If the error persists and the system has worked previously, inform customer engineer and test memory and RMS.	SLL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RBF DISK ERROR, CANNOT REDUCE SIZE.	Because of a disk error, RBF cannot perform periodic field length reduction. RBF processing is unaffected, but CM usage is higher than normal.	To lower CM usage by RBF, idle down RBF and restart.	RBF
RBF ENDED.	Informative message indicating that RBF has terminated.	None.	RBF
RBF NOT ENABLED.	RBF attempted to enter the network but was rejected because it was disabled by the local operator.	Enable RBF and retry the operation.	RBF
RBF NOT STARTED PROPERLY, USE RBF.	An attempt was made to initiate RBF incorrectly, such as with an X.RBF command.	Initiate RBF with the the RBF command (refer to section 3). The copy of RBF started incorrectly is dropped automatically.	RBF
RDeee Cxx Pnn Fyyyy REJECT.	Equipment eee, channel xx, port nn has rejected function yyyy.	Notify customer engineer.	1TM
RDF CARRIER LOST.	RDF detected a loss of signal from the communication line.	None.	1TM
RDF INITIATED.	RDF detected a signal from a communication line.	None.	1TM
RDF TERMINATED.	RDF was dropped or disabled by the operator.	None.	1TM
RDF TIMEOUT.	RDF timed out while waiting for a signal from the communication line.	None.	1TM
READ ERROR ON TAPE.	Error in attempting to read an ARF after an image.	Inform site analyst.	DMREC
READ PYRAMID PARITY ERROR.	A parity error was detected in a read pyramid.	Inform site analyst and customer engineer.	SCE
READ/WRITE ERROR ON TAPE.	A tape error has been encountered. If possible, use another tape.	On all dumps, use another tape; on other DMREC functions, inform data administrator.	DMREC
REASSIGN ADL.	Informative message.	Enter the CFO,jsn.ADL command.	MCS
RECORD NOT FOUND.	Error was encountered during the building of the system library. An attempt was made to place a nonexistent routine on an alternate system device. Deadstart processing halts when this error is detected.	Attempt another deadstart. If the error persists, inform site analyst.	SYSEDIT
RECORD NUMBER ERROR.	No header or an incorrect header or a missing header has been found on an ARF when updating a file.	Inform data administrator.	DMREC
RECOVERABLE RUN UNIT DELETED - username.	The recoverable run unit for username which appeared on the CRF has been deleted because username did not appear in the corresponding NCTFi file.	None.	TAFREC
RECOVERING PF EQxx, TRKnnnn.	Informative message indicating that preserved files on the specified logical track of device xx are being recovered. xx EST ordinal of device nnnn Logical track number	None.	1MR
RECOVERY, dtxx.	Informative message indicating mass storage device being recovered during system deadstart. dt Device type xx EST ordinal of device	None.	RMS
RECOVERY ABORTED. CHECKPOINT REQUESTS PROCESSED.	In the process of aborting a CM recovery, REC has called 1CK to process outstanding checkpoint requests.	Level 0 deadstart is required.	1CK
RECOVERY COMPLETE.	Informative message indicating that a level 3 recovery deadstart was successful and the magnetic tape subsystem was recovered.	None.	MAGNET
RECOVERY COMPLETE.	Informative message issued during deadstart; indicates end of REC processing and start of system loading, or recovery, depending upon level of deadstart selected.	None.	REC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RECOVERY COMPLETE.	The transaction executive or interactive subsystem has successfully completed recovery.	None.	TAF2 IAFEX
RECOVERY COMPLETE.	Informative message.	None.	1IO
RECOVERY IMPOSSIBLE.	The magnetic tape subsystem was dropped or aborted, or a level 3 recovery deadstart was not successful.	Call magnetic tape subsystem to a control point if desired. Previous tape assignments are not recovered.	MAGNET
RECOVERY IN PROGRESS.	Informative message indicating that the routine MAGNET1 is performing clean-up or recovery procedures for the magnetic tape subsystem.	None.	MAGNET
RECOVERY, WAITING MMF DEADSTART IN PROGRESS.	The device access table in extended memory resident is currently interlocked by another machine, indicating that machine is deadstarting.	Verify that another machine is deadstarting. If not, inform site analyst.	RMS
REENTRY TABLE OVERFLOW.	Space sufficient to allocate the required table was not available. An internal change to the interactive executive is necessary.	Inform site analyst.	IAFEX
REMOVABLE DEVICE CONFLICT.	Removable/nonremovable status of a shared device as specified in the CMRDECK conflicts with the status determined by the mainframe which originally recovered the device. If detected by CMS, configuration error status is set. Recovery is impossible.	Retry after determining the correct removable/ nonremovable status.	CMS RMS
REPEAT ENTRY.	Informative message.	None.	DIS
REPEAT ENTRY.	Informative message.	None.	DSD
REQUEST filename, eq.	Issued to DSD B and J displays for job, requesting that equipment type eq be assigned to file filename. Operator message.	Assign equipment to job using ASSIGN operator command.	LFM
REQUEST COMPLETE.	The terminal origin CRMTASK request is complete.	None.	CRMTASK
REQUEST DISPLAY. xxx.	Program xxx is waiting for the display to be assigned. This message appears in the comment field of the control point at which the program is active on the job status (B) display. xxx Program name 026 File editor DIS Job display routine name Program name	Enter DSD command ASSIGN,jsn,xx. jsn job sequence name requesting assignment xx EST ordinal of the display console	DIS 026
REQUEST *I* DISPLAY.	BIO has detected an abnormal condition on an assigned unit record device and has issued the message to the DSD B and J displays.	Check the status field of the I display for more specific information. The message remains until the condition is corrected.	1CD QAP
REQUEST *K* DISPLAY.	The K display is requested at the specified control point. This message appears in the comment field of a control point on the job status (B) display.	Enter command K,jsn. jsn Job sequence name.	PFS QFSP MSI PROFILE MREC
REQUEST *K* DISPLAY.	Issued by function 5 (Set Console Display Register) to DSD B and J displays when operator action is requested.	Refer to DSD K display.	CPM
REQUEST (PAUSE) MLTF ABORTED, DROP AND CHECK DAYFILE.	Alerts operator to MLTF error. The resulting dayfile listing can be examined for cause of error.	Inform site analyst.	MLTF
REQUESTED ECS NOT AVAILABLE.	The amount of extended memory requested was not available in a contiguous block.	Reinitialize with less extended memory requested.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RETRY DETACHES.	Informative message indicating that interactive subsystem is detaching active users during termination processing.	None.	IAFEX
RHF, jsn ACNacn ACCOUNTING OVERFLOW-ADD 32767 TO message	Application connection number acn of the application with job sequence name jsn has had an accounting overflow. 32767 must be added to the appropriate field of the accounting message that is issued when a connection is terminated. message is one of the following: BLOCKS SENT BLOCKS RECEIVED ACKS SENT ACKS RECEIVED This message is issued every time an overflow occurs.	None.	RHF
RHF, jsn ACNacn DISCONNECT BLOCKS SENT=bssss RECEIVED=brrrr RHF, jobnnnn ACKS SENT=kssss, ACKS RECD= krrrr, PATH ID=id, CH=cc	The application with job sequence name jsn terminated its application connection number acn. The connection had path-id id and used the NAD on channel cc. acn Application connection number in octal. bssss Number of blocks sent by the application to RHF for transport across the LCN. brrrr Number of blocks received by the application from RHF. kssss Number of acknowledgements sent by RHF for blocks sent by the remote application (and later received by the local application). krrrr Number of acknowledgements received by RHF for blocks sent by the application. id Connection path identifier in hexadecimal. cc Channel number in octal.	None.	RHF
RHF, APPLICATION DISABLED FOR NETON	The requested application is disabled. RHF does not abort the application.	None.	RHF
RHF, APPLICATION IS NOT NETTED ON	A NETON request to RHF did not precede the application's request for an RHF function. The application is aborted.	Correct error in application.	RHF
RHF, jsn APPLICATION IS NOT NETTED ON	The application with job sequence name jsn requested an RHF function before requesting a NETON to RHF. RHF aborts the application.	None.	RHF
RHF, APPLICATION NOT VALIDATED FOR CTRL/INFO/R	The application issuing a CTRL/INFO/R supervisory request is not system origin and is aborted. All CTRL/INFO/R requests, except the request for logical identifier to physical identifier mapping, require the application to be system origin.	Make the application a system origin job.	RHF
RHF, jsn APPLICATION NOT VALIDATED FOR CTRL/INFO/R	The application with job sequence name jsn issued a CTRL/INFO/R supervisory request without the required system origin privileges.	Inform a site analyst.	RHF
RHF, BAD TCU ON PATH id, PATH TURNED OFF.	Informative message to operator that the correction path identifier is turned off. id Ordinal number assigned to the connection path by NAD in hexadecimal.	Inform customer engineer and a site analyst.	RHF
RHF, jsn BUFFER ADDRESS ERROR IN CTRL/INFO/R	The buffer specified in the CTRL/INFO/R supervisory request for the network description table is outside the requesting application's field length. RHF aborts the application.	None.	RHF
RHF, BUFFER ADDRESS ERROR IN CTRL/INFO/R	The buffer specified in the CTRL/INFO/R supervisory request for the network description table is outside of the application's field length. RHF aborts the application.	Correct error in application.	RHF
RHF, jsn CONNECT TO applnam LID=lid PID=pid REJECTED RHF, jsn - rejmess	RHF rejected connection request to application applnam for the reason given in the reject message rejmess. jsn Job sequence name. applnam Name of application requested. lid Logical identifier of the	Refer to the separate listing of the last line message(RHF, jsn - rejmess) for the appropriate action.	RHF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	remote mainframe. pid Physical identifier of the remote mainframe.		
DESTINATION DOES NOT RESPOND	No response received from remote host.	Contact remote host operator to determine cause of error or inform a site analyst.	
LID/PID/NAD UNAVAILABLE AT DESTINATION	The requested LID does not exist in RHF's tables.	Inform site analyst.	
LID NOT DEFINED AT SOURCE	One of the following occurred: - For the remote RHF the requested LID or the requestor's PID is not valid. - Requested LID or requestor's PID is disabled in remote RHF configuration. - Remote NAD is not enabled in remote RHF configuration. - Path on which connection request was received is not enabled.	Contact remote host operator or inform a site analyst.	
LID/PID/NAD/DISABLED AT SOURCE	Connection request denied because of one of the following: - LID or PID disabled. - Path is not enabled. - NAD is not enabled.	Determine the cause of the error by checking the EST and RHF's L display. Correct the problem and retry.	
NAD RESOURCE LIMIT REACHED	Informative message.	Wait and retry.	
NO NEW CONNECT REQUESTS - MAX REACHED	No new connection requests allowed because the maximum number of connections has been reached.	Wait and retry.	
REMOTE RHF SHUTDOWN IN PROGRESS	Remote RHF is being shut down. New connections are not accepted.	None.	
REQUESTED APPLICATION NOT AVAILABLE	Requested remote application is invalid, not running, disabled, no additional connections are allowed to the running application, or no new applications could be started on the remote mainframe.	Take corrective action and retry.	
RHF SHUTDOWN IN PROGRESS	RHF is being shut down.	None.	
SUBSYSTEM PASSWORD REMOTE REJECT	The remote RHF rejects the local RHF subsystem password.	Inform a site analyst.	
UNKNOWN REMOTE RHF REJECT CODE xx	Connection request rejected, and RHF does not recognize the reason for the reject. xx Rejection code in hexadecimal.	Inform a site analyst.	
RHF, jsn CONNECTED TO applnam LID=lid PID=pid ACN=acn PATH ID=id CH=cc	RHF accepted connection request to application applnam. jsn Job sequence name. lid Logical identifier of the remote mainframe. pid Physical identifier of the remote mainframe. acn Application connection number in octal. id Connection path identifier in hexadecimal. cc Channel number in octal.	None.	RHF
RHF, DUPLICATE NETON REQUEST	Two NETON requests were made for the same application without an intervening NETOFF request. RHF aborts the application.	Remove the second NETON request or add the missing NETOFF request.	RHF
RHF, INVALID APPLICATION CALL TO RHF	An application issued an invalid RHF call. The call may contain an illegal RHF function, a request (other than NETON) from an application with an end of job connect status, or an incorrect word count in the RHF call. RHF aborts the application.	Correct error in application and retry.	RHF
RHF, jsn INVALID APPLICATION CALL TO RHF	The application with job sequence name jsn issued an invalid RHF call. The call may contain an illegal RHF function, or an invalid word count, or the calling application may have an end-of-job connect status. RHF aborts the application.	None.	RHF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RHF, INVALID APPLICATION NAME ON NETON	An application issued a NETON request using an application name that was not in RHF's configuration or that contained incorrect characters. RHF aborts the application.	Correct name in the application NETON call or add the application name to RHF's configuration.	RHF
RHF, jsn INVALID APPLICATION TABLE ADDRESS	In an RHF call the application with job sequence name jsn used an incorrect application table address. The address may be out of range or may point to another application table. RHF aborts the application.	None.	RHF
RHF, INVALID APPLICATION TABLE ADDRESS	In an RHF call an application used an incorrect application table address. The address may be out of range or may point to another application table. RHF aborts the application.	Correct error in application.	RHF
RHF, INVALID CONTROL MESSAGE FOR aplname on ACNacn RECEIVED.	An incoming control message for application aplname on ACNacn is not a valid control message. aplname Application name of requestor. acn Application connection number in octal.	Inform a customer engineer and a site analyst.	RHF
RHF, INVALID MINACN/MAXACN ON NETON	The value for the minimum or maximum ACN in the NETON request is outside the range specified for the application. RHF aborts the application.	Correct the minimum or maximum ACN in the application's NETON request.	RHF
RHF, NAD on ESTxx HAS BEEN TURNED OFF.	Informative message to operator that the NAD on ESTxx is turned off. xx EST entry for NAD in octal.	Inform a customer engineer and a site analyst.	RHF
RHF, jsn NETOFF AS aplname	Informative message indicating application aplname with job sequence name jsn ended access to RHF.	None.	RHF
RHF, jsn NETON AS applnam ACCEPTED ACN=mina/maxa	Informative RHF message indicating successful NETON of the application with job sequence name jsn and application name applnam. The minimum and maximum ACN values specified in the NETON request were mina and maxa, respectively.	None.	RHF
RHF, jsn NETON AS applnam REJECTED ACN - mina/maxa RHF, jsn - rejmess	The application with job sequence name jsn made a NETON request with application name applnam and minimum and maximum ACN values of mina and maxa, respectively. RHF rejected the NETON request for the reason given in reject message in rejmess.	Refer to the separate listing of the last line message(RHF, jsn - rejmess) for the appropriate action.	RHF
APPLICATION DISABLED FOR NETON	The requested application is disabled. RHF does not abort the application.	Inform a site operator to enable application and retry.	
DUPLICATE NETON REQUEST	Two NETON requests were made for the same application without an intervening NETOFF request.	Remove the duplicate NETON or add a NETOFF request.	
INVALID APPLICATION NAME ON NETON	RHF does not recognize the application name in the NETON request. RHF aborts the application.	Retry and specify a valid application name.	
INVALID MINACN/MAXACN ON NETON	The value of the minimum or maximum ACN in the NETON request is outside the range specified for the application. RHF aborts the application.	Correct the value for the minimum or maximum ACN.	
NETON SECURITY VIOLATION	The application is not validated to do a NETON request. RHF aborts the application.	None.	
NO MORE aname SPACE FOR NETON	All allowable applications with the requested application name aname are netted on.	Retry the NETON request later.	
NO MORE TABLE SPACE FOR NETON	No more table space available. RHF does not abort the application.	Retry the NETON request later.	

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RHF, NETON SECURITY VIOLATION	An application is not validated to do a NETON request. RHF aborts the application.	None.	RHF
RHF, NO APPLICATION ADDRESS IN RHF CALL--EXTRA CHARGE	Informative message indicating an application issued an RHF request (other than NETON) without specifying an application table address in the RHF call. The application is charged less if it specifies its application table address in each RHF call.	None.	RHF
RHF, jsn NO APPLICATION ADDRESS IN RHF CALL--EXTRA CHARGE	Informative RHF message indicating the application with job sequence name jsn issued an RHF request (other than NETON) without specifying an application table address in the RHF call. The application is charged less if it specifies an application table address in each RHF call. This informative message is issued only once after the first RHF call from the application with no application table address.	None.	RHF
RHF, NO MORE aname SPACE FOR NETON	The NETON is rejected because all allowable applications with the requested application name aname are currently netted on. RHF does not abort the application.	Retry the NETON request later.	RHF
RHF, NO MORE TABLE SPACE FOR NETON	RHF rejects NETON because there is no more table space available. RHF does not abort the application.	Retry the NETON request later.	RHF
RHF, QUEUED MESSAGE LIMIT EXCEEDED	An application exceeded the maximum number of supervisory messages that are queued in RHF. RHF aborts the application.	Modify the application to issue more frequent NETGET's for the supervisory messages queued in RHF.	RHF
RHF, jsn QUEUED MESSAGE LIMIT EXCEEDED	The application with job sequence name jsn is aborted if the number of supervisory messages queued in RHF exceeds the limit.	None.	RHF
RHF, REJECTED CONTROL MESSAGE FOR aplname ON ACNacn RECEIVED.	The NAD rejected a control message sent by application aplname on ACN acn. acn Application connection number in octal.	Inform a customer engineer and a site analyst.	RHF
RHF, REMOTE CONNECT REQUEST FROM aplname ON pid TO applnam LID=lid RHF, NAD=nn, CH=cc, BUFF=b, TCU=nnnn, DEST=d, PATH ID=id, ACC=cccc RHF, REQUEST ACCEPTED	Informative message indicating a connection request from a remote host has been accepted by RHF. aplname Application name of requestor. pid Physical identifier of remote mainframe where request initiated. applnam Name of application requested. lid Logical identifier requested (valid lid for remote mainframe PID). nn Address of NAD issuing request in hexadecimal. cc Channel number of receiving NAD in octal. b Buffer size of the allocation request in octal. 0 516 bytes 1 2064 bytes 2 4128 bytes nnnn Binary bit pattern which indicates trunks that may be used to communicate back to the requesting NAD. d Destination device physical address in hexadecimal. id Connection path identifier in hexadecimal. The NAD gives this id to the connection path. cccc Access code in hexadecimal.	None.	RHF
RHF, REMOTE CONNECT REQUEST FROM aplname ON pid TO applnam LID=lid RHF, NAD=nn, CH=cc, BUFF=b, TCU=nnnn, DEST=d, PATH ID=id, ACC=cccc RHF, REQUEST REJECTED - rejmess	Informative message indicating rejection by RHF of a remote host's connection request for the reason given in the reject message rejmess. aplname Application name of requestor. pid Physical identifier of remote mainframe where request initiated. applnam Name of application requested. lid Logical identifier requested. nn Address of NAD issuing request	Refer to the separate listing of the last line message (RHF, REQUEST REJECTED - rejmess) for the appropriate action.	RHF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	in hexadecimal. cc Channel number of receiving NAD in octal. b Buffer size of allocation request in octal. 0 516 bytes 1 2064 bytes 2 4128 bytes nnnn Binary bit pattern which indicates trunks that may be used to communicate back to the requesting NAD. d Destination device physical address in hexadecimal. id Connection path identifier in hexadecimal. The NAD gives this id to the connection path. cccc Access code in hexadecimal.		
INVALID PASSWORD pppppp	Self explanatory. pppppp Password.	Inform a site analyst.	
PATH OR NAD UNAVAILABLE	One of the following is not in the RHF configuration or is disabled. - Remote NAD. - Local NAD. - Path between the remote and local NADs. This message may also be issued if no TCU enables in the RHF configuration for this path are in common with the TCU enables specified by the requesting NAD.	If appropriate, enable corresponding elements in RHF configuration, or correct TCU enables in RHF configuration.	
PID/LID NOT AVAILABLE	Either the PID of the requestor is not in the RHF configuration or it is disabled or the LID requested is not in the LID table.	If appropriate, enable PID or LID in RHF configuration or add LID to LID table.	
REQUESTED APPLICATION UNAVAILABLE	Requested remote application is invalid, not running, disabled, no additional connections are allowed to the running application, or no new applications could be started on the remote mainframe.	Take corrective action and retry.	
RHF SHUTDOWN IN PROGRESS	New connections are not made during the RHF shutdown process.	None.	
RHH01 - INVALID FUNCTION CODE	The calling program specified an invalid function code.	Inform site analyst.	RHH
RHH02 - INVALID PARAMETER BUFFER ADDRESS	The calling program specified a parameter block address that was either zero or not within the caller's field length.	Inform site analyst.	RHH
RHH03 - USER NOT SYSTEM ORIGIN	The calling program does not have system origin privileges.	Inform site analyst.	RHH
RHH04 - CALLED FROM CP 0	This routine cannot be called from control point 0.	Inform site analyst.	RHH
RHH05 - NOT CALLED BY SUBSYSTEM CONTROL POINT	A program specified a function that can only be used by RHF.	Inform site analyst.	RHH
RHH10 - NO LOCAL NADS	RHF does not have any local NADs in the local NAD table.	Inform site analyst. The RCFILE for RHF must be corrected.	RHH
RHH11 - NAD TABLE OUT OF RANGE	The address of the local NAD table was not within RHF's field length.	Inform site analyst.	RHH
RHH12 - CHANNEL NOT FOUND ERROR IN LNT ORDINAL ord	Informative message that indicates which LNT entries in RHF do not have a corresponding EST entry.	None.	RHH
RHH13 - CONFIGURATION ERROR	The equipment status table (EST) contains more than one NAD entry with the same channel.	Inform site analyst. The CMR deck must be changed.	RHH
RHH21 - MORE THAN ONE LNT WITH SAME CHANNEL	The Local NAD Table in RHF has more than one local NAD entry with the same channel specified.	Inform site analyst. RCFILE for RHF must be changed to avoid duplicate channel entries.	RHH

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
RHH22 - INVALID EST ORDINAL	The calling program asked to update an equipment status table (EST) entry that does not exist.	Inform site analyst.	RHH
RHH23 - EST IS NOT A NAD	The calling program asked to update an equipment status table (EST) entry that was not for a NAD.	Inform site analyst.	RHH
RMS FULL.	The program name table is full or all available tracks are used on the disk.	Use a different disk.	TDX
RMS STAT ERR.	The status from the disk is not correct.	Use a different disk.	TDX
nnnn ROLLOUT ERROR FILES RECOVERED.	nnnn jobs in an error state have been recovered.	None.	REC
ROLLOUT FILE BAD.	A job could not be rolled out correctly.	Inform site analyst. Check error log dayfile for the job that was aborted and the location of the bad rollout file.	1RI
nnnn ROLLOUT FILES RECOVERED.	nnnn jobs that were in a scheduler rollout state have been recovered.	None.	REC
SAMPLE FWA .GE. LWA.	The first word address and last word address of the sample range were entered incorrectly.	Correct te SMP call and retry.	SMP
SCANNING RESOURCE DEMAND FILE.	Informative message indicating the routine MAGNET1 is attempting clean-up procedures on the resource demand file.	None.	MAGNET
SCLN, node, C1, port, 0, 0, blockst. SCLN, node, C2, blocksrchar.	Denotes the number of blocks and characters transmitted and received on the line connected to the indicated port of the NPU with node number node. The port number is hexadecimal; all other values are decimal. Field — Description blockst — Number of blocks transmitted. blocksrchars — Three contiguous six-digit fields as follows: blocks received (rrrrrr) — characters received (tttttt) characters transmitted (rrrrrrtttttt) Character counts include only counts from good blocks.	None.	NHP
SCMT, es, ppppppp, t.	Denotes the number of tape PRUs transferred from unit es; t denotes whether the blocks read (t=R) or written (t=W).	None.	1MT
SCNP, node, C1, statistics1. SCNP, node, C2, statistics2. SCNP, node, C3, statistics3.	Indicates various statistics about the NPU with node number node. All values are decimal. statistics01?, statistics02?, and statistics03? each consist of three six-digit fields as follows: statistics1: gggggg pppppp rrrrrr statistics2: aaaaaa ffffff nnnnnn statistics3: tttttt oooooo zzzzzz Field — Description gggggg — Number of service messages generated. pppppp — Number of service messages processed. rrrrrr — Number of bad service messages received. aaaaaa — Number of blocks discarded because of bad address. ffffff — Number of packets/blocks discarded because of bad format. nnnnnn — Number of times that the NPU entered regulation level 3 (that is, its original state of no regulation). tttttt — Number of tmes that the NPU entered regulation level 2.	None.	NHP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	oooooo Number of times that the NPU entered regulation level 1. zzzzzz Number of times that the NPU entered regulation level 0.		
SCP PROBLEM - TAKE DEADSTART DUMP.	Operating system problem.	Inform site analyst to take a deadstart dump.	NIP
nnnn SCP ROLLIN FILES RECOVERED.	nnnn jobs that were in an SCP rollin job state have been recovered.	None.	REC
nnnn SCP ROLLOUT FILES RECOVERED.	nnnn jobs that were in a SCP rollout job state have been recovered.	None.	REC
SCP TERMINATION PROCESSING.	This message appears only in the message field of the affected control point on the Job Status (B) display. It indicates the system is executing termination processing for the system control point job that was at the affected control point. All connected user jobs that are also system control point jobs are informed of the termination. All other connected user jobs are aborted.	None.	OST
SCTE, node, C1, port, 0, cluster, terminal, class. SCTE, node, C2, blockst, blocksr, blockse.	Indicates various statistics about a network terminal as follows: Field — Description node — Decimal node number of the NPU to which the terminal is connected. port — Hexadecimal port number number to which the terminal is connected. cluster — Hexadecimal cluster address of terminal. terminal — Hexadecimal terminal address of the terminal. class — Decimal terminal class of terminal. blockst — Decimal number of blocks transmitted to terminal. blocksr — Decimal number of blocks received from terminal. blockse — Decimal number of blocks in error received from terminal.	None.	NHP
SCTR, node, C1, port, 0, 0, blockst. SCTR, node, C2, blocksrchar.	Denotes the number of blocks and characters transmitted and received on the line connected to the indicated port of the NPU with node number node. The port number is hexadecimal; all other values are decimal. Field — Description blockst — Number of blocks transmitted. blocksrchars — Three contiguous six-digit fields as follows: blocks received — characters received rrrrrrttttttrrrrrr characters transmitted Character counts include only counts from good blocks.	None.	NHP
SECURE MEMORY, DUMP DISABLED.	You either attempted to dump memory protected by the system, or entered a memory dump request after a protected command or from a terminal.	Refer to Security Control in NOS Reference Set, Volume 3, section 3 or user Field Length Dump Request in Volume 4, section 11.	1AJ
SECURITY VIOLATION APP jobid.	Informative message indicating that NIP has detected a security violation (for example, an application attempting to perform operations reserved for a supervisor or privileged application. jobid Job identifier passed to NIP from the operating system.	None.	NIP

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
SEE JOB DAYFILE.	An error occurred during DMREC processing that requires the operator to check the dayfile.	Check the job's dayfile for required information and instructions.	DMREC
SFM CURRENT ATTRIBUTE IS NOT IN LID TABLE.	A LID entry was requested to be altered, but the table differs from the entry being used by the caller.	Check the LID table and retry.	SFM
SFM FAMILY STILL ACTIVE.	An attempt was made to release fast attach files for a familyname which was still in use.	Enter DSD command IDLEFAM to prevent new jobs from being scheduled to that familyname while allowing the operations in progress to complete.	SFM
SFM GLOBAL FAST ATTACH LIMIT.	A request has been made to enter a file in global fast-attach mode and there is insufficient space in the FAT table. A maximum of 77B global fast-attach files can exist at one time. Dayfile message.	Inform site analyst; a sufficient number of files must be returned from fast-attach status, via the ISF function, to make room for the files being put into fast-attach status.	SFM
SFM - LID NOT LEGAL.	An attempt was made to alter a LID that does not exist in the LIDT.	None.	SFM
SFM - LID TABLE TOO LARGE FOR BUFFER.	An attempt was made to get a copy of the LID table but the LIDT was larger than the caller's buffer.	Make the buffer larger and rerun.	SFM
SFM - LID TABLE TOO LONG FOR BUFFER.	The installer has requested the LID table with a buffer which is too small.	Specify minimum buffer size (MXLID in NOSTEXT).	SFM
SFM LINK FAST ATTACH FILE NOT FOUND.	An attempt to fast-attach a file already in the fast-attach table (FAT) has been unsuccessful. The file is currently busy in a status other than fast-attach. Dayfile message.	Locate the job to which the desired file is attached and return the file. Retry the function (usually through ISF).	SFM
SFM SYSTEM SECTOR ERROR.	When entering or deleting a fast-attach file, SFM was unable to read the file's system sector. Dayfile message.	The fast-attach file should be copied to another area and the unreadable space flawed.	SFM
SFM UNRECOVERABLE LINK DEVICE ERROR.	An unrecoverable error was encountered while trying to process an SFM request involving DAT or FAT tables on the link device. Dayfile message.	The error information logged in the error log should be referred to a customer engineer. If the error cannot be fixed, the area in error should be flawed before attempting to proceed. A level 0 deadstart may be necessary.	SFM
SH/ISD ON NON-EXISTENT AN.	NVF error. Shutdown requested for nonexistent application number.	Supply dumps to site analyst.	NIP
SHARED DEVICE ACTIVE IN DAT.	A shared device is described in the device access table with the same familyname and device number as the nonshared device being recovered. Recovery is impossible. Preceded by message RECOVERY,dtxx, which indicates the equipment in error.	Redeadstart with correct configuration for equipment in error.	RMS CMS
.SHUTDOWN IMMINENT.	Bit 37 of the status/control register is set, indicating an abnormal environmental condition has been detected. When entered in the error log, the message is preceded by SR. Operator and error log message.	Inform site analyst and customer engineer. (For further information and procedures, refer to S/C Register Error Detection, appendix F.)	1MB SCE
SHUTTLE ERROR. REPLY GO TO RETRY - DROP TO OFF DEVICE.	There is a shuttle malfunction in the mass storage transport.	Verify that all cartridges are aligned correctly in the shuttle and enter K.m.GO. If one or more is not aligned, enter K.m.DROP and call a customer engineer. m Message ordinal	EXKD

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
SKF eq, nn.	The operator requested a skip forward of nn logical files on the print file on BIO equipment eq.	None.	QAP
SKP eq, nn.	The operator requested a skip forward of nn sectors (PRUs) on the print file on BIO equipment eq.	None.	QAP
SKR eq, nn.	The operator requested a skip forward of nn logical records on the print file on BIO equipment eq.	None.	QAP
SLAVE MODE - LOADING MSSSLV.	The slave mainframe mode has been detected and the slave EXEC is being loaded.	None.	EXMAIN
SLL ARGUMENT ERROR.	One of the following conditions occurred. - An incorrect function code was passed to routine SLL. - The parameter address passed to routine SLL was out of range. - The request word address passed to routine SLL was out of range.	Inform site analyst.	SLL
SLVi ACTIVE, EXEC xxxx.	The current status of MSSEXEC according to MSSSLV on mainframe i, where xxxx is ACTIVE, IDLE, or INACTIVE.	None.	EXSLV
SLVi - ERROR TERMINATION (1).	While MSSSLV on mainframe i was reading the master-to-slave communications file MTOSPFN, an I/O error occurred which prevented further MSSSLV processing.	Purge file MTOSPFN and reinitialize MSSEXEC and all MSSSLV programs.	EXSLV
SLVi - IDLED DOWN.	Informative message indicating that MSSSLV on mainframe i terminated normally in response to an operator IDLE command.	None.	EXSLV
SLVi, STOMNOi xxxx.	MSSSLV on mainframe i attempted to establish access to the slave-to-master communication file STOMNOi. The status of this attempt is indicated by xxxx, which can be one of the following. - OK. - ATTACH PROBLEM. - BUSY. - DEFINE PROBLEM.	If xxxx is not OK, analyze error and try again. Ensure that the link device is configured as a direct access permanent file device.	EXSLV
SMP INVALID SM = aabb, ACN = nn.	An incorrect supervisory message (Primary function code aa, secondary function code bb) was received from the network on connection nn.	Inform site analyst.	IAFEX
nnnn SPECIAL FILES RECOVERED.	nnnn files in an installation defined special file queue have been recovered.	None.	REC
SPECIFIED CHANNEL IS IN USE.	The user tried to load controlware on a channel that was down and assigned to a maintenance user.	Retry the LOADBC command after the maintenance user has finished and has released the channel.	LOADBC
SPIN DOWN UNIT xx.	Unit xx should be deactivated prior to a physical pack switch.	Deactivate unit xx.	1RM
SR, nnnn LCME MEMORY CORRECTIONS.	Gives the number of SECDED single-bit error corrections that have occurred during the last hour (or since the last deadstart if less than an hour has elapsed). This message is issued at the beginning of each hour. The maximum value of nnnn which will appear is 7777B although more than 7777B errors may have occurred.	None.	1MB
SR, nnnn SINGLE MEMORY CORRECTIONS.	Informative message indicating the number of SECDED single-bit error corrections that have occurred during the last hour (or since last deadstart if less than an hour has elapsed). This message is issued at the beginning of each hour. The maximum value of nnnn which will appear is 7777B although more than 7777B errors may have occurred.	None.	1MB
SR-m-2 yyyy yyyy yyyy yyyy yyyy. SR-m-1 yyyy yyyy yyyy yyyy yyyy yyyy. SR-m-0 yyyy yyyy yyyy yyyy yyyy yyyy.	A status/control register error has been detected. Error log message. m Channel register 0 Channel 16 register 1 Channel 36 register (if 20 PPUs are being used; in this case the contents of both	Inform customer engineer.	1MB

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	yyy...yyy registers are given) Contents in octal of words 16 through 0 as specified below. SR-m-2 words 16-12 (bits 203144) SR-m-1 words 11-6 (bits 143-72) SR-m-0 words 5-0 (bits 71-0)		
SSF FUNCTION nn RECEIVED ERROR mm FOR zzzzzzz.	TAF received error code mm (octal) while issuing SSF function code nn (octal) for job zzzzzzz.	Inform TAF site analyst.	TAF
STAGING DELAY, FM=famname, UI=userin. DISK FULL. REPLY GO TO CONTINUE.	K display message indicating that there is not enough space on the disk during an attempt to stage a file for user index on familyname from MSF to disk. The stage attempt repeats after a delay, allowing you time to free enough space for the file to be copied to disk.	Inform site analyst to run the ASMOVE utility to make disk space available. Enter K.m.GO to clear the message. m Message ordinal	EXKD
STATEMENT BUFFER FULL.	The command buffer can not hold more commands at this time.	None.	DIS
STATEMENT TOO LONG.	The command entered via the X. or the RSS command was longer than 50 characters.	Shorten command if possible and reenter.	DIS
STORAGE NOT AVAILABLE.	The FL requested on the ENFL,nnnn. command is not available.	Wait until FL becomes available or bit the left blank to clear command.	DIS
STRING TOO LONG.	CFO command contains a string longer than seven characters.	Reenter the command.	MCS
SUBSYSTEM ABORTED.	Your job was connected (either long term connection or wait response set) to a subsystem which aborted.	Retry later.	1AJ
SUP eq.	The operator requested automatic printer carriage control suppression on BIO equipment eq.	None.	QAP
nnnn SUSPENDED ROLLOUT FILES RECOVERED.	nnnn jobs that were in a suspended job state have been recovered.	None.	REC
SYSTEM ABORT.	A system error was encountered.	None.	QDSPLAY
SYSTEM ACTIVITY PROHIBITS LIBRARY CHANGE.	Dayfile message indicating that an error occurred because the job at control point 1 cannot be moved in order to perform the SYSEDIT.	Inform site analyst; the recommended action is one of the following. - Drop activity at control point 1 - Reduce size of CMR resident to allow building of tables within the allocated field length.	SLL
SYSTEM BUILT WITH LIBDCKn. or SYSTEM BUILT WITH LIBDCKn. (UNDEFINED)	Informative message following a level 0 (initial) or level 2 (recovery) deadstart to indicate the LIBDECK with which the system was generated. The second form of the message is issued if the specified deck was not found. This can seriously affect system performance because often used routines which normally reside in CM or the alternate system device (ASD) must be accessed from the system disk instead. n LIBDECK number	Redeadstart if necessary to rebuild system using a known LIBDECK.	SYSEDIT
SYSTEM BUSY.	A previous L Display command or utility is being processed. At job initiation time, the L Display is already interlocked.	Wait until the current command entered at console is processed, wait until the current L Display utility terminates and try again.	DSD
SYSTEM CHECKPOINT ABORT.	A subsystem has aborted due to a CHECK POINT SYSTEM request initiated by the operator.	None.	1CK
SYSTEM FILE DESTROYED.	Dayfile message indicating that the system sector of the system file is bad.	Inform site analyst; redeadstart is necessary.	SLL

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
SYSTEM FILE FORMAT ERROR.	Operator message indicating that text defined by deadstart parameters (or in CMRDECK) does not exist on the deadstart tape. This message may be issued during the initialization phase of deadstart.	Inform site analyst; deadstart information must be redefined in CMRDECK.	SYSEDIT
SYSTEM FILE PARITY ERROR.	The system cannot be recovered from disk because of a disk parity error.	Attempt another deadstart without recovery (level 0).	REC
SYSTEM FILE RESERVED.	Dayfile message indicating that the system file is currently in use, possibly by another copy of SYSEDIT.	Wait until SYSEDIT activity has completed and retry.	SLL
SYSTEM LIBRARY CHANGE ILLEGAL.	Informative dayfile message indicating that the caller does not have permission to modify the system.	None.	SLL
SYSTEM NOT IN ENGR MODE.	The system must be in engineering mode when the LOADBC command is entered.	Enter the ENGR command to place the system in engineering mode. Refer to the NOS 2 Operator/Analyst Handbook.	LOADBC
SYSTEM TABLE FILE DESTROYED.	Error was encountered during a recovery deadstart. The system file being recovered from disk was destroyed; recovery is impossible.	Attempt another deadstart without recovery (level 0).	REC
SYSTEM TAPE PARITY ERROR.	Parity error occurred while reading the deadstart tape.	Perform one of the following. - To continue, type GO (information transferred may not be valid). - Redeadstart and specify a different tape density, or use another tape unit or a different deadstart tape. Ensure that the deadstart tape is an unlabeled I-mode tape, and that the tape unit on which it is mounted is the correct type (7- or 9-track).	DIO
SYSTEM TASK LIBRARY MISSING TASK, taskname.	Taskname is not on system library or not enough communication blocks are allocated.	Add taskname to system library or increase number of communication blocks.	TAF
SYSTEM TOO BIG FOR MASS STORAGE.	Error encountered during the building of the system library. Storage required not available on mass storage device specified for system library. Preserved files on the system device may cause insufficient local file space to be available. If multiple copies of the system are specified, these preserved files may prevent allocation of matching track chains.	Attempt another deadstart using a larger system mass storage device or use a deadstart tape that generates a smaller system library. Ensure deadstart sector is initialized by releasing CMSE space if it is not to be present on system devices.	SLL
nnnn T/E ROLLOUT FILES RECOVERED.	nnnn jobs that were in a timed/event job state have been recovered.	None.	REC
TAF COMMUNICATIONS RECOVERY FILE NOT FOUND - filename.	The recovery file could not be found.	- Check that the correct familyname and user name were specified on NETWORK statement. - Check if TRFi should be initiaized via K.INT initial K display command.	TAFREC
TAF/CRM DATA MANAGER NOT LOADED IN TAF	This message is returned to the dayfile of a batch concurrency job that attempted to access a CRM file while CRM was not loaded in TAF.	Ask the data base analyst to bring up TAF with CRM. Rerun job when TAF/CRM is available.	BAAML

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
TAF/CRM FUNCTION CODE NOT VALID.	TAF/CRM cannot process the request issued because it is an unrecognizable function code. This is an internal error.	Inform site analyst.	BAAML
TAF DATA NOT WITHIN UCP FL.	TAF cannot access data from user program because the address specified is outside the user control point field length.	Correct program.	BAAML
TAF ERROR CODE NOT DEFINED.	TAF or TAF/CRM has returned an error code that the routine RQS was not programmed to handle.	Inform responsible individual for maintaining system.	BAAML
TAF FIELD LENGTH DUMP RELEASED.	A dump of the transaction facility has occurred. The dump has been routed to a printer with an ID of zero.	The output may contain secure information and should be given to the central site TAF systems analyst only. A header page follows the banner page for identification.	TAF
TAF FUNCTION CODE NOT VALID.	TAF cannot process the request issued because it is an unrecognizable function code. This is an internal error.	Inform site analyst.	BAAML
TAF IDLE (GO OR DROP).	Access to TAF denied because it is idling down.	Operator: Type GO,jsn. or drop job with DROP,jsn. Others: Informative message only.	BAAML
TAF INTERNAL ERROR.	TAF has found internal data to be inconsistent.	Perform a dump of TAF or inform site analyst.	TAF
TAF NOT PRESENT (GO OR DROP).	The TAF subsystem was not present when a batch job tried to connect to it.	Operator: Bring up TAF and type GO.jsn. or drop job with DROP,jsn. Others: Informative message only.	BAAML
TAF RECOVERY REQUEST ERROR.	TAF cannot recover a batch user because of an internal TSTAT error.	Inform site analyst.	BAAML
TAF SUBSYSTEM BUSY	TAF was busy and couldn't accept the batch request.	NONE - Job will automatically retry request.	BAAML
TAF SUBSYSTEM NOT DEFINED AS A SCP	TAF was not defined as a system control point when it was brought up.	Inform site analyst.	BAAML
TAF TAPE REQUEST DB = db DUMP.	A tape request is being made for a TAF submitted job that dumps the data base db after image recovery files.	Enter CFO,jsn.GO. where jsn is the job sequence name of the job making the tape request.	DMREC
TAF TERMINATE.	The transaction subsystem was dropped via DSD command IDLE,TAF and was not restarted.	None.	TAF TAF2
TAF TRANSACTION NOT RERUNNABLE.	There was an attempt to rerun a transaction and an error occurred.	Inform the data administrator. The administrator may check the TAF dayfile for the possible cause of the error.	RTASK
TAF TWO OUTSTANDING REQUESTS.	TAF received another request from a user program before the previous request was satisfied. This is an internal error.	Inform site analyst.	BAAML
TAF USER NOT VALID FOR TAF ACCESS.	The batch job tried to access TAF (via a BTRAN) and the user name under which the job was run was not validated in the network file of TAF.	Inform TAF data administrator to enter the user name in the network file of TAF.	BAAML TAF
TAF USER NUMBER ACTIVE	Another batch or terminal job is currently accessing TAF/CRM under this user name.	Resubmit job at a later time.	BAAML
nn TAPE FILES RECOVERED.	Informative message indicating the number of tape assignments (nn) recovered by a level 3 recovery deadstart.	None.	MAGNET1
TAPE NOT READABLE.	On a record load of a file the dump tape was found incomplete - no trailer record.	Load from previous dump.	DMREC
TAPE VSN=xxxxxx IS BAD PLEASE REPLACE.	DMREC is trying to write onto a defective tape. xxxxxx Volume serial number.	Replace defective tape.	DMREC RTE

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
TAPES ASSIGNED AT MAGNET TERMINATION.	The magnetic tape subsystem was dropped or aborted while tapes were assigned. These tape assignments are lost and associated user jobs will abort if subsequent I/O is attempted.	Rerun jobs which abort following attempted I/O. (Only jobs with lost tapes will be affected).	MAGNET
TASK LIBRARY DIRECTORY EMPTY - libraryname.	The file specified as the task library contains no recognizable directory. TAF aborts.	Inform site analyst. Task library libraryname mu be corrected and TAF reinitialized.	TAF
TASK LIBRARY DIRECTORY ERROR - libraryname.	Task library libraryname contains no recognizable directory. TAF aborts.	Inform site analyst. Task library must be corrected.	TAF
TASK LIBRARY DIRECTORY TOO LONG - libraryname.	The length of the indicated task library directory exceeds the limit specified by the installation parameter TLDMT.	Size of task library must be reduced or TAF and LIBTASK must be reassembled with TLDMT increased.	TAF
TASK NOT VALIDATED FOR REQUEST.	One of the following actions has occurred. - The terminal operator initiated a TAF transaction which tried to perform an action associated with a data base for which the terminal was not validated. - A NEWTRAN request was issued by a task not in the system task library (TASKLIB).	Perform the appropriate action. - Inform site analyst; TAF transaction must be reinitialized. Set up the terminal name in the network file to use the data base. The system data base (SY) may be used. - Put the task on TASKLIB.	MSABT
taskname - TASK RECOVERY FAILED.	The specified task recovery attempt has failed.	Inform data administrator.	AAMI
nnn TASKS NOT LOADED INTO ECS.	An insufficient amount of extended memory was available to load all tasks. The nnn field is the number of tasks not loaded.	Check extended memory requested and reinitialize with more extended memory if appropriate.	TAF
TERM: term, UNACTIONED COMMAND.	An enable or disable terminal term command was not actioned. Terminal may already be in desired state or not configured.	None.	CS
TERMINAL NODE OF LLINK xxxxxxx, NOT SUPERVISED.	A command has been entered that results in a command SM being sent to an unsupervised NPU.	Target NPU must be come supervised. Contact site analyst.	CS
TERMINAL TABLE OVERFLOW.	Space sufficient to allocate the required table was not available. An internal change to the time-sharing executive is necessary.	Inform site analyst.	IAFEX
TERMINALS CANNOT CONNECT ON HOST-HOST LOGICAL LINK.	A status command of terminals on a host-host logical link was attempted.	Correct command.	CS
TERMINATION IN PROGRESS.	The time-sharing subsystem has begun dump/disconnect/recovery procedures due to an abort or termination condition.	None.	TAF2 IAFEX
TEST MODE, NETWORK NOT USED.	Informative message indicating that MCS was started in global test mode.	None.	MCS
THIS TERM IS NOT CONNECTED.	Host operator entered a command to get this status of a specific terminal, but this terminal is not connected.	Select another terminal and reenter command.	NDL
TOO MANY DATA BASE NAMES.	The number of data base names associated with one data manager via DMS statements exceeds the value of MAXDB.	Decrease the number of data base names associated with the data manager.	TAF
TOO MANY FILE NAMES OR VSN-S SPECIFIED.	The VSN or file name limit was exceeded on a directive.	Check the installation parameters TVSNL and TDFNL for maximums.	DMREC
TOO MANY FILES IN TOTAL DATA BASE.	Self-explanatory.	Reduce the number of entries in the TCF file or increase TMAXFIL.	TAF

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
TOO MANY HOST LIDS.	The LID was not altered or added because the limit for host LIDs was reached.	Contact site analyst to arrange for more host LIDs or delete some LIDs from the table with host attributes.	LIDOU
TOO MANY LID ENTRIES.	During deadstart, the LIDT became full while entering the LIDS specified in IPRDECK.	Redeadstart and specify fewer LIDs or specify larger LIDT in CMRDECK.	SFM
TOO MANY MUX PORTS.	More than 512 ports have been defined in the multiplexer entries of the equipment status table (EST).	Inform site analyst.	1TN
TOO MANY TAF JOURNAL FILES IN xxJ FILE.	More than three TAF journal files per data base were specified, causing the transaction subsystem to abort.	Examine xxJ file for xxJOR entries. Inform the TAF data administrator.	TAF
TOO MANY TERMINALS.	The total number of terminals defined in the EST and/or the network description files exceeds the maximum defined by the assembly variable MAXTT.	Reduce the number of devices in the EST which are on.	IAFEX
TOTAL DATA MANAGER SUCCESSFULLY LOADED.	Self-explanatory.	None.	TAF
TOTAL DID NOT RECOVER PROPERLY. STATUS IS yyyy.	An error status yyyy was returned on a TOTAL FINAL call. Refer to Diagnostics in the TOTAL Reference Manual for yyyy.	Correct error and reinitialize transaction executive.	TAF TAFNAM2
TRACK LIMIT.	All mass storage devices available for temporary files are full. 1MS cannot finish processing until space is available on one of the devices. Operator message.	Inform site analyst.	1MS DSP
TRACK LIMIT. EQxx.	Mass storage device with EST ordinal xx has no allocatable tracks left. 1MS cannot finish processing until space is available. Operator message.	Inform site analyst.	1MS
TRANSLATING STIMULATOR OUTPUT	DEMUX is translating the stimulator output and copying it to a scratch file.	None.	DEMUX
TRT LENGTH ERROR.	Operator message indicating that an error was encountered while reading the track reservation table (TRT) during a level 0 deadstart. Preceded by message RECOVERY, dtxx, which indicates the equipment in error. dt Device type xx EST ordinal	Redeadstart and initialize device. Preserved files on device are lost, and must be reloaded.	RMS
TRUNK: trunk, CE DIAG TEST IN PROGRESS.	An enable trunk command on the trunk was attempted while the diagnostic test was in progress.	Pause. Reenter command after the test is completed.	CS
TRUNK: trunk, DUPLICATE CLA ADDRESS.	Trunk trunk is dialed to an address already in use on the NPU.	Inform site analyst.	CS
TRUNK: trunk, IN DESIRED STATE ALREADY.	An enable or disable command on trunk was attempted when trunk was already in state.	None.	CS
TRUNK: trunk, LAST PATH TO CS.	A disable trunk command was attempted on trunk, and this trunk represents the only supervisory path for NPU to CS.	None.	CS
TRUNK: trunk LIP NOT CONFIGURED.	A trunk has been defined to an NPU, and the link interface program is not resident in the NPU to support the trunk.	None.	CS
TTxx, FNff, FUNCTION TIMEOUT.	The driver routine issued a function to the multiplexer and did not receive an inactive signal within four major cycles. This error causes the subsystem to abort. xx EST ordinal of multiplexer ff Function	Inform customer engineer.	1TN
TT OPTION REQUIRES USER NUMBER.	When updating a task library on-line (TT option is specified on LIBTASK command), the user name must be specified prior to the LIBTASK command so the library associated with that user name can be found.	Specify user name via USER or CHARGE command before LIBTASK command and rerun job.	LIBTASK
TURN OFF EQxx ON ALL OTHER MF	An error occurred while attempting to write a device label on the equipment with EST ordinal xx.	Inform a site analyst.	PPR

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
TVF ATTEMPTING NETON.	Informative message indicating that TVF has been called and is attempting to enter the network.	None.	TVF
TVF ERRMSG, ABT=nn, ADR=address, TEXT=aaaa, TERMINAL=termname.	TVF has received a message with out-of-range values or erroneous values. nn — Application block type from message header address — Addressing information from message header aaaa — First 4 characters of text termname — Terminal name associated with the message	None.	TVF
TVF NETOFF, NAM NOT PRESENT.	A NETON was attempted when NAM was not present.	Bring NAM up. Routine TVF automatically attempts a NETON.	TVF
TVF NETON SUCCESSFUL.	Informative message indicating that TVF has successfully entered the network.	None.	TVF
TVF RC=ec, ABT=nn, ADR=addr, TEXT=aaaa, TERMINAL=termnam.	TVF has received ERR/LGL/SM (TVF probably issued an erroneous message). ec — Error code from ERR/LGL/SM nn — Application block type from message header address — Addressing information from header of message that caused ERR/LGL/SM aaaa — First 4 characters of text of message that caused ERR/LGL/SM termnam — Terminal name associated with address	None.	TVF
TWO CONTROLLER TYPES ON SAME CHANNEL.	EST entries indicate a conflict in tape channels and controller types. Only one tape controller type is allowed per channel.	Inform site analyst.	1MT
TY NOT ALLOWED.	Value specified for TY parameter was not valid (legal values are F or X).	Correct and enter GO.	MSI
UCCR, mi, eqn, xxxxxx.xxxKCDS.	Denotes the number of cards (in kilocards) read into the system for a job on the equipment with machine identifier mi (MID entry in CMRDECK) and EST ordinal eqn.	None.	1AJ
UCLP, mi, eqn, xxxxxx.xxxKLNS.	Denotes the number of lines (in kilolines) printed for a job on equipment with machine identifier mi (MID entry in CMRDECK) and EST ordinal eqn.	None.	QAP
UCLV, mi, eqn, xxxxxx.xxxKLNS.	Denotes the number of lines (in kilolines) printed for a job in which the V carriage control character was used on the equipment with machine identifier mi (MID entry in CMRDECK) and EST ordinal eqn.	None.	QAP
UCP TERMINATION PROCESSING.	This message appears only in the message field of the Job Status (B) display. It indicates the system is executing termination processing for the user job at the control point. System control point jobs connected to the user job are informed and must disconnect before termination procesing can complete.	None.	OST
UCPC, mi, eqn, xxxxxx.xxxKCDS.	Denotes the number of cards (in kilocards) punched for a job on equipment with machine identifier mi (MID entry in CMRDECK) and EST ordinal eqn.	None.	QAP
UN MUST BE SPECIFIED.	Auxiliary device is defined as private. Thus, user name must be specified or the device must be redefined as public.	Specify user name or enter UN=NULL to indicate that private device is being made public.	MSI
UN=username NOT VALID ON FM=family.	Username on the specified familyname is not valid. The user name and familyname may not be defined or are incorrect in xxJ file.	Inform site analyst.	TAF
UNnn, SERVO TIMING = xxxx, RANGE 325 TO 345.	Unit with EST ordinal nn had servo timing check of xxxx. If the timing check was within the specified range, 1RM proceeds with the reconfiguration process. If the timing check was not in the specified range, 1RM rechecks the timing every 15	None.	1RM

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
	seconds until the timing check is in the correct range or the run is aborted.		
UNABLE TO ACCESS DISK (CR) TO PROCESS DIFFERENT DEVICE	Self-explanatory.	Enter a carriage return to select a different device or press deadstart button to exit. Inform site analyst if the message persists.	CTI
UNABLE TO ATTACH NAM BINARIES.	The NAMAIP direct file could not be attached under the transaction subsystem user name.	Inform site analyst.	TAF
UNABLE TO ATTACH TOTAL BINARIES.	File of TOTAL binaries is not under the user index of the transaction subsystem or a PFM error occurred.	Correct error and reinitialize transaction executive, or inform site analyst.	TAF
UNABLE TO ATTACH TOTAL DBMOD BINARIES.	One or more of the DBMOD files listed on the TOTAL DMS statement in the TCF file could not be attached under the user index of the transaction subsystem or a PFM error occurred.	Correct error and reinitialize transaction executive, or inform site analyst.	TAF
UNABLE TO INSTALL CTI READ ONLY SWITCH ACTIVE	In an attempt to install CTI to a model 885 (FMD) disk drive, CTI found the drive in read-only mode.	Toggle the read-only button on the disk drive and try again.	CTI
UNACTIONED COMMAND.	An enable or disable command was not actioned by CCP. This message is followed by an explanatory element status line.	None.	CS
UNAVAILABLE	The selected value exceeds available physical memory.	Clear message with left blank key and try another entry.	CTI
UNIT xx CHyy LABEL READ ERROR.	A mass storage read error was encountered while attempting to verify the pack label.	Enter RECHECK on all machines to continue the replacement of the physical packs, or ABORT to end the reconfiguration.	1RM
UNIT xx CHyy LABEL VERIFICATION ERROR.	The label being verified did not match the expected values.	In single mainframe mode, or if all machines in multimainframe mode received the message, deactivate the replacement unit and ensure that the correct pack has been mounted. If the correct pack was mounted, or if not all machines in multimainframe mode received the message, enter RECHECK on all machines to continue the replacement of physical packs, or ABORT to end the reconfiguration.	1RM
UNIT NOT AVAILABLE.	The magnetic tape unit specified in an UNLOAD command is not available.	Change magnetic tape unit and retry the command.	DSD
UNIT xx SERVO TIMING IN PROGRESS.	Informative message stating that a servo timing is being taken on equipment xx.	None.	1RM
UNKNOWN APPLICATION ATTEMPTING TERMINATION.	For debug only. The application name in the supervisory message is unknown to NVF.	Inform site analyst.	NDL
UNKNOWN FILE FORMAT.	There is a logical error in the structure of the input file. It does not conform to the established format rules.	None.	KTSDMP
UNMATCHED SYSTEM DEVICES.	Multiple system devices are defined which are unlike in equipment mnemonic/sector limit.	Redeadstart with correct system device definition.	RMS
UNRECOGNIZABLE DIRECTIVE.	Incorrect command was entered via *L* display.	Try a different command or ensure proper format of the previous command.	QDSPLAY

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
UNRECOGNIZABLE HEADER TYPE.	When interpreting ARF after image header types, one has been found incorrect.	Inform data administrator.	DMREC
UNRECOGNIZED COMMAND.	An incorrect command was entered.	Attempt corrected command entry.	NVF
UNRECOGNIZED CONTROL STATEMENT PARAMETER.	Control statement parameter is incorrect.	Correct RBF2PO control statement parameter.	RBF
USER CONDITION REGISTER =xxxx	During central memory initialization, a nonzero user condition register appeared in the job exchange package after reverting to monitor mode.	Inform system analyst or customer engineer.	CTI
USER ECS DISABLED.	Jobs that assign user extended memory are no longer being scheduled because of unrecovered extended memory errors.	Reenable user extended memory scheduling after extended memory errors have been corrected.	REC
USER ECS IMPROPERLY ALLOCATED.	The amount of extended memory specified on the CMRDECK entry UEC does not match the amount defined previously in the system sector of the user extended memory chain.	Redeadstart and correct the UEC entry.	REC
USER ECS SPACE UNAVAILABLE.	The CMRDECK entry UEC specified an amount of extended memory larger than the available extended memory.	Redeadstart and correct the UEC CMRDECK entry.	REC
USER ECS SYSTEM SECTOR ERROR.	The system sector of the user extended memory chain is in error and cannot be read.	Deadstart and initialize extended memory to reallocate the extended memory area.	REC
USER NOT ACTIVE.	Informative message for interactive message commands.	None.	DSD
USER NOT SYSTEM ORIGIN.	The user who entered the LOADBC command did not have system origin privileges.	Enter the LOADBC command from the console.	LOADBC
USER VALIDATION DENIED.	A job containing the CEVAL macro was submitted improperly. Either the job must be system origin, or the user must have system origin privileges and submit the job while the system is in engineering mode.	Submit job from the console or, if the user has system origin privileges, set engineering mode (refer to ENABLE command in section 3) and resubmit job.	CVL
VALID LO OPTIONS ARE LO, LO=A, LO=T or LO=X.	The LO parameter was specified on the LIBTASK command with an incorrect list option.	Specify one of the following valid list options LO, LO=A, LO=T or LO=X.	LIBTASK
VALIDATION DENIED - DEVICE NOT FOUND.	CVL returned a response indicating that a NAD on the specified channel could not be found in the EST.	Correct channel parameter and retry.	LOADBC
VALIDATION DENIED - DEVICE ON OR IN USE.	CVL returned a response indicating that the NAD controlware could not be loaded because the NAD was turned on or was being used by a maintenance user.	Either turn off the NAD, or wait until the maintenance user has returned the NAD. Retry.	LOADBC
VEJ - BUFFER ARGUMENT ERROR.	Dayfile message indicating that FET buffer pointers are incorrect. (FWA<LWA<FL) or TID (terminal id) with complement address was not within the field length.	If issued to a subsystem (such as BATCHIO or RBF), inform site analyst immediately to determine which condition caused the error.	VEJ
VEJ - ILLEGAL REQUEST.	Dayfile message indicating that one of the following conditions has occurred: - VEJ was not called by a subsystem. - The FET address was out of range.	If issued to a subsystem (such as BIO or RBF), inform site analyst immediately to determine which condition caused the error.	VEJ
VER n.n - min.	Indicates the version and modification level number of NS. n.n Version level. mln Modification level number.	None.	NS
VSN ALREADY EXISTS.	When attempting to use the edit/add directives, the VSN specified was found to already exist on the directory.	Continue processing.	DMREC

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
VSN - xxxxxx ALREADY IN DIRECTORY.	The VSN supplied for this operation was found to already exist on the directory.	Try another VSN.	DMREC
VSN AND DATE/TIME CANNOT CO-EXIST ON LOAD DIRECTIVE.	On a load directive the date/time keywords cannot be used with VSN keyword.	Correct the directive and rerun.	DMREC
VSN ASSIGNED DOES NOT MATCH VSN REQUESTED.	The VSN assigned as a result of a DMREC ADD subdirective does not agree with the VSN specified on the subdirective.	Correct the VSN conflict.	DMREC
VSN DOES NOT EXIST.	When attempting to access a directory, the specified VSN was not found on the directory.	List the directory for further information.	DMREC
VSN IS NOT FIRST REEL.	When attempting to modify a directory, the specified VSN was not the first reel of the set.	Specify the first reel of the multireel set.	DMREC
VSN OR DATE/TIME NOT SPECIFIED.	When attempting to delete directory entries, no VSN or date/time was specified.	Specify VSN or date/time and rerun.	DMREC
VSN TABLE OVERFLOW.	Too many VSN entries were encountered for this directive.	Check directive and increase TVSN size if necessary.	DMREC (BVT)
VWBT EMPTY - FALSE INVOKE OF NVFVWVF.	For debug only. Worklist procedure NVFVWVF is erroneously invoked.	Inform site analyst.	NDL
WAIT DEMAND FILE ATTACH.	The MAGNET1 routine is waiting for the resource demand file to become available so clean-up processing can be done.	If the message is displayed for an extended period of time, drop the job which has the demand file attached, or drop the magnetic tape subsystem.	MAGNET
WAIT FNT SPACE.	OBF (begin file routine) is waiting for additional NFL to create a local file.	None.	OBF
nnnn WAIT QUEUE FILES RECOVERED.	nnnn files in the wait queue have been recovered.	None.	REC
WAIT 1MT COMPLETE.	Informative message indicating the routine MAGNET1 is waiting for 1MT to complete before attempting clean-up or recovery procedures on the magnetic tape subsystem.	None.	MAGNET
WAITING FOR CFO.GO.	MCS processing is suspended until you enter the CFO,jsn.GO command.	Enter CFO,jsn.GO command.	MCS
WAITING FOR ECS.	The FL requested on the ENFLE,nnnn. command has not been assigned to the control point yet.	Wait until FL is assigned or hit the left blank to clear command.	DIS
WAITING FOR xxxI INTERLOCK.	1MR is waiting for flag register interlock xxxI. xxx One of the following. DAT Device access table interlock FAT Fast attach table interlock	None.	1MR
WAITING FOR INTERLOCK.	Another machine has the software reserve on this independent shared device.	If the other machine is running, no action is necessary. If the specified mainframe is not running, inform a site analyst or attempt to clear the software reserve with the MREC utility or by presetting the device.	RMS
WAITING FOR MACHINE ID=XX.	Informative message stating that reconfiguration cannot occur until the operator on the mainframe with ID = xx either enters the same reconfiguration parameters or enters K.IGNORE.	None.	1RM
WAITING FOR MAGNET.	The job is waiting for the magnetic tape subsystem to be activated.	Wait for the operator to activate MAGNET or terminate job.	RESEX
WAITING FOR NETWORK.	NAM was not active when MCS tried to NETON.	Bring NAM up.	MCS

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
WAITING FOR PN=packname, typ.	The job is waiting for the operator to mount pack packname on device type typ.	Wait until the operator mounts the requested pack or terminate job.	RESEX
WAITING FOR READY UNIT xxx.	RESEX is waiting for the tape unit with EST ordinal xxx to become ready.	Ensure that correct tape is mounted and ready unit.	RESEX
WAITING FOR RESOURCE FILE.	The job is waiting for the resource demand file or VSN file to become available.	Wait until resource file becomes available or terminate job. To operator: If job is not rolled out and this message persists, inform site analyst or drop the job. If the operator decides to override an interrupted job at this point, the preview data in the demand file k is not cleared and the E,P display continues to show the VSN request associated with the job until you log off or issue a subsequent request for tape or pack.	RESEX
WAITING FOR RESOURCES.	The job is waiting for sufficient resources to allow assignment of the tape/pack without causing a system deadlock.	Wait until the resources become available or terminate job.	RESEX
WAITING FOR STORAGE.	The FL requested on the ENFL,nnnn. command has not been assigned to the control point yet.	Wait until FL Is assigned or hit the left blank to clear command.	DIS
WAITING FOR STORAGE.	Issued to DSD B and J displays. BIO is waiting to increase its field length or for a buffer to become available.	None.	1IO
WAITING FOR TVF TO BE ENABLED.	TVF is not enabled.	Enable TVF.	TVF
WAITING FOR VSN= vsn, type.	The job is waiting for the operator to mount the tape with VSN vsn on the specified specifed type (MT, HD, PE, or GE). VSN= SCRATCH indicates that any scratch tape is acceptable.	Wait for the operator to mount the tape or terminate the job.	RESEX
WAITING ON TRACK LIMIT.	The job is waiting for additional tracks on the familyname device containing the resource demand and VSN files.	Wait for the additional tracks or terminate job.	RESEX
WAITING - RECOVERY INTERLOCK.	Informative message. In order to recover a device on-line, it is necessary to load the device access table out of extended memory. However, the flag register interlock is currently unavailable, possibly because another machine is deadstarting.	None.	CMS
WRONG ENTRY WHILE READING VSN ENTRIES.	The VSN record read from the directory has an incorrect format.	Inform data administrator.	DMREC
WRONG VSN USED.	Either the wrong VSN was used or no header was found on ARF.	Make sure the correct ARF is being used and retry.	DMREC
ZZdbDIR UNREADABLE.	When trying to expand a data file, an attempt to read the directory file failed.	Inform data administrator.	DMREC
1DD ABT.	This message is displayed when one of the following conditions occurs. - Unrecoverable write error on a dayfile dump. - No mass storage space available on which to write the dayfile. - Enough dayfile messages (usually error log) were generated during the deadstart process to necessitate a dump of the buffer. However, the deadstart process had not advanced far enough to properly dump the buffer. In each of the above cases, the buffer is set empty. A portion of the dayfile is lost and messages may be incomplete. Operator message.	The system should be idled (refer to IDLE command) immediately and the appropriate step taken as follows. - Correct write errors. - Free space on the full device. - During deadstart, this message usually indicates a bad pack or disk drive. Use another pack or take the drive offline.	PPR

MESSAGE	SIGNIFICANCE	ACTION	ROUTINE
1MR ERROR FLAG TERMINATION.	An error flag was set at 1MR's control point.	None.	1MR
1MT PROBABLY LOST.	Informative message indicating the routine MAGNET was dropped while waiting for 1MT to complete.	None.	MAGNET
1RM INVALID REQUEST.	Incorrect function code or status word address out of range.	Inform site analyst.	1RM
1RM INVALID USER ACCESS.	Calling job does not have mass storage subsystem queue priority.	Inform site analyst.	1RM
1TO ABORT nn,pppp.	An internal error was found in an IAF call. nn Error number pppp Pot pointer	Contact site analyst.	1TO
667x MALFUNCTION.	Either a function was not accepted or no multiplexer is on the channel.	Inform customer engineer.	1TN
667X FUNCTION REJECT.	1TN issued a function to the multiplexer which was not accepted by the equipment.	Inform site analyst.	1TN

GLOSSARY C

Abort

To terminate a program, job or job step when an error condition (hardware or software) exists from which the program or computer cannot recover.

Account Dayfile

The account dayfile provides a history of system usage over the life of the account dayfile. It provides information necessary for accurate billing and system usage analysis.

Address

The location of a word in memory. The location is designated by number or symbolic name.

ANSI

American National Standards Institute. An organization that establishes standards for the benefit of its member organizations.

Application Connection Number (ACN)

A number assigned by the Communications Supervisor program to identify a particular logical connection within an application.

Application Program

A program resident in a host computer that provides an information storage, retrieval, and/or processing service to a remote user via the data communication network and the Network Access Method. Application programs use the system control point feature of NOS to communicate with the Network Access Method.

In the context of network software, an application program is not an interactive job, but rather a terminal servicing facility. A terminal servicing facility provides terminal users with a specific processing capability such as remote job entry from batch terminals, transaction processing, entry and execution of interactive jobs, and so forth. For example, the standard CDC interactive facility IAF makes terminal input and output appear the same to an executing program as file input and output; IAF is a network application program, but the executing program using IAF is an interactive job.

ASCII

American National Standard Code for Information Interchange. The standard character set and code used for information interchange between systems.

Auxiliary Device

Mass storage device that is not part of a permanent file family. Auxiliary devices can contain direct or indirect access permanent files.

Breakpoint

A designated location in a program where, if reached during program execution, a break or suspension in execution occurs.

Buffer

An intermediate storage area used to compensate for a difference in rates of data flow, or times of event occurrence, when transmitting data between central memory and an external device during input/output operations.

Cache

A high-speed memory that resides in the central processor.

Cartridge

Component of the MSF. The cartridge consists of a plastic housing that encloses a strip of magnetic tape on which data is stored under program control.

Cartridge Storage Unit (CSU)

Device which includes storage cells (cubicles) for 2052 cartridges and a selector that moves cartridges among the mass storage transport, the cubicles, and the input/output drawers of the CSU.

Cassette

The magnetic tape device in an NPU used for bootstrap loading of off-line diagnostics and (in remote NPUs) the bootstrap load/dump operation.

Central Memory (CM)

The main storage device whose storage cells (words) can be addressed by a computer program and from which instructions and data can be loaded directly into registers from which the instructions can be executed or from which data can be manipulated.

Central Processor Unit (CPU)

The high-speed arithmetic unit that performs the addition, subtraction, multiplication, division, incrementing, logical operations, and branching instructions needed to execute programs.

Channel Number

The number of the data channel on which a peripheral device controller can be accessed.

Character

Unless otherwise specified, references to characters in this manual are to 7-bit ASCII code.

Checkpoint

The process of writing to a magnetic tape or mass storage file a copy of your job's central memory, the system information used for job control, and the names and contents of all assigned files that are identified in a CHECKPT request.

CMRDECK

The central memory resident deck.

Coldstart

Procedure used to deadstart if the tape or disk controller has not yet been loaded with controlware or the controlware is not running.

Command

A sequence of words and characters that call a system routine to perform a job step. The command must conform to format specifications and end with either a period or a right parenthesis. A command is sometimes called a control statement.

Common Testing and Initialization (CTI)

Common deadstart process that resides on the deadstart file and the maintenance system library.

Communication Line

A complete communication circuit between a terminal and its network processing unit.

Communication Network

The portion of the total network comprising the linked network processing units. The communication network excludes the host computer and terminals and is approximately equivalent to the set of all network elements configured as part of the total network.

Communications Supervisor (CS)

A portion of the network software, written as an application program; the CS coordinates the network-oriented activities of the host computer and of the lines and terminals logically linked to it.

Confidence Level Testing

Testing done by CTI, HVS, long deadstart sequence (models 815, 825, 835, and 855 only) and extended deadstart sequence (models 815, 825, 835, and 855 only). These programs enter data in different parts of memory and then check to see if the patterns hold.

Connection Number

A number assigned to an IAF terminal by the system when the terminal is logged in and an entry is made for the job in the executing job table.

Connection Status

A job attribute kept in the job's executing job table (EJT) entry. The system uses it to determine the job's relationship with IAF.

Control Point Number

The number of the control point to which a job is assigned, while the job resides in central memory. The actual number of control points is an installation parameter. Before the job can execute, each central processor program must be assigned to a control point.

Control Statement

Refer to Command.

Controller

Hardware device that connects channels to peripheral devices. For example, a tape controller might connect up to eight tape units to one channel.

Controlware

Special type of software that resides in a peripheral controller. The controlware defines the functional characteristics of the controller.

CYBER Database Control System (CDCS)

The DMS-170 controlling module that provides the interface between an application and a data base.

CYBERLOG

A program initiated after deadstart that requests data about the event that made a new deadstart necessary.

Data Channel

One of the 9 to 24 channels (12-bit) by which information passes between the peripheral processors and peripheral devices. Refer to Channel Number.

Dayfile

A chronological file created during job execution which forms a permanent accounting and job history record. Dayfile messages are generated by operator action or when commands are processed. A copy of the dayfile is printed with the output for each job. You must explicitly request it in an interactive job.

Deadstart

The process of initializing the system by loading the operating system library programs and any of the product set from magnetic tape or disk. Deadstart recovery is reinitialization after system failure.

Deadstart Sequencing

The execution of a selected set of commands before normal system job scheduling is enabled.

Default Value

A fixed value supplied by the system for a missing parameter.

Detached Job

An interactive service class job removed from control of the interactive subsystem. It may or may not continue to execute, depending on the presence of commands in the command buffer or an active job step. Control is regained by recovering the EJT entry for the job.

Direct Access File

A NOS permanent mass storage file that can be attached to your job. All changes to this file are made on the file itself rather than a temporary copy of the file (compare with Indirect Access File).

DIS (Job Display)

A system peripheral processor program similar to system display (DSD) that provides communication between a job in central memory and the operator at the console, and permits the operator to control execution of the program through the console keyboard.

Disabled Job

An interactive service class job temporarily rolled out due to user break processing or encountering the end of its command stream. The job scheduler ignores disabled jobs.

Disk

A unit composed of one or more flat, circular plates with magnetic material on both sides that is used to store large amounts of data or programs.

Disk Pack

A group of disks with magnetically encoded information. Disk packs can be removed from the system with the stored information intact.

Display Code

A 6-bit character code set used to represent alphanumeric and special characters.

Displays

Two console screens or a split screen used to display system and job information, operator messages, and contents of central memory. Through the console keyboard, the operator can control the operation of the system. The displays are identified by alphabetic characters; some used frequently are: job status (B), system files (H), and dayfile messages (A).

Disposition Code

A two-character mnemonic indicating destination queue and format for processing a file named on a ROUTE function.

Downline

The direction of output flow, from host to terminal.

DSD (System Display)

The operating system program that provides communication between the operator and the system by accepting control information typed on the console keyboard and by displaying to the operator information pertinent to all jobs known to the system. DSD is permanently assigned to peripheral processor 1.

ECS

Extended Core Storage. Refer to Extended Memory.

EJT Ordinal (EJTO)

An index into the executing job table (EJT). It uniquely identifies an EJT entry. The acceptable range is from 0001 through 4095. EJTO is reserved for the system.

Equipment Number

A number from 0 to 7 which identifies the setting on a peripheral device controller.

Equipment Status Table (EST)

A central memory resident table listing all the defined equipments, parameters affecting their operation, and the status of the equipments.

EST Ordinal

The number designating the position of an entry within the equipment status table (EST) established at each installation. Devices are identified in operator commands by EST ordinals. The EST ordinal is sometimes referred to as equipment number.

Executing Job

When a job is assigned an EJT entry it is considered an executing job. An executing job can be rolled out or at a control point.

Executing Job Table (EJT)

A central memory resident table that contains a 4-word entry for all executing jobs including interactive service class jobs.

Express Deadstart Dump Utility

Utility that may be run at deadstart time after a system malfunction has occurred. It generates the express deadstart dump file on magnetic tape.

Extended Core Storage (ECS)

Optional additional memory. ECS contains 60-bit words; it has a large amount of storage and fast transfer rates. ECS can be used only for program and data storage, not for program execution. Special hardware instructions exist for transferring data between central memory and ECS.

Extended Memory

An extension to central memory which is physically located outside of the machine. Formerly referred to as Extended Core Storage (ECS) or Large Central Memory (LCM).

Family Device

Mass storage permanent file device associated with a specific system. A family may consist of 1 to 63 logical devices. Normally, a system runs with one family of permanent file devices available. However, additional families may be introduced during normal operation. This enables users associated with the additional families to access their permanent files via the alternate family.

Family Name

A designation that the installation may give to a group of permanent file devices.

Family Ordinal (FO)

An index into the FOT. The family ordinal is used to identify a unique family.

Family Ordinal Table (FOT)

A central memory resident table used to map family names to family ordinals, and family ordinals to family names.

Field Length

The area in central memory allocated to a particular job; the only part of central memory that a job can directly access.

Field Length Extended (FLE)

Amount of extended memory assigned to an executing job.

File

1. A set of information that begins at beginning-of-information (BOI), ends at end-of-information (EOI), and is referenced by a local file name.

2. That portion of a multifile file terminated by an end-of-file (EOF).

3. Data recorded on a magnetic tape beginning after an HDR1 label and ending before an EOF1 label.

NOS commands requiring a parameter that is a file name refer to definition 1. Commands requiring a parameter that specifies the number of files refer to definition 2. Definition 3 applies only to labeled magnetic tapes.

First Level Peripheral Processor (FLPP)

The processor that is connected directly to the CYBER 170 Model 176 mainframe and operates synchronously with the mainframe.

Flag

A character or bit that signals the occurrence or presence of a particular condition.

Forms Code

An attribute of output files and output devices. The user can specify special forms required for output; you can mount the special forms and use the FORM command to let the system process the user's output.

Hang

A system stop that may be caused by hardware failure or by an error in a system program. An error in a user program could cause that program to hang (go into a loop or abort), but no user program error should cause a system hang.

Hardware Initialization and Verification Software (HIVS)

The software package that assists CTI during deadstart and provides deadstart confidence-level testing (HVS).

Hardware Verification Sequence (HVS)

HVS is a member of HIVS. It tests the ability of memory to hold patterns of data and execute instructions. You can choose to test central memory, extended memory, PP memory, and central processor memory (refer to the V option on the *O* display).

Host

The computer that controls a network, executes the application programs and processes network messages.

Host Operator (HOP)

The administrative operator who resides at the system console, initiates NAM, controls NPUs and network related host elements.

Indirect Access File

A NOS permanent file that you access by making a temporary copy of the file (GET or OLD command). You create or alter it by saving or substituting the contents of an existing temporary file (REPLACE or SAVE command).

Interactive Facility (IAF)

An application that provides a terminal operator with interactive processing capability. The interactive facility makes terminal input/output and file input/output appear the same to an executing program.

Interactive Job

A job initiated from an interactive (time-sharing) terminal.

IOU

Input/output (models 815, 825, 835, 855, 865, and 875). IOU is a collection of all PPs, PP channels, and related hardware.

Job Sequence Name (JSN)

The unique, system-defined name assigned to every executing job or queued file. The JSN is a string of four alphabetic characters.

Job Status

A job attribute kept in the job's executing job table (EJT) entry. It is used by the system to determine if a job is rolled in or rolled out. If the job is rolled out, job status indicates why it was rolled out.

Load Point

Metallic strip marking the beginning of the recordable portion of a magnetic tape. Data, including labels, is written after the load point. A rewind positions a single file volume to the load point.

Local Batch Job

A batch job submitted at the central computer site through a card reader.

Local Configuration File (LCF)

A file in the host computer system, containing information on the physical and logical makeup of the communication elements in the system. The file contains a list of the application programs available for execution in the host computer, and the lines and terminals that can access it. This is a NOS direct access permanent file.

Local FNT

A table residing in the NFL of a job. It contains a 3-word entry for each local file of this job.

Local NPU

An NPU that is connected to the host via a coupler. A local NPU always contains a host interface program (HIP) for processing block protocol transfers across the host/local NPU interface.

Logical Identifier (LID)

A three-character alphanumeric string used to identify a particular mainframe in a loosely coupled network. LIDs are identified by your site.

Log in

The procedure used at an interactive terminal to gain access to the system.

Logout

The procedure used to end a terminal session. You type BYE.

Loosely Coupled Network (LCN)

A network of physically connected computer systems. The LCN environment allows jobs, data files, and messages to be transmitted from one computer system to another.

Machine Identification (MID)

Identifier used to associate a specific machine with its access to a shared device.

Machine Recovery Utility (MREC)

Utility used to clear interlocks held by the machine to be deadstarted which have not been cleared by CPUMTR. It also recovers mass storage space on a shared device that is currently not accessible because of a machine interruption.

MAG

Magnetic tape subsystem.

Maintenance Logging Transfer Facility (MLTF)

A utility that controls logging network access device (NAD) error; logs into the binary maintenance log.

Maintenance Registers

Registers used in error detection, logging and recovery procedures for models 865 and 875 only.

Mass Storage

The equipment used to hold temporary and permanent files within the system.

Mass Storage Device

An extended memory (ECS) or disk unit which has defined logical attributes such as family, file residency, and so on.

Mass Storage Table (MST)

Table that contains an entry for each logical device in the configuration of mass storage devices currently available to the system.

MFLINK

MFLINK is the command used to transfer permanent files between LCN-connected mainframes. MFLINK is the name of the entry point to the application program PTF.

Monitor

The system routine which coordinates and controls all activities of the computer system. It occupies peripheral processor 0 and part of central memory. It schedules the use of the central processor and the other peripheral processors.

Multimainframe System

Network of physically and logically connected computer systems.

Multispindle Device

A logical mass storage device which includes two to eight disk units.

Multiterminal Job

A job which does one specific task for many terminals while being scheduled into the system only once.

Negative Field Length (NFL)

Central memory assigned to a control point that physically precedes the job's reference address (RA).

Network

An interconnected set of network elements consisting of a host and one or more NPUs and terminals.

Network Access Device (NAD)

The primary element in a loosely coupled network. Each NAD connects a computer system to the network.

Network Access Method (NAM)

A software package that provides a generalized method of using a communications network for switching, buffering, queuing, and transmitting data. NAM is a set of interface routines used by a terminal servicing facility for shared access to a network of terminals and other applications, so that the facility program does not need to support the physical structures and protocols of a private communication network.

Network Configuration File (NCF)

A network definition file in the host computer, containing information on the network elements and permissible linkages between them. The status of the elements described in this file is modified by the network operator in the course of managing the network through the Network Supervisor. This is a NOS direct access permanent file.

Network Definition Language (NDL)

The compiler-level language used to define the network configuration file and local configuration file contents.

Network Invocation Number (NIN)

One- to three-digit decimal number. NIN is incremented by one every time NAM is brought up.

Network Processing Unit (NPU)

The collection of hardware and software that switches, buffers, and transmits data between terminals and host computers.

Network Supervisor (NS)

A portion of the network software, written as a NAM application program. NS coordinates all of the NPUs in the communication network.

Network Validation Facility (NVF)

A portion of the network software, written as a NAM application program. NVF performs all terminal login validation processing and supports login dialog with the terminal user.

NPU Operator (NOP)

The administrative operator who resides at a terminal and controls network elements (NPUs, trunks, logical links, lines, terminals, and so forth).

Online Job

A job which has a logical connection existing between an interactive device and a job in the system.

Order Dependent

Used to describe items which must appear in a specific order.

Order Independent

Used to describe items which need not appear in any specific order. Parameters, particularly those with keywords, may be order-independent.

Output File

The system-defined file which contains all the output from job processing. It is also known as the print or punch file.

Paging (Screen)

The process of filling a CRT display with data, and holding additional data for subsequent displays. Changing the page display is an operator-controlled function if the page wait option is selected.

Parity

In writing data, an extra bit is either set or cleared in each byte so that every byte has either an odd number of set bits (odd parity) or an even number of set bits (even parity). Parity is checked on a read for error detection and possible recovery.

Peripheral Processor (PP)

The hardware unit within the host computer that performs physical input and output through the computer's data channels.

Peripheral Processor Unit (PPU)

First level peripheral processor. A PPU is contained in the mainframe in a multimainframe environment and operates synchronously with the mainframe. Sometimes referred to as FLPP.

Permanent File

A mass storage file that is cataloged by the system so that its location and identification are always known to the system. Permanent files cannot be destroyed accidentally during normal system operation. They are protected by the system from unauthorized access according to privacy controls specified when they are created.

Permanent File Transfer Facility (PTF)

PTF is an application program initiator started by the user using an MFLINK command. It is responsible for initiating and completing (with the help of its servicing application, PTFS on another host) a permanent file transfer.

Permanent File Transfer Facility Service (PTFS)

PTFS is an application program servicer started by RHF when requested by a PTF on another host. The PTFS application assists the PTF application in completing the file transfer by performing those permanent file functions requested by the user and then transferring the file between PTF and PTFS.

Permanent Transfer Facility Initiator (PTFI)

Refer to Permanent File Transfer Facility.

Physical Identifier (PID)

The unique three-character identifier of a specific host.

Physical Record Unit (PRU)

The amount of information transmitted by a single physical operation of a specified device. For mass storage files, a PRU is 64 central memory words (640 characters); for magnetic tape files, the size of the PRU depends upon the tape format. A PRU that is not full of user data is called a short PRU; a PRU that has a level terminator but no user data is called a zero-length PRU.

Procedure

A user-defined set of instructions that are referenced by name. The instructions consist of procedure directives and system commands.

Procedure File

A file containing one or more procedures.

Programmable Format Control

Spacing and format control for 580 line printers provided by the use of software and a microprocessor instead of a carriage control format tape.

PRU

Refer to Physical Record Unit.

Pseudo A Register

A software register used by DSD to function channels and to manipulate peripheral hardware devices from the operator's console.

Queue File Transfer Facility (QTF)

QTF is an application program initiator that periodically scans the I/O queues searching for files to transfer. When it finds a file to transfer, it initiates and completes the queue file transfer with the help of its servicing application, QTFS on another host.

Queue File Transfer Facility Servicer (QTFS)

QTFS is an application program servicer started by RHF when requested by a QTF on another host. The QTFS application assists the QTF application in completing the transfer by receiving the queue file and placing it in the I/O queue.

Queue Priority

An attibute associated with input and output files. If all other factors are equal, queue priority is used to select the best file for processing.

Queue Transfer Facility Initiator (QTFI)

Refer to Queue File Transfer Facility.

Queued File

An input, print, plot, or punch file that has an entry in the QFT, is not assigned to an EJT entry, and is waiting to be selected for processing.

Queued File Table (QFT)

A central memory resident table containing a four word entry for all active input and output queue files.

Recoverable Job

A job currently in a detached state that is recoverable from an interactive terminal.

Regulation Level

A number that indicates to NAM the existence of a logical link and indicates what types of information exchange are possible on that logical link.

Remote Batch Job

A job submitted from a remote batch terminal.

Remote Host Facility (RHF)

A central processor program that executes at a system control point. It performs data buffering and switching, and is the intermediary between application programs and the network.

Remote NPU

A network processing unit linked to a host computer through other network processing units.

Remote Operator

A remote batch terminal operator or interactive user who can exercise privileges on NAM usually available only to the central site operator.

Rollout

The removal of jobs from central memory to mass storage before execution is complete, so the control point and central memory can be assigned to another job. A job is rolled out when it is waiting for an external event, when its control point and/or central memory is needed by a higher priority job, or when it exceeds its central memory time slice.

Rollout File

A file containing a job (and system information) that has been temporarily removed from the main processing area of the system.

Scheduling Priority

An attribute associated with an executing job available for job scheduling. Scheduling priority is used to select the best executing service class job for processing.

Service Class (SC)

An attribute associated with a queued file or executing job. Service class determines how the system services the job.

Status

Information relating to the current state of a device, line, and so forth. Service messages are the principal carriers of status information. Statistics are a special subclass of status.

Status/Control (S/C) Register

Register used in error detection, logging, and recovery procedures.

Step Mode

A protected or debugging mode for the operating system monitor. The keyboard spacebar must be pressed to process each PP request.

Stimulator

A collection of central memory and peripheral processor programs which enters a hypothetical work load into the system to analyze the effects of such a load on response time and system reliability.

Suspended Job

An interactive job placed in an inactive state. Processing is stopped immediately and recovery information is copied to the rollout file. Processing is resumed as if no interruption took place, if the job's EJT entry is recovered.

System Job

A job brought to a control point by the operator.

System Library (SYSLIB)

The collection of tables and object language programs residing in central memory or on mass storage which are necessary for running the operating system and its product set.

System Origin Job

A job entered at the system console.

System Resource Unit (SRU)

A unit of measurement of system usage. The number of SRUs includes the central processor time, memory usage, and input/output resources used for a given job.

Time-Sharing Job

See Interactive job.

Timed/Event Rollout

A condition where an executing a job that has been temporarily removed from central memory but will be rolled back into central memory only when a specified event (such as a file is no longer busy) or a specified time period has elapsed.

Track Reservation Table (TRT)

Table that describes the physical layout of data on a device and is the key to allocating information on the device.

Transaction Facility (TAF)

The network host product application that supports transactional terminal operation.

Transactional refers to a terminal operation that is used to conduct a single, simple data base access or retrieval procedure, such as a business transaction. A transactional terminal is distinctive in that the operator is aware of only the transaction being conducted.

Trunk

The communication line connecting two network processing units.

Trunk Control Unit (TCU)

The hardware part of a network access device (NAD) that interfaces with a network trunk.

Unit Number

The setting of a hardware device. Used when more than one hardware unit can be connected to a controller.

Unload

To remove a tape from ready status by rewinding beyond the load point; the tape is then no longer under control of the computer.

Upline

The direction of input flow from terminal to host.

User Break 1 Sequence

The character or sequence of characters that causes an executing program to be interrupted (also called the interruption sequence).

User Break 2 Sequence

The character or sequence of characters that causes an executing program to be terminated (also called the termination sequence).

User Job Name (UJN)

A one- to seven-character alphanumeric name you specify to replace the system defined JSN for a queued file or executing job.

Volume Serial Number (VSN)

A one- to six-character identifier that identifies the volume of magnetic tape to the system.

Warmstart

Procedure used to deadstart if the tape or disk controller is loaded and the controlware is running.

Write Ring

A circular device inserted into a tape reel indicating to the tape unit that it can write on that reel. NOS checks for the presence of a write ring if you request it.

PERIPHERAL EQUIPMENT OPERATION D

All on-line peripheral equipment runs under the control of NOS. To determine the EST ordinal and current status (ON or OFF) of a device, examine the EST display. A device must be logically ON before it can be used by NOS. Refer to the description of the ON command in section 3 to logically turn on a device.

405 CARD READER OPERATION

Once the MAIN POWER switch on the card reader is lighted, load and start the reader as follows:

1. Set guide edge of input feed hopper and output stacker for length of card. Narrow half of each tray may be removed, turned end-for-end, and reassembled as necessary.

2. Load cards into hopper, placing column 1 at right as cards face entrance of read station.

3. Check input wall of secondary and main output stackers. If standard cards are used, hinged card-stopping blocks should be positioned to form a flush surface at each input wall. If short cards are used, hinged block assemblies must be pivoted to protrude from wall surfaces of each stacker.

4. At feed hopper, set card-stopping pin to protrude from faceplate if short cards are used; turn pin in clockwise direction to form flush wall if long cards are used.

5. If short cards are to be read, press 51 COLUMN switch until it lights.

6. To check operation:

   a. If MAN is not lighted on AUTO/MAN switch, press switch to place equipment in manual mode.

   b. If STOP is not lighted on RUN/STOP switch, press switch so that STOP lights.

   c. Press MOTOR POWER switch. Light should turn on and input hopper should begin vibrating.

   d. Press READY switch until it lights.

   e. Press SINGLE PICK switch to cause first card to be read and transferred to output stacker. No light exists. If card does not move properly, check read station for an obstruction.

   f. Press MOTOR POWER to stop vibrators and replace card in input hopper.

7. To allow cards to be read:

   a. Press RUN/STOP so that RUN lights, if necessary.

   b. Press AUTO/MAN so that AUTO lights.

   c. Press MOTOR POWER so that it lights.

   d. Press RELOAD MEMORY. It does not light.

   e. Press READY until it lights.

The switches and indicators on the reader (figure D-1) are explained in the following paragraph. They differ slightly depending upon the type of controller (3649 or 3447). The controllers are an integral part of the card reader equipment.

MAIN POWER

Controls all primary power and turns on the photocell light source. It is lighted when power is on. It must be on before subsequent operations are effective.

MOTOR POWER

Controls power to the drive motors, the vacuum-pressure system, and the hopper-stacker vibrators. It must be on before the READY status is effective. It is lighted when on.

AUTO/MAN

Selects manual or program controlled modes of operation. The switch must be in the AUTO position when the reader is to be controlled by the system. Change switch position to MAN to disable system control and allow you to cycle cards manually.

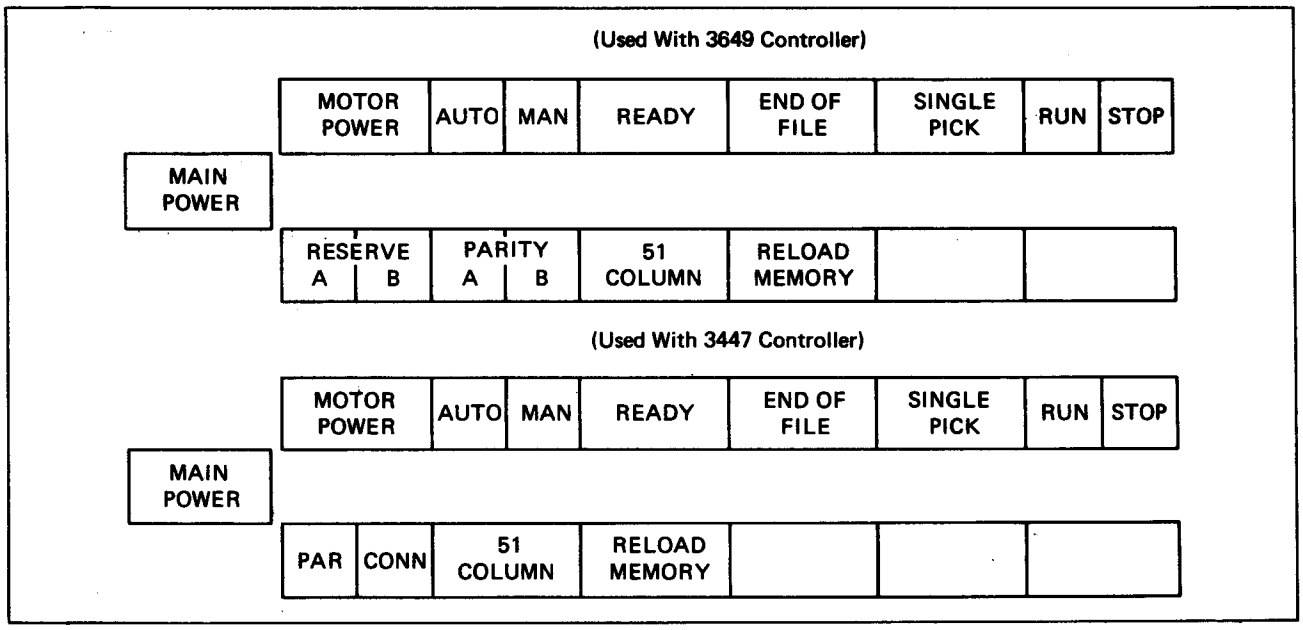


Figure D-1. Card Reader Switches

READY

The switch lights to indicate the ready condition. When the switch is pressed, the first card is read into buffer memory. Thereafter, the reader is under system control. If the input hopper is empty, error conditions exist on the device, the output stacker is not closed or it is full, a not ready condition exists.

END OF FILE

Causes the reader to generate an end-of-file status bit after the last card in the input tray is read. It lights when set. If the last card in the input tray is not the last card in the file being read into the system, this switch should be off. Currently not used by NOS. Included for compatibility with previous systems.

SINGLE PICK

Cycles a single card through the reader when the AUTO/MAN switch is in MAN position. It does not light.

RUN/STOP

The card feed may be controlled manually when the AUTO/MAN switch is in MAN position. The set side is lighted.

RESERVE A/B (3649 Controller only)

One side lights as one of the two converters attached to the controller reserves reader access.

PARITY A/B (3649 Controller only)

This light appears only when a parity error occurs during the transmission of a connect or function code. An error message will appear on the console screen.

PAR/CONN (3447 Controller only)

Similar to the RESERVE and PARITY switches of the 3649 Controller in that one side lights for a parity error and the other when the reader is connected to the controller channel.

51 COLUMN

Allows short (51-column) cards to be read. It is lighted when set.

RELOAD MEMORY

Feeds data from a new card into card reader memory buffer when pressed, providing AUTO/MAN is in AUTO. It does not light. It should be pressed prior to each READY.

Inside the right front door are several lights that indicate malfunction. If FEED/FAIL is lighted, a card is not acceptable or a card jam exists. Lifting the read station panel will expose the card guides. The PRE-READ and COMPARE lights indicate that the pre-read and read stations do not interpret a card identically. If the card reader stops during operation, examine the BIO (I) display to determine the action to take. The action can involve rereading one or several cards. If the card reader stops at the end of a batch job, check the I display to ensure that there were no errors on the last card.

415 CARD PUNCH OPERATION

The 415-30 card punch contains the 3446 controller in the same cabinet. The controller for the 415 card punch, 3644 or 3446, is in a separate cabinet. It has the equipment number switch that establishes the equipment number for the punch in the EST display. With the exception of the lights mentioned in the following paragraph, controller switches are the responsibility of the customer engineer.

Once the MAIN POWER and MOTOR POWER switches on the card punch are lighted, operation is initiated as follows:

1. Place cards face down in input hopper with row 9 toward rear.
2. Check that chip box and output stacker are not full.
3. Advance two cards into the punch and read stations by pressing the SINGLE PICK switch twice.
4. Check the controller equipment. If either the NOT READY or FAIL TO FEED light is on, cards have not advanced into the punch and read stations.

The card punch is then ready for operation.

Switches on the card punch (figure D-2) have the following functions.

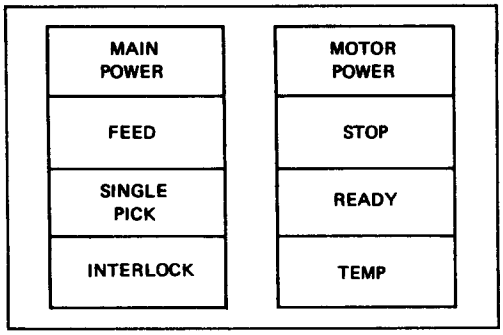


Figure D-2. 415 Card Punch Switches

MAIN POWER

This switch applies power to the cooling fans and the power supplies. It is lighted when power is on.

MOTOR POWER

This switch applies power to the punch motor. It is lighted when power is on.

FEED

This indicator lights when a card jam exists. A message CPuu NOT READY appears at the console. Call a customer engineer to remove the jammed card.

STOP

This switch causes the punch to become not ready. It lights when pressed to stop system control.

SINGLE PICK

This switch advances cards one station in the input hopper-punch-read-output cycle. It lights until the advance is complete.

READY

This switch clears punch logic and puts it in automatic mode for system control. It lights when the punch is in a ready condition. If it does not light when pressed, conditions such as feed failure and full output stack should be examined and corrected.

INTERLOCK

This switch lights if the head panel, hood panel, or right door is open. All should be closed during operation.

TEMP

If this light is on, the temperature of the punch exceeds operation requirements. Consult a customer engineer.

A toggle switch at the top of the output stacker automatically turns off the card punch when the stacker is full. Reset the switch when cards are removed from the stacker.

580 LINE PRINTER OPERATION

The 580 line printer includes both the printer and controller in one cabinet. Operator manual controls on the back duplicate three switches on the front to facilitate removing paper. Figure D-3 shows configuration of the 580 Line Printer switches.

For more information on 580 line printer format control refer to NOS 2 System Maintenance Reference Manual.

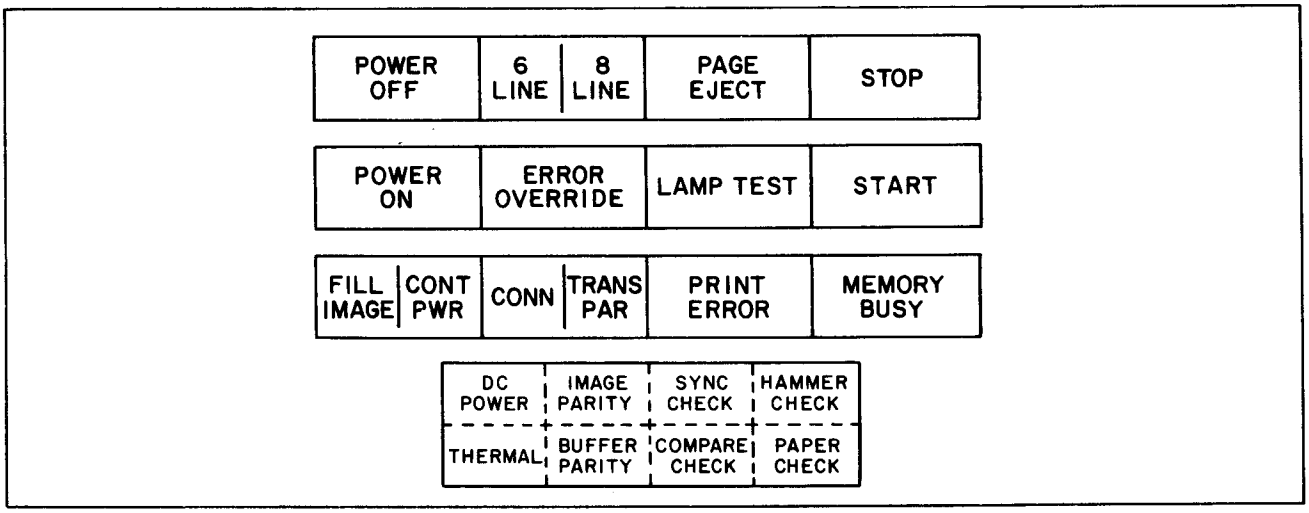


Figure D-3. 580 Line Printer Switches

When the POWER ON switch is lighted indicating power to the printer, control operation with the following switches.

POWER OFF

Turns off power supply.

6 LINE | 8 LINE

Pressing alternates between 6 and 8 line-per-inch spacing. One-half of the indicator is illuminated, depending on which spacing mode has been selected.

PAGE EJECT

Under manual control, advances paper to top of form as determined by format loop control.

STOP

Stops printer control.

LAMP TEST

Pressing causes all lamp indicators on the control panels to light.

START

Readies printer (lighted when selected).

The remaining indicators light when the condition specified has occurred.

FORMAT (CARRIAGE CONTROL) TAPE LOADING

1. Press the POWER HOOD switch to raise hood.
2. Loosen the tape spool and slide it toward the drive hub.
3. Place the format tape on the drive hub and in the space between the reader and the lamp housing. The coincidence lines on the format tape must be aligned with the scribe lines on the drive hub and the arrows on the tape must point toward the back of the printer.
4. Place the format tape over the tape spool, slide the tape spool down the slot until there is 1/8-inch slack in the format tape loop.
5. Tighten the tape spool.

Standard format tape configurations for short and long paper for the 580 Line Printer are given in figure D-4 and figure D-5. Refer to System Maintenance Reference Manual for more information on short and long paper.

Frame	Columns to be Punched											
	12	11	10	9	8	7	6	5	4	3	2	1
0		x	x	x	x	x	x	x	x	x	x	x
1		x										
2		x									x	
3		x								x		
4		x		x					x		x	
5		x						x				
6		x								x	x	
7		x				x						
8		x		x	x				x		x	
9		x								x		
10		x	x					x			x	
11		x										
12		x		x						x	x	x
13		x										
13		x				x						x
15		x						x		x		
16		x		x	x				x		x	
17		x										
18		x								x	x	
19		x										
20		x	x	x				x	x		x	
21		x				x				x		
22		x									x	
23		x										
24		x		x	x				x	x	x	
25		x						x				
26		x									x	
27		x								x		
28		x		x		x			x		x	
29		x										
30		x	x					x		x	x	
31		x										
32		x		x	x				x		x	
33		x								x		
34		x									x	
35		x				x		x				
36		x		x					x	x	x	
37		x										
38		x									x	
39		x								x		
40		x	x	x	x			x	x		x	
41		x										
42		x				x				x	x	
43		x										
44		x		x					x		x	
45		x						x		x		
46		x									x	
47		x										
48		x		x	x				x	x	x	
49		x				x						
50		x	x					x			x	
51		x								x		
52		x		x					x		x	
53		x										
54		x								x	x	
55		x						x				
56		x		x	x	x			x		x	
57		x								x		
58		x									x	
59		x										
60		x	x	x				x	x	x	x	
61		x										
62		x									x	
63		x				x				x		
64		x		x	x				x		x	
65	x	x						x				
66												
67												
68		x	x	x	x	x	x		x	x	x	x
69		x										

Frame	Columns to be Punched											
	12	11	10	9	8	7	6	5	4	3	2	1
70		x									x	
71		x								x		
72		x		x					x		x	
73		x						x				
74		x								x	x	
75		x				x						
76		x		x	x				x		x	
77		x								x		
78		x	x					x			x	
79		x										
80		x		x					x	x	x	
81		x										
82		x				x					x	
83		x						x		x		
84		x		x	x				x		x	
85		x										
86		x								x	x	
87		x										
88		x	x	x				x	x		x	
89		x				x				x		
90		x									x	
91		x										
92		x		x	x				x	x	x	
93		x						x				
94		x									x	
95		x								x		
96		x		x		x			x		x	
97		x										
98		x	x					x		x	x	
99		x										
100		x		x	x				x		x	
101		x								x		
102		x									x	
103		x				x		x				
104		x		x					x	x	x	
105		x										
106		x									x	
107		x								x		
108		x	x	x	x			x	x		x	
109		x										
110		x				x				x	x	
111		x										
112		x		x					x		x	
113		x						x		x		
114		x									x	
115		x										
116		x		x	x				x	x	x	
117		x				x						
118		x	x						x		x	
119		x								x		
120		x		x					x		x	
121		x										
122		x								x	x	
123		x						x				
124		x		x	x	x			x		x	
125		x								x		
126		x									x	
127		x										
128		x	x	x				x	x	x	x	
129		x										
130		x									x	
131		x				x				x		
132		x		x	x				x		x	
133	x	x						x				
134												
135												
136		x	x	x	x	x	x	x	x	x	x	x
137		x										
138		x									x	

Use the line printer format tape with any model 580 line printer that does not have a programmable format control (PFC) memory. To assemble the punched format tape cut on the line at frame 138, overlap frame 136 with frame 0, and glue together to form a continuous loop (frames 136 through 138 are identical to overlapping lines 0 through 2). Then repunch the holes in frames 133 through 135.

Figure D-4. Line Printer Format Tape Configuration for Short Paper

Frame	Columns to be Punched											
	12	11	10	9	8	7	6	5	4	3	2	1
0		x	x	x	x	x	x	x	x	x	x	x
1		x										
2		x									x	
3		x		x						x		
4		x							x		x	
5		x						x				
6		x		x						x	x	
7		x				x						
8		x			x				x		x	
9		x		x						x		
10		x	x					x			x	
11		x										
12		x		x					x	x	x	
13		x										
14		x				x					x	
15		x		x				x		x		
16		x			x				x		x	
17		x										
18		x		x						x	x	
19		x										
20		x	x					x	x		x	
21		x		x		x				x		
22		x									x	
23		x										
24		x		x	x				x	x	x	
25		x						x				
26		x									x	
27		x		x						x		
28		x				x			x		x	
29		x										
30		x	x	x				x		x	x	
31		x										
32		x			x				x		x	
33		x		x						x		
34		x									x	
35		x				x		x				
36		x		x					x	x	x	
37		x										
38		x									x	
39		x		x						x		
40		x	x		x			x	x		x	
41		x										
42		x		x		x				x	x	
43		x										
44		x							x		x	
45		x		x				x		x		
46		x									x	
47		x										
48		x		x	x				x	x	x	
49		x				x						
50		x	x					x			x	
51		x		x						x		
52		x							x		x	
53		x										
54		x		x						x	x	
55		x						x				
56		x			x	x			x		x	
57		x		x						x		
58		x									x	
59		x										
60		x	x	x				x	x	x	x	
61		x										
62		x									x	
63	x	x		x		x				x		
64												
65												
66		x	x	x	x			x	x	x	x	x
67		x										

Frame	Columns to be Punched											
	12	11	10	9	8	7	6	5	4	3	2	1
68		x									x	
69		x		x						x		
70		x							x		x	
71		x						x				
72		x		x						x	x	
73		x				x						
74		x			x				x		x	
75		x		x						x		
76		x	x					x			x	
77		x										
78		x		x					x	x	x	
79		x										
80		x				x					x	
81		x		x				x		x		
82		x			x				x		x	
83		x										
84		x		x						x	x	
85		x										
86		x	x					x	x		x	
87		x		x		x				x		
88		x									x	
89		x										
90		x		x	x				x	x	x	
91		x						x				
92		x									x	
93		x		x						x		
94		x				x			x		x	
95		x										
96		x	x	x				x		x	x	
97		x										
98		x			x				x		x	
99		x		x						x		
100		x									x	
101		x				x		x				
102		x		x					x	x	x	
103		x										
104		x									x	
105		x		x						x		
106		x	x		x			x	x		x	
107		x										
108		x		x		x				x	x	
109		x										
110		x							x		x	
111		x		x				x		x		
112		x									x	
113		x										
114		x		x	x				x	x	x	
115		x				x						
116		x	x					x			x	
117		x		x						x		
118		x							x		x	
119		x										
120		x		x						x	x	
121		x						x				
122		x			x	x			x		x	
123		x		x						x		
124		x									x	
125		x										
126		x	x	x				x	x	x	x	
127		x										
128		x									x	
129	x	x		x		x				x		
130												
131												
132		x	x	x	x	x	x	x	x	x	x	x
133		x										
134		x									x	

Use the line printer format tape with any model 580 line printer that does not have a programmable format control (PFC) memory. To assemble the punched format tape cut on the line at frame 134, overlap frame 132 with frame 0, and glue together to form a continuous loop (frames 132 through 134 are identical to overlapping lines 0 through 2). Then repunch the holes in frames 129 through 131.

Figure D-5. Line Printer Format Tape Configuration for Long Paper

PAPER LOADING

To load paper into the 580 printer:

1. Press POWER HOOD switch on left side of cabinet to raise hood.
2. Remove old paper supply with PAGE EJECT switch.
3. Open front printer gate.
4. Open pressure plate on upper and lower left and right tractors.
5. Raise paper vertically from supply box and place into upper and lower paper tractors. Ensure that header page will always be an inner page (that is, page is visible when output is laid flat) by placing inner fold at front edge of printer's paper bail assembly. Close all four pressure plates.
6. Close front panel securely.
7. Press PAGE EJECT four times and manually feed the forms over the paper bail and into the stacker exit rollers.
8. In back of printer, press PLATFORM DOWN switch to lower forms platform.
9. Press PAGE EJECT to observe that forms fold properly and are correctly aligned.
10. Press PLATFORM UP switch and observe that forms fold and fit properly as platform rises.

To load forms of a different width or thickness:

1. Move tractors to approximate position by loosening the tractor locking knob and sliding tractors until aligned. Tighten locking knob.
2. Place forms in upper left paper tractor and close tractor door.
3. Place forms in lower left paper tractor and close tractor door.
4. Place forms in upper right paper tractor and close tractor door.
5. Place forms in lower right paper tractor and close tractor door.
6. Slide the two right tractors to adjust the horizontal paper tension. Forms should not buckle (too loose) and the tractor pins should not deform the holes (too tight). Tighten the tractor locking knobs on the right hand tractors.
7. Close the forms alignment scale against the paper. The scale indicates print column location and the top of the ribbon shield indicates the bottom of the next line of print.
8. Adjust the horizontal position control to align the forms with the proper print columns.
9. Place the forms lock control in the manual position and adjust the manual forms advance control to align forms vertically to the top of forms position.
10. Place the forms lock control in the auto position, relatch the forms alignment scale to the print gate, and the print gate to the print head.

11. Press PAGE EJECT three times and manually feed the forms over the paper bail and into the stacker exit rollers.

12. In back of printer, press PLATFORM DOWN switch to lower forms platform.

13. Press PAGE EJECT to observe that forms fold as originally folded, that multipart forms do not separate, and that the forms are properly aligned to the forms scales.

RIBBON CHANGE

1. Press the POWER HOOD switch on left side of cabinet to raise hood.

2. Press POWER OFF switch.

3. Unlatch print gate and swing away from the print head.

4. Unlatch ribbon cover and swing away from the print gate.

5. Unlatch line finder and swing away from the print gate.

6. Grasp the ribbon rolls with the left hand on the upper roll and the right hand on the lower roll.

7. Push the rolls toward the hinged end of the print gate; lift the upper roll up and off the spool and the lower roll down and off the spool.

8. Pass the left hand over, behind, and then under the print gate and remove the ribbon.

9. After the new ribbon is unwrapped, grasp one roll in the left hand and the other roll in the right hand.

10. Approaching print gate from the latch end, hold right hand in front of lower ribbon spools. Pass ribbon roll in left hand under, behind, and over the print gate bringing it to the upper ribbon spools.

11. Press ribbon roll in left hand against the upper ribbon spool on the hinged end of the print gate and press the roll in right hand against lower ribbon spool.

12. Ease the ribbon rolls into place against the ribbon spools on the latch end of the print gate ensuring that the drive keys on the ribbon spools fit into the slots in the ribbon rolls.

13. Rotate upper ribbon roll to take up slack.

14. Latch linefinder and ribbon cover to print gate and close print gate.

15. Press POWER ON switch.

580 LINE PRINTER PROGRAMMABLE FORMAT CONTROL INITIALIZATION

1. Press POWER ON switch.
2. Press PAGE EJECT switch. The printer controller advances to the next 6/8 lines per inch (LPI) coincident point. The tractors physically advance accordingly.
3. Press POWER HOOD switch on left side of cabinet to raise hood.
4. Open front printer gate.
5. Open pressure plate on upper and lower left and right tractors.
6. Raise paper vertically from supply box and place into upper and lower paper tractors. Close all four pressure plates.
7. Close front panel securely.
8. Align paper to top of form by pressing the PAGE EJECT switch, causing the paper to advance to subsequent 6/8 LPI coincidence points as required. Paper thus positioned will be at top of form when the system loads a PFC array before a job is printed.
9. Close the forms alignment scale against the paper. The scale indicates print column location and the top of the ribbon shield indicates the bottom of the next line of print.
10. Adjust the horizontal position control to align the forms with the proper print columns.
11. Place the forms lock control in the manual position and adjust the manual forms advance control to align forms vertically to the top of forms position.
12. Place the forms lock control in the auto position, relatch the forms alignment scale to the print gate, and the print gate to the print head.
13. Press START switch.

NOTE

This initialization procedure assumes that the first code loaded into the PFC buffer will be top of forms (format level 1).

BIO loads the PFC buffers at the start of each print file. Prior to loading a PFC array, pressing the PAGE EJECT switch advances the paper to the next 6/8 LPI coincident point. After a PFC array has been loaded into the printer, pressing PAGE EJECT causes an entire form to be ejected.

MAGNETIC TAPE UNITS

NOS supports unit models 667 and 677 for 1/2-inch, 7-track magnetic tape and models 669 and 679 for 1/2-inch, 9-track tape.

All models show a unit number at the top of the cabinet (right side of the controls on a 667 or 669 unit, left side of the controls on a 677 or 679 unit) which ranges from 0 to 17 and is used to identify the unit. The unit number of a 667 or 669 tape unit is set using the select switch labeled UNIT NO/HOLD REL located beside the unit number display. Each unit that is on should have a unique number but once this switch is set, it can be ignored during operation. It is not possible to change unit numbers on 677 or 679 tape units.

NOTE

Do not change unit numbers on 667 or 669 tape units when the magnetic tape subsystem is being used.

The system and the operator identify a unit by its EST ordinal as shown in the E display. Installations usually configure the system so the last digit of an ordinal for a tape drive is the same as the unit select switch setting, making it easier to equate the two.

On-line operation of tape units is controlled and synchronized with system demands by an associated tape control unit. Power up and autothread/autoload operations are facilitated by front panel controls and indicators located at the top front of the tape unit. Controls for 667/669 and 677/679 tape units differ slightly as described in the following two sections.

If a magnetic tape unit is currently assigned to a job, it cannot be unloaded. Examine the tape status (E,T.) display to determine if the magnetic tape unit is currently assigned to a job. If it is not, entering the UNLOAD command causes the tape to unload. Refer to the description of UNLOAD in section 3.

667 AND 669 TAPE UNITS

The functions of the switches and indicators on the 667/669 tape unit (figure D-6) are described below. Switches with alternate actions are described in terms of (1) first and (2) second action.

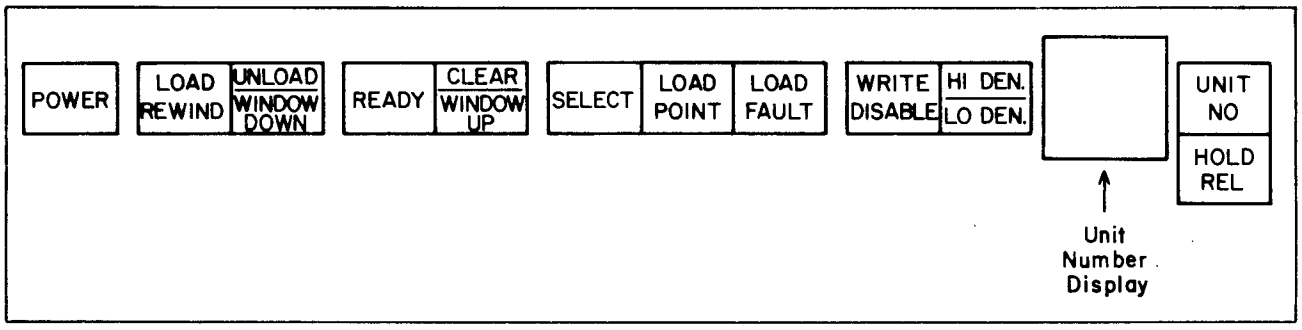


Figure D-6. 667/669 Tape Unit Operator Control Panel

POWER

(1) Activates power circuits, places tape unit in a power-up status, and lights indicator. (2) Deactivates power circuits, places tape unit in a power-down status, and turns off indicator light.

LOAD REWIND

(1) Initiates load operation (reel-to-reel contact, thread and set loops). (2) When unit is off-line, initiates rewind to loadpoint operation.

UNLOAD/WINDOW DOWN

Initiates unload operation by rewinding leader length onto right reel.

READY

Places tape unit under system control via tape control unit. Light indicates unit is in ready status awaiting system activity. Light extinguishes when a fault condition is detected.

CLEAR/WINDOW UP

When tape unit is on-line, negates READY condition and stops tape motion. When unit is off-line, stops tape motion and clears fault condition. Light comes on when loop fault is detected.

NOTE

Do not use this control during system operation.

SELECT

No switch function. Light comes on when tape unit is selected by tape control unit.

LOAD POINT

No switch function. Illuminates when loadpoint marker or end of tape marker is detected, depending upon tape motion direction.

LOAD FAULT

No switch function. Indicates a fault occurred during load procedure.

WRITE DISABLE

No switch function. Illuminated, it indicates the absence of a write enable ring in the right tape reel. Disables the write circuitry and conditions the tape unit to accept only read functions.

HI DEN/LO DEN

No switch function. HI DEN illuminates in phase mode for 9-track tapes or in 800-cpi NRZI mode for 7-track tapes. LO DEN illuminates in 800-cpi NRZI mode for either 9- or 7-track tapes or for 556-cpi NRZI mode for 7-track tapes.

Unit Number Display

Shows tape unit number in octal numbers, 00 to 17.

UNIT NO/HOLD REL

Two-position rocker switch used to assign tape unit number. Pressing UNIT NO causes that portion of the switch to light, indicating that a hold status is being sent to the tape controller unit. Numbers shown on the unit number display advance until UNIT NO is released. Pressing HOLD REL removes the hold status on the tape unit; the indicator light turns off.

677 AND 679 TAPE UNITS

The functions of the switches and indicators on the 677/679 tape unit (figure D-7) are described below. Switches with alternate actions are described in terms of (1) first and (2) second action.

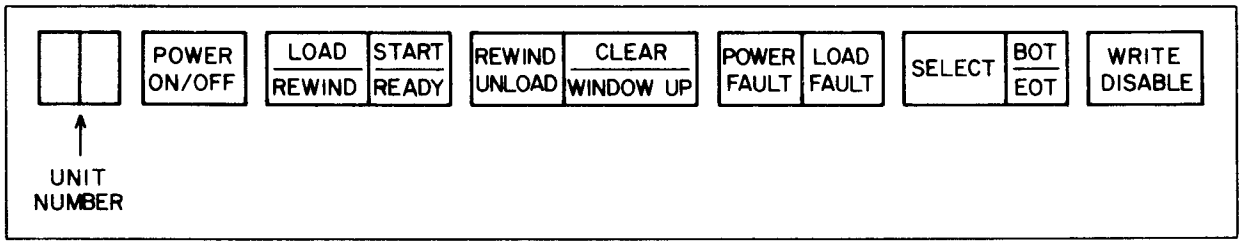


Figure D-7. 677/679 Tape Unit Operator Control Panel

POWER ON/OFF

(1) Activates power circuits, places tape unit in power-up status, and lights indicator. (2) Deactivates power circuits, places tape unit in a power-down status, and turns off indicator light.

LOAD/REWIND

(1) Initiates load operation (reel-to-reel contact, thread and set loops). (2) When unit is loaded but not ready, initiates rewind to loadpoint operation.

START/READY

Places tape unit under system control via tape control unit. Light indicates unit is in ready status awaiting system activity. Light extinguishes when a fault condition is detected.

REWIND UNLOAD

If the unit is loaded but not ready, the tape is rewound to BOT and the tape unit is unloaded. If present, the cartridge closes. The reel latch and window open.

If the unit is not loaded or a fault has been detected, the window lowers.

CLEAR/WINDOW UP

When tape unit is on-line, pressing this switch negates READY condition and stops tape motion. If the tape unit is off-line and the window is down, pressing this switch raises the window. Load check is reset if applicable.

NOTE

Do not use this control during system operation.

POWER FAULT/LOAD FAULT

No switch function. Indicates a power fault occurred or a fault occurred during the load procedure.

SELECT

No switch function. Light comes on when tape unit is selected by tape control unit.

BOT/EOT

No switch function. Illuminates when loadpoint marker or end of tape marker is detected, depending upon tape motion direction.

WRITE DISABLE

No switch function. Illuminated, it indicates the absence of a write enable ring in the right tape reel. Disables the write circuitry and conditions the tape unit to accept only read functions.

TAPE UNIT OPERATION

All tape units can handle cartridge-contained tape reels or standard 10-1/2-inch supply reels. Smaller noncartridge reels can be used, but they must be threaded manually. The take-up reel on left side is a vacuum hub assembly permanently attached to the tape unit.

When a load sequence is initiated, the cartridge-contained tape reel programs the tape unit to thread tape and load loops into the vacuum columns automatically. Internal delays control the timing of the load/thread operation. If a fault is detected during a load attempt or if a successful load is not achieved, one automatic retry is executed. At the expiration of the automatic load attempt, the tape unit automatically stops and lowers the power window. When standard reels are used, the automatic retry is inhibited and operator action is required.

The power window of the tape unit is activated by control logic circuits and is raised or lowered in response to LOAD and UNLOAD commands initiated by you. Initially, when the POWER switch is pressed, the window lowers, allowing access to the tape deck. An interlock protection switch prevents power window operation when the front access door is open.

REEL INSTALLATION

Prior to operating the tape unit, review thoroughly the description of control switches and indicators. The following operating instructions apply to all 667/669 and 677/679 tape units unless specifically noted.

Standard (Noncartridge) Reel

1. Power up unit by pressing POWER switch. POWER light illuminates and the window lowers.

2. Install write-enable ring within inner surface cutout of reel if write operation is to be performed. The write-enable ring is to be installed only if a write operation is to be performed. Valuable data stored on the tape must be protected by removing the write ring when read only operation is to be performed.

3. Place reel onto right hub. Ensure that reel is fully seated against hub face.

4. Manually rotate reel hub clockwise until several inches of tape leader extend along inner surface of tape chute.

Cartridge - Loaded Reel

1. Perform steps 1 and 2 as for standard reel.

2. Orient cartridge reel on hub so that locating notches in cartridge retainer and chute assembly align with keys on outer rim of cartridge. Ensure that actuator rod fits into recess of cartridge latch.

3. Press cartridge into place on hub; seat firmly against hub face.

LOAD/THREAD

Operator action, such as pressing LOAD/REWIND switch, initiates a load/thread operation. The cartridge actuator rotates clockwise until the cartridge is brought to the full open position. Observe the following points for either cartridge or standard reels.

1. Tape proceeds along tape feed path and enters the left vacuum reel enclosure.

2. Left reel rotates clockwise until load point marker is detected. Reel motion then ceases.

3. Tape is drawn immediately into loop columns and drops below AR and AL sensors.

4. Motion stops when load point marker is correctly positioned.

READY STATUS

At completion of load/thread sequence, the tape unit is placed in ready status if the READY (667/669) or START READY (677/679) switch on the front panel of the tape unit has been pressed. The indicator illuminates, followed by the SELECT light, indicating receipt of an on-line callup by the system.

REWIND

The LOAD/REWIND switch rewinds a tape to load point when the tape unit is off-line. It is not necessary to use this switch during normal operation, since the operating system controls tape movements.

UNLOAD AND REEL REMOVAL

The REWIND/UNLOAD switch rewinds and unloads a tape when the tape unit is off-line. It is not necessary to use this switch during normal operation, since the operating system controls tape movements. The operator command UNLOAD,eq. logically unloads a tape that is physically loaded but not in use.

After unload is initiated, the tape rewinds at high speed until the load point marker is detected. A downshift to normal operating speed occurs at load point detection. The leader length unwinds completely from the left onto the right reel and simultaneously, the cartridge closes and the power window lowers. The automatic hub, if applicable, releases the right tape reel for removal from the tape deck area.

EMERGENCY STOP

Operator action of the CLEAR switch terminates the operation in progress. Switch activation is effective in either off-line or on-line mode. Pressing the CLEAR switch one time, while in rewind mode, causes the unit to down shift to normal tape speed; 200, 150, or 100 inches per second. A second activation terminates the rewind operation and causes the tape movement to stop.

REFLECTIVE MARKERS

The load point and end-of-tape markers are placed near the beginning and end of the tape to enable sensing of the usable portion of the tape by the photocells. Adhesive material on one side of reflective material secures the markers to the tape. Vaporized aluminum deposited on the material creates a highly reflective surface.

The markers, approximately 1.2 in long and 0.2 in wide, are placed on the uncoated side of the tape. The uncoated side is the underside of the tape when mounted on the tape deck. The end-of-tape marker is placed on the edge of the tape nearest the tape deck; the load point is placed on the outer edge of the tape. The 667/669 tape unit is capable of loading tapes with load point markers located up to 40 ft from the beginning of the tape. The 677/679 tape unit is capable of loading tapes with load point markers located up to 26 ft from the beginning of the tape. Recommended distance is 10 to 18 ft.

819 DISK STORAGE UNIT OPERATION

The function of the six switches and indicators on the 819 Disk Storage Unit are described as follows. Switches with alternate actions are described in terms of (1) first and (2) second action.

START

(1) starts the spindle rotating and loads heads; indicator light comes on. (2) stops the spindle rotation and unloads the heads; indicator light turns off.

READY

This indicator light comes on when the disk unit is ready for operation.

FAULT

This indicator light comes on when the disk unit detects a unit fault.

MAINTENANCE

This indicator light comes on when the disk unit is in maintenance mode (off-line).

TEMP

This indicator light comes on when the temperature in the unit exceeds the safe operating temperature.

1/0

The 1 lights when the disk unit is reserved by the controller on access 1. The 0 lights when the disk unit is reserved by the controller on access 0.

Besides these switches and indicators, you can also use the lockout channel toggle switches located on the lower right inside of the rear door.

LOCKOUT CHAN 0

When in the up position, this switch disables the controller/disk unit interface designated as 0.

LOCKOUT CHAN 1

When in the up position, this switch disables the controller/disk unit interface designated as 1.

By toggling these switches the controller/disk unit reservation is cleared.

844 DISK STORAGE UNIT OPERATION

To ready an 881 or 883 disk pack on the 844 Disk Storage Unit:

1. Press the main cover latch and lift the main cover of the unit. Remove the base of the pack container so that the pack is held only by its cover.

2. Using its cover as a handle, place the disk pack slowly over the spindle until it engages the spindle drive unit. Turn the disk pack cover clockwise to a full stop position. At this point, the cover is released from the pack and can be lifted off.

3. Close the main cover making sure that it latches. If the cover is not securely latched, the dust cover interlock remains open and prevents power application.

4. Press the START switch to apply power to the unit. When the disk pack is at operating speed, the READY indicator lights. The disk storage unit is now ready for operation.

Before unloading an 881 or 883 disk pack from the 844 Disk Storage Unit, examine the mass storage status (E,M.) display. A disk pack can be physically unloaded only if the global unload status (N) is displayed on all machines accessing the disk pack. Refer to the description of UNLOAD in section 3.

To unload:

1. Press START switch to turn off indicator light and stop unit.

2. When disk pack has stopped spinning, press main cover latch and lift main cover.

3. Place a disk pack cover over loaded disk pack so that it engages spindle. Turn counterclockwise until spindle clicks, and lift cover and disk pack from unit. Replace base of pack container.

885 DISK STORAGE UNIT OPERATION

The functions of the switches and indicators on the 885 Disk Storage Unit (figure D-8) are described as follows. Switches with alternate actions are described in terms of (1) first and (2) second action.

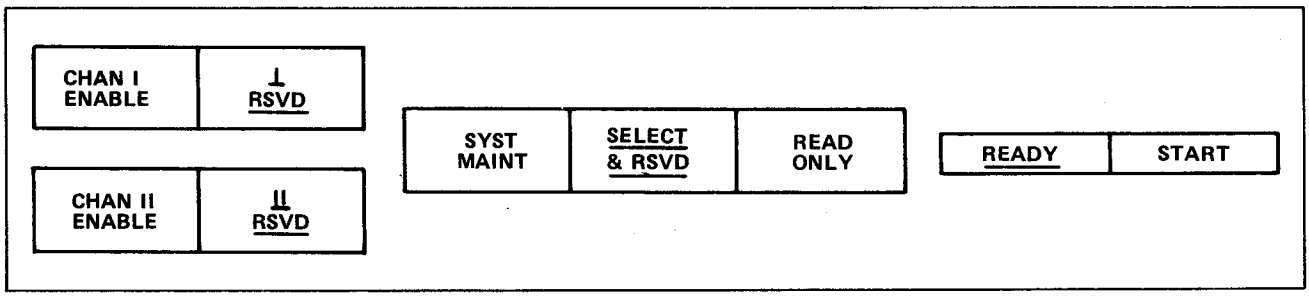


Figure D-8. 885 Disk Storage Unit Switches and Indicators

CHAN I ENABLE
or
CHAN II ENABLE

(1) Enables communication between drive and controller attached to associated drive channel; lights indicator. (2) Disables communication between drive and controller attached to associated drive channel; turns off indicator light.

I
RSVD
or
II
RSVD

No switch function. Lights when controller reserves associated drive channel.

SYST
MAINT†

(1) Enables fault checking and manual seek tests; lights indicator. (2) Disables fault checking and manual seek tests; turns off indicator light.

SELECT
& RSVD

No switch function. Lights when reserved drive channel is active.

READ
ONLY

(1) Disables write logic within drive and lights indicator. (2) Enables write logic within drive and turns indicator light off.

READY

No switch function. Lights when disk pack reaches operating speed and drive is on track.

START

(1) Applies power to drive motor and lights indicator. (2) Removes power from drive motor and turns indicator light off.

For additional information, refer to the 7155 Disk Storage Subsystem Customer Troubleshooting Guide.

DISPLAY CONSOLE (CYBER 170 COMPUTER SYSTEMS) OPERATION

The console panel (figure D-9) contains the DEAD START button and controls affecting the appearance of displayed information.

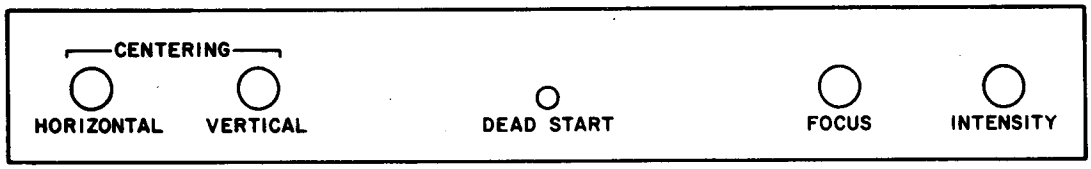


Figure D-9. Console Panel

†This switch is used for maintenance only.

The following controls allow the operator to change the characteristics of displayed characters.

CENTERING

Varies horizontal and vertical position of display.

FOCUS

Changes clarity in center areas of display.

INTENSITY

Varies brightness of display.

Located on the lower-right side of the console keyboard is the PRESENTATION CONTROL rocker switch. It is labeled LEFT, RIGHT, and MAINTENANCE to allow the operator to specify a single left screen display (LEFT), a single right screen display (RIGHT), or the normal setting, a split screen display containing a left and a right display (MAINTENANCE).

6612 DUAL SCREEN DISPLAY CONSOLE (CYBER 70 AND 6000 COMPUTER SYSTEMS) OPERATION

Controls on a panel below the display screens (figure D-10) allow you to change the characteristics of displayed characters.

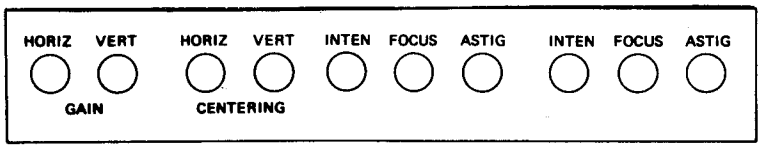


Figure D-10. Display Controls

Controls to the left affect both screens:

GAIN

Varies width (HORIZ) or height (VERT) or area of display.

CENTERING

Varies horizontal and vertical position of display.

The sets of three knobs affect the right and left screens individually.

INTEN

Varies brightness of display.

FOCUS

Changes clarity in center areas of display.

ASTIG

Changes clarity at edges of display.

PROCEDURE TO INITIALIZE LOCAL 255x NETWORK PROCESSING UNIT (NPU)

Following a failure of the network processing unit (NPU), you can downline load the local NPU with the communications control program (CCP) operating system. The following procedure assumes the autostart module-casette (SAM-C) is not available and is not defined on the local NPU. If SAM-C exists, the procedure for downline loading the local NPU is the same as described in the next section for initializing a remote NPU.

1. Set the ports (CLA addresses) to the correct settings as described in the CCP Diagnostic Handbook.

2. Set power switch (PWR) to ON on the loop multiplexer circuit card.

3. Set the CLA ON/OFF switches to CLA ON on the CLA circuit card.

4. Verify that the local console (if present is in the normal ON state.

5. Press the MASTER CLEAR switch to stop the NPU.

Once the host detects the NPU has stopped, it starts to dump and to reload the NPU. The host is notified when the downline load has sucessfully completed. The host then configures the NPU terminals and system operation begins.

If the downline load is unsuccessful, the host requests and receives a dump of the NPU memory, micromemory, and file 1 registers. After the dump, the host attempts to reload the NPU.

This discussion applies to manually loading the local NPU. You can initialize both a local and a remote NPU automatically by first loading the SAM-C cassette and then setting the ENABLE/DISABLE switch to ENABLE.

PROCEDURE TO INITIALIZE REMOTE 255x NETWORK PROCESSING UNIT (NPU)

The remote 255x network processing unit (NPU) is downline loaded from the local 255x NPU with the communications control program (CCP) operating system. Use the following procedure:

1. Place system autostart module-cassette (SAM-C) containing system autostart module-program (SAM-P) in cassette deck.

2. Press MASTER clear switch.

3. Set REMOTE/LOCAL switch to REMOTE.

4. Press CASSETTE REWIND switch.

5. Press DEADSTART button.

After a short timeout, the remote NPU reads the cassette and begins the loading process.

This discussion applies to manually loading the remote NPU. You can initialize both a local and a remote NPU automatically by first loading the SAM-C cassette and then setting the ENABLE/DISABLE switch to ENABLE.

Do not remove the SAM-P cassette. It must remain in place and enabled to automatically dump and reload the NPU in case of a failure. Power to the cassette deck is turned off when the remote NPU is not operating.

MASS STORAGE FACILITY

The mass storage facility (MSF) includes mass storage adapter (MSA), mass storage transport (MST), and cartridge storage unit (CSU) hardware components. Operation of MSF proceeds under computer control, but your action is required to add cartridges to or remove cartridges from the CSU. Figure D-11 illustrates a CSU, and figure D-12 illustrates an input/output drawer.

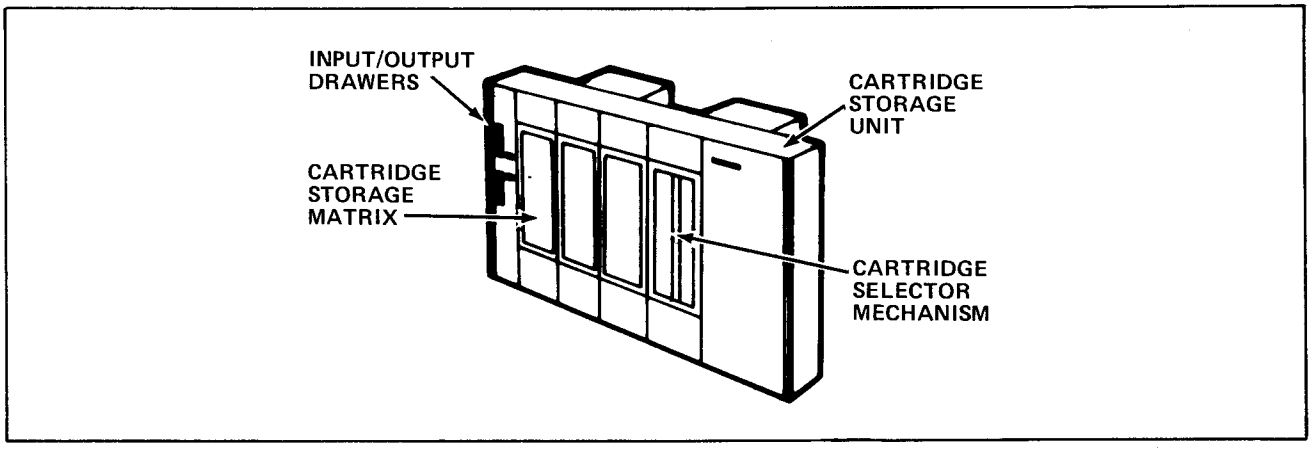


Figure D-11. Cartridge Storage Unit

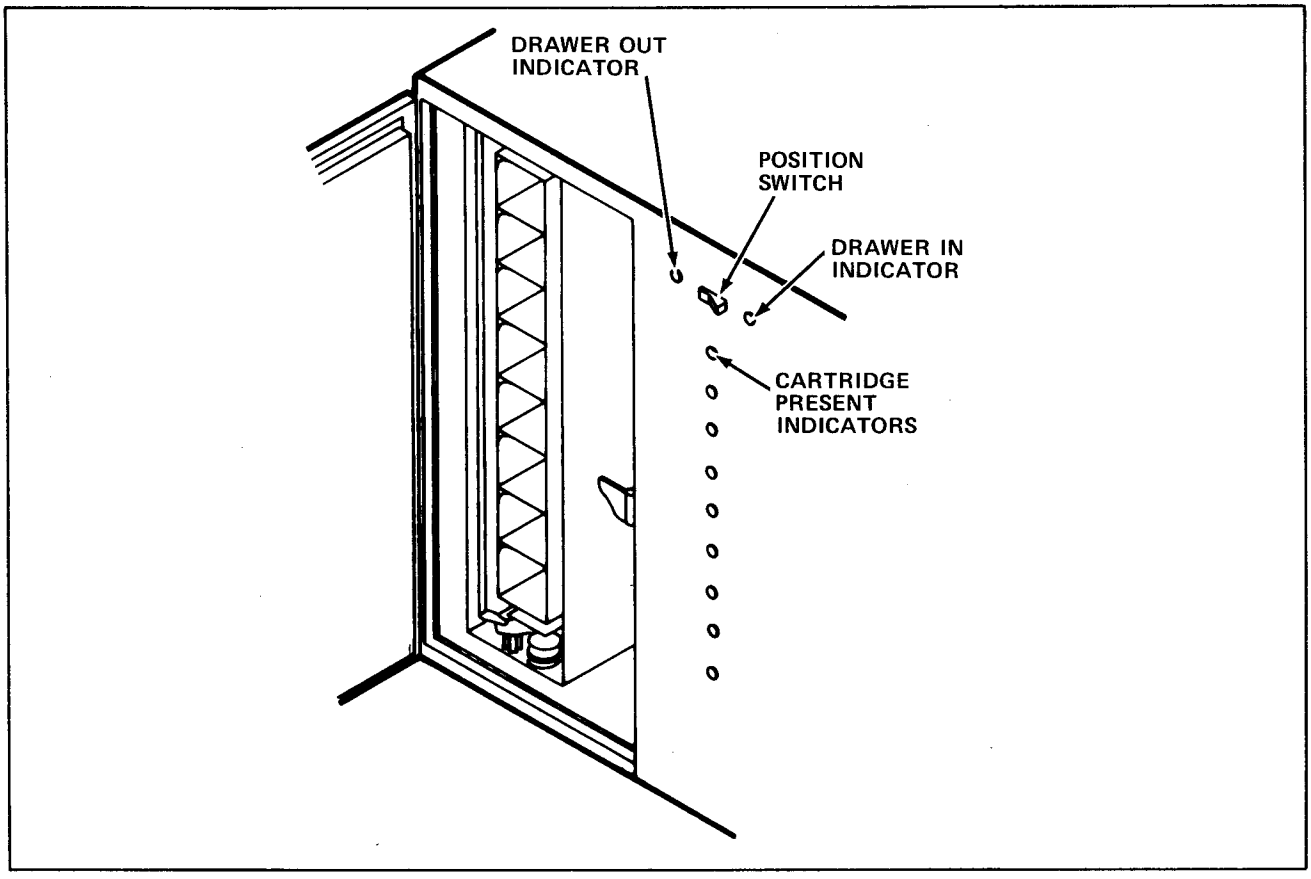


Figure D-12. Input/Output Drawer

ADDING CARTRIDGES

To add cartridges to the CSU, perform the following steps:

1. Press the OUT portion of the position switch of the input (upper I/O) drawer. When the drawer OUT indicator lights, unlock and open the door.

2. Insert individual cartridges into the correct slots of the input drawer or remove the empty octapack and insert a new octapack that contains the desired cartridges. To remove the octapack, press down on the release lever located directly under the octapack and pull on the bottom portion of the octapack. When a cartridge is properly aligned, it can be placed easily into its slot. Ensure that it is pushed in as far as it can go.

3. Close and lock the door. Press the IN portion of the position switch of the input drawer. The drawer cannot be moved in unless the door is shut securely. When the drawer IN indicator lights, the inserted cartridges can be accessed under computer control.

REMOVING CARTRIDGES

1. Press the OUT portion of the position switch of the output (lower I/O) drawer. When the drawer OUT indicator light, unlock and open the door.

2. Remove the cartridges individually or remove the octapack (refer to the procedure described under adding cartridges). Insert an empty octapack.

3. Close and lock the door. Press the IN portion of the position switch of the output drawer.

MULTIMAINFRAME OPERATION E

This appendix gives rules and recommendations to follow in operating a multimainframe system.

- Do not mount packs with duplicate labels.
- Ensure that shared removable devices are mounted on an active machine before deadstarting a second machine that will be accessing these devices. Check the E,M display on the active machine to determine if the devices are mounted. None can have global unload (N) status set.
- Physically dismount a device only if the global unload (N) status is displayed on the E,M display for that device.
- If a level 3 recovery deadstart is required, press the DEADSTART switch but do not begin recovery until all remaining active machines display the message

  MACHINE DOWN

  at the respective system control points.
- If a level 3 recovery deadstart is not possible, or if you attempted a level 3 deadstart and were not successful, MREC must be run on all machines sharing disks with the down machine, followed by a level 0 deadstart on the down machine.
- If you are deadstarting the first machine (no machine is currently operating), you must use the PRESET CMRDECK entry (refer to the NOS 2 Installation Handbook for a description of PRESET).

Refer to the NOS 2 System Maintenance Reference Manual for more detailed information on multimainframe operation.

ERROR DETECTION F

NOS has three ways of indicating errors on CYBER mainframes. For models 815, 825, 835, and 855, NOS uses the status summary registers; for all other CYBER 170 Computer Systems, NOS uses the status/control (S/C) registers;† and for the CYBER 70 Computer Systems, NOS uses the interlock register. Refer to Maintenance Register Error Detection for models 815, 825, 835, and 855 error processing information. Refer to S/C Register† Error Detection for all other CYBER error processing information.

S/C REGISTER ERROR DETECTION†

After the system is loaded, NOS monitors certain bits of the CYBER 170 Computer Systems (except models 815, 825, 835, and 855) status/control (S/C) register† and the CYBER 70 Computer Systems interlock register to detect abnormal conditions and possible fatal errors. When one or more bits are set in the S/C register,† the system automatically takes steps to prevent further damage to the system and attempts to preserve the system in a state as near as possible to that before the condition was detected.

POWER AND ENVIRONMENTAL FAILURE

Bit 36 of the S/C register† and bit 0 of the interlock register indicate a main power supply failure. Bit 37 of the S/C register† (no comparable interlock register bit exists) indicates an unusual, potentially damaging environmental condition. When one or more of the warning bits are set, from 2 seconds to 2 minutes of processing time remain to prepare the system for a power loss.

Power Failure

If the main power source supplying the computer system is lost for more than one-half cycle (8.3 milliseconds for 60 Hz; 10.0 milliseconds for 50 Hz), the system automatically sets bit 36 of the S/C register (bit 0 of the interlock register on a CYBER 70 Computer Systems machine). The CPU and other equipment powered by 400 Hz remains available for processing approximately 2 seconds. However, all peripheral equipment powered directly from the main power supply will probably fail.

When the S/C register bit 36 (interlock register bit 0) is set, the system immediately assumes step mode (refer to STEP command, section 3)††. The message

```
POWER FAILURE
```

appears at the system control point on the job status (B) display.

---

†For models 865 and 875, S/C registers are maintenance registers.

††Actually, the system steps on monitor function DPPM (drop PP). This allows current I/O requests, including device checkpoints in progress, to complete.

Abnormal Environmental Conditions

If the system detects an environmental condition which could lead to removal of power, it automatically sets bit 37 of the S/C register† (no comparable interlock register bit exists). Bit 37 is set in any of the following situations:

- The main power source supplying the system has been lost for at least 100 milliseconds; power will probably not return to normal within the time required.
- An environmental condition (including dew point and chassis temperature warnings) is abnormal and approaching an emergency power shutdown.
- An environmental condition is about to cause execution of a controlled shutdown.
- A critical system device is down due to environmental conditions. This indication exists only if the system has monitoring provisions for the device.

If bit 37 is set but bit 36 is not, the system immediately initiates a system checkpoint. The message

```
SHUTDOWN IMMINENT.
```

appears at the system control point on the job status (B) display. This message and the contents of the S/C register† are entered in the error log dayfile. When the checkpoint is complete, the system assumes step mode.

Bits 36 and 37 Set

If a power failure and abnormal environmental condition is detected, it is possible to have bits 36 and 37 set at the same time. This could happen if an unusual environmental condition was found (bit 37 set) and was not remedied within the required time (approximately 2 minutes). Upon removal of power, a power failure (bit 36 set) would be detected. With bits 36 and 37 set, the system immediately assumes step mode. The message

```
POWER DOWN.
```

appears at the system control point on the job status (B) display. It is unlikely that recovery is possible; deadstart is necessary.

Clearing Abnormal Conditions

When bit 36 and/or bit 37 of the S/C register† (bit 0 of the interlock register) have been set and cleared, the message

```
POWER/ENVIRONMENT NORMAL.
```

appears at the system control point on the job status (B) display. Ensure that all equipment is ready. With the approval of a site analyst, enter the following commands:

```
99.
UNSTEP.
99.
```

†For models 865 and 875, S/C registers are maintenance registers.

At this point, messages indicating the time of the power failure or power shutdown, the contents of the S/C register,† and the time of the return to normal condition are entered in the error log. Processing may then be restarted.

FATAL MAINFRAME ERRORS

A fatal mainframe error is a hardware error which will usually cause a serious system malfunction and disrupt current user job processing. Many of these errors are reported in the S/C registers† of a CYBER 170 Computer Systems mainframe. The steps taken by the system upon detection of a fatal mainframe error depend on the type of error which was found.

Fatal errors can be divided into two groups, general errors and specific job errors. The system sets one or more bits in the S/C registers† when an error is detected. Check these registers to determine the type of error.††

For a model 176 mainframe, the system sets S/C register† bits when a general error is detected. There is no way to determine a specific job error. One or more of the following bits can be set.

S/C register† bits set for general errors:

3/183,††† 4, 11/196,††† 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23

For a model 171, 172, 173, 174, 175, 720, 730, 750, or 760 mainframe, the following bits can be set for each error group.

S/C register† bits set for general errors:

0, 1, 2, 3/183, ††† 8, 9, 14, 15, 16, 17, 18, 19, 20, 21, 22, or 23

S/C register† bits set for specific job errors:

3/183 †††† or 5

If the error detected is a specific job error, the system takes the following steps.

1. The system is checkpointed.
2. The job containing the error is aborted without exit processing or a dump.
3. The contents of the S/C register† is entered in the error log.

---

†For models 865 and 875, S/C registers are maintenance registers.
††Some of these bits may not be active on your mainframe. Refer to the appropriate hardware reference manual for detailed information.
†††The system detected a fatal error only if both bits are set.
††††The system detected a fatal error only if both bits are set. The error is a specific job error if the system completed a checkpoint.

The following action is the same regardless of the type of error detected. The system assumes step mode† and the message

FATAL MAINFRAME ERROR.

appears at the system control point on the job status (B) display.

When the system displays the fatal mainframe error message you should:

1. Perform a level 3 recovery deadstart to display the S/C register†† display. For each S/C register†† bit set, a descriptive message appears on the screen. The system clears each fatal error bit automatically when you activate the deadstart switch.

2. Determine the type of error (refer to the errors and corresponding bits listed previously).

3. If desired, reconfigure central memory. Refer to appendix I.

4. If the error is of a general type, perform a level 0 initial deadstart.

   If the error is of a specific job type, perform a level 1 recovery deadstart. The system resumes operation from the point of malfunction. If the level 1 recovery deadstart fails, perform a level 0 initial deadstart.

MAINTENANCE REGISTER ERROR DETECTION

After the system is loaded, NOS monitors the status summary registers of all models 815, 825, 835, and 855 mainframes to detect abnormal conditions and possible fatal errors. When one or more bits are set in a status summary register, the system automatically takes steps to prevent further damage to the system and attempts to preserve the system in a state as near as possible to that before the condition was detected.

POWER AND ENVIRONMENTAL FAILURE

Bit 59 of the processor status summary register indicates a main power supply failure. Bit 63 of the processor, memory, or input/output unit status summary register indicates an unusual, potentially damaging environmental condition. When one or more of the warning bits are set, from 2 seconds to 2 minutes of processing time remain to prepare the system for a power loss.

Power Failure

If the main power source supplying the computer system is lost for more than one-half cycle (8.3 milliseconds for 60 Hz; 10.0 milliseconds for 50 Hz), the system automatically sets bit 59 of the processor status summary register. The CPU and other equipment powered by 400 Hz remains available for processing approximately 2 seconds. However, all peripheral equipment powered directly from the main power supply will probably fail.

---

†Actually, the system steps on monitor function DPPM (drop PP). This allows current requests, including device checkpoints in progress to complete.

††For models 865 and 875, S/C registers are maintenance registers.

When bit 59 is set, the system immediately assumes step mode (refer to STEP command, section 3).† The message

CPU POWER FAILURE.

appears at the system control point on the B display.

Abnormal Environmental Conditions

If the system detects an environmental condition which could lead to removal of power, it automatically sets bit 63 of the processor, memory, or input/output unit status summary register. Bit 63 is set in any of the following situations:

- The main power source supplying the system has been lost for at least 100 milliseconds; power will probably not return to normal within the time required.
- An environmental condition (including dew point and chassis temperature warnings) is abnormal and approaching an emergency power shutdown.
- An environmental condition is about to cause execution of a controlled shutdown.
- A critical system device is down due to environmental conditions. This indication exists only if the system has monitoring provisions for the device.

If bit 63 is set but bit 59 is not, the system immediately initiates a system checkpoint. The message

nnn SHUTDOWN IMMINENT.

appears at the system control point on the B display. nnn is one of the following:

nnn	Description
CPU	Central processing unit.
IOU	Input/output unit.
CM	Central memory.

This message and the contents of the register are entered in the error log dayfile. When the checkpoint is completed, the system assumes step mode.

†Actually, the system steps on monitor function DPPM (drop PP). This allows current I/O requests, including device checkpoints in progress, to complete.

Clearing Abnormal Conditions

When bit 59 of the processor status summary register and/or bit 63 of the processor, memory, or input/output unit status summary register have been set and cleared, the message

```
POWER ENVIRONMENT NORMAL.
```

appears at the system control point on the B display. Ensure that all equipment is ready. With the approval of a site analyst, enter the following commands:

```
99.
UNSTEP.
99.
```

At this point, messages indicating the time of the power failure or power shutdown, the type of failure, and the time of the return to normal condition are entered in the error log. Processing may then be restarted.

FATAL MAINFRAME ERRORS

A fatal mainframe error is a hardware error which, if undetected, will usually cause a serious system malfunction and disrupt current user job processing. Many of these errors can be detected and are reported in the status summary registers of models 815, 825, 835, and 855 mainframes. The steps taken by the system upon detection of a fatal mainframe error depend on the type of error which was found.

There are three types of fatal mainframe errors: central processor, central memory, and input/output fatal errors. If a central processor or central memory fatal error occurs, the system takes the following steps:

1. The system is checkpointed.
2. The system displays the following message at the system control point in the B display:

   ```
   xxx FATAL ERROR.
   ```

   where xxx is one of the following:

xxx	Description
CPU	Central processor.
CM	Central memory.

3. The system places itself in emergency step mode, but allows current input/output requests, including device checkpoints in progress, to complete.

If an input/output fatal error occurs, the system takes the following steps:

1. The system displays the following message at the system control point in the B display:

   IOU FATAL ERROR.

2. The system checkpoints the IOU devices.

3. The system places itself in emergency step mode, but allows current input/output requests, including device checkpoints in progress, to complete.

You cannot reverse the steps the system takes after a fatal mainframe error. The system leaves all relevant maintenance registers as they were at the time it detected the error. Notify the customer engineer who will perform diagnostics and repair maintenance on the system. After this is complete, you must deadstart to restart the system.

EXAMPLE OF END-OF-OPERATION SHUTDOWN G

Because the method used to terminate system operations is dependent upon requirements of your site, the actual procedure for shutdown may differ among sites. The following procedure is an example and suggests guidelines for orderly termination of processing. Do not confuse this procedure with the shutdown procedures performed in preparation for a recovery deadstart (refer to Preparing for Recovery Deadstart in section 2).

1. Use the DSD job status (B) display to monitor control point activity.

2. If NAM is active, provide advance notice of shutdown time to active users by entering the CFO command. For example:

   ```
   CFO,NAM.MS,ALL,SYSTEM SHUTDOWN AT 1500, PLEASE LOG OFF.
   ```

   If IAF is active but NAM is not active, provide advance notice of shutdown time to active interactive users by entering the DSD command WARN. For example:

   ```
   WARN,SYSTEM SHUTDOWN AT 1500,
   PLEASE LOG OFF.
   ```

3. Prevent new interactive users from logging into the system by entering the following DSD command.

   ```
   SERVICE,TS,NJ0.
   ```

   The NJ parameter, which specifies the number of active lines allowed interactive service class (TS) jobs, is set to zero (NJ0).

4. If the IAF subsystem is active, examine the IAF status (T) display to determine if there are still active users. To send a message to an active user, enter the DIAL command. For example:

   ```
   DIAL,jsn,SYSTEM CLOSED,CALL X492 IF MORE TIME NEEDED.
   ```

   This message is sent to the terminal assigned the job sequence name jsn following output data, if any.

   When there are no longer active interactive users indicated on the T display, drop the IAF subsystem by typing

   ```
   IDLE,IAF.
   ```

5. Drop NAM if active by typing

   ```
   CFO,NAM.DISABLE,NE
   ```

6. Drop TAF if active by typing

   ```
   IDLE,TAF.
   ```

7. If MSS is active and if jobs that need files to be staged from MSS are to be aborted, type

   DISABLE,FILE STAGING.

   Drop MSS by typing

   IDLE,MSS.

   MSS becomes idle after it has completed all stage requests currently in process. Examine the output drawer for any cartridges and save them for subsequent recovery processing (refer to the NOS 2 System Maintenance Reference Manual).

8. Drop BIO by typing

   IDLE,BIO.

   BIO will drop after it completes processing of all active devices. Files currently being printed or punched, as well as cards currently being read, will complete. No new files will be printed or punched.

9. Prevent any new jobs in the input queue (refer to the Q displays in section 4) from being scheduled to a control point by dumping the input queue. This is accomplished through use of the QDUMP system utility (refer to the NOS 2 System Maintenance Reference Manual). Doing this allows jobs currently scheduled to control points to run to completion. In addition, rolled out jobs (refer to the R display in section 4) are scheduled back to a control point and allowed to complete.

10. Monitor job activity on the B display. Wait for all jobs to run to completion and then dump the output queues (print and punch queues). This is also accomplished through use of the QDUMP system utility (refer to the NOS 2 System Maintenance Reference Manual).

11. If permanent files are to be dumped, bring up BIO to print output reports by entering the following DSD command.

    BIO.

    Refer to the description of the PFDUMP permanent file utility in the NOS 2 System Maintenance Reference Manual for procedures to dump permanent files.

12. Drop BIO again by typing

    IDLE,BIO.

13. Terminate dayfiles and retain as direct access permanent files. This is accomplished through use of the DFTERM system utility (refer to the NOS 2 System Maintenance Reference Manual). This preserves dayfile information held in the central memory buffers.

14. If the system is not to be used after shutdown, proceed to step 15. However, if the system is to be used for reasons other than normal NOS processing, perform the following steps.

    a. Examine the mass storage status (E,M.) display to determine if status code C (checkpoint requested) is set for any mass storage device. Wait until the checkpoint operation has completed before proceeding (C status cleared).

    b. Dismount the deadstart tape (if currently mounted), and activate the deadstart switch. The display screens should become blank indicating that the system hardware is idle. The system is now ready for other use.

    c. Prevent subsequent users of the system from accessing mass storage permanent file devices. This is accomplished by dismounting disk packs (844 only) or making the devices unavailable (not ready) for system access.

15. If the system is not to be used after NOS operations have ended, enter the following DSD commands.

```
DISABLE,BIO.
DISABLE,CDC.
DISABLE,IAF.
DISABLE,MAG.
DISABLE,MAP.
DISABLE,MCS.
DISABLE,MSS.
DISABLE,NAM.
DISABLE,RBF.
DISABLE,STM.
DISABLE,TAF.
MAINTENANCE.
```

    Doing this disables all subsystems and allows maintenance tests to run while the system is not being used. It is recommended that the display screen intensity be turned down before leaving the system.

PP CONFIGURATIONS H

Table H-1 shows the channels that are not connected to an active PP for the 6000 Computer Systems, CYBER 70 Computer Systems Models 71, 72, 73, and 74, and CYBER 170 Computer Systems for the various PP configurations. A dash in the table indicates that the PP configuration for that system is not possible.

For 7, 8, 9, and 10 PP configurations, channels 0 through 13 (octal) are available. For 14, 17, and 20 PP configurations, channels 0 through 13 (octal) and 20 through 33 (octal) are available. Channel 0 is connected to an inactive PP. The other channels shown in table H-1 are not connected to a PP.

Table H-1. Channels That Are Not Connected to an Active PP

System	PP Configuration							
	7	8	9	10	14	15	17	20
6200	0, 5, 6, 7, 12, 13	0, 6, 7, 12, 13	0, 7, 12, 13	0, 12, 13	0, 3, 6, 7, 12, 13, 23, 26, 27, 32, 33	-	0, 12, 13, 23, 26, 27, 32, 33	-
6400	0, 5, 6, 7, 12, 13	0, 6, 7, 12, 13	0, 7, 12, 13	0, 12, 13	0, 3, 6, 7, 12, 13, 23, 26, 27, 32, 33	-	0, 12, 13, 23, 26, 27, 32, 33	0, 12, 13, 32, 33
6500, 6600, 6700	-	-	-	0, 12, 13	0, 3, 6, 7, 12, 13, 23, 26, 27, 32, 33	-	0, 12, 13, 23, 26, 27, 32, 33	0, 12, 13, 32, 33
CYBER 71, 72, 73, 74	-	-	-	0, 12, 13	0, 3, 6, 7, 12, 13, 23, 26, 27, 32, 33	-	0, 12, 13, 23, 26, 27, 32, 33	0, 12, 13, 32, 33
CYBER 170 Except Models 815, 825, 835, and 855	-	-	-	0, 12, 13	0, 12, 13, 24, 25, 26, 27, 30, 31, 32, 33	-	0, 12, 13, 27, 30, 31, 32, 33	0, 12, 13, 32, 33
CYBER 170 Models 815, 825, 835, and 855	-	-	-	0, 12, 13	-	0, 12, 13, 25, 26, 27, 30, 31, 32, 33	-	0, 12, 13, 32, 33

MAINFRAME RECONFIGURATION I

For most systems there are two types of reconfiguration possible; software reconfiguration using CTI, and hardware reconfiguration using the deadstart panel switches on the mainframe. The type of problem that has occurred determines which reconfiguration, if any, is possible. For information on software reconfiguration refer to the *H* display in section 2. Hardware reconfiguration information is contained in this appendix.

When you have a hardware problem that does not allow deadstart to complete, you may want to change the system so that you can continue running. This can be done by reconfiguring the peripheral processors (PPs). Refer to PP Reconfiguration which follows for more information on deadstart panel pp reconfiguration. You can also decrease the amount of central memory, making a particular part of the memory inactive. Refer to CM Reconfiguration for CYBER 170 Computer Systems, later in this appendix for more information.

PP RECONFIGURATION

The system associates a number with each PP. For a given configuration, the system always associates the same number with each PP. This number is called the logical PP number.

Within the hardware, PPs are grouped for orderly processing of PP instructions. Each group is called a barrel and has 4, 5, 7, or 10 PPs. Contact site personnel for more information on barrels.

For the standard configuration (except for models 815 and 825), set the barrel switches to the first barrel and the PP switches (when present) to the first PP within the first barrel. For models 815 and 825, use the commands RB x and RP xx (refer to Model 825 PP Reconfiguration later in this appendix). Normally, when the system is running, the deadstart panel (reconfiguration commands on models 815 and 825) is set to the standard PP configuration. When you reconfigure, the logical numbers for all PPs change. For example, on a 20-PP system if you reconfigure so that PP0 is the PP that was associated with 20_8 in the standard configuration, the shift shown in figure I-1 occurs.

In the new configuration, the PP previously associated with the number 20_8 is now PP0. To get the reconfigured logical PP number assignments, exchange the numbers on the right of the first barrel in the first diagram of figure I-1 with the numbers on the right of the second barrel. This exchange is shown in the second diagram of figure I-1.

TURNING OFF PPs

You cannot turn off the hardware for PPs. Using CTI, you can logically turn off PPs capable of accepting the instruction needed to idle them. Refer to the hardware reconfiguration (*H*) display in part II, section 2.

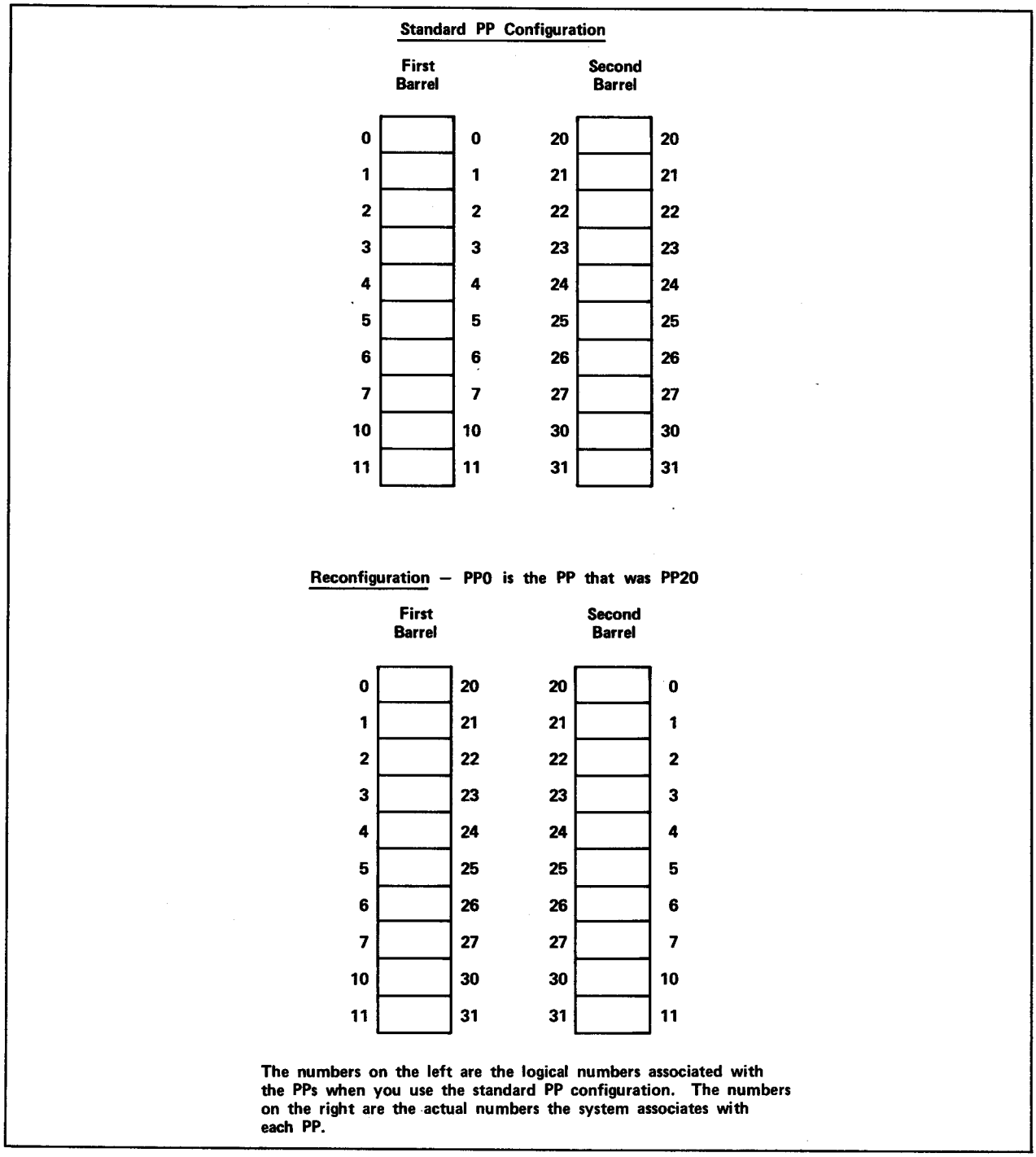


Figure I-1. Sample Reconfiguration

PP0, 1, 2, and 10 must be on and functioning in order to deadstart. If one or more of these PPs are not functioning, you can reconfigure the PPs so that the system does not associate the bad PP with the logical PP numbers 0, 1, 2, or 10_8. Then you can deadstart and turn off the bad PP. For example, on a 20-PP system under the standard PP configuration, if PP2 is not functioning you can reconfigure the PPs so that PP20 becomes PP0 (refer to figure I-2). The bad PP is now numbered 22_8. You can turn off PP22 and continue operating.

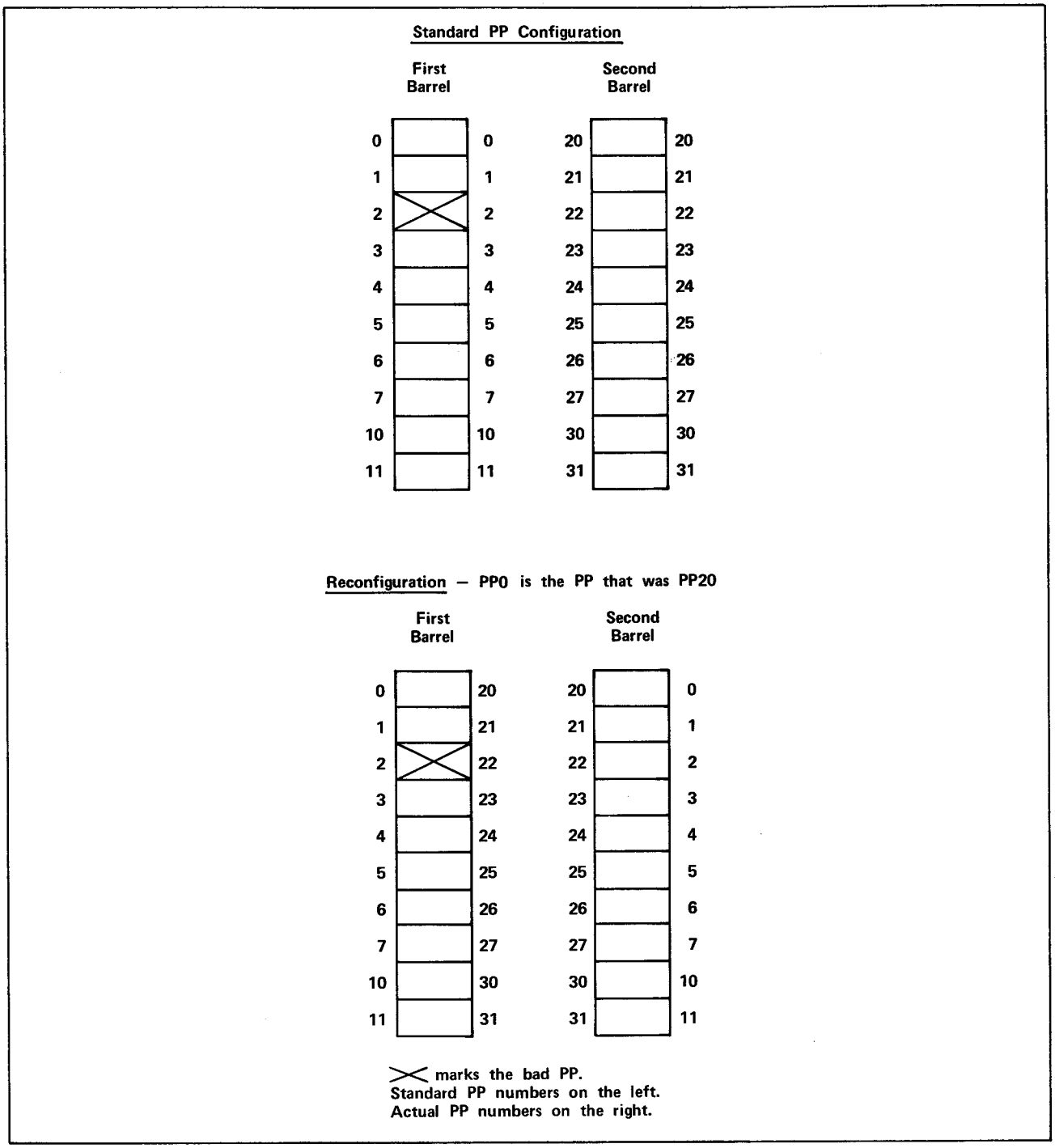


Figure I-2. Sample Reconfiguration for Bad PP

CYBER 70/6000 COMPUTER SYSTEMS PP RECONFIGURATION

You can reconfigure the CYBER 70/6000 Computer Systems that have 14, 17, or 20 PPs (refer to table I-1). Use the deadstart panel switch labeled PPU-A to reconfigure PPs. For the standard PP configuration, the switch is in the up (0-11) position. Put the switch in the down (20-31) position to reconfigure the PPs. This shifts the logical PP numbers so that the system associates PP0 with the PP that is PP20 in the standard PP configuration (refer to figure I-1). Using the PPU-A switch is the only way you can reconfigure the CYBER 70/6000 Computer Systems.

CYBER 170 COMPUTER SYSTEMS (EXCEPT MODELS 815, 825, 835, AND 855) PP RECONFIGURATION

For a CYBER 170 Computer Systems (except models 815, 825, 835, and 855) with 20 PPs, the most common way to reconfigure PPs is to use the deadstart panel switch labeled PPS-1 PPS-0 (refer to table I-1). The 0 on the switch indicates the first barrel; the 1 indicates the second barrel. For the standard PP configuration, the switch is the down (PPS-0) position. To reconfigure, put it in the up (PPS-1) position. This shifts the logical PP numbers so that the system associates PP0 with the PP that is PP20 in the standard configuration (refer to figure I-1).

To reconfigure a CYBER 170 Computer Systems (except models 815, 825, 835, and 855) with 10, 14, or 17 PPs, you must shift the logical PP numbers within barrel 0. You can do this using the PP MEMORY SELECT switches on the deadstart panel (refer to figure I-3).

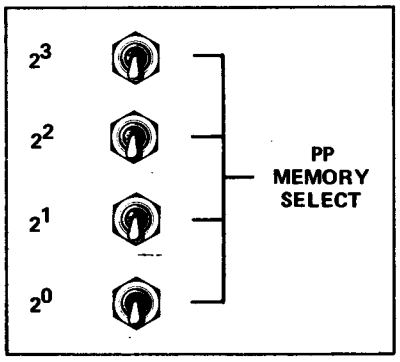


Figure I-3. PP MEMORY SELECT Switches

Choose the standard PP configuration number where you want to locate PP0. Set this number (using binary) on the PP MEMORY SELECT switches. For example, if you choose the number 5, you would set the switches as follows:

Table I-1. Deadstart PP Reconfiguration

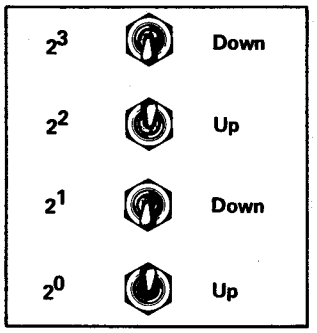
The following information appears in each box within the table:

1. The possibility of reconfiguration - possible or not possible.
2. The name of the switch(es) or commands used for reconfiguration.
3. The shift of PP0 that occurs when you reconfigure using the barrel switch(es) or RB x command. (PP0 → PP20) means the system assigns PP0 to the PP that was PP20 in the standard PP configuration.)

An X through a box means the given mainframe cannot have that number of PPs.

Number of PPs	CYBER Mainframes			
	6000 and 70	170 Except Models 815, 825, 835, and 855	Models 815 and 825	Models 835 and 855†
10	1. Not possible.	1. Possible. 2. PP MEMORY SELECT switches.	1. Possible. 2. RP xx command. 3. No barrel reconfiguration.	1. Possible. 2. BARREL switches. 3. PP0 → PP5.
14	1. Possible. 2. PPU-A switch. 3. PP0 → PP20.	1. Possible. 2. PP MEMORY SELECT switches.	X	X
15	X	X	1. Possible. 2. RB x and RP xx commands. 3. PP0 → PP20 (use RB1).	1. Possible. 2. BARREL switches. 3. PP0 → PP20.††
17	1. Possible. 2. PPU-A switch. 3. PP0 → PP20.	1. Possible. 2. PP MEMORY SELECT switches.	X	X
20	1. Possible. 2. PPU-A switch. 3. PP0 → PP20.	1. Possible. 2. PPS-1 PPS-0.††† switch. 3. PP0 → PP20.	1. Possible. 2. RB x and RP xx commands. 3. PP0 → PP20. (use RB1).	1. Possible. 2. BARREL switches. 3. PP0 → PP20.††††

†You can also reconfigure using the PPM switches.
††Set the BARREL switches to the second barrel (setting 01) to shift PP0 to the PP that was PP20.
†††You can also reconfigure using the PP MEMORY SELECT switches.
††††Set the BARREL switches to the third barrel (section 10) to shift PP0 to the PP that was PP20.



The shift shown in figure I-4 occurs.

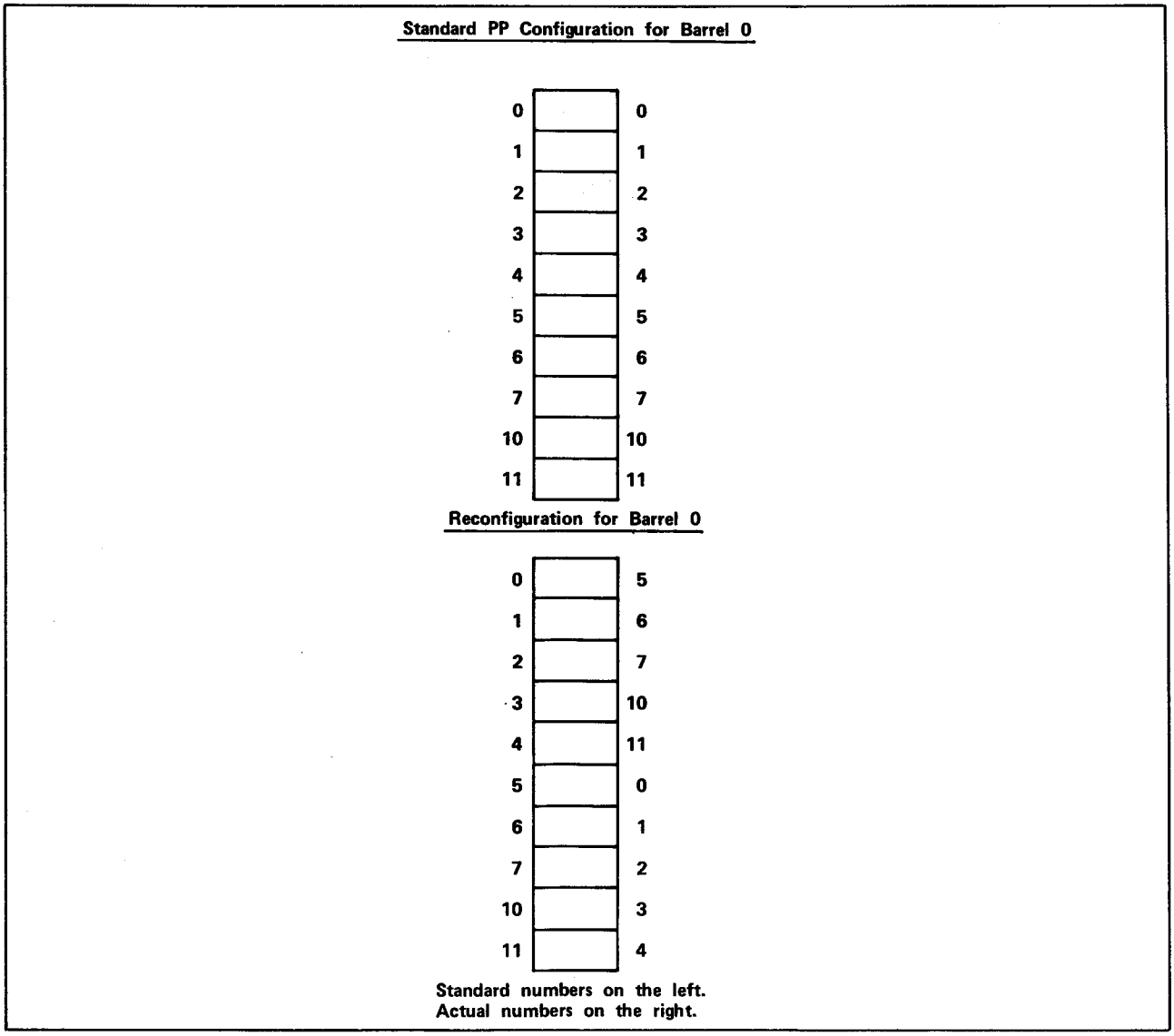


Figure I-4. Reconfiguration of Barrel 0 for CYBER 170 Computer Systems

This causes the actual numbers of the PPs in the first diagram to shift five positions downward, the bottom number shifting to the top at each step.

After reconfiguration, each PP in barrel 0 has a new logical number. You can set the PP MEMORY SELECT switches to a number from 0 (setting 0000) to 11_8 (setting 1001). If you set the switches to any other number, no reconfiguration takes place.

You can also reconfigure CYBER 170 (except models 815, 825, 835, and 855) Computer Systems that have 20 PPs by shifting logical numbers using the PP MEMORY SELECT switches. Set these switches as described in the previous paragraphs. When the PP MEMORY SELECT switches are set to 3 on a 20-PP system, the rotation shown in figure I-5 occurs.

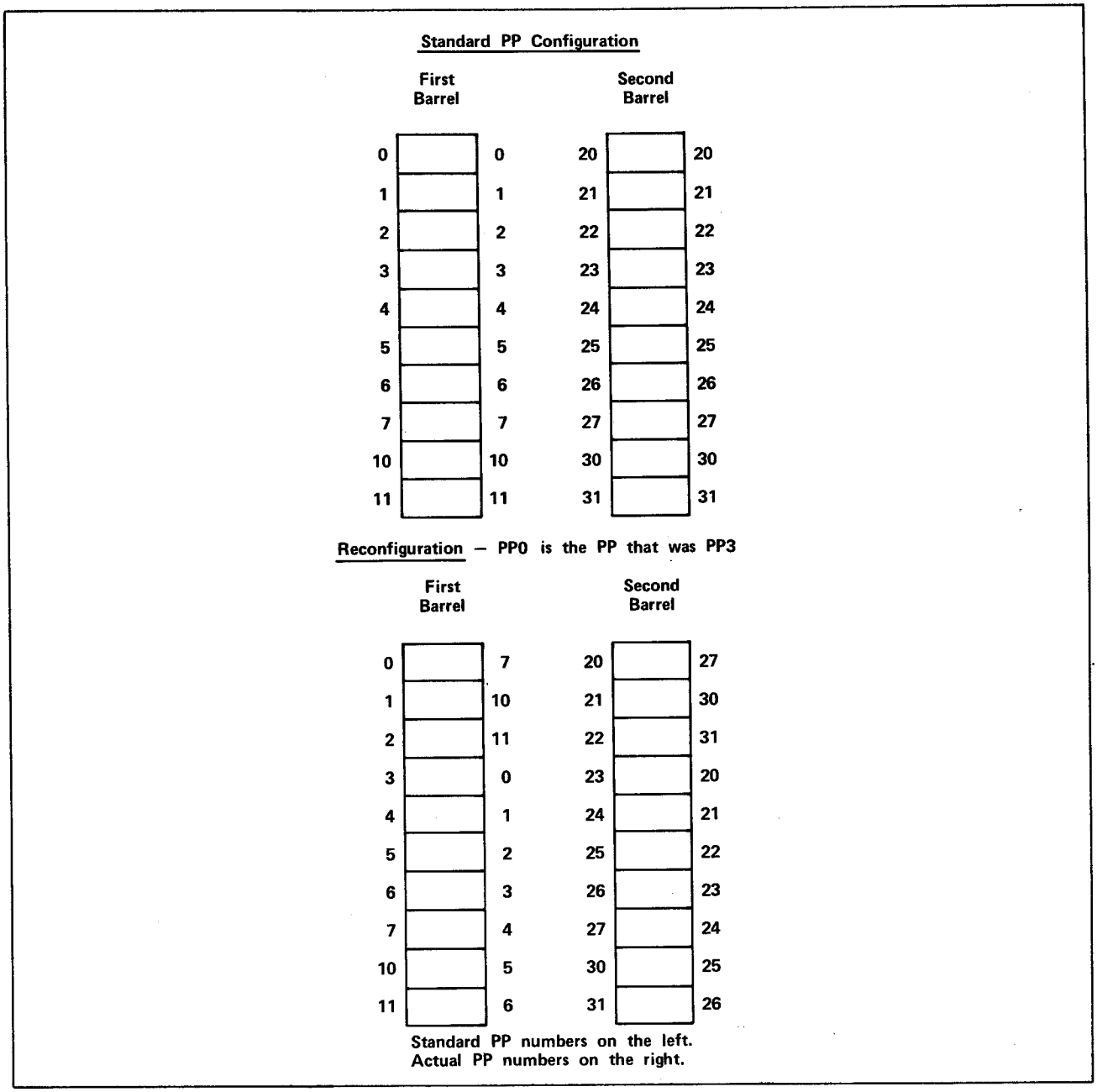


Figure I-5. Sample Reconfiguration Using the PP MEMORY SELECT Switches for CYBER 170 Computer Systems (Except Models 815, 825, 835, and 855)

CYBER 170 MODELS 835 AND 855 PP RECONFIGURATION

For all models 835 and 855 computer systems, the most common way to reconfigure PPs is to use the deadstart panel switches labeled BARREL (refer to table I-1). The barrels are numbered 0, 1, 10_2, and 11_2, where 0 refers to the first barrel, 1 the second, 10_2 the third, and 11_2 the fourth. For the standard PP configuration, the BARREL switches are set to 0. To reconfigure, set the BARREL switches to either 01, 10, or 11, depending on how many PPs you have (there are five PPs in each barrel). For example, to reconfigure on a 20-PP system, you can set the BARREL switches to the third barrel (setting 10). The shift shown in figure I-6 occurs.

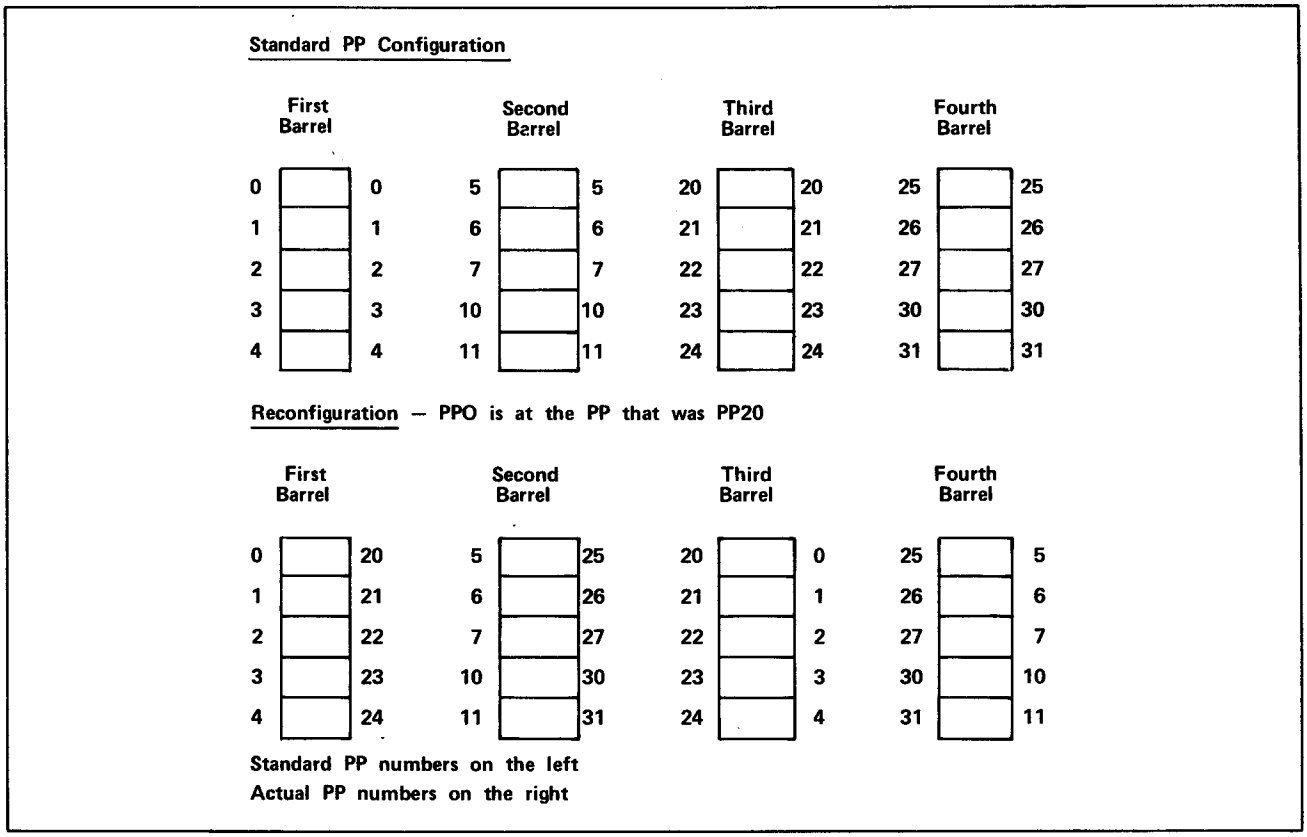


Figure I-6. Sample Model 835 or 855 Reconfiguration

The system associates PP0 with the PP that is PP20 in the standard PP configuration.

You can also reconfigure models 835 and 855 computer systems by shifting logical PP numbers within each barrel. You can do this using the PPM switches on the deadstart panel (refer to figure I-7).

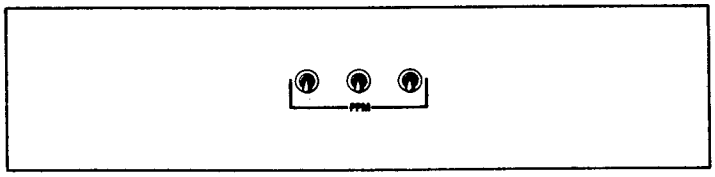
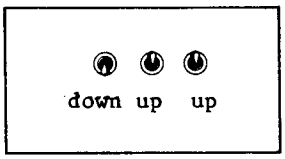


Figure I-7. PPM Switches

Choose the standard PP configuration number where you want to locate PP0 (numbers 0 through 4). Set this number (using binary) on the PPM switches. For example, if you choose the number 3 you would set the switches as follows:



The shift shown in figure I-8 occurs.

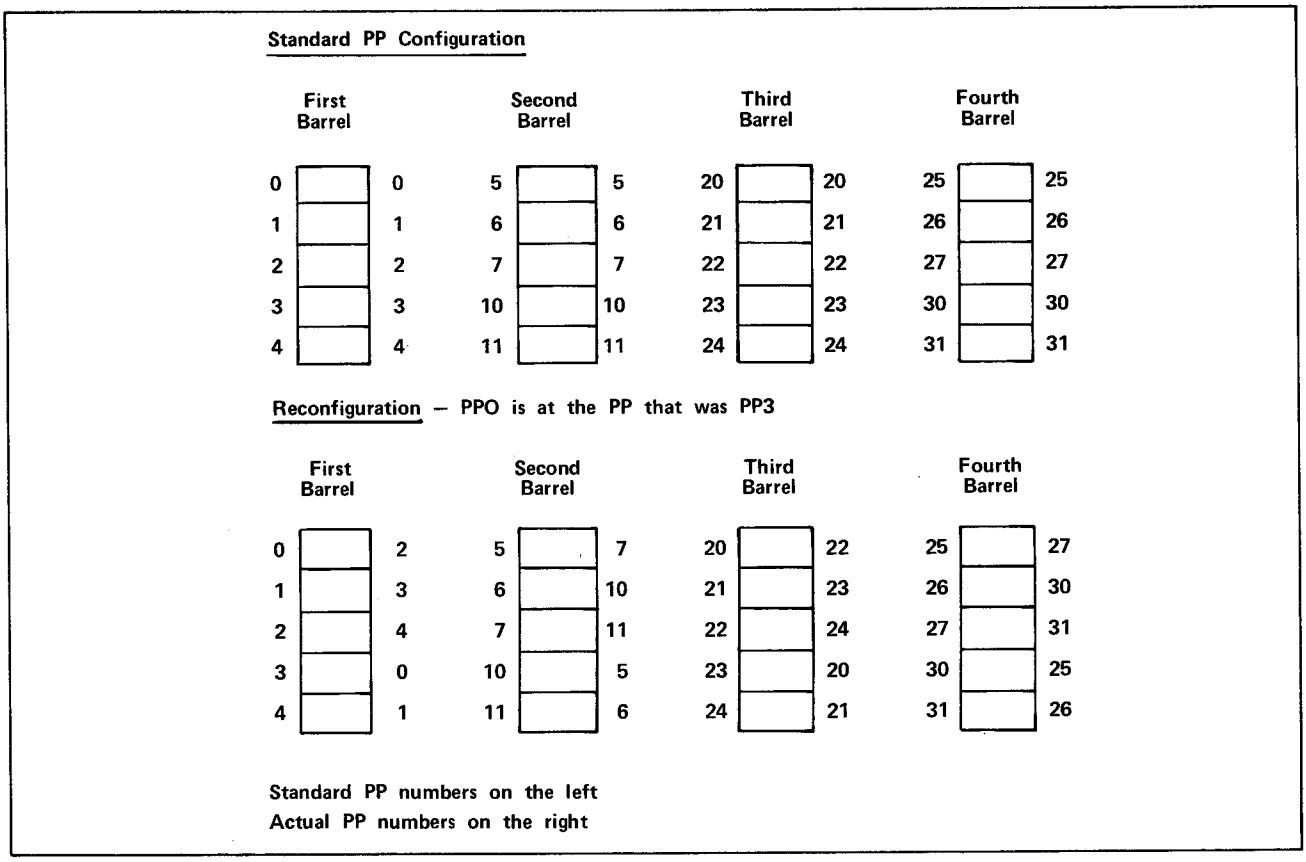


Figure I-8. Sample Model 835 or 855 Reconfiguration Using PPM Switches

MODELS 815 AND 825 PP RECONFIGURATION

Models 815 and 825 have one barrel if the system has 10 PPs and two barrels if the system has 15 or 20 PPs. To reconfigure the barrels, bring up the deadstart display and type the command

```
RB x
```

where x is the number of the barrel (0 or 1) to be used as logical barrel 0 which contains PP0. The number typed appears in the message BRL CONF = near the top of the display. The other barrel becomes logical barrel 1 and contains PP20.

You can reconfigure PP memories within the barrels through the deadstart display by typing the command

```
RP xx
```

where xx is the number of the PP to be used as logical PP0 in the logical barrel 0. It also specifies which PP in logical barrel 1 is to be logical PP20. The value xx appears in the message PPM CONF= at the top of the deadstart display. Allowable values for xx vary with the number of PPs in the system.

RECONFIGURING 10 PP SYSTEM

A 10 PP system has only one barrel containing PPs 0 through 11_8. You can reconfigure PPs only through the RP xx command. Legal values for xx are octal numbers from 0 through 11. The system rejects values out of this range, nonoctal numbers, and use of the RB command.

RECONFIGURING 15 PP SYSTEM

A system with 15 PPs has two barrels. In the standard configuration, barrel 0 contains PPs 0 through 11 and barrel 1 contains PPs 20 through 24. Using the RB x command results in interchanging PPs 0-4 and 20-24 between barrels. PPs 5 through 11 remain in barrel 0. You can reconfigure the PPs within barrels through the RP xx command. Allowable values for xx are 0 through 4. Figure I-9 illustrates PP reconfiguration for a 15-PP system.

RECONFIGURING 20 PP SYSTEM

A system with 20 PPs has two barrels. In the standard configuration, barrel 0 contains PPs 0 through 11 and barrel 1 contains PPs 20 through 31.

Using the RB x command results in interchanging PPs 0-11 and 20-31 between barrels. You can reconfigure the PPs within barrels through the RP xx command. Allowable values for xx are octal numbers from 0 through 11. Figure I-10 illustrates PP reconfiguration for a 20-PP system using RB 1 and RP 03.

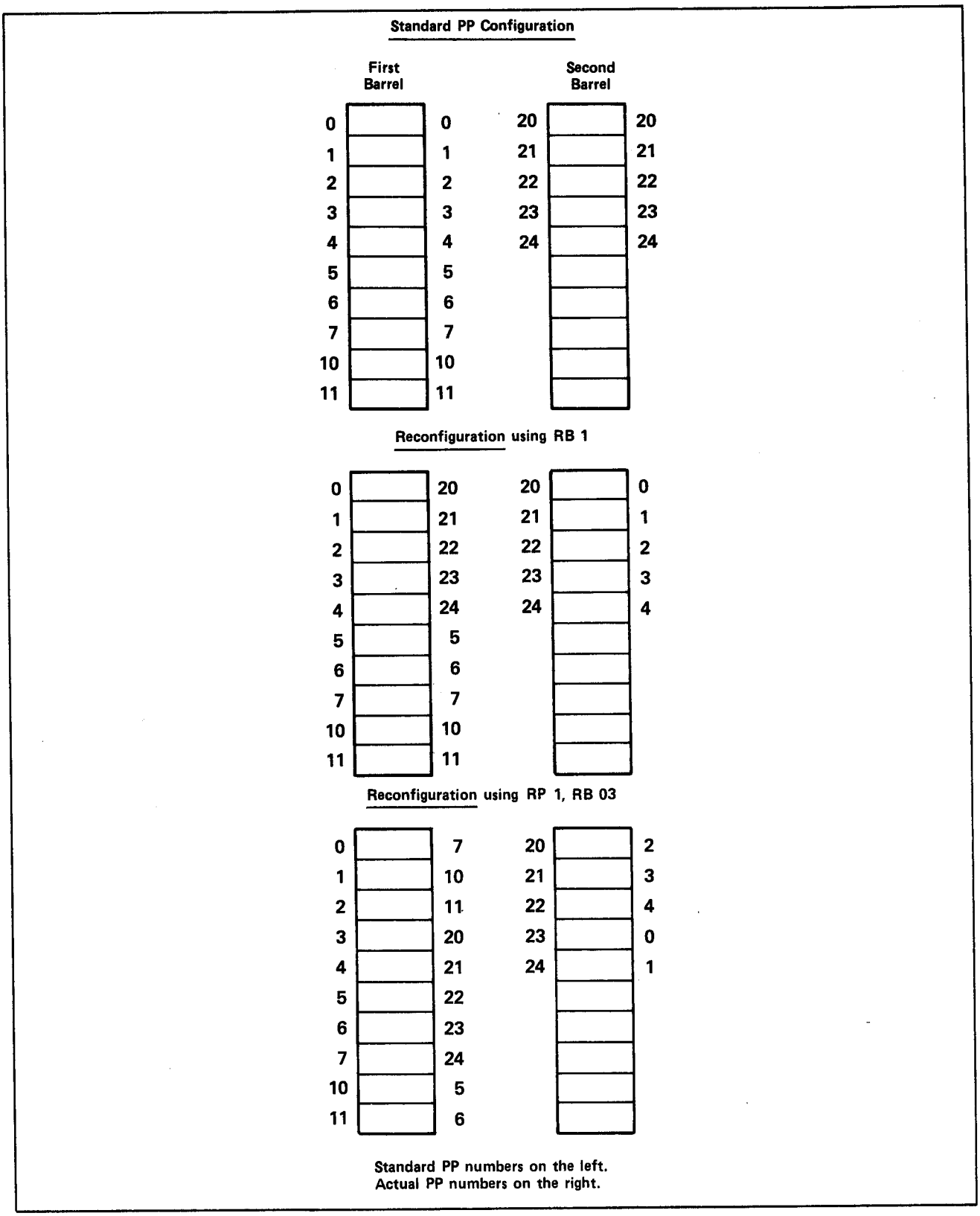


Figure I-9. Sample Reconfiguration for Models 815 and 825 with 15 PPs

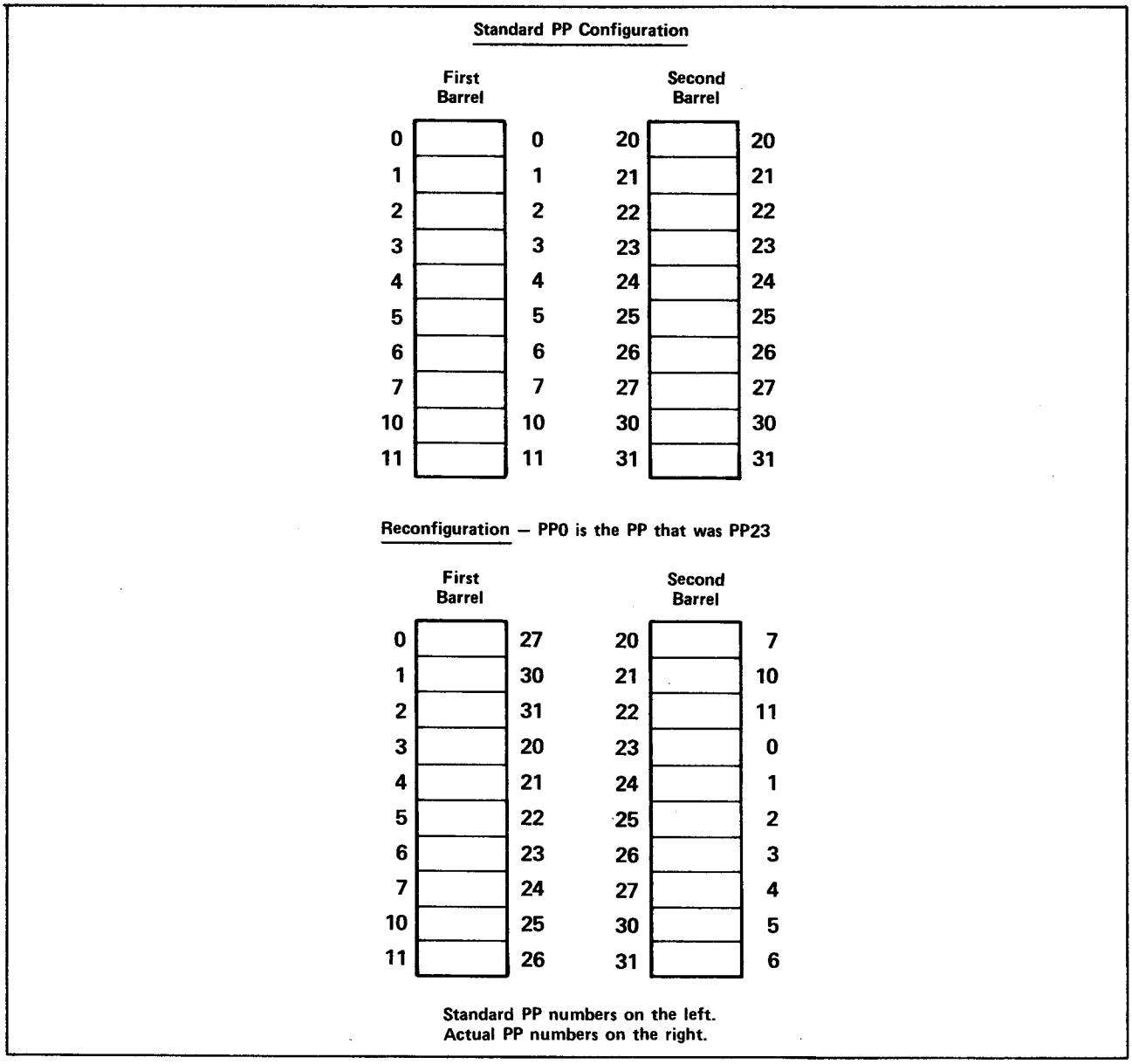


Figure I-10. Sample Reconfiguration for Models 815 and 825 with 20 PPs

CM RECONFIGURATION FOR CYBER 170 COMPUTER SYSTEMS (EXCEPT MODELS 815, 825, 835, AND 855)

This section is for the CYBER 170 Computer Systems (except models 815, 825, 835, and 855). CM hardware reconfiguration cannot be done on 6000 or CYBER 70 Computer Systems. For CM software reconfiguration, refer to the *H* display in section 2. Refer to CM Reconfiguration for models 815, 825, 835, and 855 later in this appendix for central memory reconfiguration information.

This documentation is valid for reconfiguring central memory down one step only. Any reconfiguration of more than one step down is not recommended.

When it is determined that central memory reconfiguration is desirable, you need to know the following information to reconfigure.

- The CYBER 170 model number.
- The normal total memory size.
- The quadrant number and CSU number (if applicable) of the defective section of memory (usually found in an S/C register† error message at deadstart).

To reconfigure central memory, use the following procedure:

1. Locate the CM configuration switches on the mainframe.
2. Locate the correct table for your CPU model (refer to tables I-2 through I-6).
3. Select from that table the correct grouping by locating the normal size of central memory from the CM Before Reconfiguration column.
4. Locate the correct line within the grouping by selecting the quadrant number (and CSU number if applicable) associated with the defective section of memory.
5. Determine the switch number order for the CM configuration switches (refer to figures I-11 and I-12).
6. Compare the settings of the CM configuration switches on your mainframe to the settings shown in the Normal Setting Switch Number column of the line identified in step 4.
7. If the CM configuration switches are shown in the Normal Setting Switch Number column, reset them to the setting shown in the Reconfiguration Setting Switch Number column and deadstart. If the CM configuration switches are not in the normal setting before the attempt to reconfigure, additional reconfiguration is not recommended.

†For models 865 and 875, S/C registers are maintenance registers.

Table I-2. CM Reconfiguration for Models 171, 172, 173, and 174

CPU Model	CM Before Reconfiguration	Quadrant	CSU	Normal Setting† Switch Number 1 2 3 4 5 6 7	Reconfiguration Setting† Switch Number 1 2 3 4 5 6 7	CM After Reconfiguration
171 through 174	262K	3	1	0 0 0 0 0 0 0	0 0 0 1 0 0 0	196K
		2	1	0 0 0 0 0 0 0	0 0 0 1 0 0 1	
		1	1	0 0 0 0 0 0 0	0 0 0 1 0 1 0	
		0	1	0 0 0 0 0 0 0	0 0 0 1 0 1 1	
		3	0	0 0 0 0 0 0 0	0 0 0 1 1 0 0	
		2	0	0 0 0 0 0 0 0	0 0 0 1 1 0 1	
		1	0	0 0 0 0 0 0 0	0 0 0 1 1 1 0	
		0	0	0 0 0 0 0 0 0	0 0 0 1 1 1 1	
	196K	1	1	0 0 0 1 0 0 0	1 0 0 0 0 1 0	131K
		0	1	0 0 0 1 0 0 0	1 0 0 0 0 1 1	
		3	0	0 0 0 1 0 0 0	1 0 0 0 1 0 0	
		2	0	0 0 0 1 0 0 0	1 0 0 0 1 0 1	
		1	0	0 0 0 1 0 0 0	1 0 0 0 1 1 0	
		0	0	0 0 0 1 0 0 0	1 0 0 0 1 1 1	
	131K	3	0	1 0 0 0 0 0 0	1 0 0 1 1 0 0	98K
		2	0	1 0 0 0 0 0 0	1 0 0 1 1 0 1	
		1	0	1 0 0 0 0 0 0	1 0 0 1 1 1 0	
		0	0	1 0 0 0 0 0 0	1 0 0 1 1 1 1	
	98K	2	0	1 0 0 1 0 0 0	1 1 0 0 1 0 1	65K
		1	0	1 0 0 1 0 0 0	1 1 0 0 1 1 0	
		0	0	1 0 0 1 0 0 0	1 1 0 0 1 1 1	
	65K	1	0	1 1 0 0 0 0 0	1 1 1 0 1 1 0	49K
		0	0	1 1 0 0 0 0 0	1 1 1 0 1 1 1	
	49K	1	0	1 1 0 1 0 0 0	1 1 1 0 1 1 0	32K
		0	0	1 1 0 1 0 0 0	1 1 1 0 1 1 1	
	32K	No reconfiguration possible				

†1 means up, 0 means down.

Table I-3. CM Reconfiguration for Model 175

CPU Model	CM Before Reconfiguration	Quadrant	CSU	Normal Setting† Switch Number S_0	S_1	S_2	S_3	Reconfiguration Setting† Switch Number S_0	S_1	S_2	S_3	CM After Reconfiguration
175	262K	3	1	1	1	1	1	1	1	1	0	196K
		2	1	1	1	1	1	1	1	0	1	
		1	1	1	1	1	1	1	0	1	1	
		0	1	1	1	1	1	0	1	1	1	
		3	0	1	1	1	1	1	1	1	0	
		2	0	1	1	1	1	1	1	0	1	
		1	0	1	1	1	1	1	0	1	1	
		0	0	1	1	1	1	0	1	1	1	
	196K	2	1	1	1	1	0	1	1	0	0	131K
		1	1	1	1	1	0	1	0	1	0	
		0	1	1	1	1	0	0	1	1	0	
		2	0	1	1	1	0	1	1	0	0	
		1	0	1	1	1	0	1	0	1	0	
		0	0	1	1	1	0	0	1	1	0	
	131K	1	1	1	1	0	0	1	0	0	0	98K
		0	1	1	1	0	0	0	1	0	0	
		1	0	1	1	0	0	1	0	0	0	
		0	0	1	1	0	0	0	1	0	0	
	98K	1	1	1	1	0	0	1	0	0	0	65K
		0	1	1	1	0	0	Not possible				
		1	0	1	1	0	0	1	0	0	0	
		0	0	1	1	0	0	Not possible				
	65K	No reconfiguration possible										

†1 means up, 0 means down.

Table I-4. CM Reconfiguration for Models 176, 740, 750, and 760

CPU Model	CM Before Reconfiguration	Quadrant	Normal Setting† Switch Number S_0	S_1	S_2	S_3	Reconfiguration Setting† Switch Number S_0	S_1	S_2	S_3	CM After Reconfiguration
176, 740, 750, 760	262K	3	1	1	1	1	1	1	1	0	196K
		2	1	1	1	1	1	1	0	1	
		1	1	1	1	1	1	0	1	1	
		0	1	1	1	1	0	1	1	1	
	196K	2	1	1	1	0	1	1	0	0	131K
		1	1	1	1	0	1	0	1	0	
		0	1	1	1	0	0	1	1	0	
	131K	1	1	1	0	0	1	0	0	0	65K
		0	1	1	0	0	0	1	0	0	

†1 means up, 0 means down.

Table I-5. CM Reconfiguration for Models 720 and 730

CPU Model	CM Before Reconfiguration	Quadrant	Normal Setting† Switch Number 1 2 3 4 5	Reconfiguration Setting† Switch Number 1 2 3 4 5	CM After Reconfiguration
720 and 730	262K	3	0 0 0 0 0	0 0 0 1 0	196K
		2	0 0 0 0 0	0 0 1 0 0	
		1	0 0 0 0 0	0 1 0 0 0	
		0	0 0 0 0 0	1 0 0 0 0	
	196K	2	0 0 0 1 0	0 0 1 1 0	131K
		1	0 0 0 1 0	0 1 0 1 0	
		0	0 0 0 1 0	1 0 0 1 0	
	131K	1	0 0 1 1 0	0 1 1 1 0	65K
		0	0 0 1 1 0	1 0 1 1 0	
	98K	1	0 0 1 1 1	0 1 1 1 0	65K
		0	No reconfiguration possible		

†1 means up, 0 means down.

Table I-6. CM Reconfiguration for Models 865 and 875

CPU Model	CM Before Reconfiguration	Quadrant	Normal Setting† Switch Number S_0 S_1 S_2 S_3	Reconfiguration Setting† Switch Number S_0 S_1 S_2 S_3	CM After Reconfiguration
865 and 875	1048K	3	1 1 1 1	1 1 1 0	786K
		2	1 1 1 1	1 1 0 1	
		1	1 1 1 1	1 0 1 1	
		0	1 1 1 1	0 1 1 1	
	786K	2	1 1 1 0	1 1 0 0	524K
		1	1 1 1 0	1 0 1 0	
		0	1 1 1 0	0 1 1 0	
	524K	1	1 1 0 0	1 0 0 0	262K
		0	1 1 0 0	0 1 0 0	

†1 means up, 0 means down.

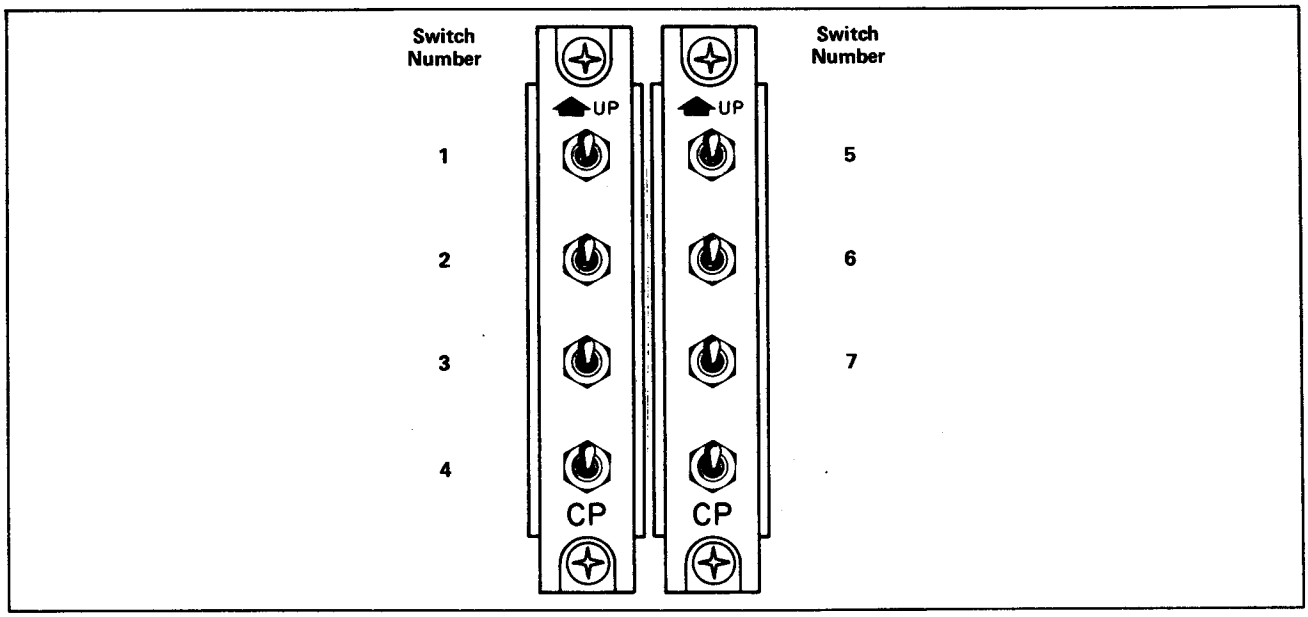


Figure I-11. Switch Numbering Scheme for CYBER 170 Computer Systems Models 171, 172, 173, 174, 720, and 730

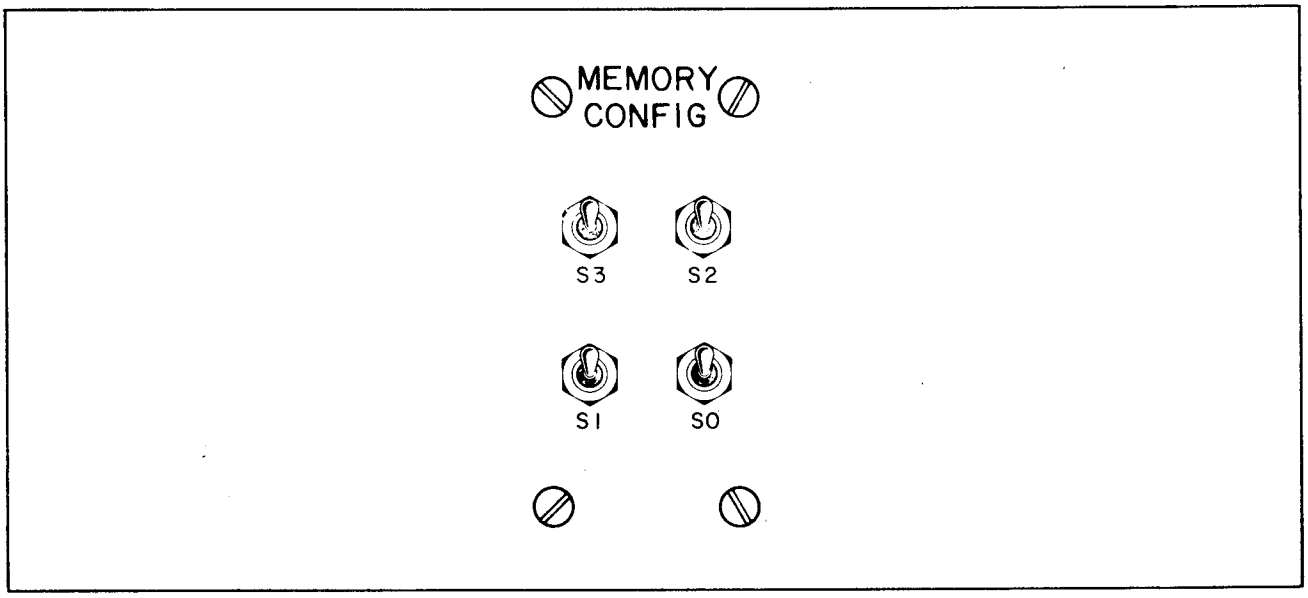


Figure I-12. Switch Numbering Scheme for CYBER 170 Computer Systems Models 175, 176, 740, 750, 760, 865, and 875

CM RECONFIGURATION FOR MODELS 815, 825, 835, AND 855

This section is for the models 815, 825, 835, and 855 only. For CM software reconfiguration, refer to the *H* display in part II, section 2.

This documentation is valid for reconfiguring central memory down to the values shown in tables I-7 and I-8 only. Reconfiguration to values other than those shown in the tables is not recommended.

When it is determined that reconfiguration is necessary or desirable, you need to know the following information to reconfigure.

- The normal total memory size.
- The central memory address in the text portion of the CTI message DEADSTART ABORTED-FATAL ERROR (refer to OS Load Automatic (CR) Display Models 815, 825, 835, and 855 in part II, section 2).

To reconfigure central memory, use the following procedure.

1. Locate the CM reconfiguration switches on the mainframe.
2. Select from table I-7 or I-8 the correct grouping by locating the normal size of central memory from the CM Before Reconfiguration column.
3. Locate the correct line within the grouping by selecting the CM address shown with the CTI message.
4. If all of the CM configuration switches (refer to figure I-13 for models 815, and 825; and figure I-14 for models 835, and 855) are centered, reset them to the position shown in the Reconfiguration Setting Switch Number column and deadstart. If the switches are not centered before the attempt to reconfigure, additional reconfiguration is not recommended.

Table I-7. CM Reconfiguration for Models 815 and 825

CM Before Reconfiguration	Normal Setting† Switch Number 4 5 6	Address In CTI Message	Reconfiguration Setting† Switch Number 4 5 6	CM After Reconfiguration
262K	C C C	≤ 0 1 F F F F ≥ 0 2 0 0 0 0	C C U C C D	131K
524K	C C C	≤ 0 3 F F F F ≥ 0 4 0 0 0 0	C U C C D C	262K
786K	C C C	≤ 0 7 F F F F ≥ 0 8 0 0 0 0	U C C D C C	262K 524K
1048K	C C C	≤ 0 7 F F F F ≥ 0 8 0 0 0 0	U C C D C C	524K

†C means switch is centered, U means up, and D means down.

Table I-8. CM Reconfiguration for Models 835 and 855

CM Before Reconfiguration	Normal Setting† Switch Number 3 4 5 6	Address In CTI Message	Reconfiguration Setting† Switch Number 3 4 5 6	CM After Reconfiguration
524K	C C C C	≤ 0 3 F F F F ≥ 0 4 0 0 0 0	C C U C C C D C	262K
1048K	C C C C	≤ 0 7 F F F F ≥ 0 8 0 0 0 0	C U C C C D C C	524K
1572K	C C C C	≤ 0 F F F F F ≥ 1 0 0 0 0 0	U C C C D C C C	524K 1048K
2097K	C C C C	≤ 0 F F F F F ≥ 1 0 0 0 0 0	U C C C D C C C	1048K

†C means switch is centered, U means up, and D means down.

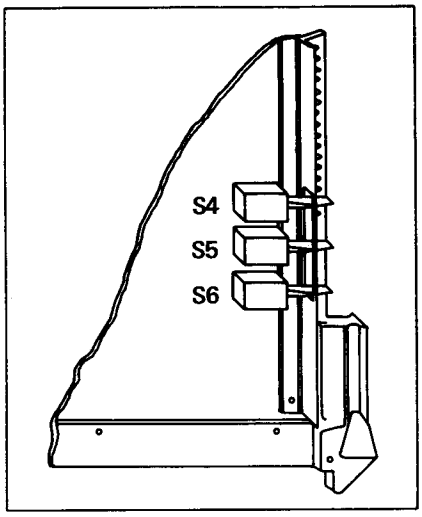


Figure I-13. Switch Numbering Scheme for Models 815 and 825

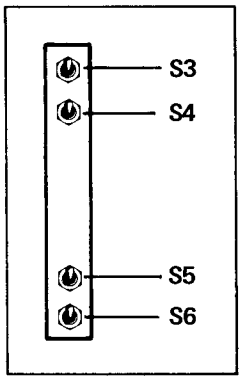


Figure I-14. Switch Numbering Scheme for Models 835 and 855

NPU OPERATING INSTRUCTIONS J

Except for the diagnostics which are described elsewhere, the only operator actions that might be needed at the NPU concern loading the system. Even these actions are needed only in exceptional conditions, since once CCP has been successfully loaded, the host should control all subsequent load operations automatically. Nonetheless, following a failure, it may be desirable to check NPU control switch positions and initiate a CCP load manually.

LOCAL NPU PROCEDURE

To prepare for a downline load, the NPU operator should perform the following steps:

1. Verify that ports (CLA addresses) to the communications network are correct.
2. On loop multiplexer circuit card, set power (PWR) switch to ON. Refer to figure J-1.
3. On CLA circuit card, set CLA/OFF switches to CLA (on). Refer to figure J-2. Only those cards that are configured are affected.
4. Verify that local console is in normal ON condition.
5. Stop the NPU at the maintenance panel by pressing the MASTER CLEAR switch (figure J-3).

The host discovers that NPU has stopped and initiates the dump and reload sequence.

Upon successful completion of the downline load operation by the host, the host is notified. The host then configures the NPU terminals and normal system operation begins.

If the downline load is unsuccessful, the host initiates and receives a dump of the NPU memory, micromemory checksum, and file 1 registers. The initiation of another downline load attempt is under control of the host.

REMOTE NPU PROCEDURE

The procedure for the remote NPU is the same as that for the local NPU except for the following:

- Check bootstrap load (SAM-C) tape equipment mounted on NPU cabinet door. The SAM-C tape cassette should be loaded and the ENABLE/DISABLE switch should be set to ENABLE.
- The NPU is downline loaded via a local NPU.

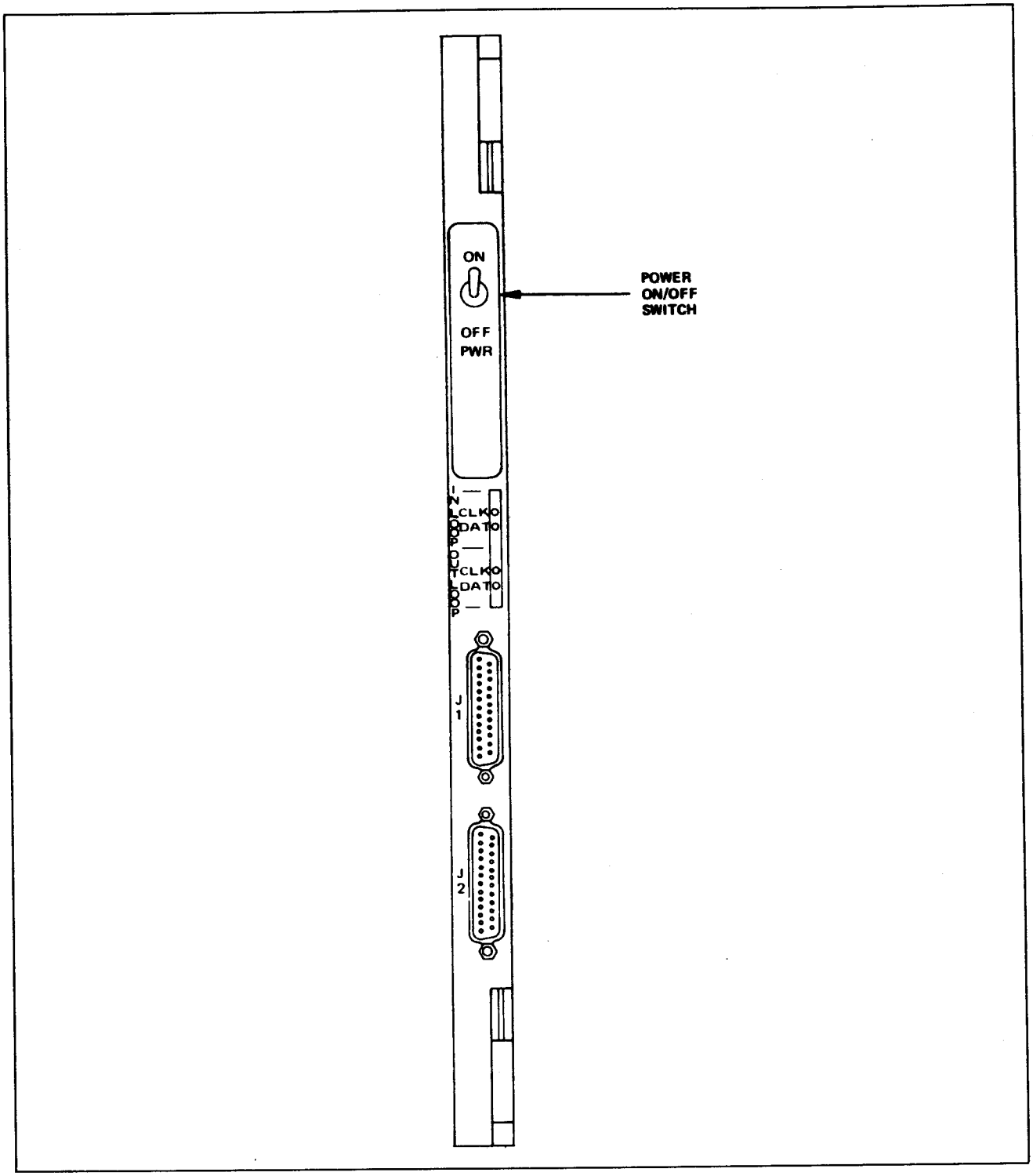


Figure J-1. Loop Multiplexer Circuit Card PWR ON/OFF Switch Location

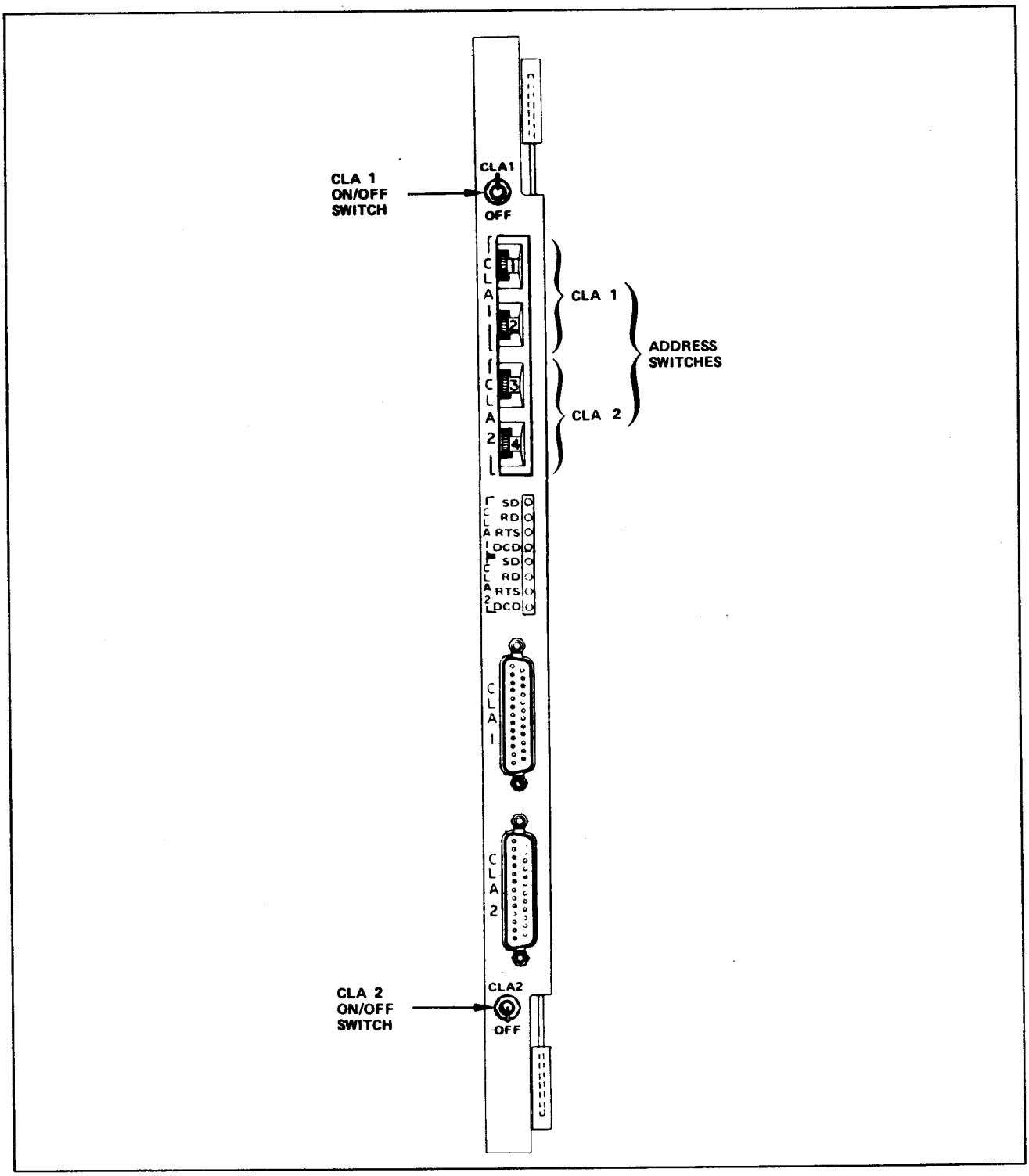


Figure J-2. CLA Circuit Card ON/OFF Switch Locations

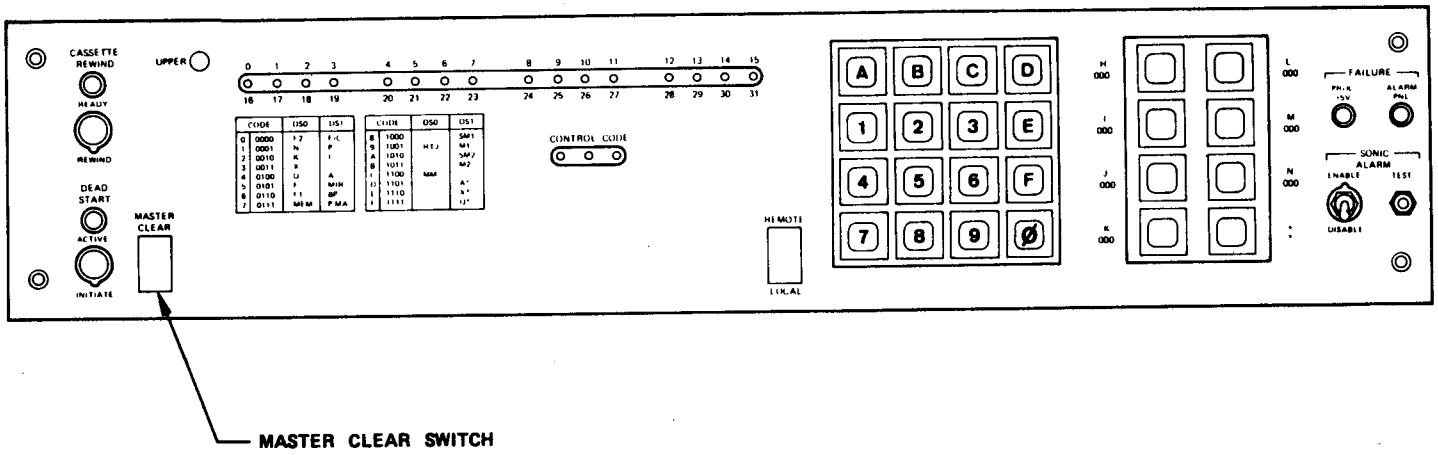


Figure J-3. Maintenance Panel MASTER CLEAR Switch Location

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