

# HP 3000 Computer Systems

## Console Operator's Guide Series II, III, 30, 33, and 44



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First Edition . . . . . May 1981

# PRINTING HISTORY

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## FOREWORD

This edition of the Console Operator's Guide applies to the entire HP 3000 Series family of computer systems: The Series II, III, 30, 33, and 44.

Although there are some major physical differences between the systems, they all use essentially the same operating system, thus the commands, syntax and general operating instructions are common to each of the above mentioned systems.

The drawings on pages ix through xvii illustrate the major physical differences. Section I is common for all five systems.

Section II deals with the system controls and special functions unique to each system. Pages 2-2 through 2-5 cover the Series II/III controls and the Series III HP-IB Interface Module. Pages 2-6 through 2-18 describe the Series 30 and Series 33 control panels and indicators, and pages 2-19 through 2-26 describe the Series 44 control panel, the Control and Maintenance Processor, thumb-wheel switches, and overtemperature shutdown.

Sections III (Console Operator Commands) and IV (Operational Overview) are common to all HP 3000 series systems.

Section V (Functions of a Console Operator) contains some material which is common, and some information specific to each machine. (Refer to the Table of Contents for a complete listing of topics and the correct page numbers). The major differences here are in system startup procedures, and power-up/power-down procedures.

The Appendices A through F are common. G applies to Series II/III only; H applies to Series 44 only; I applies to Series 30, 33, and 44; J applies to Series 30/33. Appendices K and L apply to Series 44 only, and M applies primarily to Series 33 systems without a magnetic tape drive.

It is clearly indicated where pages, subsections and appendices are applicable to a particular system or systems. In those sections where it was necessary to divide sections into subsets, Series II/III material appears first, followed by Series 30/33, and then by Series 44.

We hope that you will find this new, revised edition an easy to use reference guide for the console operator, particularly in those installations where two or more different Series HP 3000 computers are in use. Your comments and suggestions are welcomed via the "Reader Comment Sheet" which can be found in the back of this manual.

Editor  
HP 3000 Computer Systems  
Console Operator's Guide

# PREFACE

This manual is one of a set that documents the MPE IV Operating System for the HP 3000 Series Computer Systems. The Manual Plan on the following page shows the relationship of this manual (shaded block) to others in this set. Although all of the manuals shown in the plan provide valuable information, readers of this manual will be especially interested in the following:

- HP 3000 General Information Manual (30000-90008)
- System Manager/System Supervisor Reference Manual (30000-90014)
- MPE Commands Reference Manual (30000-90009)
- MPE System Utilities Reference Manual (30000-90044)
- Error Messages and Recovery Manual (30000-90015)
- Data Communications Handbook (30000-90105)
- DS/3000 Reference Manual (32190-90001)
- IML/3000 Reference Manual (32229-90001)
- MRJE/3000 Reference Manual (32192-90001)
- MTS/3000 Reference Manual (32193-90002)

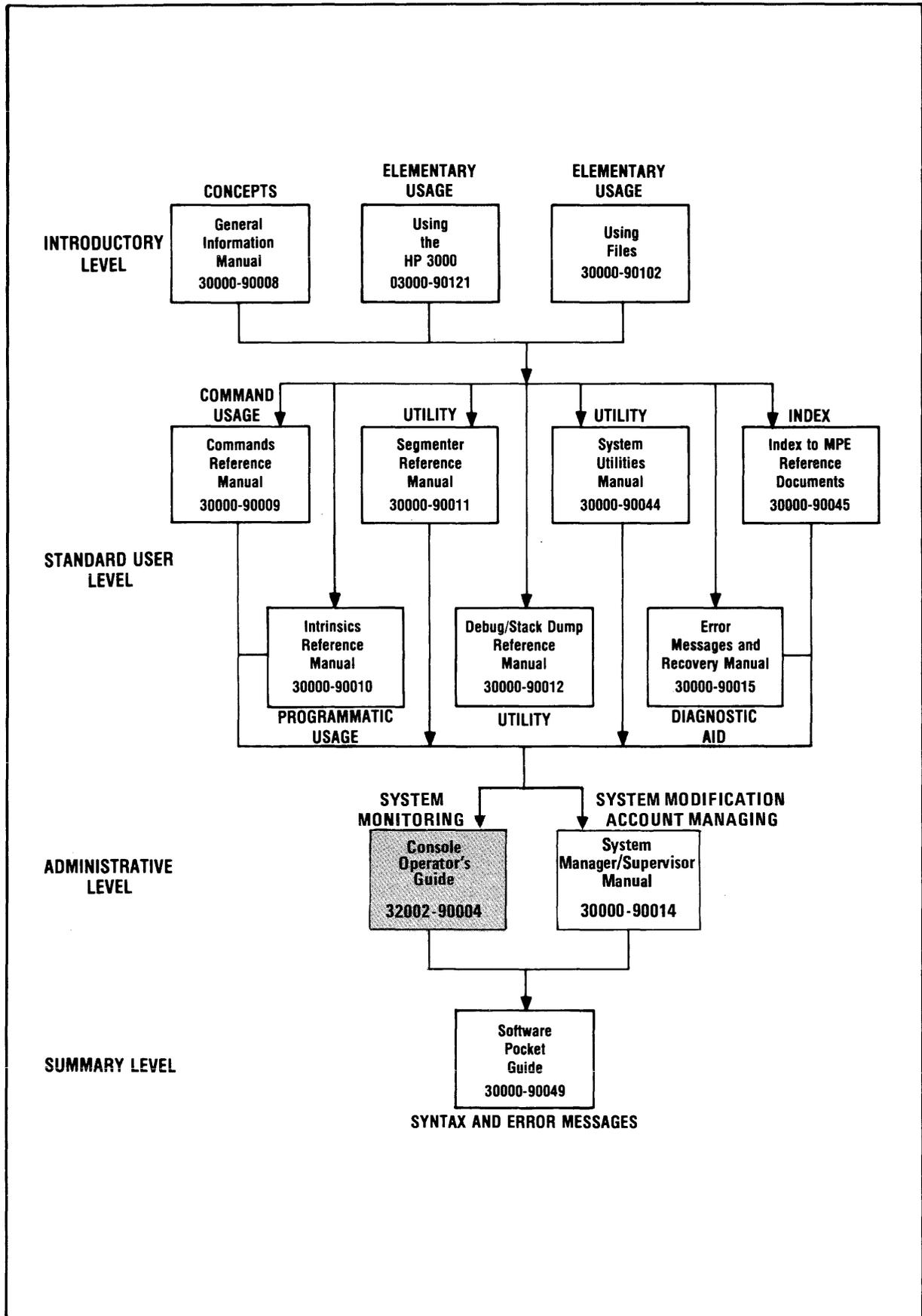
This manual pertains to the Series II, III, 30, 33, and 44 Computer Systems. It explains how to initialize and monitor operations of the MPE Operating System and how to request various operations through the System Console. Specifically, this manual is directed to the Console Operator.

This manual does not include complete information about the system, but instead presents only information relevant to a Console Operator's responsibilities: system startup and shutdown, monitoring jobs and sessions, allocating peripheral devices for users, conditioning private volume discs, serializing disc packs or flexible discs, transmitting and receiving user messages, noting and replying to system messages and generally implementing daily activities.

Because this manual is primarily a reference book rather than a tutorial text for new operators, the reader should already understand the basic operating principles of the HP 3000 Computer System and the relationship between hardware and software features. If additional information is needed on peripheral operations, the reader may find the following manuals informative:

- 2621 A/P Interactive Terminal Owner's Manual (02620-90001)
- 2640A Interactive Display Terminal Owner's Manual (02640-90109)
- 2640B Display Terminal User's Manual (02640-90109)
- 2641A APL Display Station User's Manual (02641-90001)
- 2644A Mini Data Station User's Manual (02644-90001)
- 2645A Display Station User's Manual (02645-90001)
- HP 2635A Printing Terminal Operator's Manual (02635-90901)
- HP 2631A Printer Operator's Manual (02631-90901)
- HP 7906 Disc Drive User's Manual (07906-90901)
- HP 7920 Disc Drive Operator's Manual (07920-90030)
- HP 7925 Disc Drive User's Manual (07925-90901)
- HP 7970 Series Magnetic Tape Drives Operator's Manual (07970-90885)
- HP 7976 Series Magnetic Tape Drive Operator's Manual (07976-90901)
- HP 9895A Flexible Disc Memory User's Manual (09895-90000)

# MANUAL PLAN



# CONVENTIONS USED IN THIS MANUAL

NOTATION	DESCRIPTION
Command Name	Command names are shown in CAPITAL LETTERS. The names must contain no blanks and be delimited by a non-alphabetic character (usually a blank).
Parameters	Parameters are shown in CAPITAL LETTERS IN REGULAR TYPE when they are literal information that you always enter exactly as shown.  Parameters are shown in lower-case italics when they are variable parameters to be replaced by information that you supply.
Positional Parameters	Positional parameters have significance implied by positional order after the command name. Use adjacent commas (or semicolons where required) to indicate omitted parameter(s) as follows: COMMAND param 1,,param3 (middle of parameter list omitted) COMMAND ,param2,param3 (beginning of parameter list omitted) COMMAND param1 (end of parameter list omitted)
Keyword Parameters	Keyword parameters are separated by semicolons and can appear in any order.
Mixed Parameters	When positional and keyword parameters are mixed, positional parameters are given first. The first keyword indicates the end of a positional list.
[ ]	A parameter inside brackets is <i>optional</i> . Several parameters stacked inside a pair of brackets means the user may select any one or none of them. Example: $\left[ \begin{array}{c} A \\ B \end{array} \right]$ user may select A or B or neither
{ }	When several parameters are stacked within braces the user must select one of them. Example: $\left\{ \begin{array}{c} A \\ B \\ C \end{array} \right\}$ user must select A or B or C.  A horizontal ellipsis indicates that a previous bracketed parameter may be repeated, or that parameters have been omitted.
underlining	Dialogue: Where it is necessary to distinguish user input from computer output, the input is underlined. Example: NEW NAME? <u>ALPHA1</u>
superscript C	Control characters are indicated by a superscript C Example: Y <sup>c</sup>
<i>return</i>	<i>return</i> in italics indicates a carriage return.
<i>linefeed</i>	<i>linefeed</i> in italics indicates a linefeed.

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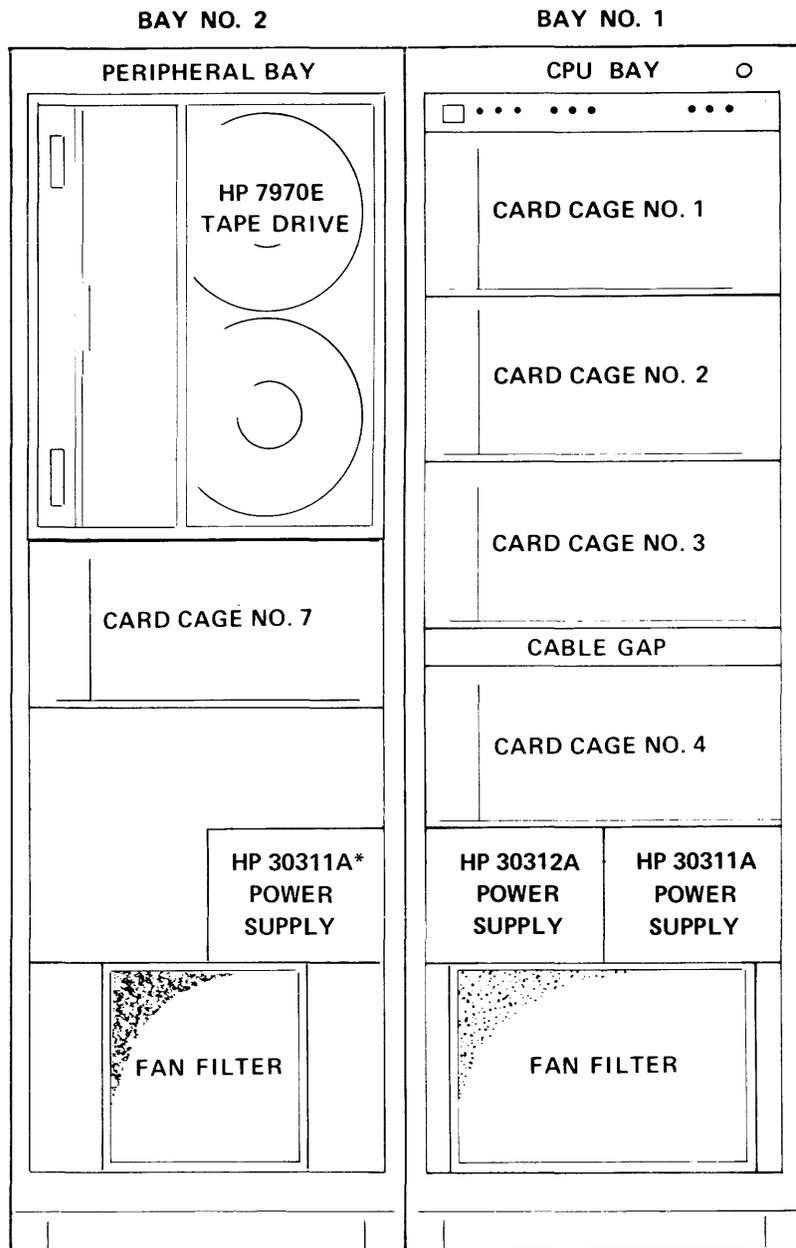
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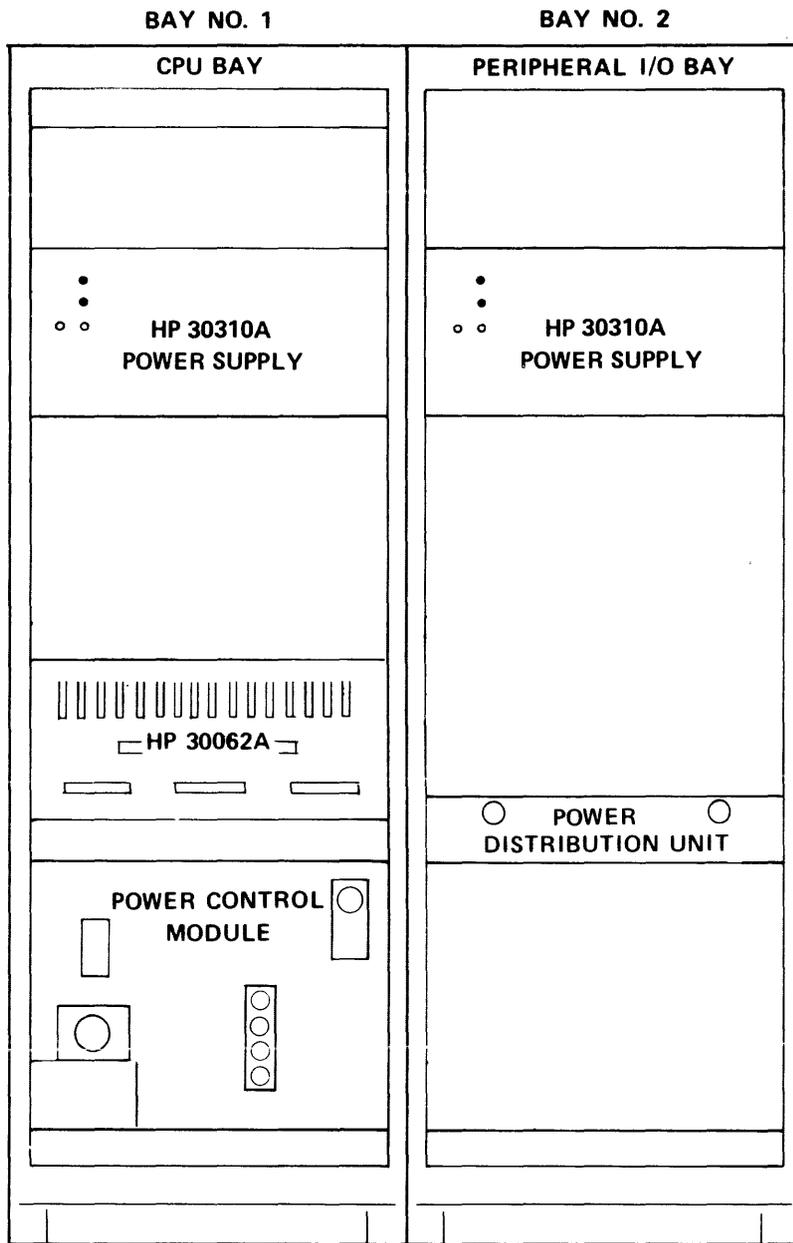
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**FRONT VIEW**  
**(DOORS OMITTED FOR CLARITY)**

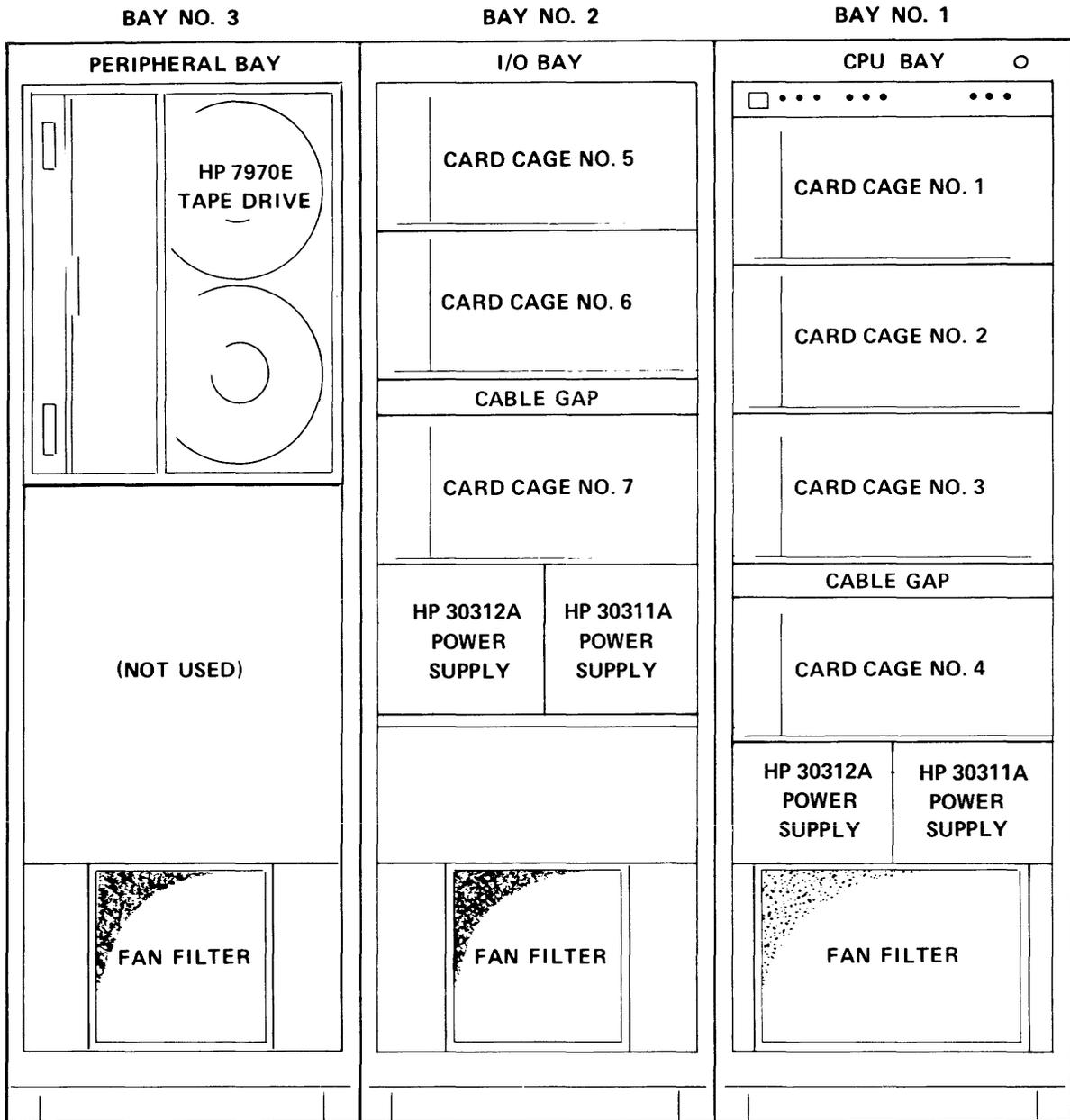
Figure X-1. HP 3000 Series III (32421A) Racking Plan, Front View



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**REAR VIEW**  
**(DOORS OMITTED FOR CLARITY)**

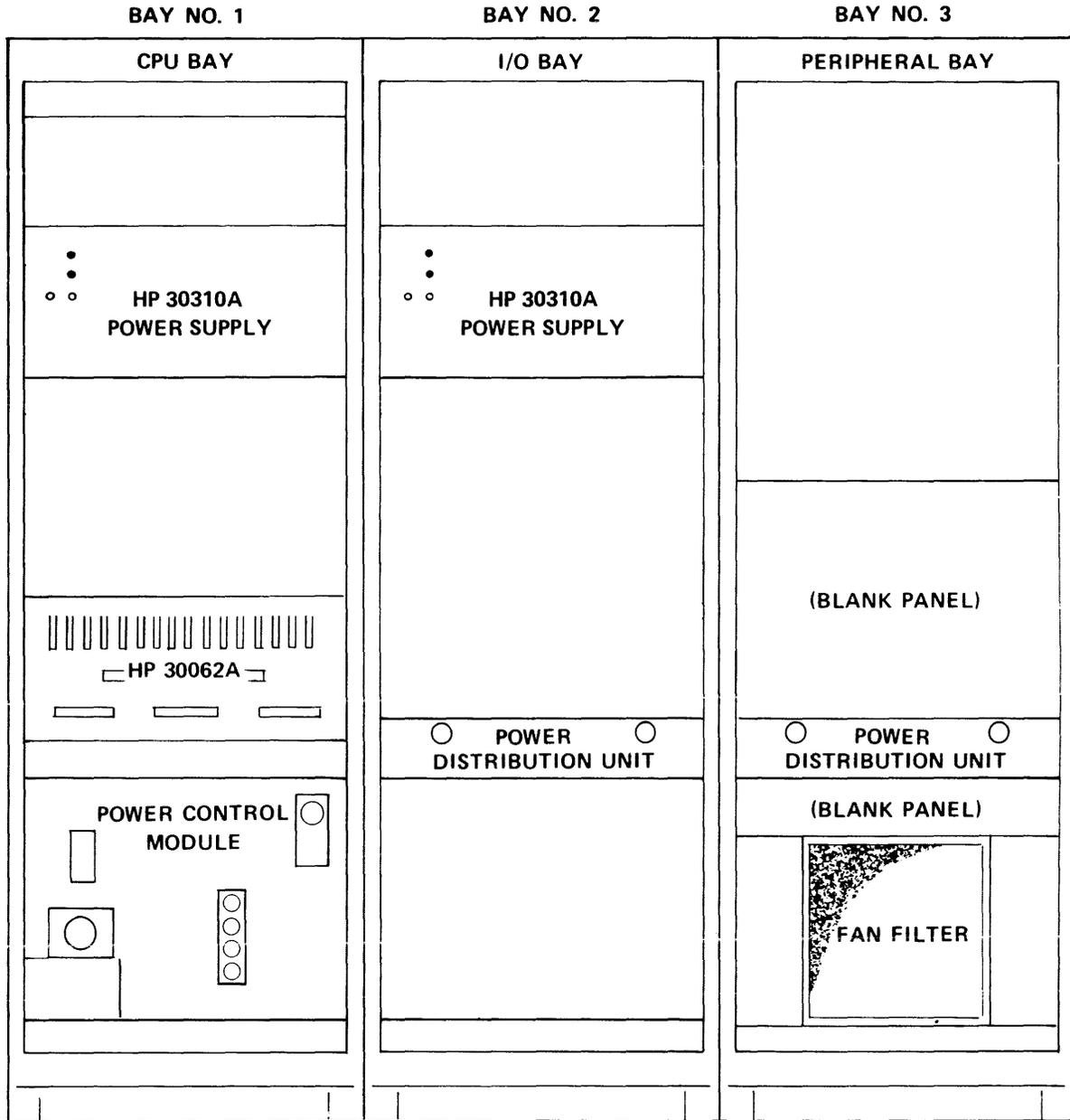
Figure X-2. HP 3000 Series III (32421A) Racking Plan, Rear View



147001-03

**FRONT VIEW**  
**(DOORS OMITTED FOR CLARITY)**

Figure X-3. HP 3000 Series III (32421A), Option 200, Racking Plan, Front View



147001-04

REAR VIEW  
(DOORS OMITTED FOR CLARITY)

Figure X-4. HP 3000 Series III (32421A), Option 200, Racking Plan, Rear View

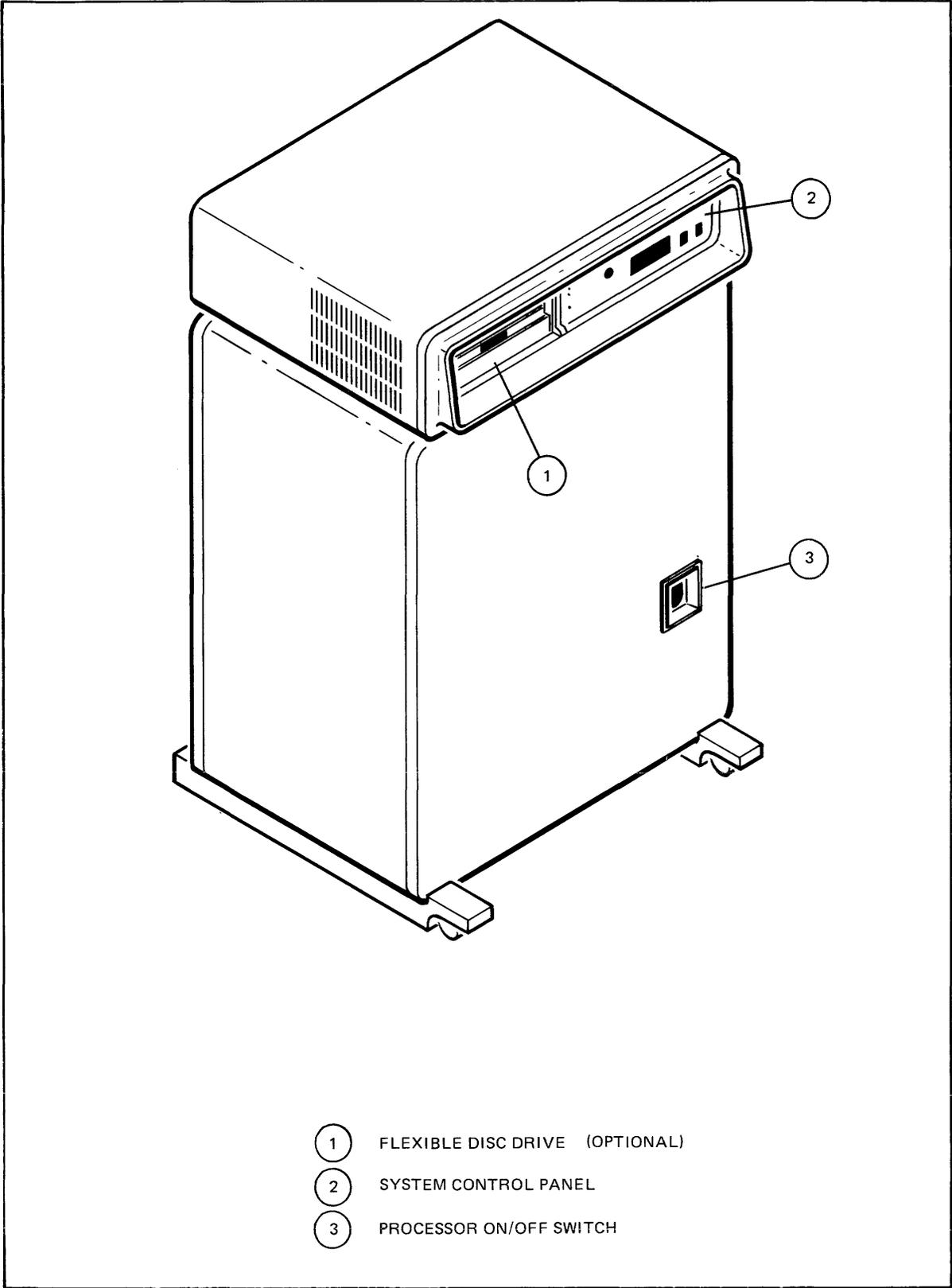


Figure X-5. HP 3000 Series 30 Front View

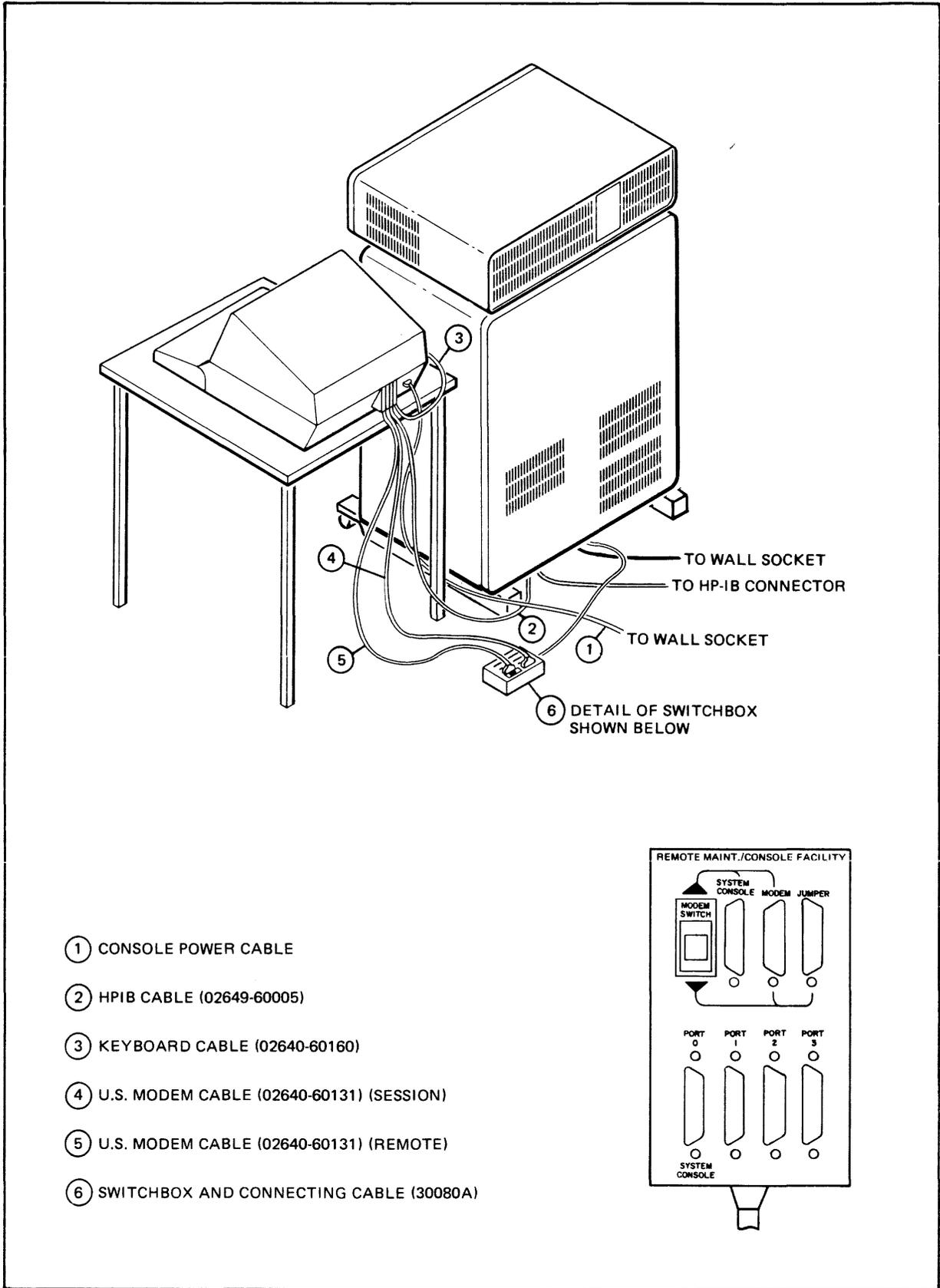


Figure X-6. HP 3000 Series 30 Back View With Terminal

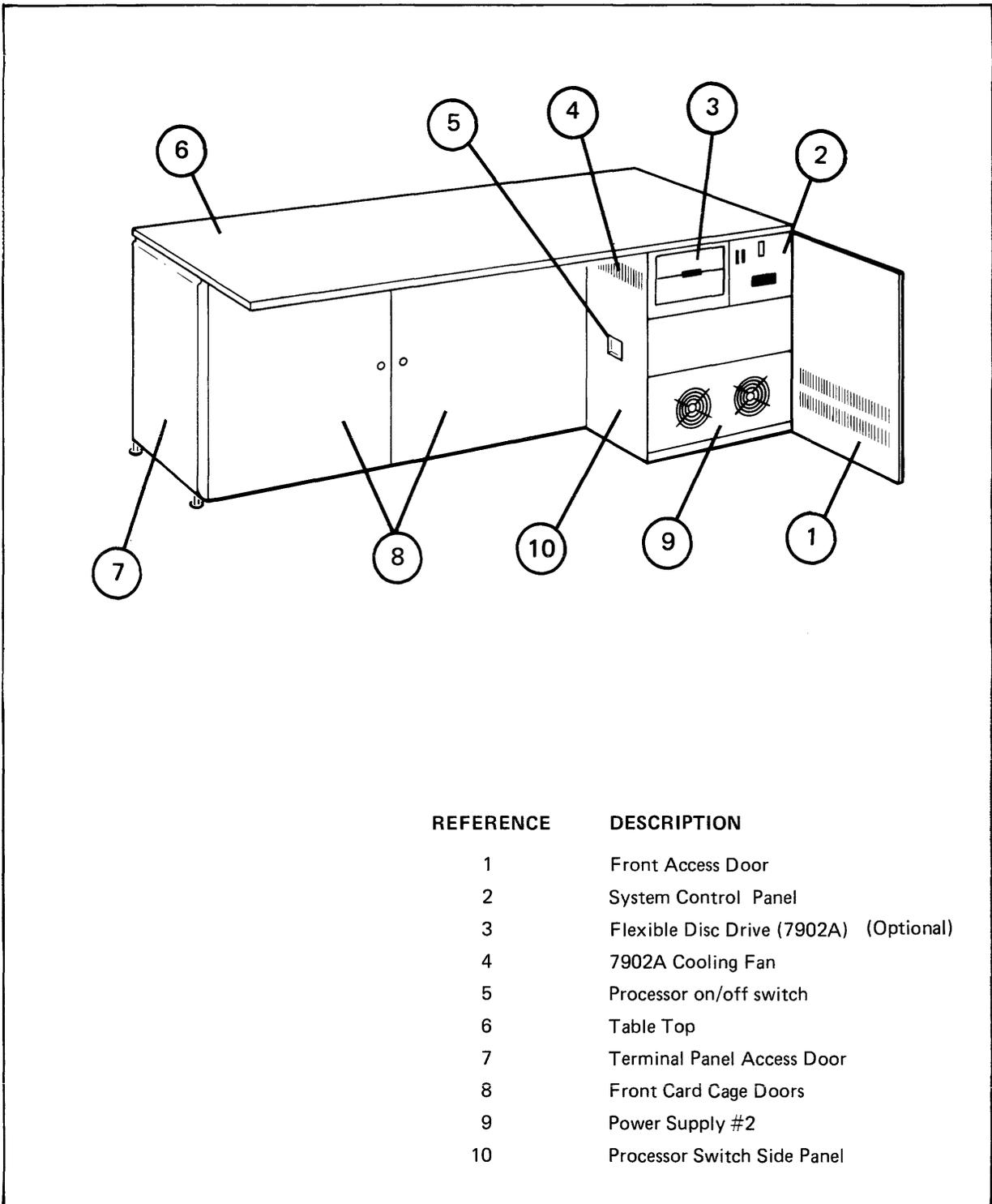


Figure X-7. HP 3000 Series 33 Front View

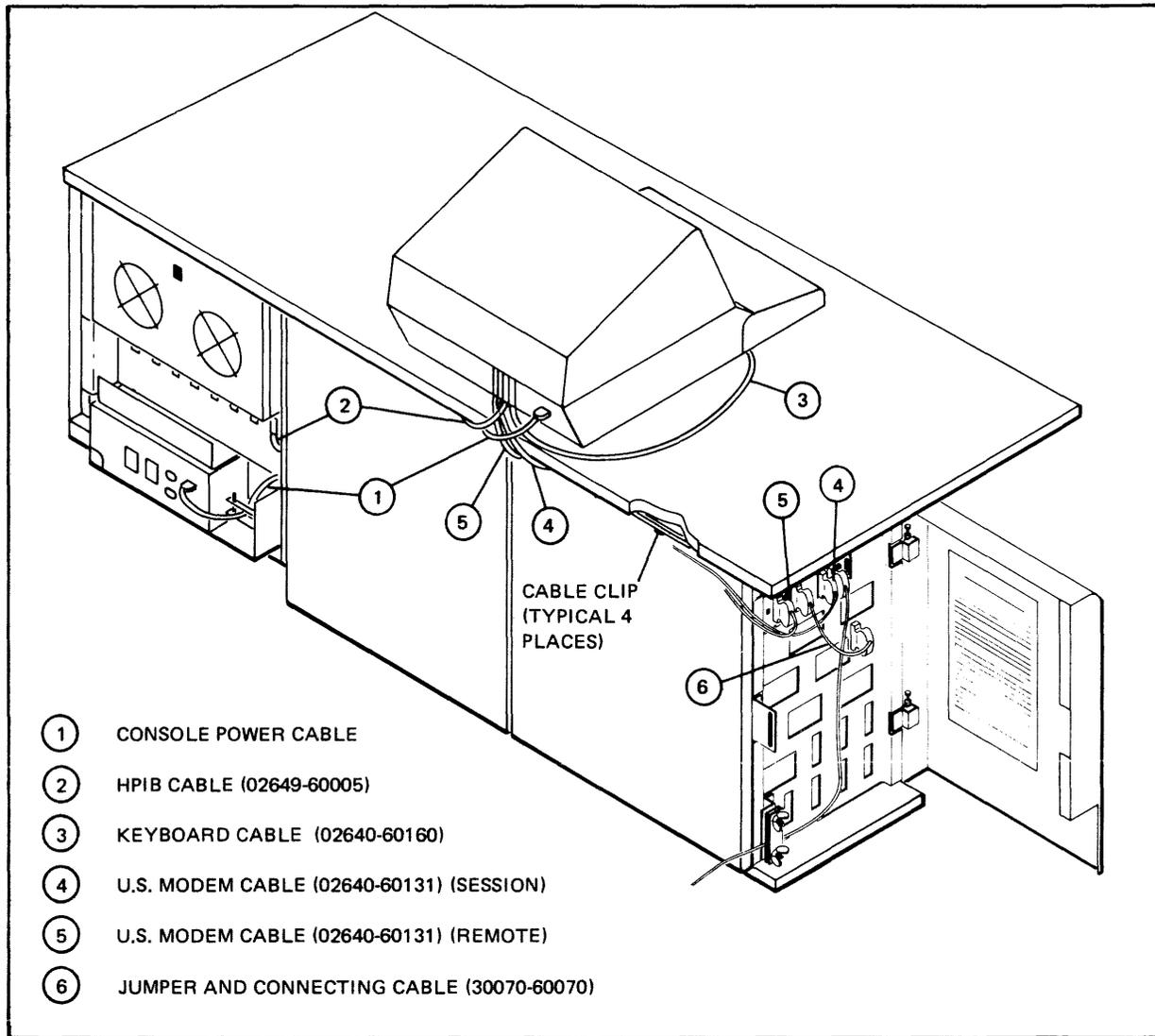
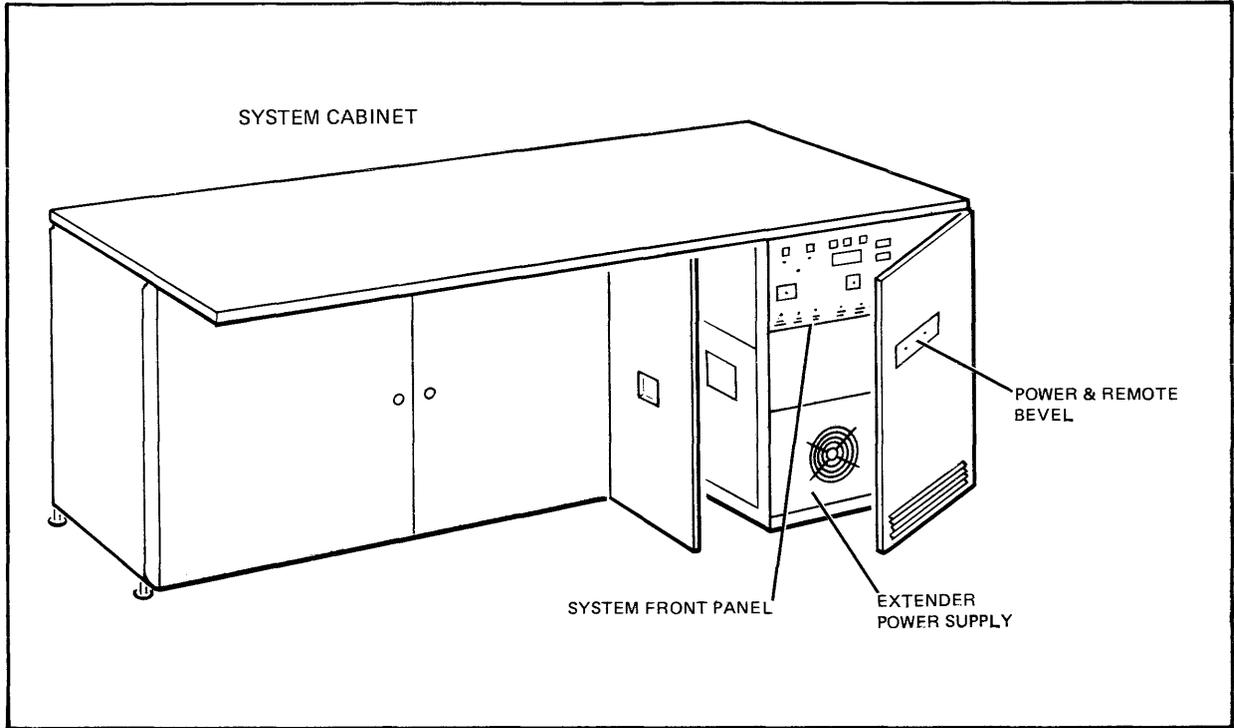
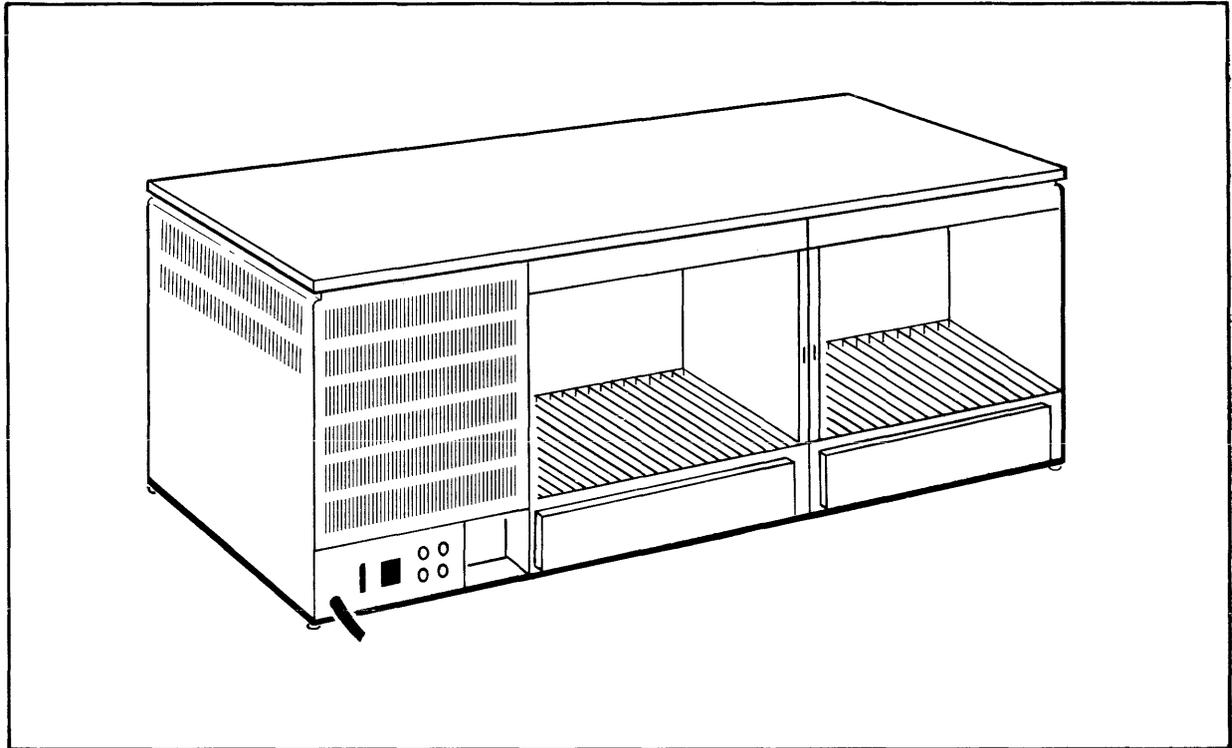


Figure X-8. HP 3000 Series 33 Panel to Console Cable Routing and Connection View



047020-1

Figure X-9. HP 3000 Series 44 Front View



047020-2

Figure X-10. HP 3000 Series 44 Rear View

This section introduces you, the Console Operator of the HP 3000, to the MPE Operating System.

## INTERACTIVE PROCESSING

In interactive processing, programmers at remote or local terminals interact conversationally with the computer. This type of interaction is called a *session*. During a *session*, users are prompted for input as they simultaneously share the central processor, main memory, and discs for program development, information retrieval, computer assisted education, and other applications. The programmers can communicate with you and vice versa by messages between terminals and the system console.

## BATCH PROCESSING

Batch processing allows one or more computer-language programs to be submitted to the computer as a single entity, called a job. Jobs contain predefined MPE commands; once jobs are running, a limited amount of input is needed from either the programmer or the operator. Jobs are input by you or by a programmer through on-site (local) devices, typically card readers.

Job files may also be constructed remotely by programmers working at terminals. The job files then are input to MPE via the spooling facility. This technique is called STREAMing. Several jobs can be submitted (streamed) and processed concurrently. MPE selects each job for execution according to its input priority and then sequentially executes the commands it contains.

The primary difference between interactive and batch processing is that during a session the programmer maintains a dialog with the system to control input and monitor output, while in a batch job the command stream is predefined.

## MULTIPROGRAMMING

Through *multiprogramming*, MPE can execute many different jobs/sessions concurrently. The number of jobs/sessions that can be processed concurrently depends on such factors as the hardware and software configurations, Console Operator defined limits, and the applications involved. Each programmer, however, uses the computer as if it were his own private machine; he need not depend on, nor even be aware of others using the machine. (You, as the Console Operator, however, can always determine the number of jobs/sessions in progress and the identities of the users currently accessing the machine.)

## SPOOLING

MPE is equipped with a *spooling* facility to assist in the operation of certain non-sharable devices. Non-sharable devices are devices such as line printers which can process only one set of data at a time. In contrast, a sharable device, such as a disc, can store multiple sets of data and can, therefore, be shared by many users. Spooling can be controlled on a device-by-device basis; when

enabled, spooling permits multiple jobs/sessions to “gain access to” a device which would otherwise only be accessed by one job or session at a time. To accomplish this, MPE copies the data coming from or going to a “spooled” non-sharable device onto a disc. Data coming directly from or going directly to a non-sharable device is called a *devicefile*. When this data is copied on the disc, it is a *spooled devicefile*.

In addition to automatically copying data to or from spooled devices, the MPE spooling facility includes:

- commands for monitoring and controlling the spooling facility;
- a capability for recovering spooled devicefiles and jobs when restarting the system;
- and, the ability to generate multiple copies of spooled output.

## PRIVATE DISC VOLUMES

MPE offers a Private Disc Volumes Facility which greatly increases the storage capacity of an HP 3000 without the usual storage media such as magnetic tape. Under private volumes, the disc packs mounted on the HP 7902, HP 7906, HP 7920, HP 7925, or HP 9895 drives during a cold load are dynamically allocated to the system domain for normal use or to the non-system domain for private use. Non-system domain packs can be both physically and logically mounted and dismounted during normal system operation. The packs, containing volumes of users’ files, can be carried to another HP 3000 System, mounted with little difficulty, and the files made available to users of that system.

As console operator, your primary responsibilities involving private volumes include:

- Adding new discs to the system.
- Converting a system disc to a private volume disc.
- Converting a private volume disc to a system disc.
- Using the VINIT Utility to condition private volumes discs.
- Enabling and disabling the Private Volumes Subsystem (with the :VMOUNT command).
- Physically mounting and dismounting private volumes.
- Logically mounting and dismounting private volumes (with the :LMOUNT and :LDISMOUNT commands respectively).
- Responding to private volumes messages at the system console.

## SERIAL DISC VOLUMES

The MPE operating system includes a Serial Disc Interface which allows non-system domain drives to be used as non-sharable serial devices. To MPE, the discs appear to be magnetic tape drives. They provide fast backup and recovery capability when used as an alternative to magnetic tape in SYSDUMP, INITIAL (cold load), STORE, and RESTORE activities.

Any HP 7920 or HP 7925 moving head (removable), HP 7902 or 9895 (flexible), or the removable portion of the HP 7905/7906 disc can be designed for serial use either during a SYSDUMP or during an initialization (cold load) dialog. First, the disc is assigned to a CLASS by logical device number and then the CLASS is designated a serial disc class in response to a special prompt. If no class is configured, the disc may be referenced by the logical device number. The dialogs are explained in the System Manager/System Supervisor Reference Manual.

Packs mounted on a device classed as serial must be initialized for serial use with the >SERIAL command of the VINIT Utility. Initialization places a special mark in the disc label which is subsequently used for identification by MPE. When the system recognizes a pack with this mark, it sends a "mounted" message to the system console notifying you that the pack has been initialized as a serial disc. When a user attempts to open this drive, the system sends an allocation request to the console. You must REPLY as you would for a magnetic tape drive except that you must specify whether a "write ring" is considered to be present. (The system prompts for this response where required).

## **FOREIGN DISC VOLUMES**

Through the Foreign Disc Facility, MPE allows users to access data on disc packs that are not in the standard MPE format. This type of disc pack format is referred to as a "foreign" disc. A foreign disc is another type of non-system domain disc similar to a serial or private disc, except that a foreign disc has a free format. The console operator will be required to perform tasks similar to those for private volumes (except for those commands specific to private volumes such as LMOUNT, LDISMOUNT, and VMOUNT). The mount/dismount procedures for a foreign disc are almost identical to those for serial discs. MPE provides for the designation of device classes as "foreign" in the SYSDUMP and initialization (cold load) procedures in a manner similar to the way serial disc classes are defined. To convert any disc to a foreign disc, the VINIT utility is used (Refer to VINIT, Appendix D).

The Foreign Disc Facility includes a :FOREIGN command which causes the system to treat the specified disc volume as a foreign disc. When using the :FOREIGN command, the operator must be extremely careful, since it is possible to destroy data on a disc inadvertently. The use of the :FOREIGN command is discussed in Foreign Disc Facility in Section IV, Operational Overview.

## **MPE TAPE VOLUMES**

MPE provides a capability for users to read and write labels on magnetic tape files. Labeled tapes can be used to:

- Identify tape volumes.
- Protect volumes from being inadvertently over written.
- Protect private information.
- Facilitate information interchange between computer systems.

Due to the Tape Labels Facility, each time any magnetic tape file is recognized by the operating system a message is printed on the console stating the type of label the volume contains (IBM, ANSI, or unlabeled). In addition, another message may ask you to:

- Supply volume header information.
- Mount a particular tape volume set.
- Mount a particular volume of a specified volume set.
- Respond YES or NO to write requests.

## LOGGING

MPE currently provides three separate logging facilities:

- System Logging
- Memory Error Logging
- User Logging

The operation of each facility is unique and has no effect on the other.

### SYSTEM LOGGING

This facility provides a record of certain resources by accounts, groups, and users on a job/session basis. The Logging System can be activated with the Initiator (cold load) dialog or with the SYS-DUMP modification dialog.

Once enabled, the Logging System creates a running log of jobs, sessions, and processes; file openings and closings; system shutdowns; spooling; line closings and line disconnections; I/O errors; private volume mounts and dismounts; private volume set mounts and dismounts, and console communications.

The Logging System is managed by the System Supervisor and generally does not require your intervention. Its files are created automatically by MPE and its console messages generally report file status without requiring any operator replies.

### MEMORY ERROR LOGGING

This facility records a history of all memory errors. MPE automatically initiates error logging during system initialization.

Generally the System Manager uses the MEMLOGAN Utility to read the error history records and write them to an output device.

Your only involvement with Memory Logging will be to monitor messages on the system console.

### USER LOGGING

This facility makes it possible for users and subsystems to record additions and modifications to files, and provides the means whereby recorded entries can be used to recover the files themselves if the need arises. The user is able to record additions in two ways: tape file logging and disc file logging.

With tape file logging, the journal entries are saved on a dedicated magnetic tape drive outside the domain of the system which means there is a greater chance of data recovery upon system failure. During disc file logging, the disc file is created by the user.

Users who have been given the logging capability (CAP=LG) can establish *logid*'s which are subsequently used to identify logging record owners. Users can also programmatically access the User Logging Facility with special MPE Intrinsics.

As Console Operator, you are responsible for ensuring that:

- the User Logging Capability (LG) has been added to the appropriate user's capability set.
- the User Logging Facility has been activated by issuing the :LOG command (START, RESTART), per a user request.
- the required number of logging processes and users per process have been allowed. (This is done through SYSDUMP).
- the disc and tape volumes are mounted and dismounted in response to prompts from a user.

#### NOTE

*You cannot START a log process to a file which already contains data, just as you cannot RESTART a log process to an empty file. (Refer to the LOG command in Section V for the example of RESTART.)*

*If you attempt to STOP a logging process which is in use (more than one user may access the logging process), the following message will be printed on the System Console:*

LOGGING PROCESS *logid* IN USE, TERMINATION PENDING. (ULOGMSG 21)

## SYSTEM PROMPTS AND MESSAGES

The system communicates with you through prompts, reports, and messages which appear on the system console. You communicate with the system by typing commands at the console keyboard.

Operating messages request input or operator action and provide a record of current system activity. They might report the status of an I/O device, data transfer errors, or some other abnormal system condition.

Reports from the system reflect the state of the system at any given time by showing the status of jobs/sessions, devices, devicefiles, and queues (priority assignments).

MPE dialogs provide a variety of prompts which make it easy to initialize, backup, shutdown, and restart the operating system.

## CONSOLE OPERATOR TASKS

The console Operator is responsible for the day-to-day operational control of the system. A Console Operator is, for the most part, an MPE user in the same sense that a System Manager, System Supervisor, or programmer is. The Console Operator interacts with MPE through the MPE Command Interpreter. Exceptions are described in the section on CONSOLE OPERATOR COMMANDS.

Functioning as the console operator, you must be able to:

- Startup and shutdown the system.
- Alter system configuration.
- Use all Operator Commands.
- Submit batch jobs.
- Display job/session status.
- Abort jobs/sessions when necessary.
- Set peripheral devices on-line, off-line, or remove them from the configuration.
- Control the spooling facility.
- Transmit messages to users.
- Control which devices may accept :JOB, :HELLO and :DATA commands (for entry of jobs, sessions, and data respectively).
- Mount tape and serial disc volumes and allocate the devices in response to user requests.
- Mount and dismount private disc volumes.
- Backup both user and system files.
- Monitor and control non-sharable device allocation (ownership).
- Set limits on the number of jobs and sessions which can run simultaneously.
- Set job/session and output fences to control the processing of jobs/sessions and spooled device files.
- Move the system console to any terminal on the system.
- Assign individual users the ability to execute specific operator commands.
- Allow users to use job-related operator commands on their own jobs.

## CONSOLE OPERATOR COMMANDS

Console Operator commands are processed by the MPE Command Interpreter and used for communicating with the MPE Operating System. As a Console Operator, you can increase the accessibility of the system console and may assign to a user or to a group of users specific console operator commands they may require.

To initiate communication with MPE, you simply press the CARRIAGE RETURN; MPE responds by prompting you for a command by printing a colon (:) on the MPE system console (terminal). You then enter the command through the console keyboard and press the CARRIAGE RETURN key.

### NOTE

*If you execute the following operator commands, you must initiate communication with MPE by pressing simultaneously the CONTROL key and the A key of the console (A<sup>C</sup>). MPE responds by prompting you for a command by printing an equal sign (=) on the MPE system console.*

LOGON  
LOGOFF  
SHUTDOWN

*ABORTIO, ABORTJOB, or REPLY may be executed in this manner, or as a console operator command (:ABORTIO, :ABORTJOB, or :REPLY).*

## **DELETING A LINE**

To delete the current line of a command prior to pressing CARRIAGE RETURN, press CONTROL X (hold down the CONTROL key and press X). The terminal verifies the cancellation by printing three exclamation marks (!!!) followed by a carriage return and linefeed.

## **DELETING A CHARACTER**

To delete the previous character, press CONTROL H (hold down the CONTROL key and press H). CONTROL H works in the following ways for all terminals (including the system console).

### **1. CRT Terminals**

CRT terminals physically backspace the cursor. CONTROL H, therefore, causes the cursor to be backspaced one position, leaving the cursor positioned over the character to be replaced. The physical backspacing of the cursor does not erase the character from the screen, but the character has been deleted from MPE system's internal buffer.

### **2. Hardcopy Terminals**

- a. For terminals which have physical backspace capability, CONTROL H causes a physical backspace to occur. In addition, a line feed is emitted unless the previous character was also a CONTROL H. The result is that the user resumes typing beneath the first character to be replaced.
- b. No backspacing takes place for terminals which do not have this capability. Instead, the terminal verifies the CONTROL H by typing a backslash (\).

## **NON-ECHOING CONSOLE OUTPUT**

To place the MPE system console in half-duplex mode so that commands entered on the console keyboard are not echoed as console output, press the ESC key followed by the semicolon (;) on the console keyboard.

## **ECHOING CONSOLE OUTPUT**

To change the MPE system console from half-duplex mode to full-duplex mode so that commands entered on the console keyboard are once again echoed as console output, press the ESC key followed by the colon (:) key on the console keyboard.

## **CONSOLE COMMAND SUMMARY**

Console Operator commands are shown in Table 1-1. The PAGE NO. column refers to the page in this manual on which each command is discussed.

Table 1-1. Console Operator Commands

COMMAND NAME	DESCRIPTION	PAGE NO.
:ABORTIO/=ABORTIO	Aborts pending I/O requests for a device.	3-3
↖ :ABORTJOB/=ABORTJOB	Aborts a job or session.	3-4
:ACCEPT	Permits a device to accept job/sessions and/or data.	3-6
:ALLOW	Grants a user access to a specific operator command.	3-7
:ALTJOB	Alters attributes of waiting job or session.	3-9
:ALTSPOOLFILE P	Alters attributes of output spooling files.	3-11
:BREAKJOB BS P	Suspends an executing job.	3-13
:CONSOLE	Changes the system console from its current device to another job-accepting (non-DS) terminal.	3-14
:DELETESPOOLFILE DS	Deletes a spooled devicefile.	3-15
:DISALLOW	Prohibits a user access to a specific operator command.	3-16
:DOWN	Removes a device from normal system use.	3-18
:DOWNLOAD	Downloads margin setting and vertical format control to an output device.	3-19
:DSCONTROL	Enables or disables the data communications link under control of the DS/3000 subsystem.	3-20
:FOREIGN	Creates a Foreign disc.	3-23
:GIVE	Assigns a DOWNed device to the diagnostics.	3-24
:HEADOFF	Stops header/trailer output to a device.	3-25
:HEADON	Resumes header/trailer output to a device.	3-26
:IMLCONTROL	Enables or disables the IML/3000 Subsystem; starts the CS trace facility.	3-27
↖ :JOBFENCE	Defines input priorities.	3-29
:JOBSECURITY	Controls the availability of certain job commands to a user.	3-30

Table 1-1. Console Operator Commands (Continued)

COMMAND NAME	DESCRIPTION	PAGE NO.
:LDISMOUNT	Logically dismounts a private volume set/class. (UV capability required)	3-31
:LIMIT	Limits the number of concurrently running jobs/sessions.	3-32
:LMOUNT	Logically mounts a private volume/class on a non-system domain disc drive. (UV capability required)	3-33
:LOG	Starts, restarts, stops User Logging. (LG capability required)	3-35
=LOGOFF	Aborts all jobs/sessions and prevents further log-ons by all except HIRPRI jobs/sessions.	3-36
=LOGON	Enables job/session processing following a =LOGOFF command.	3-37
:MPLINE	Supervises, monitors MTS/3000 activity	3-38
:MRJECONTROL	Controls MRJE/3000 remote communications activities.	3-41
:OUTFENCE	Defines priorities for output spooled files.	3-44
:REFUSE	Disallows jobs/sessions and/or data on a designated device.	3-45
:REPLY	Replies to a pending console request.	3-46
=REPLY	Same as :REPLY	
:RESUMEJOB <i>RJ</i>	Resumes a suspended job.	3-48
:RESUMESPOOL <i>RS</i>	Resumes a spooled device.	3-49
:SHOWCOM	Displays the status information about a communications device.	3-51
=SHUTDOWN	Closes down the operating system.	3-53
:SPEED	Changes terminal operating speed.	3-54
:STARTSPOOL	Initiates spooling of a device.	3-56
:STOPSPPOOL	Terminates spooling of a device.	3-58
:STREAMS	Enables or disables the users' ability to submit job/session and/or data streams.	3-59
:SUSPENDSPOOL <i>SS</i> <i>SSP</i>	Causes a spooled device to stop operation.	3-60
:TAKE	Deassigns a device that was :GIVEN to the diagnostics.	3-61
:UP	Allows a :DOWNed device to function again.	3-62
:VMOUNT	Enables or disables the private volumes facility.	3-63
:WARN	Sends an urgent message to jobs and sessions.	3-65
:WELCOME	Defines the message users receive when they log on the system.	3-67

# SYSTEM CONTROLS AND SPECIAL FUNCTIONS

SECTION

II

## INTRODUCTION

### SERIES II/III

The HP 3000 Series II/III System Control Panel provides controls and indicators used by you to initialize, stop, restart, and otherwise control the Series II/III Computer System operating under MPE IV. All switches located on the front of the control panel are three-position, spring-return rocker switches. These switches have a center-off position. They are pressed on the top or bottom half to produce the desired function. When released, they return to the center position.

The HP-IB Interface Module is discussed on page 2-2, and switch positions for cold loading through the Interface Module are shown in Figures 2-1 and 2-2.

Figure 2-3 contains a detailed drawing of the control panel and Table 2-1 lists and explains the function of the switches and indicators with reference letters to relate the two.

### SERIES 30/33

Operating the HP 3000 Series 30 and Series 33 Computer Systems depends primarily upon your understanding of the functions and uses of the controls and indicators of your system. There are switches and lights on the System Control Panel and System Console by which you communicate with your computer system. The lights indicate conditions existing in the system, while the switches are used to control the operation of the system.

Although the location, design and wording of the Series 30 and Series 33 System Control Panels differ, the functions and uses of both are essentially the same. The following pages give detailed explanations of the controls and indicators for both the Series 30 and Series 33 systems. The overall purpose of the System Control Panel is to provide the necessary system control, and to monitor disc and security level functions. The System Control Panels of the Series 30 and Series 33 are composed of software-related controls, security level controls and status indicator lights.

### SERIES 44

The Series 44 System Control Panel is composed of switches by which you control the operation of the system, and lights which indicate various conditions existing in the system. The Control and Maintenance Processor (CMP) allows you to duplicate the functions of the switches located on the System Control Panel from the System Console. Pages 2-16 through 2-27 contain information which will allow you to become familiar with the functions and uses of the controls, indicators and special features of your Series 44 computer system.

As this section deals with specialized controls and indicators for four different computer systems, the following table provides an easy reference guide to assist you in locating the information appropriate to your installation.

Table 2-1. System Controls and Functions Reference Guide

<b>SERIES II/III</b>	
The HP-IB Interface Module and System Startup	2-2
Switch Pattern When Cold Loading From Disc Drive	2-3
Switch Pattern When Cold Loading From Tape Drive	2-3
Series II/III System Control Panel	2-4
System Control Panel Switch/Indicator Functions	2-5
<b>SERIES 30/33</b>	
Series 30 System Control Panel	2-8
Series 30 Control Panel Switch/Indicator Functions	2-9
Series 33 System Control Panel	2-11
Series 33 Control Panel Switch/Indicator Functions	2-12
System Console (Series 30/33)	2-14
Front Panel Keys (Series 30/33)	2-15
<b>SERIES 44</b>	
Series 44 System Control Panel	2-17
Series 44 Control Panel Switch/Indicator Functions	2-18
Control and Maintenance Processor (CMP)	2-21
Series 44 Thumbwheel Switch Settings	2-24
Decimal/Pseudo Octal Conversion for DRT Numbers	2-26
Overtemp Shutdown	2-28

## THE HP-IB INTERFACE MODULE AND SYSTEM STARTUP

The HP-IB Interface Module is an optional hardware device which allows use of HP-IB peripherals such as the 2680A Laser Printing System and the 7976A (high speed) Magnetic Tape Drive on the HP 3000 Series III.

The Interface is an intelligent Input/Output module with its own Central Processor Unit and special firmware. All of its components are housed in a cabinet similar to the Series III I/O Expansion Bay, and this cabinet is located immediately to the right of the System Processor Unit. It is connected to the Series III Port Controller, as well as to the peripheral device(s) for which it interfaces.

If your system has an HP-IB Interface Module, the low order bits (rightmost 8 bits) of the system switch register must always be set to %175 (the "hard-coded" DRT number of the Interface Module) for system startup if the cold load device is connected to the HP-IB Interface Module. The high order bits (leftmost 8 bits), are set to the octal representation of the DRT number (as seen in the configuration listing) of the cold load device. See figures 2-2 and 2-3 for an illustration of the switch register pattern for startup from HP-IB Disc and Tape Drive.

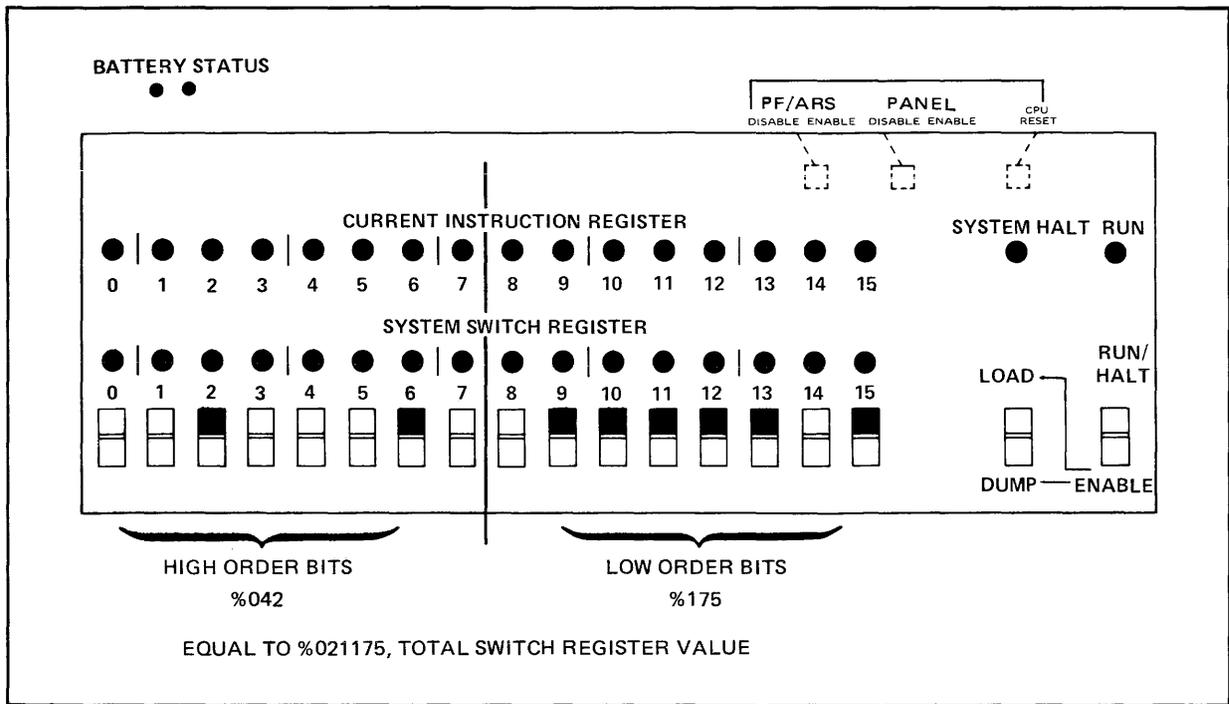


Figure 2-2. Switch Pattern When Cold Loading From HP-IB Disc Drive Configured as DRT #34

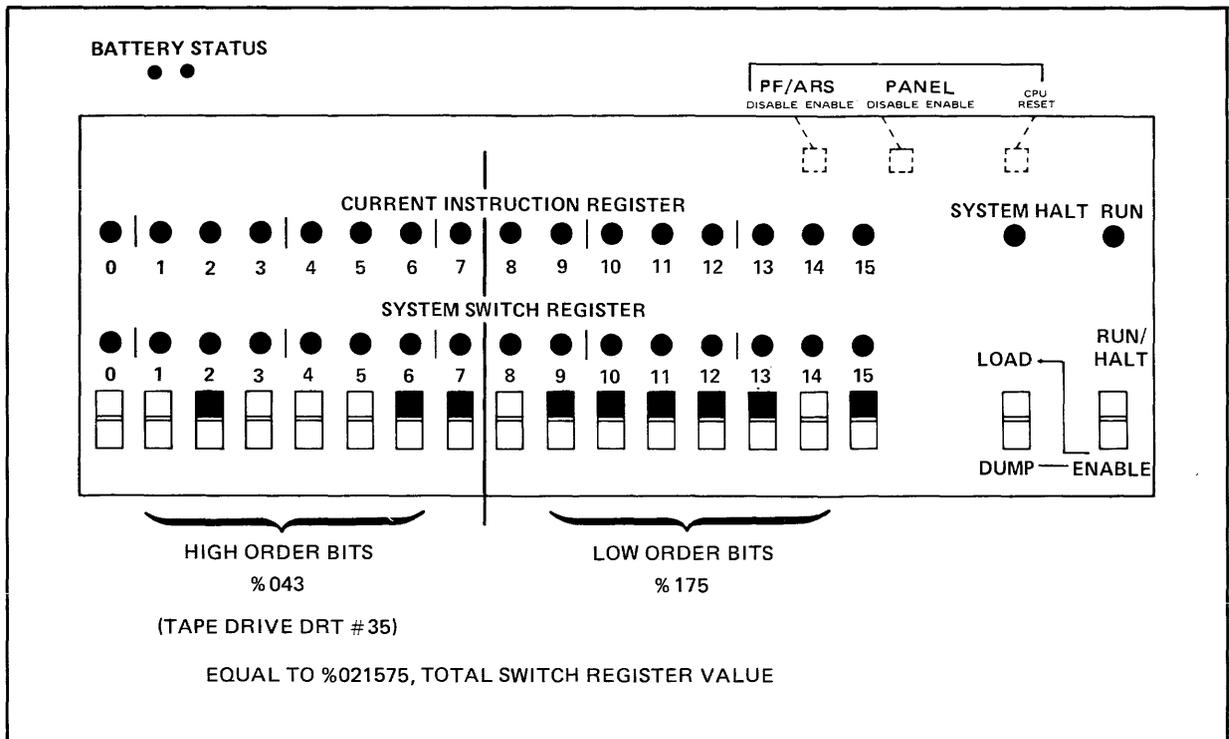


Figure 2-3. Switch Pattern When Cold Loading From HP-IB Tape Drive Configured as DRT #35

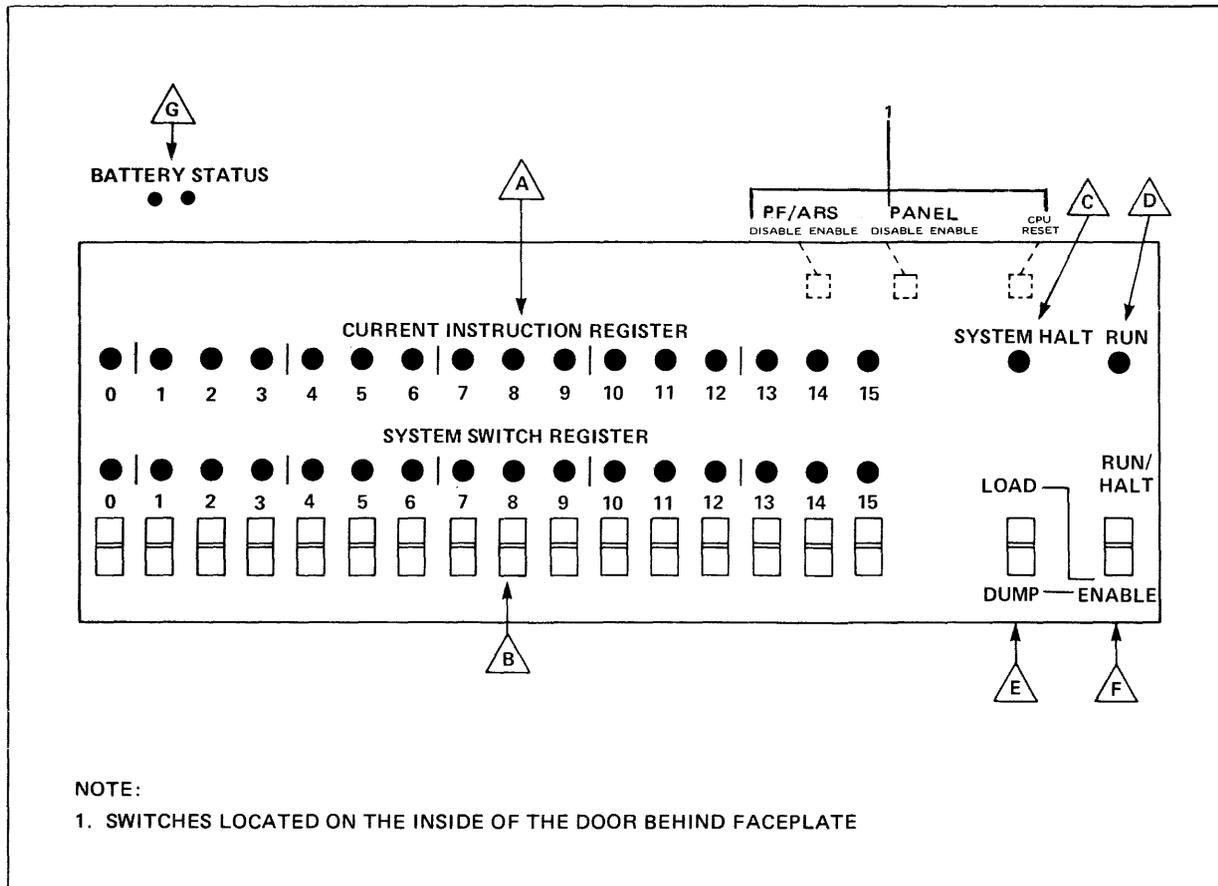


Figure 2-3. HP 3000 Series III System Control Panel

Three toggle switches are mounted on the back of the upper right portion of the HP 3000 System Control Panel:

- CPU RESET — Resets the circuits of the CPU.
- PANEL DSBL-ENBL — Disables and enables the control panel for use.
- PF/ARS DSBL-ENBL — Disables or enables the auto restart system program in the event of a power failure.

Table 2-2. System Control Panel Switch/Indicator Functions

SWITCH/INDICATOR	FUNCTION				
 CURRENT INSTRUCTION REGISTER	Displays the content of the current instruction register.				
 SYSTEM SWITCH REGISTER	Establishes the bit pattern of a 16-bit word. Press the upper half of the switch to set a bit to 1, the lower half to set a bit to 0. The light turns on when the bit is set to 1.				
 SYSTEM HALT	Lights when the computer halts because of an irrecoverable system error encountered by the hardware.				
 RUN	Indicates the system is executing normally (a program is running) or is paused (awaiting an interrupt).				
 LOAD/DUMP	<p>Used to load programs into computer memory from a device specified by the code set into the SYSTEM SWITCH REGISTER . DUMP copies the contents of main memory and the CPU registers to a device specified in the SYSTEM SWITCH REGISTER  as follows:</p> <table data-bbox="893 934 1274 1018"> <tr> <td>BIT 0-7</td> <td>I/O control byte*</td> </tr> <tr> <td>BIT 8-15</td> <td>I/O device number*</td> </tr> </table> <p>It uses a <i>preset</i> register to prevent operator error.</p> <p>The LOAD/DUMP switch  is effective only when the ENABLE switch  is also pressed and the computer is halted.</p>	BIT 0-7	I/O control byte*	BIT 8-15	I/O device number*
BIT 0-7	I/O control byte*				
BIT 8-15	I/O device number*				
 RUN/HALT	Pressing RUN/HALT changes the operational state of the computer. If the computer is running, pressing the RUN/HALT switch halts the computer. If the computer is halted, pressing the RUN/HALT switch starts the computer running.				
 ENABLE	Used to enable the LOAD/DUMP switch  . When the ENABLE switch  is pressed, the LOAD/DUMP switch can be activated.				
 BATTERY STATUS	<p>Shows the status of memory. If the lights are lit, the batteries are charged and memory is up; if they are blinking slowly the batteries are charging up and memory is operational; if they are blinking fast the batteries are discharging; and if the lights are not lit the batteries are not charged and memory is down.</p> <p><i>Note: Only one of the two lights may be operational, depending on the number of memory power supplies installed in the system.</i></p>				

\* For systems with an HP-IB Interface Module, bits 0-7 are set to the octal address of the dump device; bits 8-15 are set to the octal address of the Interface.

# THE SERIES 30 SYSTEM CONTROL PANEL

The System Control Panel is located behind the unlockable, magnetic-latch door on the right side of the front bezel of the shroud of the assembly. (Refer to figure x-1 for an illustration of the panel location. Refer to figures 2-1 and 2-2 for an illustration and discussion of each of the System Control Panel's switches and lights.)

The hardware-related controls are the RUN and HALT switches. While the system is running, the CPU can respond to the HALT switch but not to the RUN switch.

The software (MPE) related controls are the START, DUMP and LOAD switches. The SYSTEM DISC switch is used in conjunction with the START switch to configure the system disc. The thumbwheel switches, located directly below the START, DUMP and LOAD switches on the System Control Panel, set the channel and device addresses and are gated out when the respective switch is pressed.

The security level control switch is a three-positional, lock and key switch that controls the operational security of the system. The three levels are CTRL OFF/MAINT OFF, CTRL ON/MAINT OFF and CTRL ON/MAINT ON; each level is obtained by turning the key-switch to the desired position. The setting may be secured by physically removing the key. The key is removable in any of the three positions. Note also that the magnetic-latch door cannot be closed while the key is in place.

The Series 30 System Control Panel has two sets of status indicator lights. The RUN light, HALT light and PROCESSOR OVERTEMP light indicate operational conditions in the system. Additionally, on systems which contain a 7902 flexible disc drive there is a set of flexible-disc status indicators: the SELECTED light, the PROTECTED light and the READY light. These lights indicate operational conditions of the flexible disc.

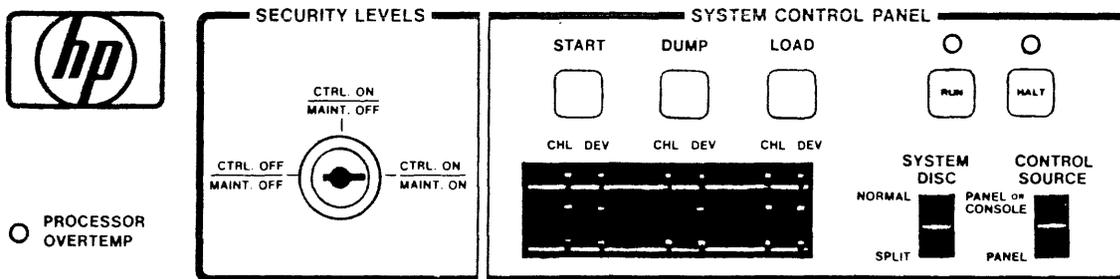
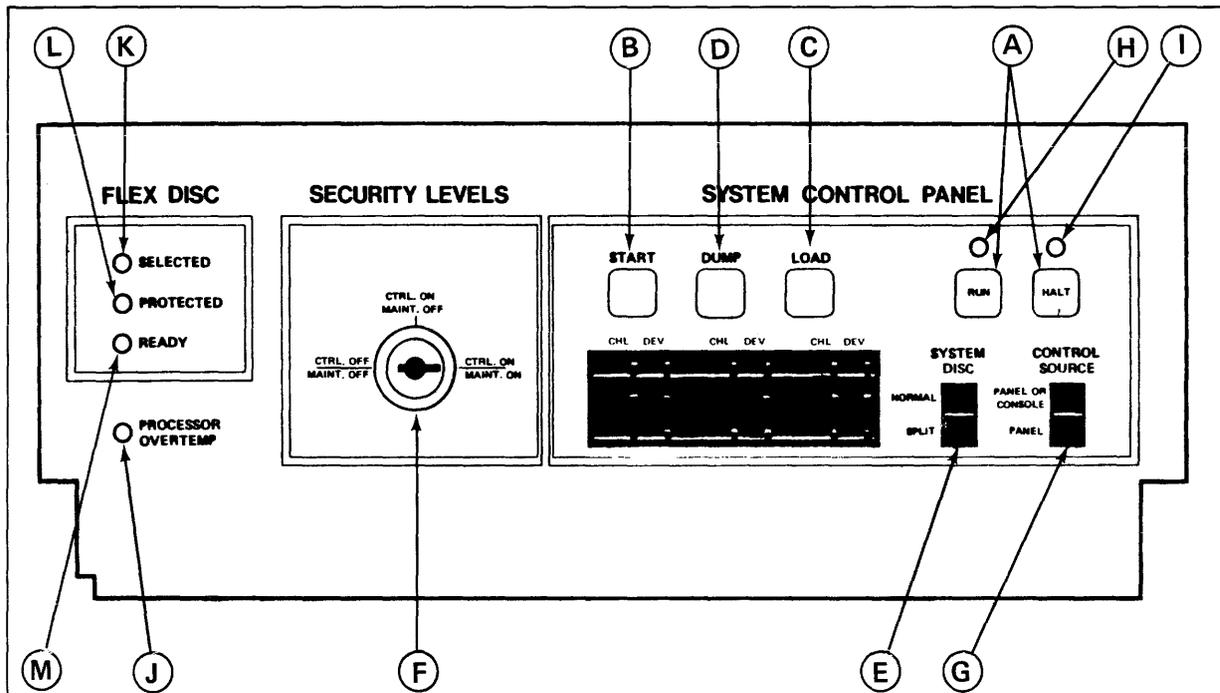


Figure 2-4. HP 3000 Series 30 (Without 7902 Flexible Disc Drive) System Control Panel



**(A) RUN and HALT**

Pressing these switches changes the operational state of the computer, setting the system in a run or halt mode.

**(B) START**

Pressing this switch initiates either a cool- or warmstart of the system. The device and channel address of the device from which the operation is to be performed are set in the thumbwheel switch directly below the START switch. (see p. 5-40 and 5-42)

**(C) LOAD**

Pressing this switch initiates a cold load from the device and channel set in the thumbwheel switch directly below. Coldstart, update and reload operations are begun with this switch. (see pp. 5-44, 5-46, and 5-48)

**(D) DUMP**

Pressing this switch initiates a dump of the system's memory. The channel and device address are set in the thumbwheel switch below the DUMP switch. (see p. 5-63)

**(E) SYSTEM DISC (NORMAL or SPLIT)**

This rocker switch allows loads and starts to be performed from discs such as the HP 7906 which has both fixed and removable portions, and from such discs as the HP 7925 which is entirely removable without a fixed portion.

1. When the system disc has both fixed and removable portions, use the NORMAL position if (a) the disc is configured as one device, or (b) the disc is configured as two devices with cool- or warmstart occurring from the removable portion. However, if the system disc is configured as two devices with cool- or warmstart occurring from the fixed portion, then the SPLIT position must be used.
2. If the system disc is entirely removable without a fixed portion, the NORMAL position must be used.

Figure 2-5. HP 3000 Series 30 (With 7902 Flexible Disc Drive) System Control Panel Switch/Indicator Functions

(F) SECURITY LEVELS

This is a three-position key-switch that controls the operational security level of the system. The functions of the three positions are as follows:

1. CTRL OFF/MAINT OFF: Disables the System Control Panel and System Console Control. Maintenance mode capability from the System Console is also disabled.
2. CTRL OFF/MAINT ON: Enables the System Control Panel. Also enables System Console Control if the CONTROL SOURCE switch on the System Control Panel is in the PANEL or CONSOLE position. Maintenance mode from the System Console remains disabled.
3. CTRL ON/MAINT ON: Enables the System Control Panel. Also enables System Console Control if the CONTROL SOURCE switch on the System Control Panel is in the PANEL or CONSOLE position. Maintenance mode capability from the console is enabled.

(G) CONTROL SOURCE

This rocker switch determines whether the System Control Panel or both the System Control Panel and System Console Control can be sources of control for the system. Remember that control must be enabled by the SECURITY SWITCH.

(H) RUN light

Indicates the system is executing normally (a program is running) or is paused (awaiting an interrupt).

(I) HALT light

Indicates any of several conditions: the HALT switch was pressed; the =SHUTDOWN command was initiated; the CPU HALT instruction was executed; overtemp condition or hardware problem.

(J) PROCESSOR OVERTEMP light

Indicates the temperature has exceeded the threshold (approximately 135 degrees F/57.3 degrees C) of any temperature transducer located across the top of the card cage. This indicator will remain lit until the over-temperature condition no longer exists and a START, LOAD or DUMP is performed (these functions do a system reset which clears the over-temp latch).

SERIES 30 WITH 7902 FLEXIBLE DISC DRIVE ONLY.

(K) SELECTED light

Indicates the disc device is being accessed.

(L) PROTECTED light

Indicates the disc is protected; that is, the write enabling capability has been removed.

(M) READY light

Indicates the device is functional and contains a flexible disc.

Figure 2-5. HP 3000 Series 30 System Control Panel Switch/Indicator Functions (Continued)

## **THE SERIES 33 SYSTEM CONTROL PANEL**

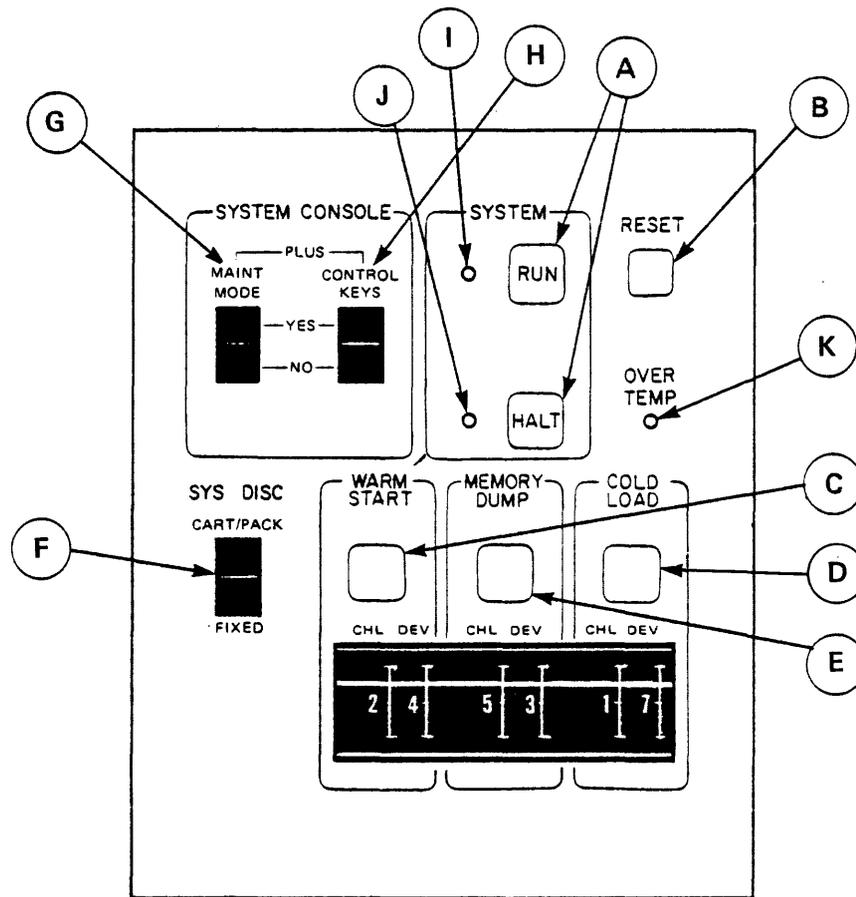
The System Control Panel is located behind the lockable front door. (Refer to figure x-7 for an illustration of the panel location. Refer to figure 2-6 for an illustration and discussion of each of the System Control Panel's switches and lights.)

The hardware-related controls are the RUN, HALT and RESET switches. While the system is running, the CPU responds only to the HALT switch, not to the RUN and RESET switches.

The software (MPE) related controls are the WARMSTART, MEMORY DUMP and COLD LOAD switches. The SYS DISC switch is used in conjunction with the WARMSTART switch to configure the system disc. Cool- and warmstart are available via steps involving the WARMSTART switch. The thumbwheel switches, located directly beneath the software-related controls, set the channel and device addresses and are gated out when the respective switch is pressed.

The security level controls are the MAINT MODE and CONTROL KEYS switches. These provide for system maintenance and modification control by enabling or disabling the System Console. Once set, these controls can be physically secured by locking the panel door.

The status indicator lights are the RUN light, HALT light and OVER TEMP light.



- (A) RUN and HALT**  
 Pressing these switches changes the operational state of the computer, setting the system in a run or halt mode.
- (B) RESET**  
 Pressing this switch enacts a limited reset of the system by clearing the Interrupt Status Register and by setting the ROM Address Register "RAR" to zero (back to the beginning of micro-code). Use of this switch alone cannot completely reset the system.
- (C) WARMSTART**  
 Pressing this switch initiates either a cool- or warmstart of the system from the channel and device set in the thumbwheel switch directly below it. (see p. 5-40)
- (D) COLDLOAD**  
 Pressing this switch initiates a coldload from the device and channel set in the thumbwheel switch directly below it. The three coldload options are coldstart, update and reload. (See pp. 5-46, 5-48, and 5-50.)
- (E) MEMORY DUMP**  
 Pressing this switch initiates a dump of the system's memory. The channel and device address are set in the thumbwheel switch directly below it. (see p. 5-63)

Figure 2-6. HP 3000 Series 33 System Control Panel Switch/Indicator Functions

(F) SYSTEM DISC (CART/PACK or FIXED)

This rocker switch allows loads and starts to be performed from discs such as the HP 7906 which has both fixed and removable portions, and from such discs as the HP 7925 which is entirely removable without a fixed portion.

1. When the system disc has both fixed and removable portions, use the CART/PACK position if (a) the disc is configured as one device, (b) the disc is configured as two devices with cool- or warmstart occurring from the removable portion. However, if the system disc is configured as two devices with cool- or warmstart occurring from the fixed portion, then the FIXED position must be used.
2. If the system disc is entirely removable without a fixed portion, then the CART/PACK position must be used.

(G) MAINT MODE

Pressing this rocker switch enables (YES) or disables (NO) the System Console as a maintenance console for updating the maintenance panel display. (For the maintenance panel display to appear on the System Console, remember that the Maintenance Display Software Cassette must be loaded into the console.)

(H) CONTROL KEYS

Pressing this rocker switch enables (YES) or disables (NO) System Console Control of the system. If set to YES, then control of system functions (starts, loads, dumps, run and halt) can be accessed via use of the numerical pad on the System Console as well as through use of the System Control Panel. If set to NO, however, then system control can occur only via the System Control Panel. Note also that the CONTROL KEYS switch does not effect the status display capability of the System Console.

(I) RUN light

Indicates the system is executing normally (a program is running) or is paused (awaiting an interrupt).

(J) HALT light

Indicates any of several conditions: the HALT switch was pressed; the =SHUTDOWN command was initiated; the CPU HALT instruction was executed; overtemp condition or hardware problem.

(K) OVERTEMP light

Indicates the temperature has exceeded the threshold (approximately 135 degrees F/57.3 degrees C) of any temperature transducers located across the top of the card cage. If the OVERTEMP light goes on, the Console Operator should immediately press the HALT switch and conduct a system shutdown.

Figure 2-6. HP 3000 Series 33 System Control Panel Switch/Indicator Functions (Continued)

## **SERIES 30/33 SYSTEM CONSOLE**

The system console is a special HP terminal which contains additional hardware and firmware to provide more capabilities than that of an HP 2645A terminal. It appears to the operating system (MPE) as a standard system console, therefore it displays the normal MPE console information and can be used as a session device. In addition, it is a console control panel for the system and can display system status.

As you use the system console, you will find that the console can operate independently of any other system hardware or software. For instance, the system console can be used as a maintenance tool. Cartridge tape based diagnostics, can be run from the system console regardless of the state of the basic system and peripheral devices. For further information on these diagnostics, refer to Section V.

### **STATUS DISPLAY**

A one line status display is provided on the system console. This line displays the RUN/HALT, over-temperature, and CPU utilization status. It is located at the top of the console screen and is displayed in inverse video. When it is present on the screen, the line is protected by memory lock (that is, it will never roll off the screen) and the cursor is restricted from this line to prevent overwrite.

**RUN/HALT FIELD.** This field either displays RUN in half-bright inverse video or HALT in full-bright inverse video (full bright is used to indicate an abnormal condition).

**TEMPERATURE FIELD.** This field is blank in half-bright inverse video for normal temperature, or full-bright inverse video for over temperature (full bright is used to indicate an abnormal condition).

**CPU UTILIZATION FIELD.** This field displays the percentage of CPU utilization, which is defined as the percent of time that the CPU is not executing the PAUSE or HALT instructions. The field displays the message CPU UTIL-xxx% in half-bright inverse video. The three-digit field contains a percentage number from 0 to 100. This percentage is always set to zero when the CPU status is HALT.

### **SPECIAL STATUS DISPLAY**

A special one line status display appears during power down or during similar conditions. This line displays a single half-bright inverse video across the top of the console screen. The screen only displays the CPU utilization percentage (no value will be indicated).

## FRONT PANEL KEYS

The system console front panel has six special function keys, located on the numeric pad, which provide you with front panel functions when used with the control key (CNTL) on the main keyboard. By simply holding down the control key and pressing one of these six keys, you are able to perform one of the functions in figure 2-3.

### NOTE

The system console front panel must have the front panel keys enabled. If they are disabled, the status display works but the control key (CNTL) and keys 1, 2, 4, 5 and 6 result in the following message:

FRONT PANEL KEYS DISABLED.

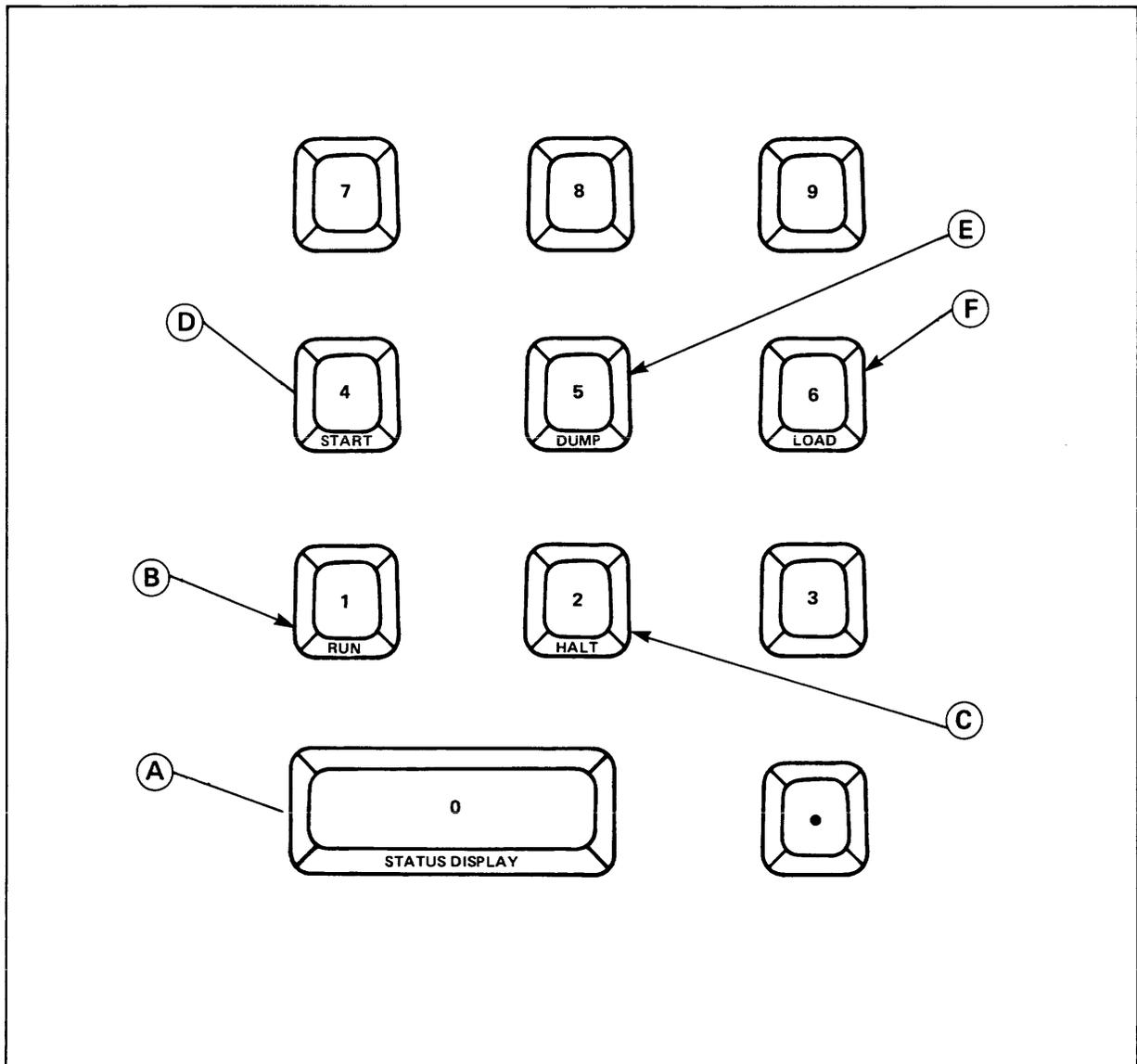


Figure 2-7. System Console Keys

Ⓐ STATUS DISPLAY (CNTL 0)

Pressing this key causes the status display to be alternately removed from, then replaced on the first line of the CRT screen. When the status display line is off, pressing CNTL 0 causes the display to reappear at the top line of the screen. The top line is overlaid under this condition if the cursor is not at the top line, the screen display is rolled down one line, along with the cursor. The status display is inoperative if the CPU is overtemperature.

Ⓑ RUN (CNTL 1)

Sets the run flip-flop in the CPU. The status display will reflect the results of pressing this key.

Ⓒ HALT (CNTL 2)

Operates in a manner similar to that of the RUN key. It resets the run flip-flop in the CPU. The status display indicates this state.

Ⓓ START (CNTL 4)

Initiates a warmstart or coolstart. When pressed, the question WHICH OPTION <WARMSTART/COOLSTART>? will appear on the system console. After your reply, INITIAL is loaded from the system disc whose number is defined by the system front panel WARMSTART thumbwheel switches.

Ⓔ DUMP (CNTL 5)

Initiates a main memory dump by telling a software program to dump the contents of main memory to a storage device, which is determined by the system front panel MEMORY DUMP thumbwheel switch.

Ⓕ LOAD (CNTL 6)

Initiates a cold load from a serial storage device. The serial storage device is selected by the COLD LOAD thumbwheel switches on the system front panel.

Figure 2-7. System Console Keys (Continued)

## THE SERIES 44 SYSTEM CONTROL PANEL

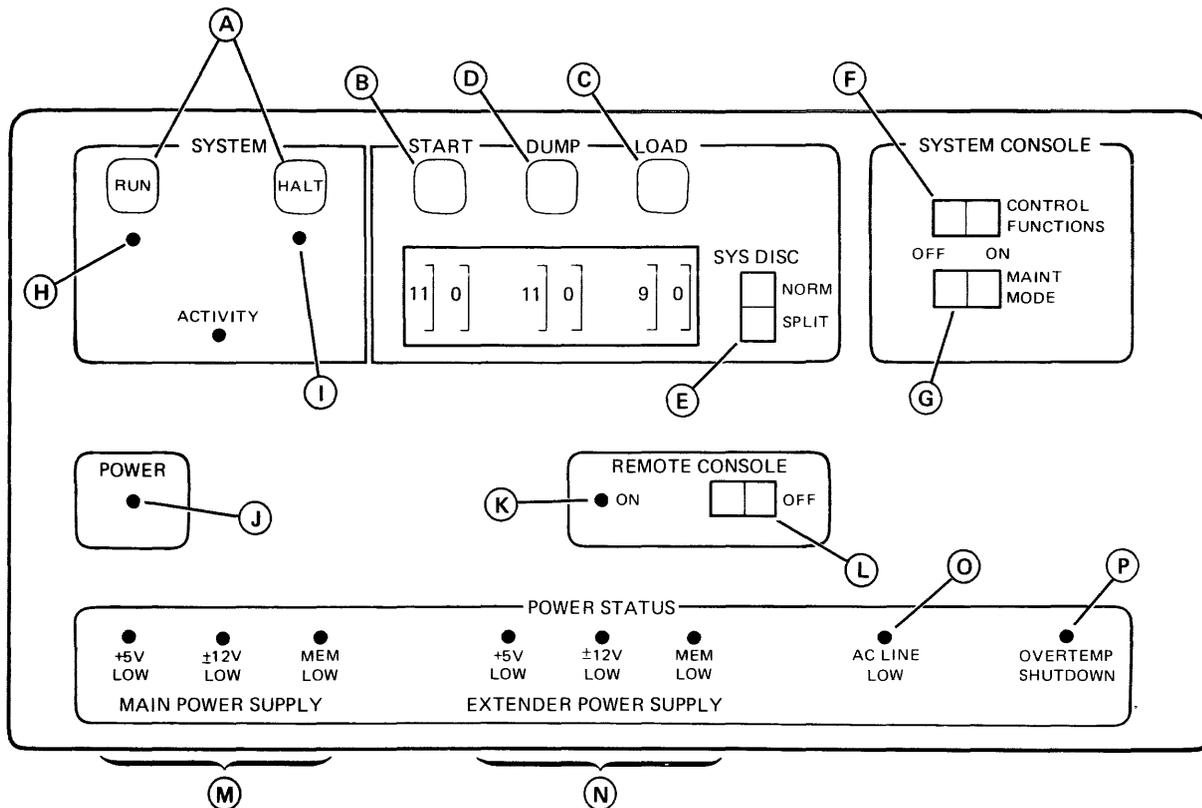
The System Control Panel is located behind the lockable front door. (Refer to figure x-9 for an illustration of the panel location. Refer to figure 2-8 for an illustration and discussion of each of the System Control Panel's switches and lights.)

The hardware-related controls are the RUN and HALT switches. While the system is running, the CPU responds only to the HALT switch, not to the RUN switch.

The software (MPE) related controls are the START, DUMP, and LOAD switches. Cool- and warmstart are available via steps involving the START switch. Other system startup options utilize the LOAD switch. The SYS DISC switch is used in conjunction with the START switch to configure the system disc. The thumbwheel switches, located directly beneath the software-related controls, set the channel and device addresses, and are gated out when the respective switch is pressed.

The security level controls are the MAINT MODE and CONTROL FUNCTIONS switches. These provide for system operation, system maintenance, and modification control by enabling or disabling the Control and Maintenance Processor (CMP). Once set, these controls can be physically secured by locking the panel door.

The status indicator lights are the RUN light, HALT light, and ACTIVITY light. Other indicator lights include the DC Power indicator, main and extender power supply failure indicators, and the system warning lights which indicate AC Low and system overtemperature condition (in which case the system will automatically shut down).



047020-3

Figure 2-8. Series 44 System Control Panel Switch/Indicator Functions

**A RUN and HALT**

Pressing these switches changes the operational state of the computer, setting the system in a run or halt mode.

**B START**

Pressing this switch initiates either a cool- or warmstart of the system. The device and channel address of the device from which the operation is to be performed are set in the thumbwheel switches directly below the START switch. (See pp. 5-69 through 5-70.)

**C LOAD**

Pressing this switch initiates a cold load from the device and channel set in the thumbwheel switches directly below the LOAD switch. Cold start, update and reload operations are begun with this switch. (See pp. 5-71 through 5-80.)

**D DUMP**

Pressing this switch initiates a dump of the system's memory. The channel and device address of the system disc (or other device from which the Software Dump Facility is being loaded) are set in the thumbwheel switches below the DUMP switch. (See p. 5-82.)

## **E SYSTEM DISC (NORMAL or SPLIT)**

This rocker switch allows loads and starts to be performed from discs which have both fixed and removable portions, and from such discs as the HP 7925, which is entirely removable without a fixed portion.

1. When the system disc has both fixed and removable portions, use the NORMAL position if (a) the disc is configured as one device, or (b) the disc is configured as two devices with cool- or warmstart occurring from the removable portion. However, if the system disc is configured as two devices with cool- or warmstart occurring from the fixed portion, then the SPLIT position must be used.
2. If the system disc is entirely removable without a fixed portion, the NORMAL position must be used.

## **F CONTROL FUNCTIONS**

This switch, when set to the ON position, enables the Control and Maintenance Processor (CMP), which allows you to enter commands which correspond to the controls on the System Control Panel via the system console.

## **G MAINT MODE**

This switch, when set to the ON position, enables the Maintenance functions of the Control and Maintenance Processor (CMP).

## **H RUN Light**

Indicates the system is executing normally (a program is running), or is paused.

## **I HALT Light**

Indicates any of several conditions: the HALT switch was pressed; the =SHUTDOWN command (or CMP HALT command) was initiated; the CPU HALT instruction was executed; overtemp condition was sensed; a hardware problem exists.

## **J POWER Light**

Indicates DC power integrity.

## **K REMOTE CONSOLE Light**

Indicates that the terminal on channel 1 port 1 is in parallel with the system console.

## **L REMOTE CONSOLE Switch**

This switch, when ON, indicates that the remote console, the terminal connected to channel 1, port 1, is in parallel with the system console. This connection can be hardwired, or made over a dial-up modem. Usually used for maintenance and diagnostics.

## **M MAIN POWER SUPPLY Lights**

Indicates status of the main power supplies. If lights are on, a power supply has failed.

## **N EXTENDER POWER SUPPLY Lights**

Indicates status of extender power supplies. If lights are on, a power supply has failed.

**O SYSTEM WARNING — AC LOW**

Indicates AC power coming into the system is lower than 10% below nominal.

**P SYSTEM WARNING — OVERTEMP**

Indicates the temperature has exceeded the threshold (approximately 135 degrees F, 57.3 degrees C) of any temperature transducer located across the top of the card cage. This indicator will remain lit until the over-temperature condition no longer exists, and power is cycled. (This function does a system reset, which clears the overtemp latch.) Note that the CMP automatically shuts down the system when an overtemp condition is sensed, and you must cycle the main power switch before system startup can be performed.

# THE SERIES 44 CONTROL AND MAINTENANCE PROCESSOR (CMP)

The CMP provides control functions to perform system startup, halt, and memory dump, and aids in system maintenance by including a system selftest, an IOMAP display, and a maintenance display. The CMP provides for an acceptable level of system security, in that the system front panel remains behind the lockable front door, through which the power and remote lights and switches are not accessible. The operator is therefore able to perform system startup, halt, run and dump functions without the necessity of accessing the front panel switches, so long as the CMP control functions have been previously enabled by the System Manager.

All communication with the CMP must take place from the terminal originally configured as the system console (Channel 1, Device 0). When the system is running, the CMP will usually be inactive, and commands are entered via MPE in the usual manner (with the exception of the :SPEED command—see p. 2-21). However, when for any reason, you are unable to communicate with the operating system (MPE), by entering a control B character (depress CNTL and B simultaneously) from the system console, the CMP is enabled, and automatically prompts you for a CMP command. In the event that the operating system is not functioning (as in the case of a system halt), the CMP is accessed by simply entering a carriage return.

## NOTE

You should be aware that when the CMP is enabled while MPE is operational (via the Control B character), any messages from users or from MPE which would normally be displayed on the system console (such as “tellops,” device status messages, etc.) are lost.

This is due to the fact that MPE has no way of knowing that the CMP is in control, and messages are not saved. It is therefore advisable to perform all CMP functions either before MPE is operational, or after a =SHUTDOWN of MPE.

## CMP COMMANDS

The following list gives the commands accepted by the CMP Operating System. CMP maintenance display commands are not included, since these commands are intended for use by HP service personnel only. (See Appendix H for discussion on maintenance commands).

HELP	Prints the list of CMP commands.
HALT	Halts the system. Causes the run/halt flip-flop to be set to halt. (Performs the same function as the halt button on the system control panel.)
RUN	Causes the run/halt flip-flop to be set to run. (Performs the same function as the run button on the system control panel.)
DUMP	Performs a dump of main memory to the device specified by the classname DDUMP in the system's configuration. (If using the interactive mode of the Software Dump Facility, any classname may be specified.) If the system is running when this command is entered, the message “IS IT OK TO ABORT THE SYSTEM?” will be displayed. You must enter “YES” to perform a dump.

**LOAD** Performs a cold load (COLDSTART, RELOAD, or UPDATE), from the serial storage device whose channel and device address are set in the thumbwheel switches on the system front panel. If the system is running when the command is entered, the message "IS IT OK TO ABORT THE SYSTEM?" will be displayed. You must enter "YES" to perform the load.

**START** Performs a startup (WARMSTART or COOLSTART) from the system disc. If the system is running when the command is entered, the message "IS IT OK TO ABORT THE SYSTEM?" will be displayed. You must enter "YES" to perform the START.

**SELFTEST** Initiates a selftest of the system. If the system is running when the command is entered, the message "IS IT OK TO ABORT THE SYSTEM?" will be displayed. You must enter "YES" to continue the selftest. Note that if the system is running when the command is entered, only the CMP test is performed. (See Appendix H for more detailed information on SELFTEST).

**CAUTION** — This test should not be run when MPE is operating, as the system will halt after the test is performed. Data may be lost in this way.

**LOG** This command displays a log of actions performed or detected by the CMP. The items which are entered in the log are:

Display On  
Selftest OK  
Selftest Failed  
Load  
Load Failed  
Start  
Start Failed  
Dump  
Dump Failed  
Halt  
Run  
System Halted  
Shuttest  
Power On

These events are listed along with the elapsed time (not including power off time) since the event occurred. The last 63 events are shown. The log is retained during a power failure since it is stored in memory, which is on battery backup. An example is:

### Event Log

Days	Hrs	Min	Since Event
2	23	05	Power On
	3	20	Overtemp Shutdown
	3	20	Power On
	2	25	System Halted
	2	20	Start Failed
	2	05	System Halted
	2	03	Load Failed
	1	51	System Halted
	1	50	Cold Load
	1	50	Selftest Failed
		03	Load

**DISPLAY** This command causes the maintenance display to appear on the screen. (See Appendix H for further information.)

**SPEED** This command allows the user to change baud rates when MPE is not running. The receive and transmit baud rates are specified in the command, and must be identical to be compatible with MPE and the ADCC. This command is identical in operation to the MPE command (see the :SPEED command in Section III).

**:SPEED** When a colon (:) is entered before the CMP SPEED command, the speed is simultaneously changed for the CMP and MPE. Note that the CMP baud rate and the MPE baud rate must be the same in order for certain CMP failure messages to be printed. Note that this command should always be used when changing the speed at the system console. Do not use the MPE :SPEED command.

**SHUTTEST** This command tests the power fail and overtemp shutdown circuitry on the CMP and in the power supply. (See Appendix H for more detailed information on SHUTTEST.)

**IOMAP** This command prints the current system configuration. The memory size, control panel switches, and all channels and devices in the system are identified.

#### NOTES

Invalid command names will cause the message “INVALID COMMAND, USE HELP FOR INFO” to be displayed.

Any equal signs or commas are treated as blanks. Both upper and lower case letters are accepted.

See Appendix H for further information on the selftest commands.

## **SERIES 44 THUMBWHEEL SWITCH SETTINGS**

There are three pairs of thumbwheel switches located on the Series 44 front panel (see Figure 2-1), which correspond with the START, DUMP, and LOAD functions of the machine. These switches are initially set by your HP Customer Engineer when he/she installs your system. Although it is unlikely that you will need to change these settings, the following discussion and conversion table are provided so that in the event of a major reconfiguration of your system, or the switches being accidentally changed, you can reset them with little inconvenience.

### **DEVICE ADDRESS AND CHANNEL ADDRESS**

When you press the START, DUMP, or LOAD button, the system must read from the appropriate device, according to the function selected. The thumbwheel switches are set to the channel and device addresses of the devices selected to perform each function. If incorrectly specified, however, the system is unable to execute the desired function. Therefore, it is essential that the addresses are correctly set on the thumbwheel switches.

The address for each of the three sets of thumbwheel switches is composed of two elements:

- The **HARDWARE CHANNEL NUMBER** refers to the number assigned to the physical channel board in the main cabinet of the machine.
- The **DEVICE CONTROLLER NUMBER** refers to the number assigned to the physical device controller which is connected via cables to the hardware channel board.

The hardware channel boards which can be referenced by the thumbwheel switches are numbered 4 through 11. Each board may have as many as 8 device controllers connected to it. The first device controller on a board is device controller number zero, the last is number seven.

If the system disc is connected to hardware channel board number 11, the channel thumbwheel switch under the START button is set to 11. If the disc is wired to the device controller number 0 on this channel, the device thumbwheel switch is set to 0. Therefore, the address of the system disc which is accessed by the START button is 110. This device is on controller number 0, and hardware channel number 11.

### **CHANNEL AND DEVICE ADDRESS AND DRT NUMBER**

The combination of the channel and device address numbers is called the DRT or Device Reference Table number of the device. This DRT number is expressed in two different ways on the system.

- The decimal representation is the number which identifies the device's DRT# in the system configuration listing. Here, the number is expressed in a decimal, or base ten format.
- The "pseudo-octal" representation of the decimal DRT# of the device is the number you see on the thumbwheel switches. It is referred to as "pseudo-octal", since true octal, or base eight, is represented in groups of 8; and as previously mentioned, the hardware channel boards, and thus the channel address numbers, range from 4 through 11.

It is therefore important in some instances to be able to convert from the decimal representation of the DRT# as seen in the configuration listing, to the octal-like, or pseudo-octal representation of the DRT# of a given device, in order to be able to set the thumbwheel switches correctly.

You can easily convert one representation to another if you follow these simple steps:

Pseudo-octal to Decimal

1. Determine the channel and controller numbers for the device. This is the pseudo-octal representation.
2. Multiply the channel number by 8 (because you can have 8 controllers connected to one channel board).
3. Add the device controller number to the product of the above multiplication. This is the decimal equivalent of the value on the thumbwheel switches.

$$\begin{array}{r} 11 \quad (\text{channel number}) \\ \underline{\times 8} \quad (\text{controllers per board}) \\ 88 \\ \underline{+ 0} \quad (\text{device controller number}) \\ 88 \quad (\text{decimal representation of DRT\#}) \end{array}$$

Decimal to Pseudo-octal

1. Look at the I/O configuration listing for your system to find the decimal DRT# of the device.
2. Divide this number by 8 (because you have 8 controllers on one channel board). This produces the channel number.
3. The remainder of the above division is the controller number.
4. The combination of channel number and controller number is the pseudo-octal DRT# of the device. This is the number displayed on the thumbwheel switches.

$$88 (\text{decimal DRT\#}) / 8 (\text{controllers}) = 11 (\text{channel \#})$$

remainder: 0 (device #) = 110 on thumbwheel switches

To further simplify conversion, you may use the following table to convert from one format to another:

Table 2-2. Decimal/Pseudo Octal Conversion for DRT Numbers

Decimal DRT# (Configuration Listing)	Pseudo-Octal DRT# (Thumbwheel Switches)
32	40
33	41
34	42
35	43
36	44
37	45
38	46
39	47
40	50
41	51
42	52
43	53
44	54
45	55
46	56
47	57
48	60
49	61
50	62
51	63
52	64
53	65
54	66
55	67
56	70
57	71
58	72
59	73
60	74
61	75
62	76
63	77
64	80
65	81
66	82
67	83
68	84
69	85
70	86
71	87
72	90
73	91
74	92
75	93
76	94
77	95
78	96
79	97
80	100
81	101
82	102

Table 2-2. Decimal/Pseudo Octal Conversion for DRT Numbers (Continued)

Decimal DRT# (Configuration Listing)	Pseudo-Octal DRT# (Thumbwheel Switches)
83 .....	103
84 .....	104
85 .....	105
86 .....	106
87 .....	107
88 .....	110
89 .....	111
90 .....	112
91 .....	113
92 .....	114
93 .....	115
94 .....	116
95 .....	117

## **OVERTEMPERATURE SHUTDOWN**

A built-in safety feature of the HP 3000 Series 44 is the overtemp shutdown facility, which may prevent serious damage to the components and other electronic equipment in the computer due to overheating. When the internal temperature reaches approximately 135 degrees F. (57.3 degrees C.), the Overtemp Warning Indicator (see page 2-16) is lit. This indicator is continually monitored by the Control and Maintenance Processor (CMP), so that if an overtemperature condition occurs, the CMP, after logging the event for future reference, prints a message on the system console stating that the system is being shutdown due to overheating, and then systematically shuts down all power to the system except memory, which continues to operate off of AC power. As in a power failure shutdown, the operating environment prior to the shutdown is preserved in main memory, so that when power is restored there will be no significant loss of data.

It is important to remember, that when an overtemperature condition occurs, your HP Customer Engineer should be contacted before power is restored to the system, as it is possible that some internal failure has caused the system to overheat. Your CE will instruct you as to what steps to take at this point.

Power can be restored to the system by cycling the main power switch, that is, turning the switch to the OFF position, and then to the ON position. The main power switch is located at the bottom right rear of the system (see figure 5-1). This step initiates the internal powerfail recovery routines, which brings the system back to the operating environment which existed before the shutdown occurred.

# CONSOLE OPERATOR COMMANDS

SECTION

III

Operator Commands, provided by MPE, are described in this section. The commands are presented alphabetically by command name for easy reference. For each command, the following format is shown:

- **SYNTAX** Shows the format of the command.
- **PARAMETERS** Describes the variables in the command.
- **NOTES** Describes in detail the command and related special considerations.
- **EXAMPLES** Shows the command in use.
- **TEXT DISCUSSION** Shows where the command is described in the text portion of this and other related manuals.

There are four types of commands discussed in this section:

- Job and session commands for controlling batch and interactive processing.
- Device and devicefile commands for controlling and monitoring a device.
- Message commands for sending, replying and receiving messages.
- Communications commands for controlling data communications links.

These command descriptions can be rearranged according to their function as shown in Table 3-1.

Table 3-1. Types of Operator Commands

Job/Session Commands	:ABORTJOB/=ABORTJOB :ACCEPT :ALLOW :ALTJOB :BREAKJOB :DISALLOW :JOBFENCE :JOBSECURITY :LIMIT :LOG =LOGOFF =LOGON :REFUSE :RESUMEJOB =SHUTDOWN
Device/Devicefile Commands	:ABORTIO/=ABORTIO :ALTPOOLFILE :CONSOLE :DELETESPOOLFILE :DOWN :DOWNLOAD :FOREIGN :GIVE :HEADOFF :HEADON :LDISMOUNT :LMOUNT :OUTFENCE :RESUMESPOOL :SHOWCOM :SPEED :STARTSPOOL :STOPSPPOOL :STREAMS :SUSPENDSPOOL :TAKE :UP :VMOUNT
Message Commands	:REPLY/=REPLY :WARN :WELCOME
Communications Commands	:DSCONTROL :IMLCONTROL :MPLINE :MRJCONTROL

# :ABORTIO/=ABORTIO

Aborts all pending I/O requests for a device.

## SYNTAX

```
:ABORTIO ldn
```

## PARAMETERS

*ldn* The logical device number of the device for which I/O is being aborted.

## NOTES

This command causes all pending I/O operations on the specified *ldn* to be aborted. If no queued I/O requests are present at the time the command is issued, the message "NO I/O to ABORT for DEVICE #*ldn*" will be printed on the system console.

JOB/DATA accepting devices always have outstanding read requests pending due to the auto-recognition feature of MPE. The :ABORTIO command is used to clear these pending input requests. Clearing all outstanding I/O requests is sometimes required to allow proper execution of other console commands. In certain cases :ABORTJOB, :TAKE, :DOWN, and :REFUSE will not correctly function unless an :ABORTIO command is first issued to clear pending I/O operations on the appropriate device.

### NOTE

In the event that :ABORTIO is not effective from the system console, =ABORTIO may be used. The =ABORTIO command should be used *only* when the :ABORTIO command cannot be executed, or the console is busy.

## EXAMPLES

To abort all pending output requests for logical device 20, enter;

```
:ABORTIO 20  
11:16/3 NO I/O TO ABORT FOR DEVICE 20
```

To completely clear spooled device 5 it is necessary to abort all pending I/O operations as shown below:

```
:STOPSPPOOL 5  
11:20/31/SP#5/STOPPED  
11:20/31/LDEV#5 NOT READY  
:REFUSE 5  
:ABORTIO 5  
:ABORTIO 5  
11.21/40/NO I/O TO ABORT FOR DEVICE 5
```

## TEXT DISCUSSION

None.

# :ABORTJOB/=ABORTJOB

Aborts a job or session.

## SYNTAX

<code>:ABORTJOB</code>	$\left\{ \begin{array}{l} \#Jnnn \\ \#Snnn \\ [jobname,] username.acctname \end{array} \right\}$
------------------------	--

## PARAMETERS

<code>#Jnnn</code>	A job number.
<code>#Snnn</code>	A session number.
<code>jobname</code>	The name of the job identified by SHOWJOB.
<code>username</code>	A user name.
<code>acctname</code>	An account name.

## NOTES

This command terminates the designated job or session and displays the message \* SESSION (or JOB) ABORTED BY SYSTEM MANAGEMENT \* on the job/session list device. Although the job/session is abnormally terminated, standard cleanup is performed (log records are issued and CPU connect times are updated).

:ABORTJOB can be applied to *waiting* as well as executing jobs/sessions. If the input devicefile for a ready batch job is spooled, then it will be deleted; whereas if the output devicefile is spooled, it is made ready for spooling. This is the case whenever a batch job terminates.

The successful execution of an :ABORTJOB command results in a log-off message associated with the job (if the job was in execution) or session affected as shown below:

```
:ABORTJOB #J9  
11:20/#J9/34/LOGOFF
```

If the log-off message does not appear, it means the affected process was waiting or is not in an abortable state. One reason for this can be outstanding device allocation messages that have not been replied to. You must satisfy the allocation message to allow the :ABORTJOB to continue by responding with a REPLY *pin*: 0 (where *pin* is the process identification number). This is a negative response to an allocation message and causes a file open error in the accessing program, as shown in one of the examples below.

### NOTE

In the event that :ABORTJOB is not effective from the system console, =ABORTJOB may be used. The =ABORTJOB command should be used *only* when the :ABORTJOB command cannot be executed, or the console is busy.

## EXAMPLES

To terminate session number 139, enter:

```
:ABORTJOB #S139  
17:10/#S139/34/LOGOFF
```

# :ABORTJOB/=ABORTJOB

To terminate job number 9, enter:

```
:ABORTJOB #J9  
20:18/J9/26/LOGOFF
```

(The execution was successful.)

To terminate session 6, which has a pending device allocation message, you must reply to the message as shown below:

```
?17:00/#S6/23/LDEV# FOR "SCRTAPE" ON TAPE (NUM)?  
:ABORTJOB #S6  
:REPLY 23,0  
17:10/#S6/34/LOGOFF
```

## TEXT DISCUSSION

None.

# :ACCEPT

Permits the device to accept jobs/sessions and/or data.

## SYNTAX

```
:ACCEPT [ JOBS,  
        DATA, ] ldn
```

## PARAMETERS

*ldn* The logical device number of the device for which :JOB (or :HELLO) and :DATA commands are being enabled.

**JOBS** Specifies that :JOB and :HELLO commands will be recognized by the designated device. The device must be interactive to support sessions.

**DATA** Specifies that :DATA commands will be recognized by the designated device.

**NOTES** If both the JOBS and DATA parameters are omitted, both :JOB (or :HELLO) and :DATA commands are allowed.

The ACCEPT command is rejected if JOBS is explicitly requested and the device has not been configured with a default output device (refer to *Output Devicefiles* in Section IV).

## EXAMPLES

To permit logical device 35 to accept jobs and data, enter:

```
:ACCEPT 35  
:SHOWDEV 35  
LDEV AVAIL OWNERSHIP VALID ASSOCIATION  
  
35 A AVAIL
```

To permit logical device 10 to accept jobs and data, and to allow the device to be spooled, enter:

```
:ACCEPT 10  
:STARTSPOOL 10  
11:12/31/SP#10/SPOOLED IN  
11:12/6/LDEV#10 NOT READY  
:SHOWDEV 10  
LDEV AVAIL OWNERSHIP VALID ASSOCIATION  
  
10 A SPOOLED SPOOLER IN
```

## TEXT DISCUSSION

Page 4-1, 4-6.

# :ALLOW

Grants a user access to a specific operator command.

## SYNTAX

$$:\text{ALLOW} \left\{ \begin{array}{l} \text{FILE}=\text{formaldesignator} \text{ [;SHOW]} \\ \left\{ \begin{array}{l} @.@ \\ \text{user}.@ \\ @.acct \\ \text{user} acct \end{array} \right\} \\ \text{;COMMANDS}=\text{command1} \text{ [,command2, \dots, commandn]} \end{array} \right\}$$

## PARAMETERS

<i>formaldesignator</i>	A formal ASCII file name.
SHOW	Lists input lines on \$STDLIST.
@.@	Grants access to all users whether logged on or not.
<i>user.@</i>	Grants access to a specific user in all accounts.
@.acct	Grants access to all users in a specific account.
<i>user.acct</i>	Grants access to a specific user in a specific account.

## NOTES

Through the :ALLOW command, the console operator has the ability to distribute console capabilities among system users by directly entering:

$$:\text{ALLOW} \left\{ \begin{array}{l} @.@ \\ \text{user}.@ \\ @.acct \\ \text{user} acct \end{array} \right\} \text{;COMMANDS}=\text{command1} \text{ [,command2, \dots, commandn]}$$

This command can also be used in an indirect and subsystem mode. In the indirect mode, a file is created that contains records of the format (NOTE: No continued records are permitted):

$$\left\{ \begin{array}{l} @.@ \\ \text{user}.@ \\ @.acct \\ \text{user} acct \end{array} \right\} \text{;COMMANDS}=\text{command1} \text{ [,command2, \dots, commandn]}$$

The :ALLOW command is then executed by entering at the system console:

```
:ALLOW FILE=formaldesignator[;SHOW]
```

which causes command input to be read from the referenced file.

In subsystem mode, just type ALLOW followed by a carriage return. The command prompts you with a > sign, accepting command parameters until an EOF is received or EXIT is entered.

# :ALLOW

The user receiving the capabilities must be logged on at the time and automatically loses the capability by logging off. (Notice @ . @ affects all users whether they're logged on or off.)

There is a user command :SHOWALLOW that shows which operator commands have been ALLOWed to which users (Refer to the MPE Commands Reference Manual).

## EXAMPLES

To give the user BARB.LEWIS the ability to execute the REPLY and ABORTIO commands, enter on the system console:

```
:ALLOW BARB.LEWIS;COMMANDS=REPLY,ABORTIO
```

To give the user PAUL.USER the ability to execute the BREAKJOB command in subsystem mode, enter on the system console:

```
:ALLOW  
>PAUL.USER;COMMANDS=BREAKJOB  
>EXIT
```

## TEXT DISCUSSION

Page 4-37.

# : ALTJOB

Alters attributes of waiting jobs.

## SYNTAX

```
:ALTJOB { #Jnnn }  
        { #Snnn }  
        [ ;INPRI=inputpriority ]  
        [ ;OUTDEV= { ldn  
                   { devclass } ]
```

## PARAMETERS

#Jnnn	A job number.
#Snnn	A session number. (Although syntactically correct, this parameter is rarely used; sessions do not <i>wait</i> .)
INPRI	Specifies the new input priority (0=lowest; 14=highest).
OUTDEV	Specifies the logical device number or device class name of the device file's destination device. (Optional parameter.)

## NOTES

Only jobs in the *introduced* or *WAITing* state can be altered.

Jobs with input priority less than or equal to the current *jobfence*, which consists of a numerical value from 0 to 14, will be deferred.

The :ALTJOB command in conjunction with the :JOBFENCE command allows you to control the flow of all non-HIPRI jobs on the system.

## EXAMPLES

Three jobs are submitted by a user. All jobs have an INPRI value of 8. To change the INPRI values of the user jobs to insure that JOB1 runs first, JOB2 runs last, and JOB3 runs second with LP allocated to the OUTDEV for JOB3, enter the following commands:

# : ALTJOB

:JOBFENCE 14

15:11/#J4/24/DEFERRED JOB INTRODUCED ON LDEV #10

15:11/#J5/25/DEFERRED JOB INTRODUCED ON LDEV #10

15:13/#J6/26/DEFERRED JOB INTRODUCED ON LDEV #10

:SHOWJOB

JOBNUM	STATF	IPRI	JIN	JLIST	INTRODUCED	JOB NAME
#S23	EXEC		20	20	THU 2:15P	FIELD.SUPPORT
#J4	WAIT	D 8	10S	12	THU 3:11P	JOB2,FIELD.SUPPORT
#J5	WAIT	D 8	10S	12	THU 3:11P	JOB3,FIELD.SUPPORT
#J6	WAIT	D 8	10S	12	THU 3:13P	JOB1,FIELD.SUPPORT

4 JOBS:

0 INTRO

3 WAIT; INCL 3 DEFERRED

1 EXEC; INCL 1 SESSIONS

0 SUSP

JOBFENCE= 14; JLIMIT= 5; SLIMIT= 16

:ALTJOB #J6;INPPI=12

15:15/#J6/26/DEFERRED JOB INTRODUCED ON LDEV #10

:ALTJOB #J5;INPRI=11;OUTDFV=LP

15:16/#J5/25/DEFERRED JOB INTRODUCED ON LDEV #10

:ALTJOB #J4;INPRI=9

15:17/#J4/24/DEFERRED JOB INTRODUCED ON LDEV #10

:SHOWJOB

JOBNUM	STATE	IPRI	JIN	JLIST	INTRODUCED	JOB NAME
#S23	EXEC		20	20	THU 2:15	FIELD.SUPPORT
#J6	WAIT	D12	10S	12	THU 3:13P	JOB1,FIELD.SUPPORT
#J5	WAIT	D11	10S	LP	THU 3:11P	JOB3,FIELD.SUPPORT
#J4	WAIT	D 9	10S	12	THU 3:11P	JOB2,FIELD.SUPPORT

4 JOBS:

0 INTRO

3 WAIT; INCL 3 DEFERRED

1 EXEC; INCL 1 SESSIONS

0 SUSP

JOBFENCE= 14; JLIMIT= 5; SLIMIT=16

:LIMIT 1,16

:JOBFENCE 0

## TEXT DISCUSSION

None.

# :ALTSPoolFILE

Alters the characteristics of an active or ready spoolfile.

## SYNTAX

<code>:ALTSPoolFILE { #Onnn }                   { ldn1 }</code>	<code>;PRI=<i>outpriority</i> ;COPIES=<i>numcopies</i> ;DEV= { <i>ldn2</i> }       { <i>devclass</i> } ;DEFER</code>
---	--

## PARAMETERS

<code>#Onnn</code>	The output devicefile identification of an ACTIVE or READY spoolfile.
<code>ldn1</code>	The logical device of an ACTIVE spoolfile.
<code>ldn2</code>	The logical device number of the device to which the spoolfile is to be redirected.
<code>PRI</code>	Specifies the output priority of the designated devicefile (0=lowest; 14=highest).
<code>COPIES</code>	Specifies the number of copies to be produced from the designated devicefile.
<code>DEV</code>	Specifies the logical device number or device class name of the devicefile's destination device.
<code>DEFER</code>	Results in the output priority of the currently ACTIVE or READY spoolfile being changed immediately to 0. If the file is ACTIVE, it is returned to READY state, thus deferring the file.

## NOTES

Output spoolfiles with a priority less than or equal to the current OUTFENCE will not be selected for output by the output spooler; they will be deferred.

When altering an ACTIVE spoolfile, it is preferable to first take the output device offline. This allows you time to enter the command, and to ascertain that the currently ACTIVE spoolfile corresponds to the device file physically being output. Note that the return by MPE of the colon prompt (:) means that the instruction has been sent to the spooler process. This instruction will not be physically executed, however, until the output device is returned to the on-line state.

### NOTE

If you stop the device before entering the command, you must return the device to the on-line state before the command can be physically executed.

If a spoolfile is created and later needs to be printed on a 2680A Laser Page Printer, an *Environment File* can be added to the original spoolfile before printing. Instructions for this procedure can be found in the MPE System Utilities Reference Manual (part number 30000-90044) in the discussion of the SPOOK Subsystem, COPY command.

When an active spoolfile is altered, it will resume printing at the beginning of the first unpurged extent of the spoolfile.

# :ALTSPoolFILE

## EXAMPLES

To defer the currently ACTIVE spoolfile (#086) on logical device 6 (a line printer), take device 6 off-line, then enter:

:ALTSPoolFILE #086;DEFER      or      :ALTSPoolFILE 6;DEFER

Then place device 6 back on-line.

### NOTE

The DEFER parameter lowers the output priority of the named spoolfile to 0 (the lowest priority possible). To print a DEFERred spoolfile, you are required to raise its priority above the OUTFENCE using :ALTSPoolFILE.

To display the priority of all spoolfiles and then change the priority of DEFERred spoolfile #0123 from 0 to 3 enter:

:SHOWOUT SP  
:ALTSPoolFILE #0123;PRI=3

## TEXT DISCUSSION

Page 4-7 through 4-13

# : BREAKJOB

Suspends an executing job.

## SYNTAX

```
:BREAKJOB #Jnnn
```

## PARAMETERS

#Jnnn                    A job number.

## NOTES

Any executing job may be suspended, including spooled and streamed jobs. A job that is holding a critical system resource will be allowed to continue running until it releases the resource at which time it will be suspended.

All commands that normally function on, or pertain to executing jobs, such as :ABORTJOB, will operate on suspended jobs.

If a request is made to suspend a job that owns a non-sharable device, such as a tape drive, a console message will be issued to inform you that the job owns the device. Up to ten non-sharable devices can be listed. You may then decide if the job should be allowed to run until it releases the devices, or if it should be aborted.

A SHOWJOB listing will show SUSP for jobs that are in the suspended state. SUSP may also be used as a qualifier in the :SHOWJOB command. (See MPE Commands Manual, :SHOWJOB Command). Thus :SHOWJOB SUSP will display all suspended jobs present in the system.

## EXAMPLES

To suspend job number 68, enter:

```
:BREAKJOB #J68
```

## TEXT DISCUSSION

Page 4-2.

# : CONSOLE

Changes the system console from its current device to another job-accepting (non-bisync) terminal. It cannot be moved to a DS-terminal and should not be moved to an MTS terminal.

## SYNTAX

```
:CONSOLE[ldn]
```

## PARAMETERS

*ldn*                                    The logical device number of the new console terminal.

## NOTES

Once the :CONSOLE command is executed, a message is printed on the console telling you (the console operator) where the system console went. The old console is now just another session device and all the console capabilities are transferred to the other terminal. The :CONSOLE command, when used with no parameters, will report what device number is currently the system console.

### NOTE

Before you, the Console Operator, transfer the system console to another terminal, you should give yourself the capability to take the console back at any time by :ALLOWING yourself the use of the :CONSOLE command. If you have System Manager (SM) capability, you can retrieve the console even from a downed terminal without having been ALLOWed the use of the :CONSOLE command.

The system console is a session device. The console must be logged on to use the console operator commands; however, if the device is logged off, the console messages are still printed.

CMP prompts and messages remain with the *configured* console e.g. Channel 1, Device 0. This feature cannot be moved to another terminal.

## EXAMPLE

To change logical device 31 (a terminal) to a system console, enter:

```
:CONSOLE 31
```

## TEXT DISCUSSION

Page 4-37.

# : DELETESPOOLFILE

Deletes a spoolfile.

## SYNTAX

<code>:DELETESPOOLFILE</code>	$\left. \begin{array}{l} \#O\text{nnn} \\ \#I\text{nnn} \\ l\text{dn} \end{array} \right\}$
-------------------------------	---

## PARAMETERS

<i>#Onnn</i>	The identification of a READY or ACTIVE output spoolfile.
<i>#Innn</i>	The identification of an OPENED, READY, or ACTIVE input spoolfile.
<i>ldn</i>	The logical device number on which the spoolfile is ACTIVE.

## NOTES

When deleting an ACTIVE spoolfile, it is preferable to first take the output device offline. This allows you time to enter the command, and to ascertain that the currently ACTIVE spoolfile corresponds to the device file physically being output. Note that the return by MPE of the colon prompt (:) means that the instruction has been sent to the spooler process. The instruction will not be physically executed, however, until the output device is returned to the on-line state.

## EXAMPLES

To stop the output on logical device 6 (a line printer) and delete the ACTIVE spoolfile that is being printed, first stop the printer by taking it off-line, then enter:

```
11:21/7/LDEV#6 NOT READY          (generated when device taken off-line)
:DELETESPOOLFILE 6
```

Then put the device back on-line.

## TEXT DISCUSSION

Page 4-9 through 4-12.

# :DISALLOW

Prohibits a user access to a specific operator command.

## SYNTAX

$:\text{DISALLOW} \left\{ \begin{array}{l} \text{FILE}=\text{formaldesignator} \text{ [;SHOW]} \\ \left\{ \begin{array}{l} @.@ \\ \text{user.}@ \\ @.acct \\ \text{user.acct} \end{array} \right\} \end{array} \right\};\text{COMMANDS}=\text{command1} \text{ [,command2, \dots, commandn]}$
---

## PARAMETERS

<i>formaldesignator</i>	A formal ASCII file name.
SHOW	Lists input lines on \$STDLIST.
@.@	Prohibits access to all users whether logged on or not.
<i>user.@"</i>	Prohibits access to a specific user in all accounts.
@.acct	Prohibits access to all users in a specific account.
<i>user.acct</i>	Prohibits access to a specific user in a specific account.

## NOTES

Through the :DISALLOW command, the console operator has the ability to withhold console capabilities among system users by directly entering:

$$:\text{DISALLOW} \left\{ \begin{array}{l} @.@ \\ \text{user.}@ \\ @.acct \\ \text{user.acct} \end{array} \right\};\text{COMMANDS}=\text{command1} \text{ [,command2 \dots commandn]}$$

This command can also be used in indirect and subsystem modes. In the indirect mode, a user file is referenced that contains records of the following format (NOTE: No continued records are permitted):

$$\left\{ \begin{array}{l} @.@ \\ \text{user.}@ \\ @.acct \\ \text{user.acct} \end{array} \right\};\text{COMMANDS}=\text{command1} \text{ [,command2, \dots, commandn]}$$

The :DISALLOW command is then executed by entering at the system console:

```
:DISALLOW FILE=formaldesignator [;SHOW]
```

which then takes its command input from the referenced file. In subsystem mode, just type DISALLOW, followed by a carriage return. The subsystem prompts you with a ">" sign, accepting command parameters until an EOF is received or EXIT is entered.

# :DISALLOW

## EXAMPLES

To prohibit the user BARB.LEWIS the ability to execute the REPLY and ABORTIO commands, enter on the system console:

```
:DISALLOW BARB.LEWIS;COMMANDS=REPLY,ABORTIO
```

Using subsystem mode to prohibit the user PAUL.USER the ability to execute the BREAKJOB command, enter on the system console:

```
:DISALLOW  
>PAUL.USER;COMMANDS=BREAKJOB  
>EXIT
```

## TEXT DISCUSSION

Page 4-37.

# : DOWN

Removes a device from normal system use.

## SYNTAX

```
:DOWN ldn
```

## PARAMETERS

*ldn*                                      The logical device number of the device being taken off-line.

## NOTES

If the device is in use, the :DOWN request will be satisfied when the last access is complete.

For non-system domain disc drives, if a master volume is mounted on a DOWNed device, MPE rejects all further requests to use ANY volume of the set to which the master volume belongs.

When any device is powered-down and the :DOWN command is not used, access to that device can result in indefinite waiting, erroneous transfers, or other incorrect operation. Often these failures will occur with *no indication to you or the user*. For this reason, it is very important that every device which is not fully operational (especially powered-down) be :DOWNed. A device that will be inoperable for more than a few hours can be temporarily removed from the I/O configuration at system start-up time. (Refer to Section V.)

## EXAMPLES

To take logical device number 20 off-line, enter:

```
:DOWN 20
```

To take logical device number 10 off-line (an input-spooled job-accepting magnetic tape), enter:

```
:DOWN 10  
:STOPSPool 10  
11:16/31/SP#10/STOPPED  
11:16/31/LDEV#10 NOT READY
```

## TEXT DISCUSSION

None.

# : DOWNLOAD

Downloads format information to an HP 2608 line printer.

## SYNTAX

```
:DOWNLOAD ldn [ ,filename ]  
                [ ,MARGIN=nn ]
```

## PARAMETERS

<i>ldn</i>	The logical device number of the output device. This device must be a 2608 line printer.
<i>filename</i>	The fully qualified name of a file containing the download control information and data.
<i>nn</i>	The print position that the first byte of data will assume. This number can be between 1 and 16 inclusive. Default at system start up = 1.

### NOTE

The MARGIN = *nn* parameter is overridden by a MARGIN record in the VFC file. This parameter should be used only in cases where there is no MARGIN record in the VFC file.

## NOTES

This command is primarily for control of an HP 2608 line printer. The user will indicate in a forms message what forms and VFC (Vertical Format Control) must be used for printing the job on a 2608.

The :DOWNLOAD command is also applicable to the 2631A printer; however *only* the margin parameter is allowed. You cannot download a VFC file to a 2631A printer.

The VFC image file can define the margin setting as well as the VFC image on a 2608 line printer. The number of print lines per form is limited to 127. For information on VFC files, enter the command: HELP VFC.

## EXAMPLES

To respond to a forms message, enter:

```
IO/15:46/22/FORMS: PLEASE MOUNT PAYCHECK FORMS USE VFC=VFCPAY  
IO/15:46/22/SP#11/LDEV# FOR #S93;OUTFILE ON 2608 (1)
```

```
:DOWNLOAD 11,VFCPAY
```

To reset the VFC to its original state, you must reference a file that contains default specifications (such as VFC6 in this example) by entering:

```
:DOWNLOAD 11,VFC6.PUR.SYS
```

To set the left margin print position to column 4, as the installation defined default, enter:

```
:DOWNLOAD 11,MARGIN=4
```

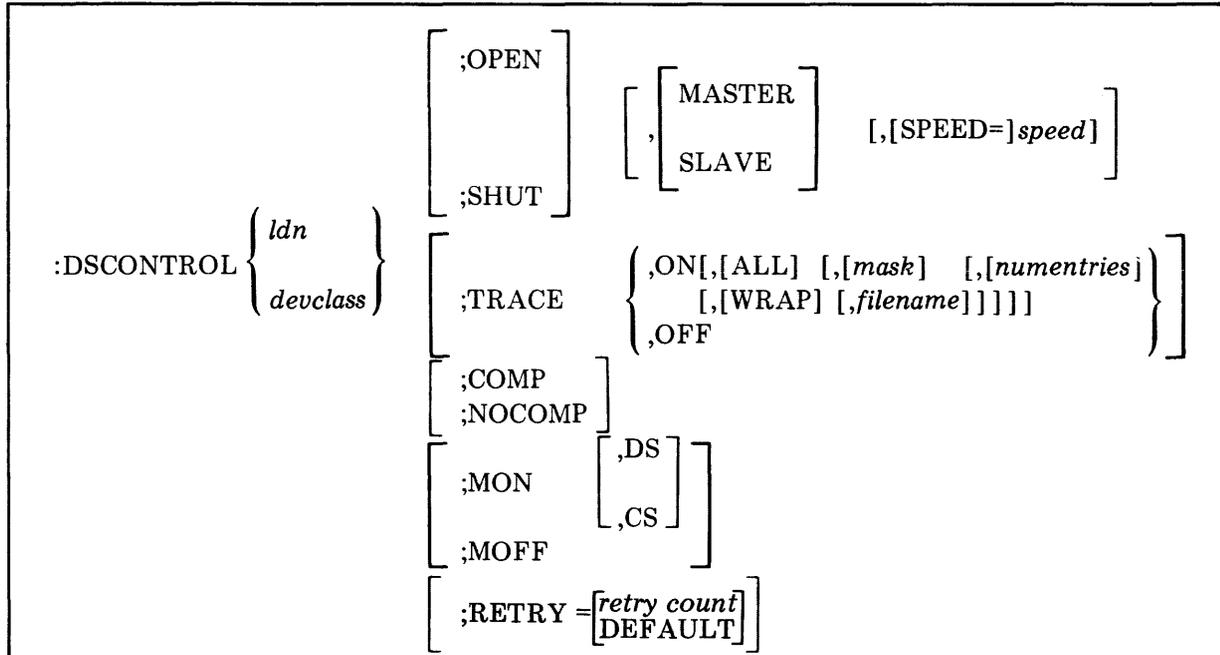
## TEXT DISCUSSION

Page 4-14 through 4-21

# :DSCONTROL

Enables or disables the DS subsystem on the communication link.

## SYNTAX



## PARAMETERS

<i>ldn</i>	The logical device number or deviceclass of the DS/3000 communications pseudo device. On your system's I/O configuration listing, this is the device assigned the DS/3000 communications driver IODS0.
<i>devclass</i>	
OPEN	Establishes a communication link with another HP 3000.
SHUT	Terminates the communication link in an orderly manner. (See Notes.)
MASTER	Limits DS/3000 program-to-program communication so that only the programs running on your system can initiate and control activity between the two programs.
SLAVE	Limits DS/3000 program-to-program communication so that only programs running on the remote system can initiate and control activity between the two programs.

### NOTE

OPEN, MASTER = SHUT, SLAVE  
OPEN, SLAVE = SHUT, MASTER  
SHUT, MASTER = OPEN, SLAVE  
SHUT, SLAVE = OPEN, MASTER

Default: Both MASTER and SLAVE.

<i>speed</i>	Transmission rate in characters per second. This parameter is effective only if your system generation selected SPEED CHANGEABLE. Specify <i>speed</i> if yours is a European installation with modems running at half speed; or if the length of cables used for data communications at your site have been changed since the system was configured. Default: System configuration values.
--------------	---

# :DSCONTROL

Speeds for an HSI: 250,000 (cable lengths less than 1000 ft.)  
125,000 (cable lengths greater than 1000 ft.)  
Speeds for INP or SSLC: 250, 300, 600, or 1200

TRACE,OFF	Deactivates the CSTRACE facility so that no records are kept of DS/3000 actions, states, and events.
TRACE,ON	Activates the CSTRACE facility to provide a record of communications activities.
ALL	Generates trace records for all line activity. Default: Records are written only for transmission errors.
<i>mask</i>	An octal integer preceded by a percent sign (%nn). Used to select type of trace entries generated. Default: %37 (all types except STN).
<i>numentries</i>	Decimal integer for the maximum number of entries in a trace record, not greater than 248 for lines with the SSLC; for lines with the INP, the maximum is 24. Default: 24. (SEE NOTES.)
WRAP	Trace entries that overflow the trace area overlay the prior trace entries. Default: Overflow entries are discarded.
<i>filename</i>	A name for the trace file. Default: DSTRCxxx.PUB.SYS (where xxx is the <i>ldn</i> of the DS/3000 communications pseudo device, IODS0)
COMP	Allows data compression facility to be activated. Default: System configuration values.
NOCOMP	Allows data compression facility to be deactivated. Default: System configuration values.
MON	Activates internal monitoring of communications activity. Default: If neither the DS nor CS option is specified, MON initiates monitoring of both.
DS	Monitors DS/3000 activity only.
CS	Monitors CS/3000 activity only.
MOFF	Deactivates internal monitoring of communications activity.
<i>retry count</i>	A decimal integer between 0 and 255 inclusive, which specifies the number of times the communications driver will attempt to establish a connection. Default: 15.
DEFAULT	Resets <i>retry count</i> to default value of 15.

## NOTES

Only one DS/3000 communications pseudo device can be active (OPEN) on a controller at any given time. Once opened (with the :DSCONTROL command), a communications link can be shared by multiple DS/3000 users, It cannot, however, be shared by users of other communications sub-systems supported by your system (for example, MRJE/3000). Thus you must SHUT a DS line before issuing an :MRJECONTROL START command on the same communications controller and vice versa.

# **:DSCONTROL**

Use the :SHOWDEV command to check whether a communications link is already established before issuing the :DSCONTROL command. The *ldn* for a communications controller will be UNAVAIL if the communication link is in use by another subsystem; the *ldn* for a DS communications pseudo device will be AVAIL if it is currently in use by DS/3000.

Occasionally, you may find that you are unable to SHUT a DS line, as in the case where a local user forgets to CLOSE his/her DS line and is still logged on; or if a remote session becomes "hung". In such a situation, it is possible to "kill" *all* activity across the line by issuing an :ABORTIO *ldn* command (where *ldn* is the logical device number of the DS/3000 Communications Pseudo Device, IODS0). Note, however, that use of the :ABORTIO command immediately terminates *all* DS activity. Therefore, if other DS lines are in use, the users should be :WARNed of impending line shutdown, and allowed time to perform an orderly close of their files. Following an :ABORTIO command, the :DSCONTROL SHUT command can be successfully executed.

Once a trace file has been created, it must be purged before *numentries* can be increased.

If you want to change the number of entries in a trace record (*numentries*), the trace file must first be purged. The TRACE facility creates a new file using the number provided in the :DSCONTROL command.

## **EXAMPLES**

To enable DS line number 55, enter:

**:DSCONTROL 55;OPEN**

To allow only the local HP 3000 to issue the :DSCONTROL command for DS line number 55, enter:

**:DSCONTROL 55,MASTER**

To activate TRACE on DS line number 55, enter:

**:DSCONTROL 55;TRACE,ON**

To activate TRACE with a maximum of 250 entries in a trace record, enter:

**:DSCONTROL 55;TRACE,ON,,,250**

To open the line named REMSYS and provide compression and internal monitoring, enter:

**:DSCONTROL REMSYS;OPEN;COMP;MON**

## **TEXT DISCUSSION**

DS/3000 Reference Manual. (32190-90001)

# :FOREIGN

Causes the system to treat the disc on the specified device as foreign.

## SYNTAX

:FOREIGN *ldn*

## PARAMETERS

*ldn*                                      The logical device number of a disc drive.

## NOTES

The effect of this command is to force the system to treat the volume currently mounted on device *ldn* as a foreign disc. Logical device *ldn* must be in a foreign class, and the volume must be up but not in use.

### OPERATOR CAUTION

If the restrictions stated above are met, the system will treat the volume currently mounted on the specified logical device as a foreign disc. As long as the volume is not a member of the running system domain (i.e., not in the volume table), no security checking is done. Therefore, any disc (system, private volume, etc.) could be accidentally mounted and used as a foreign disc. Since one characteristic of Foreign Disc Facility is the ability to write on the MPE label area, file labels could be destroyed and important information lost.

## EXAMPLES

To label the disc mounted on device 3 foreign, first verify the status of the disc mounted on device 3 by entering:

**:DSTAT 3**

<b>LDEV-TYPE</b>	<b>STATUS</b>	<b>VOLUME (VOLUME SET-GEN)</b>
-----	-----	-----
<b>3-7902</b>	<b>SERIAL</b>	<b>*UNALLOCATED*</b>

Then enter:

**:FOREIGN 3**

To verify the change, enter:

**:DSTAT 3**

<b>LDEV-TYPE</b>	<b>STATUS</b>	<b>VOLUME (VOLUME SET-GEN)</b>
-----	-----	-----
<b>3-7902</b>	<b>FOREIGN</b>	<b>*UNALLOCATED*</b>

## TEXT DISCUSSION



# :HEADOFF

Stops HEADER/TRAILER output to a device.

## SYNTAX

```
:HEADOFF ldn
```

## PARAMETERS

*ldn*                      The logical device number.

## NOTES

If the device is in use and a HEADER has already printed, the request will be satisfied after the associated TRAILER is printed.

## EXAMPLES

To stop HEADER/TRAILER output to logical device number 6, enter:

```
:HEADOFF 6
```

## TEXT DISCUSSION

None.

# :HEADON

Resumes HEADER/TRAILER output to device.

## SYNTAX

:HEADON <i>ldn</i>
--------------------

## PARAMETERS

*ldn*                      The logical device number.

## NOTES

If the device is in use, the request will be satisfied after the current output is completed. HEADON is enabled on all cold loads.

When the header/trailer facility is enabled, and output is directed to a card punch, MPE automatically punches a header card and a trailer card identifying the job that produced the file; if output is directed to a line printer, MPE automatically prints header and trailer pages identifying the job that produced the file.

## EXAMPLES

To resume HEADER/TRAILER output to logical device number 6, enter:

:HEADON 6

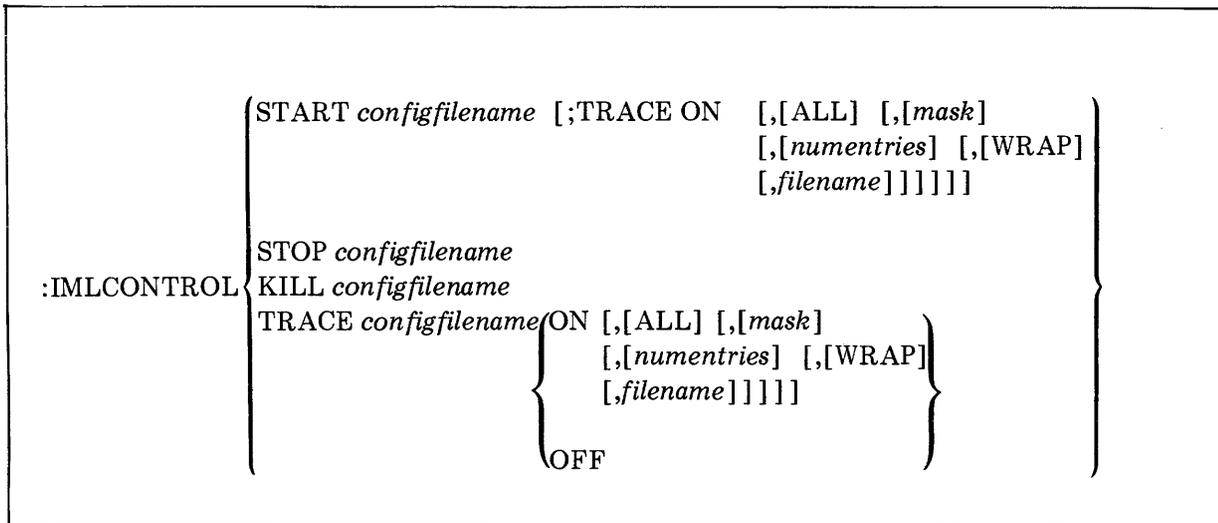
## TEXT DISCUSSION

None.

# :IMLCONTROL

Used to control and monitor the IML subsystem on the communication link.

## SYNTAX



## PARAMETERS

START	Establishes a communication link with the host system.
STOP	Terminates the communication link with an orderly shutdown.
KILL	Immediately breaks off all communication with the host system. Not an orderly line termination.
TRACE ON	Activates the CSTRACE Facility to provide a record of communications activities.
TRACE OFF	Deactivates the CSTRACE Facility so that no records are kept of IML/3000 communications activities.
<i>configfilename</i>	The name of an IML configuration file for communication activity.
ALL	Generates a record of all line activity. When tracing line activity in other communication subsystems, omission of the ALL parameter causes trace records to be written only when a transmission error occurs. In the case of IML, this parameter is meaningless, as all line activity is always traced.

# :IMLCONTROL

*mask* An octal integer preceded by a percent sign (*%nn*) that specifies the type of events to trace (refer to the following table). Default is %37. (NOTE: For IML, it is recommended that you do NOT set bit 1 ON.)

bit	meaning when ON
0 (leftmost)	IML Control Unit STN entries
1	INP IC entries (interconnect)
2	IML protocol driver STN entries
3	OPR entries (default = ON)
4	RCT entries (default = ON)
5	RTX entries (default = ON)
6	SCT,POL,SEL entries (default = ON)
7 (rightmost)	STX entries (default = ON)

*numentries* Not used by IML.

WRAP Causes TRACE entries that overflow the trace area to overlay the prior trace entries. Default: Overflow entries are discarded.

*filename* A name for the trace file. Default: CSTRACE.PUB.SYS.

## NOTES

The “*configfilename*” parameter names a file which defines the characteristics of the control unit IML emulates, plus its attached display stations and printers. It also defines the HP 3000 programs, users, terminals, and printers that may conduct IML/3000 activity.

The WRAP parameter of the TRACE option is recommended for IML. This parameter refers to each record, but not to the file itself. If the file overflows, CS will automatically start at the beginning of the file and all previous TRACE data will be lost.

## EXAMPLES

To enable an IML line using configuration file CONFIG in the log-on group of the log-on account, enter:

```
:IMLCONTROL START CONFIG
```

To activate TRACE on the IML line in the example above with the WRAP option, enter:

```
:IMLCONTROL TRACE CONFIG ON,,,,WRAP
```

## TEXT DISCUSSION

IML/3000 Reference Manual (32229-90001)

# :JOBFENCE

Defines acceptable input priorities.

## SYNTAX

```
:JOBFENCE priorityfence
```

## PARAMETERS

*priorityfence*                    A number between 0 and 14, inclusive (large is more limiting).

## NOTES

Jobs/sessions with *inputpriority* less than or equal to the priority fence *will not* be considered for dispatching until their input priority is raised (see :ALTJOB command) or the jobfence is lowered. The exception is the use of HIPRI by System Managers and System Supervisors in JOB or HELLO commands. HIPRI overrides any JOBFENCE setting.

## EXAMPLES

To set the *jobfence* to 14 (to defer all non-HIPRI jobs and sessions), then return the *jobfence* to 0 (to allow the waiting jobs to log on), enter:

```
:JOBFENCE 14
16:17/#S26/26/LOGON FOR: MANAGER.SYS ON LDEV #20
16:18/#J7/34/DEFERRED JOB INTRODUCED ON LDEV #10
16:18/#J8/35/DEFERRED JOB INTRODUCED ON LDEV #10
:SHOWJOB

JOBNUM  STATE  IPRI  JIN   JLIST      INTRODUCED  JOB NAME
#S26    EXEC           20   20        THU  4:17P  MANAGER.SYS
#J7     WAIT   D 8     10S 12     THU  4:18P  JOB1,FIELD.SUPPORT
#J8     WAIT   D 8     10S 12     THU  4:18P  JOB2,FIELD.SUPPORT

3 JOBS:
  0 INTRO
  2 WAIT; INCL 2 DEFERRED
  1 EXEC; INCL 1 SESSIONS
  0 SUSP
JOBFENCE= 14; JLIMIT= 5; SLIMIT=16

:JOBFENCE 0
16:21/#J7/34/LOGON FOR: JOB1,FIELD.SUPPORT ON LDEV #10
16:21/#J8/35/LOGON FOR: JOB2,FIELD.SUPPORT ON LDEV #10
```

## TEXT DISCUSSION

Page 3-9, 4-2.

# **:JOBSECURITY**

Control jobs being run and the resources they require.

## **SYNTAX**

<code>:JOBSECURITY</code> { HIGH } { LOW }
---

## **PARAMETERS**

HIGH	Provides only the master operator with access to job control commands.
LOW	Allows individual users to exercise control of their own jobs.

## **NOTES**

:JOBSECURITY controls use of the :ABORTJOB, :ALTJOB, :BREAKJOB, and :RESUMEJOB commands. HIGH permits only the console operator to issue these commands. LOW permits any user to issue these commands for the user's own jobs (those which match the user and account names unless the user has account manager (AM) capability, in which case only the account names must be the same.)

## **EXAMPLES**

To give a user the capability to abort, alter, break, or resume a job, enter:

:JOBSECURITY LOW

## **TEXT DISCUSSION**

None.

# :LDISMOUNT

Logically dismounts a private volume set or class.

## SYNTAX

```
:LDISMOUNT  vciname.group.account
```

## PARAMETERS

<i>vciname</i>	Volume class/set name, requests dismount of the named private volume set.
<i>group.account</i>	Specifies the group and account under which the volume set was created.

## NOTES

Only discs in the non-system domain can be dismounted.

The command tells MPE that the specified set or class is no longer needed and that member volumes should be logically dismounted, as a unit, from the drive (or drives) on which they reside.

If users are accessing files on the specified volume class/set, your command remains in the *pending* state until after the last user closes the file; then it executes.

If the volume class/set specified in the command was not previously mounted with a corresponding :LMOUNT command, you receive an error message.

## EXAMPLES

To dismount a private volume set named DATABASE which was created in the PAYROLL group of the ACCTNG account, enter:

```
:LDISMOUNT DATABASE.PAYROLL.ACCTNG
```

## TEXT DISCUSSION

Page 4-26.

# :LIMIT

Limits the number of concurrently running jobs/sessions.

## SYNTAX

<code>:LIMIT</code>	$\left\{ \begin{array}{l} \textit{numberjobs} \\ \textit{,numbersessions} \\ \textit{numberjobs, numbersessions} \end{array} \right\}$
---------------------	--

## PARAMETERS

<i>numberjobs</i>	The number of jobs.
<i>numbersessions</i>	The number of sessions.

## NOTES

No new jobs or sessions (except HIPRI ones, specified by System Managers and System Supervisors only) will be dispatched that would cause either of these limits to be exceeded. Note that jobs can still be introduced when the limit is achieved. Only HIPRI jobs/sessions can enter the executing state. Sessions (other than HIPRI) attempting to log on after the session limit has been reached will receive the message:

CAN'T INITIATE NEW SESSIONS NOW

Note also that the specified limits may be exceeded at the time the command is issued. Jobs/sessions executing at the time the command is issued will continue to execute; however, no new jobs will be allowed to enter the executing state, and no new sessions will be initiated.

At least one parameter must be included in the :LIMIT command. Omission of the other parameter (either *numberjobs* or *numbersessions*) leaves the corresponding current limit unchanged. These limits are established initially at system creation. The latest limits are retained for WARMSTART but the values established at system creation take effect for all other cold loads.

## EXAMPLES

To limit the number of jobs to 2 and the number of sessions to 15, enter:

```
:LIMIT 2,15
:SHOWJOB
NO SUCH JOB(S)
JOBFENCE=JLIMIT= 2; SLIMIT= 15
```

## TEXT DISCUSSION

Logically mounts a private volume set.

## SYNTAX

```
:LMOUNT vcename.group.account [;GEN=genindex]
```

## PARAMETERS

<i>vcename</i>	Volume class/set name specifies the mounting of a previously-defined volume class name or volume set name.
<i>group.account</i>	Specifies the group and account under which the volume set was created.
<i>genindex</i>	A value from -1 to 32767 specifying which generation of the volume set is to be mounted (-1 allows any generation to be mounted). If omitted, the system does not check the generation version of the specified volume set.

## NOTES

When a `mount` command executes, all disc devices containing members of the specified volume set become ASSIGNED devices. The specified volume set becomes logically attached to the devices until a subsequent `:LDISMOUNT` command, at which time the devices become AVAILABLE.

System users issue mount requests implicitly through their programs or explicitly with a user `:MOUNT` command. User-initiated mount requests cause the specified volume set to be linked into the system's accounting structure at the group level. This is called "binding." With the console `:LMOUNT` command, no such binding occurs.

If the Private Volumes Facility was enabled with `:VMOUNT ON,AUTO` then MPE automatically attempts to satisfy your mount request. If the specified volume class/set is not physically present, MPE rejects your request. If the specified volume class/set is physically present, it is logically mounted.

If the Private Volumes Facility was enabled with `:VMOUNT ON` (the `AUTO` parameter was omitted), you must reply to your own mount request even though the volume class/set may already be mounted and in use. If the specified volume class/set is not physically present, the system looks for available drives of the types required to satisfy the request. If sufficient drives are available, the system reserves them and prints a message for you to mount the volume class/set on one or more ldn's and reply YES or NO. If sufficient drives are not available, the system reserves those which will satisfy part of your request and prints a message with the type and number of drives it requires. If you can free the required drive(s), reply YES after the drive is AVAILABLE. A NO reply cancels the original `:LMOUNT` request.

# :LMOUNT

## EXAMPLES

To mount a private volume set names DATABASE in the PAYROLL group of the ACCTNG account, enter:

:LMOUNT DATABASE.PAYROLL.ACCTNG;GEN=8

## TEXT DISCUSSION

Page 4-26, 4-32.

Starts, restarts, or stops User Logging.

## SYNTAX

<code>:LOG <i>logid</i>, { START RESTART STOP }</code>
--

## PARAMETERS

<i>logid</i>	Logging identifier previously established with a user GETLOG command.
START	Initiates a logging process.
RESTART	Restarts a logging process.
STOP	Terminates a logging process.

## NOTES

None.

## EXAMPLE

To turn on the logging process identified by logid LOGPROCX, enter:

```
:LOG LOGPROCX, START
```

## TEXT DISCUSSION

Page 5-40.

# =LOGOFF

Aborts all executing jobs/sessions and prevents further log ons of non-HIPRI jobs/sessions.

## SYNTAX

=LOGOFF
---------

## PARAMETERS

none

## NOTES

This command sets the job and session execution limits to 0 and aborts all jobs/sessions including the one on the system console. To enter subsequent console commands you must log on the console again, using the HIPRI parameter. (See =LOGON.) Execution of this command leaves the system in a job/session inactive state, with only spoolers still operating (these can be controlled with a spooler command.)

Any pending requests that require a REPLY from the console must be satisfied before issuing =LOGOFF or the system will be dead-locked and must be restarted.

Note, however, that since devices are still job/session accepting, job/session introduction is not disabled. Furthermore, System Managers and System Supervisors can still introduce and run HIPRI jobs/sessions.

Once you have entered =LOGOFF, any subsequent =LOGOFF must be preceded at some point by a =LOGON in order to be effective.

## EXAMPLES

To abort all executing jobs/sessions, enter:

```
=LOGOFF  
16:53/25/ALL JOBS LOGGED-OFF
```

## TEXT DISCUSSION

None.

# =LOGON

Enables job/session processing following =LOGOFF.

## SYNTAX

=LOGON

**PARAMETERS** none

## NOTES

none

## EXAMPLES

To re-establish the job/session limits in effect prior to a =LOGOFF command and allow non-HIPRI jobs/sessions to log-on again, enter:

```
=LOGON  
:SHOWJOB  
NO SUCH JOB(S)  
JOBFENCE= 0; JLIMIT=2; SLIMIT 15
```

## TEXT DISCUSSION

None.

# :MPLINE

Used to control and monitor the MTS/3000 subsystem on the communication link.

## SYNTAX

:MPLINE <i>ldn</i> ,	OPEN [ <i>filename1</i> ]
	UP, <i>upentry</i>
	DOWN, <i>downentry</i>
	SHUT [,NOW]
	MESSAGES, ON OFF
TRACE, ON	[,[ALL] [, <i>mask</i> ] [, <i>numentries</i> ] [, <i>WRAP</i> ] [ <i>filename2</i> ]]]]
TRACE, OFF	

## PARAMETERS

*ldn* The logical device number of the multipoint supervisor that is associated with the line you want to open, close, trace, etc. Required parameter.

OPEN Initiates MTS/3000 execution, opens the communication line, and starts terminal activity.

*filename1* Names an MTS configuration file in the PUB.SYS account. If omitted, the line is opened with the line characteristics established by the MPE configuration of the line controller (SSLC).

UP Activates the terminal(s) specified in the *upentry*. This places the terminal(s) logically *online* for MTS activity.

DOWN Deactivates the terminal(s) specified in the *downentry* parameter. This places the device(s) logically off-line and makes them unavailable for MTS activity.

*upentry*  
*downentry* *Upentries* and *downentries* have the same format as poll entries in an MTS configuration file. An entry can be one of the following:

1. The logical device number of a multipoint terminal as configured into MPE.
2. A terminal ID, consisting of two letters, that specify the group and device ID of a particular multipoint terminal. (A terminal ID corresponds to the unit number assigned during MPE configuration).
3. The word GROUP followed by a space and one letter designating a particular group. All terminals configured under MPE as members of the group will be activated or deactivated.

SHUT	Initiates an orderly shutdown of the MTS line. If multipoint terminals are currently in use, the line remains open and MTS execution continues until all users have finished.
NOW	Immediately terminates MTS/3000 execution and closes the line without waiting for sessions to log off and applications to close the terminals they are using.
MESSAGES	Controls the printing of non-fatal MTS/3000 console messages. Command Interpreter messages will be displayed regardless of whether this parameter is set "ON" or "OFF".  ON causes the messages that result from MTS communication activity to be displayed on the system console. Default: ON.  OFF stops the messages associated with MTS line activity from being displayed. If OFF is specified and system console logging was enabled during MPE configuration, the messages will still be recorded in the log file.
TRACE	Specifies the CS Trace facility is to be activated or deactivated. The line must be open when the TRACE parameter is used. The trace captures transmission data for use in analyzing line problems.  ON Activates the CS Trace facility.  OFF Deactivates the CS Trace facility.
ALL	Generates trace records for all activity. If ALL is omitted, trace records are written only when an error occurs.
<i>mask</i>	An octal integer preceded by a percent sign (% <i>nn</i> ) to specify the type of trace entries. If <i>mask</i> is omitted, the default used is %37.
<i>numentries</i>	An integer multiple of eight (see :IMLCONTROL), not greater than 248 for a line over the SSLC; lines over the INP are limited to 24. Designates the maximum number of entries in a trace record.  If the trace file becomes full, it is automatically cleared, and writing to it restarted.
WRAP	Trace entries that overflow the trace area overlay the prior trace entries. Default: overflow entries are discarded.
<i>filename2</i>	The trace file name. If omitted, the system creates a file named CSTRACE.PUB.SYS.

## NOTES

You cannot initiate MTS/3000 activity if the line is already in use by another data communications subsystem (such as DS/3000 or MRJE/3000). Thus it may be necessary to close the line for another subsystem before you can open it for MTS.

# :MPLINE

Use the :SHOWDEV command to check whether a communications link is already established before issuing the :MPLINE command. The *ldn* for an SSLC or INP will be UNAVAIL if the communication link is already in use.

If you want to change the number of entries in a trace record (*numentries*), the trace file must first be purged. The CSTRACE facility creates another using the number provided in the *numentries* parameter of the :MPLINE command.

You can designate multipoint terminals to be UP or DOWN only while the MTS/3000 line is open. Note, however, that MTS/3000 automatically closes and reopens the line each time you issue one of these commands. In a leased-line environment, this may temporarily delay communication with the other terminals on the line, but will not interfere significantly. If a dialup line is in use, the connection will be broken and must be reestablished.

If the number you enter for the *numentries* parameter is not an integer multiple of eight, the system rounds your entry down so that it complies with this requirement.

If no trace file exists when you turn on the trace facility, and you do not specify *numentries*, a file that will hold 24 entries is created. Once created, the CSTRACE file must be purged in order to increase *numentries*.

## EXAMPLES

To open the line for MTS activity and use a file name CONFIGA, enter the following:

```
:MPLINE 54,OPEN,CONFIGA
```

To trace activity on the open line, enter the following:

```
:MPLINE 54,TRACE,ON,,,,MYFILE
```

## TEXT DISCUSSION

MTS/3000 Reference Manual. (32193-90002)

# :MRJECONTROL

Controls Multileaving Remote Job Entry (MRJE) remote communications activities.

## SYNTAX

:MRJECONTROL	{	START	,	<i>hostid</i>	[TRACE,ON	[, [ALL] [, [ <i>mask</i> ] [, [ <i>numentries</i> ]]
					[, [WRAP] [, <i>filename</i> ]]]]]	
					[TRACE,OFF]	
		SIGNOFF				
		KILL				
RETRIES		, <i>retrynum</i>			[,ALL] [, [ <i>mask</i> ] [, [ <i>numentries</i> ]]	
TRACE					[, [WRAP] [, <i>filename</i> ]]]]]	

## PARAMETERS

START	Opens a data communications link to a remote computer via the MRJE/3000 Subsystem. Initiates MRJE execution.
<i>hostid</i>	The name of a host system as defined by the MRJE/3000 manager. The name can be spelled out or abbreviated to its first character. If omitted, connection is made to the default system.
SIGNOFF	Closes the data communication link to the system specified by <i>hostid</i> . If <i>hostid</i> is omitted, the line to the default host will be closed. Sends a SIGNOFF record to the host system. (Used for normal line terminations.)
KILL	Immediately breaks all communication with the system specified by <i>hostid</i> . Used for abnormal line terminations.
RETRIES	Used to set a limit on the number of times MRJE/3000 will request the host to re-transmit a block of data which contained errors. Default is 255 retries.
<i>retrynum</i>	Specifies the number of times the MRJE/3000 Subsystem will request a retransmission of data from the host in case of data errors. Must be an integer between 1 and 255, inclusive.
TRACE,ON	Activates the CS/3000 Trace facility.
TRACE,OFF	Deactivates the CS/3000 Trace facility.
ALL	Generates trace records for all line activity. Default: Trace records are written only when transmission errors occur.

# :MRJECONTROL

*mask* An octal number preceded by a percent symbol, that specifies the type of events to trace.

bit	meaning when ON
0	Not used by MRJE
1	Not used by MRJE
2	STN entries
3	OPR entries (default ON)
4	RCT entries (default ON)
5	RTX entries (default ON)
6	SCT, POL, SEL entries (default ON)
7	STX entries (default ON)

*numentries* The maximum number of entries in a trace record. Should be an integer multiple of eight not greater than 248 for lines with the SSLC; for lines with the INP, not greater than 24.

If no trace file exists when you turn on the trace facility and you do not specify *numentries*, the system will create a file to hold 24 entries. If the file already exists, its established number is used. Once created, the CS trace file must be purged in order to increase *numentries*.

WRAP Causes trace entries that exceed the trace record size (i.e., are greater than *numentries*) to overlay the prior trace entries. Default: Entries are discarded rather than wrapped over earlier entries.

*filename* The trace file name. If a filename is specified with a group and account other than PUB.SYS, the file must already exist in order for the CS trace facility to be able to open it. Default: MRJETRCE.PUB.SYS.

## NOTES

The :MRJECONTROL START command starts the line opening procedure. If communication is over a private (leased) line, connection occurs almost immediately. If communication is over a dialup line, after receiving the dial message on the console, you must dial the telephone number and press the DATA (or TALK) button when you hear the carrier tone. Once the line has been opened successfully, the SIGNON COMPLETED message will be received at the console.

You cannot initiate MRJE communications activity if the communications line is already in use by another data communications subsystem.

If the :MRJECONTROL SIGNOFF command is issued while a file is being transmitted to or from the host, transmission will not be halted until all of the file has been sent. Then the line will be disconnected. In this way no data will be lost.

The :MRJECONTROL KILL command immediately disconnects the line to the host system. Use with care, as data may be lost.

# :MRJECONTROL

## EXAMPLES

The following command causes a line to be opened to the host system identified by the name BHOST. The configuration file name for host "B" is MRJECONB, which is assigned by MRJE/3000. It also specifies that the system should create a file named (by default) MRJETRCB.PUB.SYS, which can hold 248 entries in each trace record. A subset of all line events (errors and non errors) that pass through the default mask of %37 will be traced, excluding STN events. The most recent entries will be discarded, not wrapped.

```
:MRJECONTROL START, BHOST; TRACE ON, ALL,,250
```

## TEXT DISCUSSION

MRJE/3000 Reference Manual. (32192-90001)

# : OUTFENCE

Defines the priority which output spoolfiles must have in order to be printed.

## SYNTAX

```
:OUTFENCE outputpriority [;LDEV=ldn]
```

## PARAMETERS

*outputpriority* A number between 1 and 14, inclusive (large is more limiting).

*ldn* The logical device number of an output device. (Optional).

## NOTES

In order to enable deferred output spoolfiles to be processed by a spooler, their *outputpriority* must be raised above the outfence, or the outfence must be lowered.

## EXAMPLES

To set the global *outfence* to 14 and the *outfence* of LDEV 6 to 7, enter:

```
:OUTFENCE 14  
:OUTFENCE 7;LDEV=6  
:SHOWOUT
```

DEV/CL	DFID	JORNUM	FNAME	STATE	FRM	SPACE	RANK	PRI	#C
LP	#0999	#J19	SSTDLIST	OPENED		512		8	1
LP	#01030	#S77	EDTLIST	OPENED		512		8	1
<b>SLOWLP</b>	<b>#01029</b>	<b>#S71</b>	<b>OUT</b>	<b>READY</b>		232	1	7	1
20	#01001	#S60	SSTDLIST	OPENED					
47	#01028	#S78	SSTDLIST	OPENED					
52	#01019	#S72	SSTDLIST	OPENED					
54	#01023	#S74	SSTDLIST	OPENED					
80	#01026	#S76	SSTDLIST	OPENED					
101	#01027	#S77	SSTDLIST	OPENED					
103	#01025	#S75	SSTDLIST	OPENED					
11	#01022	#S33	GALLIST	ACTIVE		768	1	7	1

11 FILES:

1 ACTIVE

1 READY; INCLUDING 1 SPOOFLES, 0 DEFERRED

9 OPENED; INCLUDING 2 SPOOFLES

0 LOCKED; INCLUDING 0 SPOOFLES

4 SPOOFLES; 2024 SECTORS

OUTFENCE = 14

OUTFENCE = 7 FOR LDEV 6

This will defer all output spoolfiles except those going to LDEV 6.

To reset the *outfence* for all output devices to 4 enter:

```
:OUTFENCE 4
```

## TEXT DISCUSSION

Page 4-11 through 4-14.

# :REFUSE

Disallows jobs/sessions and/or data on a designated device.

## SYNTAX

:REFUSE [ JOBS, DATA, ] <i>ldn</i>
---------------------------------------

## PARAMETERS

**JOBS** Disallows the :JOB (or :HELLO) command from the designated device.

**DATA** Disallows the :DATA command from the designated device.

*ldn* The logical device number of the device for which :JOB (or :HELLO) and :DATA commands are refused.

## NOTES

The parameter JOBS, in this command, refers to both jobs and sessions. If the first parameter is omitted both :JOB (or :HELLO) and :DATA commands are refused.

## EXAMPLES

To refuse data recognition from logical device number 35, enter:

```
:REFUSE DATA,35
:SHOWDEV 35
LDEV   AVAIL           OWNERSHIP   VOLTD   ASSOCIATION
35 J AVAIL
```

To refuse jobs and data recognition from logical device number 35, enter:

```
:REFUSE 35
:SHOWDEV 35
LDEV   AVAIL           OWNERSHIP   VOLTD   ASSOCIATION
35   AVAIL
```

## TEXT DISCUSSION

None.

# :REPLY/=REPLY

Replies to pending requests.

## SYNTAX

`:REPLY pin ,reply [,param]`

## PARAMETERS

*pin* The process identification number of the message sender. It is part of the message requesting the REPLY, such as,

*pin*

?16:15/#S25/43/LDEV# FOR "CARDS" ON CAPD (NUM)?

*reply* The reply type specified in the message, defined by:

(NUM) — reply must be a logical device number

(Y/N) — reply must be YES (or Y), or NO (or N)

(Sxx) — max-CHARS = XX

(YN#) — reply must be YES (or Y), NO (or N), or a logical device number

*param* The same as the reply parameter, excluding type (YN#)

## NOTES

Users' programs that are waiting for your REPLY remain suspended indefinitely and cannot be aborted until REPLY is issued. If for any reason you cannot reply as requested (for example, a particular device is non-existent or a special form is unavailable), then REPLY with logical device number (ldn) 0 if type NUM requested; N if type Y/N. This returns an error code to the program.

If your reply (:REPLY) is not of the type specified, or the *pin* is incorrect, or the device you allocate is already allocated to someone else, the system displays the following error message.

NO REPLY OUTSTANDING FOR PROCESS

# :REPLY/=REPLY

## EXAMPLES

To reply to a message from the MPE SYSTEM, enter

```
?10:05/#J19/15/LDEV# FOR "NAS" ON TAPE1600 (NUM)?  
:REPLY 15,7  
OR  
=REPLY 15,7
```

To reply to a FORMS message from the MPE system, enter:

```
15:46/#S93/22/FORMS: PLEASE MOUNT MAILING LABEL FORMS  
?15:46/#S93/22/SP#12/LDEV# FOR #S93;OUTFILE ON LP (NUM)?  
  
:REPLY 22,12  
15:47/#S93/22/LDEV#12 FORMS ALIGNED OK (Y/N)?  
  
?15:47/#S93/22/LDEV#12 FORMS ALIGNED OK (Y/N)?  
  
:REPLY 22,NO  
  
?15:48/#S93/22/LDEV#12 FORMS ALIGNED OK (Y/N)?  
  
:REPLY 22,N  
  
?15:55/#S93/22/LDEV#12 FORMS ALIGNED OK (Y/N)?  
  
:REPLY 22,Y
```

When the next spoolfile becomes ACTIVE for that device, you will be requested to mount the appropriate forms, either standard forms or special forms.

To reply to the standard forms, enter:

```
16:00/#S95/22/STANDARD FORMS  
?16:00/#S95/22/LDEV # FOR #S95;L ON LP (NUM)?  
  
:REPLY 22,12
```

## TEXT DISCUSSION

None

# :RESUMEJOB

Resumes a suspended job.

## SYNTAX

`:RESUMEJOB #Jnnn`

## PARAMETERS

*#Jnnn*                      A job number.

## NOTES

When a suspended job is resumed, it will continue execution from the point at which it was suspended. No message is issued when a suspended job is resumed.

## EXAMPLES

To resume suspended job number 68, enter:

:RESUMEJOB #J68

## TEXT DISCUSSION

None.

# : RESUMESPOOL

Resumes suspended spooler output to a spooled device.

## SYNTAX

```
:RESUMESPOOL ldn [ ;BACK      { nnn FILES }  
                  ;FORWARD   { nnn PAGES }  
                  ;BEGINNING ]
```

## PARAMETERS

<i>ldn</i>	The logical device number of a spooled device.
BACK	Instructs the spooler to backspace <i>nnn</i> FILES or PAGES and resume printing at that point. (See Notes.)
FORWARD	Instructs the spooler to forwardspace <i>nnn</i> FILES or PAGES and resumes printing at that point. (See Notes.)
BEGINNING	Instructs the spooler to resume printing at the beginning of the file (or the beginning of the first unpurged extent of that file), which had been previously suspended.
<i>nnn</i>	The number of FILES or PAGES to which you wish the spooler to backspace or forwardspace when printing resumes. (Must be an integer between 1 and 256, inclusive)
FILES	A file is defined in a spoolfile wherever an FOPEN occurs. Note that the use of the FILES Parameter is not allowed on the 2680A page printer. (See Notes.)
PAGES	The literal page (usually 60 lines or skip to channel 1), as output by the spooler to the printer.

## NOTES

If *ldn* is the only parameter used, the printer will resume printing at the beginning of the highest priority spoolfile. Otherwise, the spoolfile that was active when spooling was suspended will be resumed.

When using the BACK parameter, if you instruct the spooler to go BACK farther than the first unpurged extent, an error message will be printed on the system console, and printing will resume at the beginning of the first unpurged extent.

When using the FORWARD parameter, if you instruct the spooler to go FORWARD beyond the point where files exist, an error message will be printed on the system console, and printing will not resume until a new command is issued.

# **:RESUMESPOOL**

When using the BACK or FORWARD parameters of RESUMESPOOL it is best to overlap slightly in order to assure that you get all the output you need. For example, if you wish to reprint the last three pages, you might want to actually resume printing BACK 5 PAGES. Partial pages and header pages affect the page count. It is difficult, therefore, to tell exactly how the spooler has counted where it left off.

By using the utility SPOOK with mode control ON, (see Utilities Manual), one can determine where each FOPEN occurs within a spoolfile, (defined as a logical file within \$STDLIST). This feature is useful, for example, in the case of a compile, prep, and run of a large program where you may not want the entire output printed, or in the case of a power or system failure where the compile may already have been printed, and you wish to resume printing at the prep or run.

During spooling, most line printers purge each extent of a spoolfile as it finishes printing. The 2680A Laser Page Printer, however, does not purge extents as they are printed; rather the entire spoolfile remains intact until completion of printing, and then is purged all at once. It is for this reason that use of the FILES parameter is not allowed on the 2680A.

## **EXAMPLES**

To resume output to logical device number 6 at the beginning of the file (or the first unpurged extent), enter:

```
:RESUMESPOOL 6;BEGINNING
```

To resume output to logical device number 6, and reprint the last two pages (as in the case of a paper jam), enter:

```
:RESUMESPOOL 6;BACK 2 PAGES
```

To resume output to logical device number 6, and print the highest priority spoolfile, enter:

```
:RESUMESPOOL 6
```

## **TEXT DISCUSSION**

Page 4-12

Displays the status information about a communication device.

## SYNTAX

```
:SHOWCOM ldn [;ERRORS] [;RESET]
```

## PARAMETERS

<i>ldn</i>	The logical device number of a communication system device.
ERRORS	A request for the full status list. If it is not specified an abbreviated list is displayed.
RESET	A request to reset all status information to zero after it has been displayed.

## NOTES

The status information from this command can be used to determine communication line activity and quality. The status information provided includes the:

- Number of messages sent and received.
- Last recoverable and irrecoverable errors.
- Number of recoverable and irrecoverable errors.
- Number of retransmissions, response timeouts, clear to send losses, and underruns.
- Number of check character (BCC/CRC) errors, receive timeouts, carrier losses, and overruns.
- Line state (closed, connected, or disconnected).

### NOTE

Clear to send losses and carrier losses will only be valid for communication lines configured as full duplex.

# :SHOWCOM

When the line is in the open state, either connected or disconnected, the status information displayed is a duplicate of the statistics generated from the last open of the line to the point in time the SHOWCOM command is invoked. When the line state is closed, the status information obtained at the close of the line reflects the statistics generated over the last open/close sequence.

## EXAMPLES

To display the status of logical device 18, enter:

```
:SHOWCOM 18
                LDN - 18
MESSAGES SENT      0      MESSAGES RECVD 0
LAST RECOVERABLE ERROR      0
LAST IRRECOVERABLE ERROR    201
LINE IS CLOSED
```

To display the full status of logical device 18, enter:

```
:SHOWCOM 18;ERPOPS
                LDN - 18
TRANSMIT          RECEIVE
MESSAGES SENT      0      MESSAGES RECVD 0
PETRANSMISSIONS   0      BCC/CPC ERRORS 0
RESPONSE TIMEOUTS 0      RECV TIMEOUTS 0
UNDERRUNS          0      OVERRUNS        0
CLR TO SEND LOSSES 0      CARRIER LOSSES 0
# OF RECOVERABLE ERRORS      0
LAST RECOVERABLE ERROR      0
# OF IRRECOVERABLE ERRORS    0
LAST IRRECOVERABLE ERROR    0
LINE IS CLOSED
```

### Note

The last irrecoverable and recoverable error codes are specified in the Data Communications Handbook.

## TEXT DISCUSSION

None.

# =SHUTDOWN

Initiates shutdown of MPE.

## SYNTAX

=SHUTDOWN

**PARAMETERS**      none

## NOTES

The =SHUTDOWN command does an implicit =LOGOFF. It stops all system processes in an orderly fashion, such that all pending system activity is completed and appropriate processing is performed to ensure that the integrity of all system tables and directories is maintained. After this has been performed, SHUT is printed and the CPU HALTs with %030377 in the Current Instruction Register (CIR). Console interrupt (control A) will not be effective after =SHUTDOWN. The CMP print HALT, and then prompts for further CMP input.

Device configuration changes made after the preceding load (:UP,:DOWN,:GIVE,:TAKE,:ACCEPT,:REFUSE and spooling commands) will not be retained. Notice, configuration changes made during cold load are permanently recorded, and retained until the next tape cold load. Newly assigned or released global Resource Identification Numbers (RINs) are permanently recorded.

WARMSTART will retain the current =LIMITs.

Communication lines must be shut before issuing =SHUTDOWN or it will not complete successfully.

### NOTE

Spooled devices will stop operation immediately upon receiving a =SHUTDOWN command. WARMSTART will retain spoolfiles for later output.

## EXAMPLES

To issue a warning message to all users and then shut the system down, proceed as follows:

```
:WARN @;SYSTEM WILL SHUT-DOWN IN FIVE MINUTES..PLS LOG-OFF
```

Allow time for users to log-off

```
=SHUTDOWN  
10:49/#S40/25/LOGOFF  
10:49/20/ALL JOBS LOGGED-OFF  
  
SHUT  
HALT  
→
```

## TEXT DISCUSSION

# :SPEED

Changes terminal operating speed.

## SYNTAX

`:SPEED newinspeed,newoutspeed`

## PARAMETERS

*newinspeed* New input speed, in characters per second. Must be 10, 14, 15, 30, 60, 120, 240, 360, 480, or 960.

*newoutspeed* New output speed, in characters per second. Must be 10, 14, 15, 30, 60, 120, 240, 360, 480, or 960.

### NOTE

*Newinspeed* and *newoutspeed* must be the same.

## OPERATION

MPE automatically senses the input/output speed of a terminal when you log on at that terminal. If your terminal has speed adjustment controls (see your terminal owner's manual), you can change the input and output speeds after log on with the `:SPEED` command. Note that this command is not valid for terminals that operate on one speed only.

When the command is entered, MPE outputs the following message at the old output speed:

CHANGE SPEED AND INPUT MPE

Manually change the speed according to the instructions found in your terminal owner's manual, (the procedure varies for different terminals), and verify the new speed by entering:

MPE

If the characters MPE cannot be verified, the system assumes that the terminal is to continue at the old speed. (To continue you must reset the terminal to the old speed.)

## NOTES

If you attempt to change the terminal to a speed which is not available, the following error message will be printed:

INPUT SPEED SPECIFIED NOT SUPPORTED BY THIS DEVICE. (CIERR 1642)

This command is the MPE `:SPEED` command, and should not be confused with the HP 3000 Series 44 CMP `:SPEED` command. The MPE command changes the input and output speeds *only* for MPE, while the CMP `:SPEED` command simultaneously changes the input and output speeds for MPE and the CMP on the Series 44. There is also a Series 44 CMP `SPEED` command which changes speeds only for the CMP. (See page 2-21 for explanation of the CMP commands.)

## **EXAMPLES**

To change the input and output speeds to 240 cps, enter:

```
:SPEED 240,240
```

MPE outputs:

```
CHANGE SPEED AND INPUT MPE
```

Manually change the speed and input MPE.

## **TEXT DISCUSSION**

None.

# :STARTSPOOL

Initiates spooling of a device.

## SYNTAX

<code>:STARTSPOOL</code> { <i>ldn</i> [;SHUTQ] } { <i>devclass</i> }
---

## PARAMETERS

- ldn*                   The logical device number of a spooled device. The spooler process acquires control of the device and spools all device classes that reference this device. This device must be a spoolable device.
- devclass*            The device class specified in the I/O configuration. Only this one device class becomes spooled. The spooler process does NOT acquire control of a device in this case. This device class must be a spoolable device class.
- SHUTQ                The spooler will print files waiting in the queue for device *ldn*, but will shut the queue for new accesses. The SHUTQ parameter is valid for *ldn* only. Default is OPENQ.

## NOTES

The `:STARTSPOOL ldn` command causes the spooler to own a specified device, and the spooler then is able to determine whether the device is an input or output spooling device.

If a *devclass* is spooled but the devices in the class are not, then any reference to the *devclass* is spooled.

When *devclass* is used in a `:STARTSPOOL` command, the effect is to open the spool queue for that device class.

When spooling to a 2680A Laser Page Printer, it is a wise precaution to `:STARTSPOOL ldn` and `:STARTSPOOL devclass` for the same device. A 2680 operates *only* as a spooled device. Therefore, in the case of a spooler I/O error where spooling stops to the *ldn*, no further spoolfiles can be created unless you have enabled spooling to the *devclass* as well.

### NOTE

If the *ldn* referenced in a `:STARTSPOOL` command is a 2894 card reader/punch, the following message will be generated on the system console:

IS THIS AN INPUT OR OUTPUT SPOOLER (IN/OUT)?

You must then enter the appropriate reply: IN if cards are to be read; OUT if cards are to be punched.

# :STARTSPOOL

## EXAMPLES

To start spooling all output to logical device 6 and all device classes that reference logical device 6 and cause the spooler process to acquire control of logical device 6 enter:

```
:STARTSPOOL 6
```

To start spooling all output to device class LP, enter:

```
:STARTSPOOL LP
```

To start spooling on logical device 6 and SHUTQ (resulting in printing the spoolfiles waiting in queue but creating no new ones) enter:

```
:STARTSPOOL 6;SHUTQ
```

## TEXT DISCUSSION

Page 4-9.

# :STOPSPPOOL

Terminates spooling to a specified device or class.

## SYNTAX

<code>:STOPSPPOOL</code> { <i>ldn</i> [: <i>OPENQ</i> ] } <i>devclass</i>
--

## PARAMETERS

- ldn*                      The logical device number of a spooled device. The spooler process gives up ownership of the spooled device; the device becomes AVAILABLE for non-spoiled I/O. For all device classes that include this logical device, subsequent I/O is no longer directed to spoolfiles unless an explicit “:STARTSPOOL *devclass*” has been issued for that device class.
- devclass*                The device class specified in system I/O configuration. Subsequent I/O directed to this device class will not take place to/from a spoolfile. I/O will go directly to/from a logical device if one is available within the device class. If none is available, the program will be unable to open the file.
- OPENQ                    The spooler process will leave the queue OPEN or OPEN the queue if previously shut. The OPENQ parameter is valid for *ldn* only. Default is SHUTQ.

## NOTES

When *devclass* is used in a :STOPSPPOOL command, the effect is to shut the queue for that device class.

## EXAMPLES

To terminate spooling to logical device number 6 and cause the spooler process to relinquish control of logical device 6, enter:

```
:STOPSPPOOL 6
```

Spooling will also terminate for any device class that references this device that has NOT had a “:STARTSPOOL.”

To stop directing output for device class LP to a spoolfile (provided a :STOPSPPOOL 6 has also been issued), enter:

```
:STOPSPPOOL LP
```

To terminate spooling on device 6 and leave the queue open, enter:

```
:STOPSPPOOL 6;OPENQ
```

## TEXT DISCUSSION

Page 4-9.



# :SUSPENDSPOOL

Spooler process suspends output to spooled device, but output directed to logical device continues to go to spoolfiles.

## SYNTAX

```
:SUSPENDSPOOL ldn [;FINISH]
```

## PARAMETERS

<i>ldn</i>	The logical device number of a particular device.
FINISH	Causes a spooled device to continue to completion of the currently active spool file, and then stop.

## NOTES

The following message is generated when the spooler process is suspended:

```
SP # ldn SPOOLER SUSPENDED
```

Indirectly you know the spooler is suspended when a “:SHOWOUT SP;JOB=@” shows spoolfiles READY to be printed and not DEFERRED, but none ACTIVE, and the “:SHOWDEV6” shows the device is still spooled.

When suspending an ACTIVE spoolfile it is preferable to first take the output device offline. This allows you time to enter the command, and to ascertain that the currently ACTIVE spoolfile corresponds to the device file physically being output. Note that the return by MPE of the colon prompt (:) means that an instruction has been sent to the spooler process. This instruction will not be physically executed until the output device is returned to the on-line state.

## EXAMPLES

To cause logical device number 6 (a line printer) to stop printing, enter:

```
:SUSPENDSPOOL 6
```

To cause logical device number 6 (a line printer) to continue to print and stop when completed, enter:

```
:SUSPENDSPOOL 6;FINISH
```

## TEXT DISCUSSION

# :TAKE

De-assigns a GIVEN device from diagnostics.

## SYNTAX

```
:TAKE ldn
```

## PARAMETERS

*ldn*

The logical device number of the device taken from diagnostics but left :DOWNed.

## NOTES

none

## EXAMPLES

To take logical device number 35 from diagnostics, enter:

```
:TAKE 35
:SHOWDEV 35
LDEV  AVAIL      OWNERSHIP      VALID      ASSOCIATION
35  A  UNAVAIL   DOWN
```

To :UP (bring on line) the device, enter:

```
:UP 35
:SHOWDEV 35
LDEV  AVAIL      OWNERSHIP      VALID      ASSOCIATION
35  A  AVAIL
```

## TEXT DISCUSSION

Page 3-24.

# :UP

Allows a DOWNed device to function again.

## SYNTAX

```
:UP ldn
```

## PARAMETERS

*ldn*                      The logical device number of a particular device being placed on-line.

## NOTES

This command allows a previously DOWNed device to function again but does not change ownership of the device.

## EXAMPLES

To allow logical device number 10 to function again, enter:

```
:UP 10
:SHOWDEV 10
LDEV      AVAIL              OWNERSHIP      VALID      ASSOCIATION
10 A AVAIL
```

### NOTE

*When this device was :DOWNed, it was owned by the system and remains unchanged by the :UP command.*

## TEXT DISCUSSION

None.

# :VMOUNT

Enables or disables the Private Volumes Facility of MPE.

## SYNTAX

<code>:VMOUNT</code> { <code>ON [,AUTO]</code> <code>OFF</code> } [ <code>;ALL</code> ]
--

## PARAMETERS

ON	Specifies private volumes mount and dismount requests will be accepted.
AUTO	Allows the system to approve or disapprove users' mount and dismount requests without your intervention. If not specified, you will be required to reply at the console to all mount requests, even those that request you to mount an already mounted volume set.
OFF	Specifies that requests involving the Private Volumes Facility will be rejected.
ALL	Causes all private volumes mount-related console messages, including those not requiring your intervention, to be printed on the system console.

## NOTES

If the Private Volumes Facility is in use when you issue a VMOUNT OFF command, users with currently mounted volume sets will be unaffected; the command will be satisfied when the last access is complete.

Once the facility has been enabled, you can determine what volumes are actually mounted and which users are using particular volume sets with the :DSTAT and :VSUSER commands respectively.

Immediately following a system cold load, the Private Volumes Facility is disabled. However, you still receive console messages concerning private volumes mount requests. The setting after a cold load is equivalent to the following:

```
:VMOUNT OFF;ALL
```

The command that gives you the most interaction with, and control over, private volumes use is:

```
:VMOUNT ON;ALL
```

The command that provides the least interruption to you during private volumes use is:

```
:VMOUNT ON,AUTO
```

# :VMOUNT

## EXAMPLES

The following example disables the Private Volumes Facility. By default, the example requests that no messages be sent to the console when users attempt to use the facility.

```
:VMOUNT OFF
```

The next example disables the Private Volumes Facility but specifies messages should be sent to the console when users attempt to mount private volumes.

```
:VMOUNT OFF;ALL
```

## TEXT DISCUSSION

Page 4-32.

# :WARN

Sends an urgent message to jobs/sessions.

## SYNTAX

<pre>:WARN { [#]Jnnn         [#]Snnn         [jsname,]username.acctname         @         [@.]acctname         @J         @S } [;][text]</pre>
--

## PARAMETERS

<i>#Jnnn</i>	A job number (as assigned by MPE) for the job that is to receive the message.
<i>#Snnn</i>	A session number (as assigned by MPE) of the session that is to receive the message.
<i>jsname,username. acctname</i>	The names of the job/session and user to receive the message, and the account name under which they are running. (This parameter is the same as the job or session identity entered with the :JOB or :HELLO command.)  If several users are running under the same job/session identity, MPE will send the message to all of them.
@	All users receive the message.
@.acctname	All users under acctname receive the message.
@J	All jobs receive the message.
@S	All sessions receive the message.
<i>text</i>	The message text, consisting of any string of ASCII characters. Default is no message is printed.

# :WARN

## NOTES

An urgent message (:WARN), interrupting any current pending read — or write in progress, will appear on the list devices of all sessions (even QUIET) as:

OPERATOR WARNING: *message*

WARN messages will be received by jobs only if the job was submitted on an interactive device.

The user has the option of running his session in QUIET mode, wherein :TELL messages from other users will be refused.

## EXAMPLES

To send a WARN message to all sessions followed by a WARN message to session #S51, enter:

```
:WARN @;THE SYSTEM WILL SHUTDOWN IN 5 MINUTES..PLS LOG-OFF  
:WARN #S51;LAST CHANCE TO LOG-OFF GRACEFULLY..
```

## TEXT DISCUSSION

Page A-1.

# :WELCOME

Defines the welcome message.

## SYNTAX

```
:WELCOME return  
# message return  
# message return  
# return
```

## PARAMETERS

*message* An ASCII string.

## NOTES

Unlike other console commands which are restricted to one line, the :WELCOME command can be entered on multiple lines in an interactive fashion. The first line contains only the :WELCOME command followed by a carriage return. You are then prompted with a # to begin each line of the message. Any number of lines may be used for the welcome message. The message is terminated and the command completed when a carriage return is entered in response to the # prompt character. When the response to the first prompt is a carriage return, the old welcome message (if any) is deleted.

The welcome message is preserved when the WARMSTART, COOLSTART, and UPDATE system restart options are used.

The WELCOME message will be printed on the \$STDLIST device of each job or session as it goes into execution.

## EXAMPLES

To create a multi-line welcome message, enter:

```
:WELCOME  
#HEWLETT-PACKARD DEMONSTRATION CENTER  
#WELCOME TO THE HP3000 COMPUTER SYSTEM.  
#NOTE: FILES WILL BE STORED EACH DAY BETWEEN 6AM AND 7AM.  
#return
```

### NOTE

The length of each line cannot exceed 72 characters.

## TEXT DISCUSSION

None.

# OPERATIONAL OVERVIEW

SECTION

IV

## JOB/SESSION EVOLUTION

Jobs and sessions are introduced to MPE through *accepting* input devices. The term *accepting* means the system will accept :JOB or :HELLO commands from a specified device. The System Manager will decide which devices will be allowed to accept jobs or sessions at configuration time. Magnetic tapes (JOBTAPE) and terminals are normally configured to accept jobs and sessions respectively. Accepting input devices which are not owned (being used) are controlled by the *MPE Device Recognition process*. This process issues an automatic read whenever an accepting input device is "made ready". On a terminal, this occurs after the carriage return key is pressed. On a magnetic tape, the tape is read as soon as the device is put on-line and at load point. This automatic reading is required to allow system users to log-on to the system, therefore the first input record must be a legitimate :JOB or :HELLO command. Incorrect :JOB commands results in a flushing (rapid reading) of the remainder of the job tape as the system searches for a legitimate :JOB image. Incorrect :HELLO commands cause an error message to be printed on the terminal then the colon prompt (:) is repeated. You have approximately two minutes to successfully log on, after which you have to press the carriage return key again, and reenter the correct :HELLO command.

The *Device Recognition* process is responsible for the validation of all :HELLO commands and for :JOB commands from non-spooled devices. After passing the initial validation, a new job or *session-to-be* must (in addition) pass through a number of preliminary job *states* before actual program execution begins.

After :HELLO or :JOB validation from a non-spooled device, a job or session will enter the suspend state. This state signifies that the job or session is ready for processing and is to be considered as a candidate for job/session dispatching, providing the required system resources are available. Each job and session requires creation of certain table entries within MPE. If table entries are unavailable it would cause the job/session to suspend. Jobs require the availability of a (real or spooled) list device for job output purposes.

Lack of an available list device will cause jobs to WAIT until a device becomes available. A function of MPE called the *Job Scheduler* determines when a job or session can be accepted. The job scheduler selects the best candidate among suspended jobs/sessions (whose required resources are available) and dispatches the job/session for execution.

The determination that another job/session can be accepted is based on whether the :LIMITed number of jobs/sessions would be exceeded, the input priority for the job/session exceeds the current job fence and the necessary system resources are available.

### NOTE

*:LIMIT is a Console Operator command used to restrict the number of jobs and or sessions which can run concurrently.*

*Input priority is the priority used for job/session selection and consists of a number between 1 (lowest) and 13 (highest) included by a user in the :JOB or :HELLO command.*

*The job fence is set by the Console Operator through the :JOBFENCE command and consists of a number between 0 (lowest) and 14 (highest). When the job fence is higher than or equal to the input priority set by a user for a job, it becomes a suspended job, while sessions are refused. The session user gets a message indicating that the system is unable to initiate new sessions. Jobs suspending because of a JOBFENCE/INPRI conflict are said to be deferred.*

A suspended session which cannot be dispatched because of a resource problem (lack of MPE table entries), LIMIT conflict (Session limit exceeded), or a JOBFENCE conflict (JOBFENCE>=INPRI) is aborted with a message to the user which states that the system is unable to initiate new sessions at this time. The suspend state for a session normally does not exceed 30 seconds.

A suspended job can only be considered for dispatching if a list device (real or spooled) is available. Jobs can remain in the suspend state indefinitely. As soon as the required resource is available or LIMIT/JOBFENCE conflicts are removed, the job will achieve the execution state.

The job scheduler examines all suspended jobs/sessions whose input priority exceeds the current job fence and makes a selection according to the following rules, and in the order shown.

1. A session is chosen over a job.
2. A job/session of higher input priority is chosen over one with lower.
3. A job/session introduced earlier is chosen over a *younger* one.

When the best job/session candidate is selected, it is dispatched and the MPE Command Interpreter begins to execute. It first enters INITIALIZATION (INIT) state. The job/session remains in the EXECUTING state (except for :BREAKJOB, which could suspend it (SUSP), until it completes, at which time it is removed from the system.

#### NOTE

*Batch jobs input on spooled devices are first established in the INTRODUCED state. In this case the spooler process validates the :JOB command and if legitimate, copies the job input records to the disc. INTRODUCED jobs become suspended (ready) jobs as soon as the spooling operation is complete. Jobs input from spooled devices are selected in the same manner as jobs input from real devices after the suspend state is achieved.*

## INTRODUCTION TO DEVICEFILE MANAGEMENT

In many operating systems, the term "file" is a reference to a group of records on a disc. The identity of the file, where it is located, and other pertinent information is normally kept in a file directory. While operations associated with disc files are vital and important, they are only a part of the total input/output operation. Other peripheral devices such as, magnetic tapes, flexible discs, terminals, card readers, line printers, card punches, plotters, and paper tape equipment must be controlled by the operating system as well. Since each physical device has its own characteristics and peculiarities many operating systems choose to separate I/O operations into two mutually exclusive sections:

1. A file system for handling disc files
2. A standard software interface for all other devices.

This requires the users of the system to learn two methods of performing input/output operations and truly device independent programming is inhibited.

In MPE, the concept of a file system has been enlarged to include control of physical devices as well as disc files. The advantage to the user is a much more consistent interface for all input/output operations. The MPE user treats all input/output operations as if he were reading or writing to a file. A rough definition of a file could be simply; *one or more data items*. If the data items are written to a disc, it would become a *disc file*. On most systems the majority of data files are disc files, so the term “disc file” has become simply “file”.

## DEVICEFILES

The term *devicefiles* refers to a file originating from or directed to a non-disc device.

MPE makes available to you, commands for managing and monitoring devicefiles and the input/output devices themselves. Each input/output device known to the system has a unique logical device number (*ldn*). In addition to a logical device number each device is assigned a class name. A class name can be unique to a device, or a class name may be associated with more than one ldn. For example:

DEVICE	LDN	CLASS
LINE PRINTER	6	LP PRINTER
MAG TAPE	7	TAPE1 TAPE
MAG TAPE	8	TAPE2 TAPE
MAG TAPE	9	TAPE3 TAPE

The magnetic tape could be assigned to logical devices 7, 8, or 9 or the device classes TAPE1, TAPE2, or TAPE3 respectively. A non-specific reference could be made to any magnetic tape device by using the class name “TAPE”. In this way the user does not have to select a specific device and is willing to use any device in the class. You would then assign any available magnetic tape unit to the user request.

In addition to the device, the devicefile itself is provided with a unique value called a *devicefileid*. The form of the *devicefileid* is:

*#Innn*

or

*#Onnn*

where

*I* — denotes input.

*O* — denotes output. (This is an alphabetic “O”.)

*nnn* — is a unique number assigned by MPE when the file becomes known to the system.

An idle device is known by its *ldn* or unique device class name only. An active device (being used) has a *devicefileid*. In order for the system to keep track of who is using the device, (i.e., who created the devicefile) additional information is provided:

*job or session number* — number assigned by MPE at log on time.

*file name* — system defined or user defined file name.

*username* — user name supplied on :DATA accepting device only.

*acctname* — account name supplied on :DATA accepting device only.

*ldn* — logical device number of the device.

*state* — file state, (OPENED,READY,ACTIVE,LOCKED).

## INPUT DEVICEFILES

Input devices that accept :JOBS or :DATA commands always attempt to read the first command automatically. (See the paragraph on *Device Recognition* in this section.) There are three types of input device files:

1. Job/session input devicefiles
2. Data devicefiles
3. Operator-assigned devicefiles

**JOB/SESSION INPUT DEVICEFILES.** A :JOB or :HELLO command entered on a device that is configured to *accept* jobs or sessions will cause the creation of a devicefile on behalf of that job or session. This file always assumes the system defined name \$STDIN.

**DATA DEVICEFILES.** The :DATA command provides the user with a method of associating a data devicefile with a specific *user.account name* and optionally a *filename*. Data accepting devices will always attempt to read the first command automatically. (See the paragraph on *Device Recognition* in this section.) The system scans the :DATA being input for validity (similar to :JOB command processing). If the command is syntactically correct, and the user and account specified in the

command are present on the system, the devicefile is created. At this point, the specified user could access this devicefile without operator intervention, but only by accessing the devicefile via the *user.accountname* and optional *filename* specified on the :DATA accepting device. This mechanism provides a reasonable amount of security for devicefiles and simplifies your job of trying to keep track of what data belongs to what user. When the :DATA accepting device is spooled, the system will automatically read the first command (:DATA) as before. However, if the :DATA command is valid, the entire devicefile is spooled to the disc where it will reside until accessed by the creating user (:DATA USER.ACCOUNT;FILENAME) or deleted by you.

**OPERATOR-ASSIGNED DEVICEFILES.** Input devices that do not accept :JOB/:HELLO or :DATA commands are not auto-recognizing. When a user requests to input data from a non-accepting device, you must assign the device for the exclusive use of the requestor. These are called operator-assigned devicefiles.

Command images that have a colon as the first character may be read on non-accepting devices, this is not true of :JOB/:HELLO or :DATA accepting devices which treat a colon in column one as an end-of-file indication.

#### OPERATOR INVOLVEMENT WITH INPUT DEVICEFILES

User programs gain access to input data by “opening” the input devicefile. Since you normally control the device, and the user (usually located at a remote terminal) controls the devicefile opening program, some coordination or cooperation between the two are required. If the device to be used is configured as data-accepting, the appropriate :DATA command and :EOD command are added to the data as the first and last records respectively. The complete data file is placed in the device and the system automatically reads the :DATA command. The devicefile is *now known to the system* and can be accessed by the user program.

If the user program is executed prior to the reading of the :DATA command, the devicefile would not be known to the system and a message would appear on the system console asking you to assign a device for the user request. In this case, you would place the file in the appropriate device as before, and after the :DATA command was read you would perform a =REPLY command. The command would cause the accessing program to scan for the devicefile again, and upon finding the correct entry open it.

If the device selected by the user is not the data accepting type, you must allocate the device when the user program requests it.

Remember that a user program waiting for your reply will remain suspended indefinitely. If for some reason the device requested by the user is not available or non-existent you can reply with an assigned logical device number (*ldn*) of 0. This will cause the requesting program devicefile open operation to fail. The program failure will allow the user to make the necessary changes and run the program again.

#### Example

The following display is the result of a :SHOWIN command. This command will display all input devicefiles “known” to MPE.

: SHOWIN

DEV/CL	DFIN	JOBNUM	FNAME	STATE	FPM	SPACE	RANK	PRI	#C
25	#I16	#S14	\$STDIN	OPENED					
43	#I14	#S13	\$STDIN	OPENED					
5	#I15		GOODFILE	READY			4		

FIELD.SUPPORT

**4 FILES:**

0 ACTIVE  
1 READY; INCLUDING 1 SPOOFLES, 0 DEFERRED  
3 OPENED; INCLUDING 0 SPOOFLES  
0 LOCKED; INCLUDING 0 SPOOFLES  
1 SPOOFLES: 4 SECTORS

Devicefiles #I16 and #I14 are session input devicefiles on ldn 25 and 43 respectively. #I15 is a :DATA devicefile that was spooled from ldn 5. It was created by the user FIELD under the account SUPPORT with the assigned file name GOODFILE.

**NOTE**

*After devicefile #I15 was created the input spooler for this device was stopped and the :REFUSE command was used to temporarily disable the :JOB, :DATA accepting attributes.*

**OUTPUT DEVICEFILES**

An output devicefile is composed of output data from a user program, going to output devices such as, line printer, and magnetic tapes.

**JOB/SESSION LIST DEVICEFILES.** Each job/session accepting device is assigned a default output device during system configuration. The default device may be a ldn or a device class. For each job/session submitted on a given accepting input device, the corresponding default output device is used to assign a destination device for the job/session list devicefile.

There is exactly one such job/session list devicefile assigned to each executing job/session. It always assumes the system defined file name \$STDLIST.

**OTHER OUTPUT DEVICEFILES.** A job/session may create other output devicefiles by specifying a ldn (different from the job/session list device) or a device class.

**OPERATOR INVOLVEMENT WITH OUTPUT DEVICEFILES**

If a magnetic tape or serial disc has been specified, you will be asked to assign the device:

1. If the user has requested a device class you may specify any available *ldn* in the class.
2. If the user has requested the *ldn* of a specific drive, you may assign the device if it is available.

### Example

The following display is the result of a :SHOWOUT command. All output devicefiles "known" to MPE are displayed by this command.

```

:SHOWOUT SP
DEV/CL  DFID  JOBNUM  FNAME  STATE  FRM  SPACE  RANK  PRI  #C
LP      #02136 #S750  LP      READY  40   1  8  1
LP      #02137 #S761  LIST    READY  36   2  8  1
LP      #02139 #S761  EDTLIST READY  36   3  8  1
LP      #02140 #S761  EDTLIST READY  36   4  8  1
LP      #01940 #J297  $STDLIST READY  36   0  1  1
LP      #01997 #J305  $STDLIST OPENED  1024  0  1  1
LP      #02000 #J307  $STDLIST READY  36   0  1  1
SLOWLP #02130 #J335  $STDLIST OPENED  2048  0  1  1
SLOWLP #02129 #J335  $STDLIST READY  1124  0  1  1
SLOWLP #02135 #J337  $STDLIST READY  64   0  1  1
SLOWLP #02138 #J339  $STDLIST OPENED  1024  0  1  1
11     #02124 #J333  $STDLIST ACTIVE  2372  1  8  1

12 FILES (DISPLAYED):
 1 ACTIVE
 8 READY; INCLUDING 8 SPOOFLES, 4 DEFERRED
 3 OPENED; INCLUDING 3 SPOOFLES
 0 LOCKED; INCLUDING 0 SPOOFLES

12 SPOOFLES: 7876 SECTORS
OUTFENCE = 6

```

Devicefiles #O5, #O1 and #O4 are session output devicefiles on *ldn* 20, 21 and 27 respectively. #O16 is an output devicefile that was spooled to device class LP with the assigned file name PRINTER. #O17 is an output devicefile going to logical device number (*ldn*) 8 with the *filename* BOBTAPE.

## SPOOLING

MPE is equipped with a spooling facility to assist the operation of certain non-sharable devices. A simplified version of this input/output spooling process is shown in Figure 4-1 along with an explanation of the process.

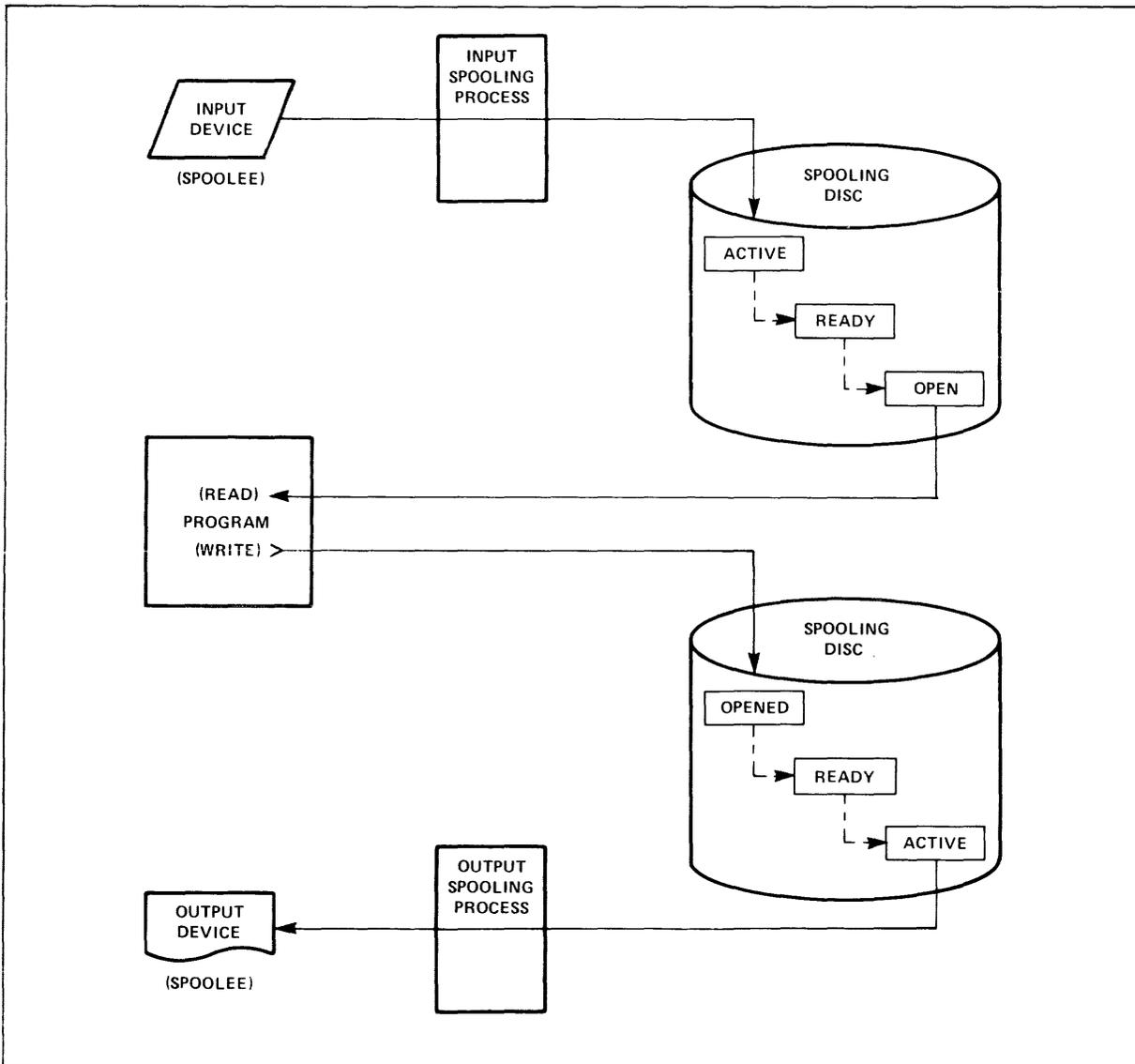
### INPUT SPOOLING

When a non-sharable JOB or DATA accepting input device is spooled, the device (called the spooler) is acquired (belongs to) by the spooling process. This process is activated when the spooling operation is enabled. The purpose of the process is to perform read operations from the device (spooler) and copy or write this input data to a disc file called the ACTIVE file. Reading from the input device, and writing to the ACTIVE file continues, record by record, until the logical end of file indication is encountered. At this time the ACTIVE file on the spooling disc becomes a READY file, and as such is available for access by program or MPE. A program that performs a proper FOPEN on a spooled input devicefile will gain access to the newly created READY file, at which time this file assumes the OPEN state. When the FOPENing program FCLOSES the file, it is deleted from the system. The *normal* transition for spooled input devicefiles is:

1. ACTIVE — in the process of being created but not yet complete.
2. READY — ready for access by a program or deletion by the Console Operator.
3. OPEN — being accessed by a user program or MPE, i.e., being *read*.

NOTE

*A spooled devicefile also may be in the LOCKED state, which is equivalent to the READY state but disables the file from being accessed by a program. It also defers you from deleting a request.*



147021-1

Figure 4-1. Simplified I/O Spooling Diagram

## INPUT SPOOLING CONTROL

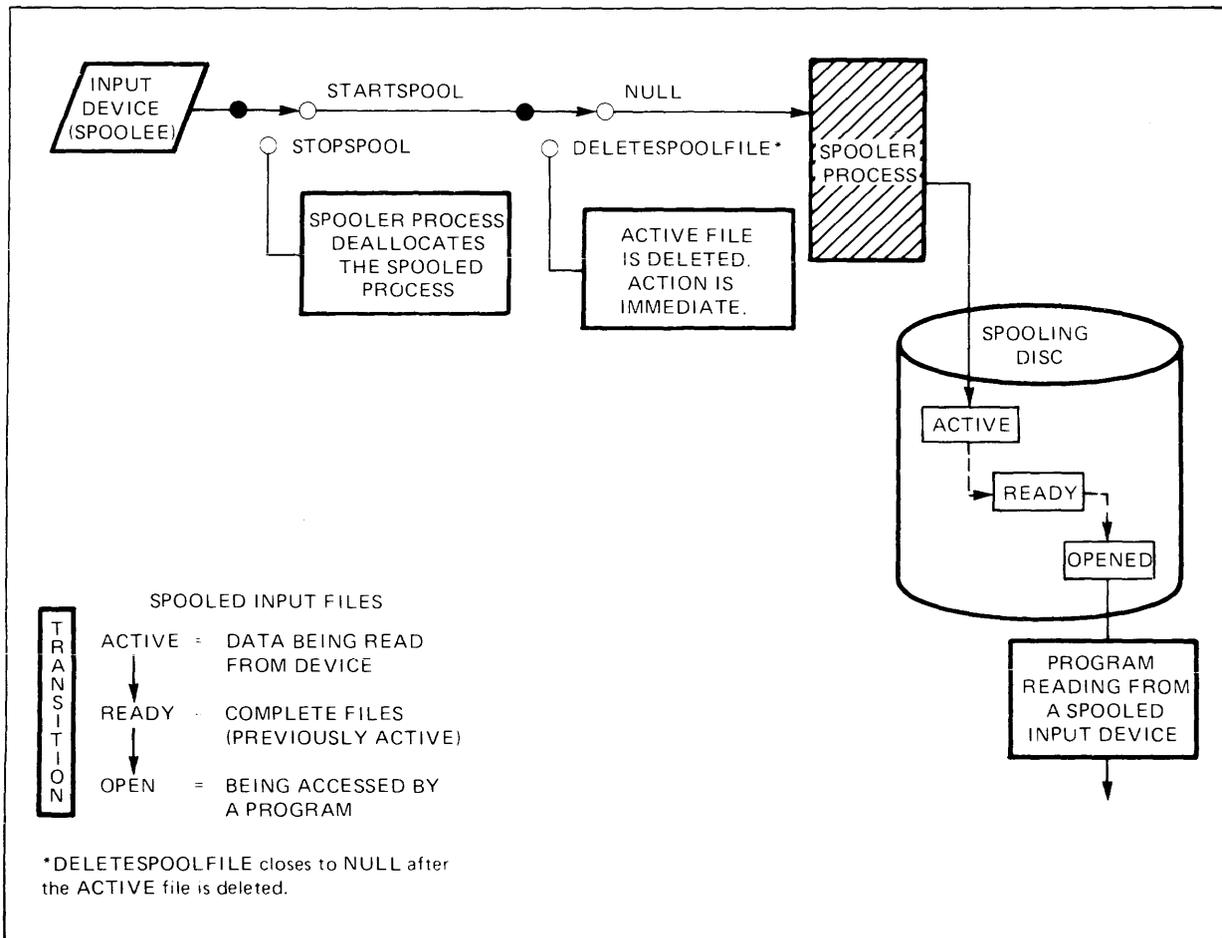
The input spooling diagram (figure 4-2) illustrates the path of data from the input device, to the spooling disc, and then to the reading program. This diagram uses switches that are analogous to the spooling commands and help illustrate the function of these commands and how they are used to control the input spooling operation.

The `:STARTSPOOL` command activates the spooler process and closes the switch that connects the input device to the disc. Devices that are initially spooled at configuration time are in the `:STARTSPOOL` mode after each start-up of the system.

Any time after the `:STARTSPOOL` command is issued the input spooling operation can be stopped, using the `:STOPSPPOOL` command. If the `:DELETESPOOLFILE` command is not issued, the spooler process will de-allocate the input device immediately and set the spoolfile to the `READY` state.

### NOTE

*The NULL switch position is not a spool command but is required to show the default case.*



147021-2

Figure 4-2. Input Spooling Diagram

If the :DELETESPOOLFILE command is used, the currently ACTIVE spooled devicefile is deleted from the system. The action of the :DELETESPOOLFILE command is immediate, but note that the device remains allocated to the spooler process.

To summarize; the operation of the input spooler is to continually try to read data from the input device. An ACTIVE file is created when :JOB (if the spooler is job accepting) or :DATA (if the spooler is data accepting) command is encountered in the input device stream. The input spooler validates the :JOB or :DATA command and copies subsequent records into the ACTIVE spooled devicefile. When the spooler encounters an :EOD, :EOJ, :JOB, :DATA command, or a physical end-of-file (:EOF), the ACTIVE spooled devicefile becomes a READY file. READY input spooled devicefiles are thus available for access by user programs.

#### NOTE

*Normally, every job in a sequence of jobs is independent of the other. Such jobs can be submitted and executed in any order. In certain exceptional cases, jobs are ordered such that a particular job must execute completely before the following job(s) are to be executed or even submitted. When such a job sequence is submitted on a non-spoiled device, this ordering is implicitly effected, because every command record is executed when it is physically read. Spooling a job-accepting device can essentially nullify this ordering, since 1), jobs are admitted by the spooler before preceding jobs have executed; and 2), more than one job may possibly concurrently execute. Therefore, when an ordered sequence of jobs is to be submitted, the safest procedure is to introduce the sequence on a non-spoiled job-accepting device. Establishing an account, for example, typically consists of one job (in behalf of the System Manager) which creates the account with one user and one group, followed by a job (on behalf of the new account's account manager) which establishes all the remaining users and groups. If this two-job sequence was submitted on a spoiled device, the first job would probably not have finished execution before the spooler attempted to validate the second job; that is, the user.acct,group for the second job would not yet exist at the time that the spooler attempts validation of that job — the second job would be rejected. These kinds of job sequences should be submitted on non-spoiled devices.*

When there are no more devicefiles on the device, the spooler enters a suspended state, waiting for more input.

## INPUT SPOOLING FROM MAGNETIC TAPE AFTER A POWER FAILURE OR OVERTEMP SHUTDOWN

The I/O system is designed to issue a rewind command whenever spooling is stopped. In normal operation this feature guarantees that the tape is in a proper condition to be unloaded. However, when a power failure or overtemperature shutdown occurs, spooling is disabled, which leaves a rewind request outstanding when the system comes back up. If no tape is mounted on the magnetic tape device assigned to input spooling when the system restarts, the I/O messages:

```
SP#ldn/STOPPED  
SPOOLEE IO ERROR  
LDEV#ldn OFFLINE  
LDEV#ldn NOT READY
```

may be reported on the system console. Therefore, as a standard procedure in recovering from a power failure or overtemperature condition, mount a tape on the input spooling device.

## OUTPUT SPOOLING

When a non-sharable device is spooled, the device (called the spooler) is acquired by (belongs to) the spooling process. This process is activated when the spooling operation is enabled. A user program attempting to write data to a spooled output device writes the outbound record to an OPENED spooled devicefile instead of the device itself. Each time the user process writes a record destined for the output device, the record is diverted to the OPEN spooled devicefile. When the user process FCLOSES his output file, this causes the OPEN spooled devicefile to achieve the READY state. The output spooler process is constantly looking for spooled output devicefiles that have achieved the READY state. If the output device (spooler) is available, the spooler process selects a READY file for processing. This action changes the READY file status to ACTIVE, and the output to the device (spooler) commences. The normal transition for spooled output device files is:

1. OPEN — being accessed by a user program or MPE, i.e., being written.
2. READY — available and waiting to become the ACTIVE file or to be deleted by the Console Operator.
3. ACTIVE — the file currently being output to the device.

### NOTE

*A spooled devicefile also may be in the LOCKED state, which is equivalent to the READY state but disables the file from becoming ACTIVE. A spooled file becomes LOCKED by accessing the spool file with the SPOOK utility (refer to the System Utilities Reference Manual).*

## OUTPUT SPOOLING CONTROL

The output spooling diagram (figure 4-3) illustrates the path of data from a user program, to the spooling disc and then to the output device. This diagram uses switches that are analagous to the spooling commands to help illustrate the function of these commands and how they are used to control the output spooling operation.

The `:STARTSPOOL` command activates the spooler process and closes the switch that connects the output device to the `ACTIVE` spooled devicefile on disc. Devices that are initially spooled at configuration time are in the `:STARTSPOOL` mode after each start-up of the system.

There is a way of controlling spooled devices separately from spooled device classes. For example, suppose you need an unspooled “hot” printer, but you also want all users of device class “LP” to create spoolfiles while this “hot” printer (in this example, logical device 6) is actually allocated by a process. You would then do the following:

```
:STARTSPOOL LP
:STOPSPPOOL 6
:STOPSPPOOL MLP
```

Result:   DEV=LP is spooled line printer  
          DEV=6 is “hot” (unspooled) line printer  
          DEV=MLP is “hot” (unspooled) device class

When you are ready to print spoolfiles waiting to print in device class ‘LP’ you would enter:

```
:STARTSPOOL 6
```

Note that starting a spooling process for a particular logical device will have the effect of spooling all device classes associated with that *ldn*.

Anytime after the `:STARTSPOOL` command is issued the output spooling operation can be stopped using the `:STOPSPPOOL` command. The action of the `:STOPSPPOOL` command is immediate.

### NOTE

*The NULL switch position is not a spool command, but is required to show the default case.*

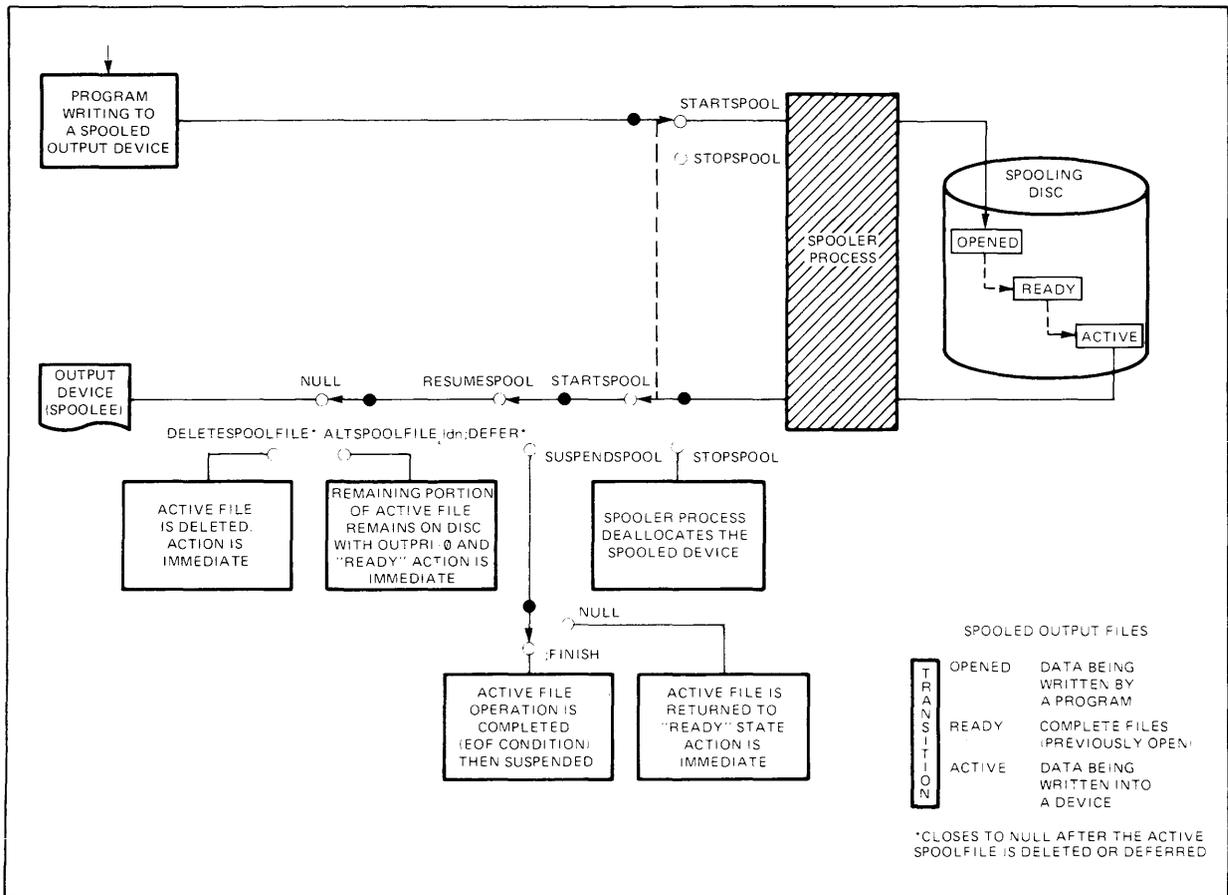
If the *ldn* option of the `:DELETESPOOLFILE` command is issued the `ACTIVE` file is deleted from the system immediately. If the `:ALTSPPOOLFILE ldn;DEFER` command is used, whatever remains of the `ACTIVE` file is retained on the disc and is placed in the `READY` state with an outpriority of 0. Action of the `DEFER` option parameter is also immediate, but the pointer is moved back to the currently `ACTIVE` extent. Any other `READY` spoolfile with a high enough output priority is then selected by the spooler process to be printed (e.g., spooling is not suspended).

The `:SUSPENDSPOOL;FINISH` command will stop the output device at the completion of the currently `ACTIVE` file, however, the device allocation is retained. Action of the `:SUSPENDSPOOL` command is immediate with the pointer moving back to the currently `ACTIVE` extent. The only way to proceed after a `:SUSPENDSPOOL` command is to issue a `:RESUMESPOOL` command.

:RESUMESPOOL allows the operator to backspace and forward space files or pages, or resume printing at the beginning of the file which was ACTIVE when the SUSPENDSPOOL command was issued (or at the beginning of the first unpurged extent, for all except 2680A printers. See note below). A file is defined for these purposes as wherever an FOPEN occurs in a spoolfile. \$STDLIST often contains more than one file.

The BACKspace *nnn* PAGES parameter can be very helpful, for example, in the case of a paperjam, where several of the last pages printed are damaged on a large printout. In this case, it is possible to simply resume printing two or three pages back without reprinting the entire job. (A page is defined as the literal page, usually 60 lines, as output from the spooler to the printer.)

Note that when using the BACK or FORWARD parameters of RESUMESPOOL it is best to overlap slightly in order to assure that you get all the output you need. For example, if you wish to reprint the last three pages, you might want to resume printing BACK 5 PAGES. Partial pages and header pages affect the page count. It is difficult, therefore, to tell exactly how the spooler has counted where it left off.



147021-3

Figure 4-3. Output Spooling Diagram

## NOTE

*Spoolfiles are divided into "extents", which can consist of from 128 to 32,767 sectors of disc space. (This value is set by the System Manager via :SYSDUMP.) The maximum number of extents per spoolfile is 32. During output spooling, most line printers purge each extent of a spoolfile as it finishes printing. The 2680A Laser Page Printer, however does not purge extents as they are printed; rather, the entire spoolfile remains intact until completion of printing, and then is purged all at once.*

To summarize; the operation of the output spooler is to continually check for the presence of READY output spooled devicefiles. When the spooler finds a READY file and the output device is available, the file state changes from READY to ACTIVE and output to the device from this file commences. READY files are selected on the basis of their *outputpriority* and by age among those of equal priority.

In addition, you can set an OUTFENCE. Output devicefiles with a priority less than or equal to the current OUTFENCE are deferred; deferred spoolfiles are not selected for spooling by output spoolers. An output spooler which fails to find a READY spoolfile for copying to a device will enter a suspended state. It will automatically be re-activated when a spoolfile becomes READY for copying.

You can change the *outputpriority*, destination, and number of copies of an OPEN or READY spooled devicefile with the :ALTSPoolFILE command.

## FORMS MESSAGE

When a job/session FOPENs a new devicefile, special forms may be requested using the *formsmg* parameter in the FOPEN call. The user forms message is printed on the console, along with a request to mount the forms:

1. If the user has requested a device class, you are asked to mount the forms on any free device in the class.
2. If the user has requested a specific *ldn*, you are asked to mount the forms on the device requested (if it is available).

If special forms are mounted on a device, and a devicefile not requiring special forms is assigned to the device, MPE will automatically ask you to mount *standard* forms.

When the user has requested special forms on a line printer, MPE will initiate a dialogue with you to align the forms. A standard record of the form:

```
0                                     1 / 2                                     3  
..... / ..... / .....
```

is output to the line printer, followed by a console message which asks you if the forms are aligned. This transaction is repeated until you indicate that proper alignment has been achieved. Assuming proper alignment instructions are given to you, the file can then be output beginning at the proper, user-defined position.

## HOW TO USE THE HP 2608 VFC, LEFT MARGIN, AND LINE DENSITY FEATURES

If your system has an HP 2608 line printer, you may receive a forms message requesting specific forms, and the Vertical Format Control (VFC) needed for printing a particular job/session.

To change the format outputed on your printer, a user-created ASCII file may be downloaded by the operator at run time. The user would:

- Create and store the EDITOR file.
- Include in the application code a FORMS message instructing you, the operator, to download the file using a :DOWNLOAD command.
- At print time, send a FORMS message instructing you to download the appropriate file and, if appropriate, to set up special forms in the printer.

The job is printed and completed. After all jobs requiring the currently downloaded VFC and margin have completed, you as the operator simply remove the special forms (if any), and download a standard VFC, such as VFC8 or VFC6, or any other appropriate VFC and margin. (See examples on pages 4-16 and 4-17.)

The format of the EDITOR file consists of several 80 character records, which is illustrated below:

Record 1	MARGIN=nn
Record 2*	VFC,x,y,zzzzzzzzzz
Record 3	.
	.
	.
Record m	

\*Note if no margin setting is required then this is the first record.

Key:	
nn	= A number between 1 and 16 inclusive. Specifies position of left margin indentation.
x	= 6 or 8 or blank Specifies print density in lines per inch. Default is 6 lines per inch.
y	= A number between 0 and 127 inclusive. Specifies number of lines (rows) in VFC pattern. If "0" is specified then the printer will reset its internal VFC to the default state. Note: All parameters are separated by commas.
z	= Comments to describe further the VFC file. Useful for documentation purposes.
m	= Number of rows needed to describe the desired VFC. Each record will contain at least 16 bytes corresponding to Figure 43. Each record corresponds to a line position on the page.
A blank or a "0" in a character position indicates a 0 (no-punch) and a non-blank indicates a 1 (punch).	

Refer to figures 4-1 and 4-2 for descriptions of the standard 16 Channel VFC formats. For reference purposes the full list of octal codes and associated carriage actions are presented in figure 4-3.





Table 4-1. Standard Six Line Per Inch Format

CHANNEL	FUNCTION	LINE POSITIONS OF LOGICAL ONE*
1	Slew to top of next form	0
2	Slew to bottom of form	59
3	Single space	0, 1, 2, . . . 59
4	Slew to next double space line	0, 2, 4, . . . 58
5	Slew to triple space line	0, 3, 6, . . . 57
6	Slew to half page line	0, 30
7	Slew to next quarter page line	0, 15, 30, 45
8	Slew to next tenth line	0, 10, 20, . . . 50
9	Slew to bottom of form	59
10	Slew to one line previous to bottom of form	58
11	Slew to one line previous to top of next form	65
12	Slew to top of next form	0
13	Slew to next seventh line	0, 7, 14, . . . 56
14	Slew to next sixth line	0, 6, 12, . . . 54
15	Slew to next fifth line	0, 5, 10, . . . 55
16	Slew to next fourth line	0, 4, 8, . . . 56

\* Logical one is similar to the hole in a paper tape or destination point for that channel.

NOTE: A ten-inch printed form area on an 11-inch page with 60 lines possible is assumed.

Table 4-2. Standard Eight Line Per Inch Format

CHANNEL	FUNCTION	LINE POSITIONS OF LOGICAL ONE*
1	Slew to top of next form	0
2	Slew to bottom of form	79
3	Single space	0, 1, 2, . . . 79
4	Slew to next double space line	0, 2, 4, . . . 78
5	Slew to triple space line	0, 3, 6, . . . 77
6	Slew to half page line	0, 40
7	Slew to next quarter page line	0, 20, 40, 60
8	Slew to next tenth line	0, 10, 20, . . . 70
9	Slew to bottom of form	79
10	Slew to one line previous to bottom of form	78
11	Slew to one line previous to top of next form	87
12	Slew to top of next form	0
13	Slew to next seventh line	0, 7, 14, . . . 77
14	Slew to next sixth line	0, 6, 12, . . . 78
15	Slew to next fifth line	0, 5, 10, . . . 75
16	Slew to next fourth line	0, 4, 8, . . . 76

\* Logical one is similar to the hole in a paper tape or destination point for that channel.

NOTE: A ten-inch printed form area on an 11-inch page with 80 lines possible is assumed.

Table 4-3. Carriage-Control Directives

OCTAL CODE	ASCII SYMBOL	CARRIAGE ACTION
%40	" "	Single space (with or without automatic page eject).
%53	"+"	No space, return (next printing at column 1). Not valid on 2607 (results in single space without automatic page eject).
%55	"_"	Triple space (without automatic page eject).
%60	"0"	Double space (without automatic page eject).
%61	"1"	Page eject (form feed). Selects VFC Channel 1.
%2nn (nn is any octal number from 0 through 77)		Space nn lines (no automatic page eject). %200 not valid for 2607 (results in single space without automatic page eject).
%300-%307		*Select VFC Channel 1-8 (2607)
%300-%313		*Select VFC Channel 1-12 (2613, 2617, 2618, 2619)
%300-%317		*Select VFC Channel 1-16 (2608)
		NOTE: Channel assignments shown below are the HP standard defaults.
%300		Skip to top of form (page eject).
%301		Skip to bottom of form.
%302		Single spacing with automatic page eject.
%303		Skip to next odd line with automatic page eject.
%304		Skip to next third line with automatic page eject.
%305		Skip to next 1/2 page.
%306		Skip to next 1/4 page.
%307		Skip to next 1/6 page.
%310		Skip to bottom of form.
%311		User option (2613/17/18/19), skip to one line before bottom of form (2608)
%312		User option (2613/17/18/19), skip to one line before top of form (2608)
%313		User option (2613/17/18/19), skip to top of form (2608)
%314		Skip to next seventh line with automatic page eject.
%315		Skip to next sixth line with automatic page eject.
%316		Skip to next fifth line with automatic page eject.
%317		Skip to next fourth line with automatic page eject.
%320		No space, no return (next printing physically follows this).

*\*For Series II/III: VFC channel 3 (N303) and VFC channel 4 (%304) will result in double and triple spacing respectively with automatic page eject.*

*For 30/33/44: all VFC channel skip will result in a skip to a location absolute to the page (i.e., double space (%303) will do a skip to next add line only).*

Table 4-3. Carriage-Control Directives (Continued)

OCTAL CODE	ASCII SYMBOL	CARRIAGE ACTION
%2-%37 %41-%52 %54 %56-%57 %62-%77 %104-%177 %310-%317 %314-%317 %321-%377	(2607) (2613/17/18/19)	Same as %40
%400 or %100		Sets post-space movement option; this first prints, then spaces. If previous option was pre-space movement, the driver outputs a line with a skip to VFC channel 3 to clear the buffer.
%401 or %101		Sets pre-space movement option; this first spaces, then prints.
%402 or %102		Sets single-space option, with automatic page eject (60 lines per page).
%403 or %103		Sets single-space option, without automatic page eject (66 lines per page).
%1001		Enables CONTIGUOUS WRITE (Privileged Mode Capability only).
%2001		Disables CONTIGUOUS WRITE (Privileged Mode Capability only).

NOTE: All page ejects (codes %61, %300, and (for 2608) %313) are suppressed if the current request has a transfer count of 0 and the previous request ended with a page eject.

### HP 2613/17/19 LINE PRINTER CHARACTERISTICS

The following are operational characteristics of an HP 2613/17/19 line printer in an HP 3000 system environment.

1. While listing to the line printer, if the operator pushes the alarm button, a "NOT READY" message will appear on the system console and the VF light on the printer will come on. The operator will be required to reset IOF and reload the VFC tape. Upon putting the printer back on-line, a line of data may be lost.
2. While listing to the line printer, if the operator opens the yoke without first pressing the off-line button, a "NOT READY" message will occur on the console. Upon closing the yoke and putting the printer back on-line, a "POWERFAIL" message will appear on the system console. Lines of data may be lost.
3. You will get 1 page ejected if you power up on the system first and then the line printer; you will get 2 pages ejected if the line printer is powered up first. This will happen only once per system startup.

## HOW TO SWITCH BETWEEN PRIMARY AND SECONDARY CHARACTER SETS

Default primary and secondary character sets are specified by switch settings on the front panel. The default primary character set is selected whenever the 2608A or 2680A is powered on or reset.

The user may programmatically switch back and forth between default primary and secondary sets (and only those sets), by using a “shift-out/shift-in” protocol. All characters following a shift-out (%16) in the data stream will access the secondary character set, until a shift-in (%17) is detected or until the printer is reset. At the end of an output listing (when a Device Close is issued) the printer is reset. Note that a shift-out or shift-in should not be the last character in a line. If it is desired that the shift-out or shift-in follow the last printed character in a line, add a blank character after the shift-out or shift-in.

Note that if power is lost in the middle of a print job and if the operator restarts the printing at some point in the job beyond the original shift-out (%16), the remainder of the job will be printed in the primary character set, instead of the secondary set. This can be avoided by restarting interrupted jobs at the beginning. Alternatively, the application could be written to include a shift-out, shift-in pair with each line to be printed containing secondary character set characters.

## SYSTEM STARTUP

MPE startup is done by a program called the MPE Initiator. The Initiator is a stand-alone program that loads the operating system (MPE) using files and tables available to it on a serial storage device, or in some cases from the system disc.

The cold load operation loads a subset of the Initiator program into memory from a serial storage device such as tape, private volume type serialized disc, or from the system disc itself, depending on the type of startup you choose. The Initiator program is started by beginning one of the cold load options described in Section II of this manual.

There are five types of cold load: WARMSTART, COOLSTART, UPDATE, COLDSTART, and RELOAD. (See Table 4-4.) During a WARMSTART and a COOLSTART, a subset of the Initiator is loaded into memory from the system disc. During an UPDATE, a COLDSTART, and a RELOAD, the subset is loaded from a serial storage device. The individual cold load options are described below:

1. WARMSTART cold loads the system from the system disc. This is the standard operating procedure for restarting the system, since it is the only option which results in the recovery of incompletely processed, spooled jobs and spooled files. For any other cold load option, spooled files in the system are deleted.

A WARMSTART can never be used to startup the system after a COLDSTART, UPDATE, or RELOAD fails to complete for any reason.

#### NOTE

The Initiator program should never be halted. If error recovery is not possible via the dialog, the Initiator program should be allowed to complete, that is, run until the DATE? request appears.

2. COOLSTART cold loads the MPE system from the system disc. This is the standard operating procedure when a system is routinely shut down at night and brought up again the next day. All permanent user files (including programs such as FORTRAN/3000, COBOL/3000, SPL/3000, and EDIT/3000) are saved; but the operational environment present prior to the last shutdown is not retained. Thus all temporary files, jobs, and sessions in progress at shutdown (before the COOLSTART) are lost.
3. UPDATE cold loads the MPE system from a serial storage device. The system files come from the backup copy while the I/O device configuration, directory, accounting information, and global RINs come from the system disc (users' files remain undisturbed). This is the standard operating procedure used when starting the system with an updated MPE System from Hewlett-Packard or an MPE copy prepared on a different HP 3000 Computer System operating under MPE IV and should be used ONLY in those situations.

If an UPDATE does not complete, it must be followed by a COLDSTART, UPDATE, or RELOAD. Any violation of this results in an error message and a halt.

4. COLDSTART cold loads the MPE system from a serial storage device. The system files and I/O device configuration come from the backup copy while the user files, directory, accounting information, and assigned resource identification numbers (global RINs) are retained currently on the system disc. This allows modification of the system configuration while retaining users' information. COLDSTART is commonly used to allow an installation to keep several cold load tapes or discs, each with a different configuration. If a COLDSTART does not complete for any reason, it must be followed by a COLDSTART, UPDATE, or RELOAD. Any violation of this causes an error message and a halt.
5. RELOAD cold loads the entire MPE system, including all system files and I/O configuration information, from a backup copy. This option assumes there is no information on the system disc. If any user files are dumped on the backup copy, the directory, accounting information, assigned global RINs and user files are restored to the system disc from the backup copy. If no user files were dumped, a directory is created with the SYS account, PUB group, and MANAGER user.

RELOAD is the only startup option which allows you to control where data will be stored on the system discs and how the system directory will be organized. Previously existing volumes may only be deleted during a RELOAD.

RELOAD is normally the method used to install the first MPE system supplied by Hewlett-Packard. It is also used following a system failure to restore the system from a backup copy which was generated previously with a :SYSDUMP (which included all user files).

Table 4-4. System Startup of HP 3000 Systems

types of cold load	subset of Initiation program loaded from	Primary use	allows alteration of I/O configuration	spool file recovery	permanent user files	information that comes from system disc	information that comes from backup medium (magnetic tape or serial disc)
<b>WARMSTART</b>	system disc	standard procedure if spoolfiles and restartable jobs must be saved	no	yes	retained	all	none
<b>COOLSTART</b>	system disc	to bring up system after overnight shutdown	yes	no	retained	all	none
<b>UPDATE</b>	magnetic tape or serial disc	for updated MPE tape or MPE tape for different HP 3000 system	yes	no	retained	I/O and system configuration, directory, accounting information, global RINs	system files
<b>COLDSTART</b>	magnetic tape or serial disc	to keep several cold load tapes or discs with different configurations	yes	no	retained	directory, accounting information, global RINs	system files, I/O and system configuration
<b>RELOAD</b>	magnetic tape or serial disc	to install first MPE tape or after disc crash	yes	no	reloaded (if dumped on backup medium)	assumes no information on system disc	all (including users' files if dumped on backup medium)

When reloading from multiple volumes of a backup copy (either tapes or serial discs), the first volume of the latest backup copy should be reloaded first because it contains the up-to-date directory and accounting information. If any files on the system are missing from this volume, additional volumes are requested during the reload.

If a RELOAD does not complete for any reason, the next cold load must also be a RELOAD.

No startup except an automatic powerfail recovery, permits resumption of user batch jobs and interactive sessions. Thus jobs must be reinitiated from the beginning by the user after a system shutdown or a system failure.

#### NOTE

*If the disc label is good, some items are not reloaded. To insure that the entire system is restored, follow the reload with an update option.*

### DISC DOMAIN CONSIDERATIONS DURING STARTUP

During any cold load, system volumes that were added to the MPE Volume Table must be physically mounted and on-line. The Initiator checks that the volume which contains the operating system is mounted on logical device number 1 and that all additional volumes in the Volume Table are present (on-line). Other than *ldn 1*, it does not matter on which drives the system volumes are mounted, only that each drive is of the correct type and has been configured into the I/O system. When the Initiator satisfies the requirements of the Volume Table, those drives on which the system volumes are mounted are considered to be SYSTEM DOMAIN drives. All additional drives that are configured into the I/O system are NONSYSTEM DOMAIN drives available for mounting private volumes, foreign, and serial discs.

Because drives in the non-system domain are only configured into the I/O system (the volumes mounted on them are never added to the Volume Table), drives can be added to, or deleted from, the non-system domain during any startup that permits I/O configuration changes (that is, any startup option except a WARMSTART).

Once volumes have been added to the MPE Volumes Table (indirectly establishing the number of drives allocated to the system domain), it is not necessary to make configuration changes during subsequent startup procedures in order to move packs between drives. Except for the Master Volume of the System Volume Set (which must always be mounted on *ldn 1*), additional system volumes can be moved to different drives BEFORE a startup procedure begins. Of course, the drives must be of the correct type (for example, a 7920 pack can be moved only to another 7920 drive). Being able to move system packs without configuration changes is particularly useful if a system drive must be removed or DOWNed for any reason.

To illustrate, the upper part of Figure 4-4 shows how a system RELOAD “allocated” the five drives configured in the I/O system to domains; two to the system and three to the non-system domain. The lower part of the figure shows how a subsequent startup procedure (any startup except WARMSTART) “dynamically allocated” drives because the operator disconnected a system drive (*ldn 2*) and moved its pack to another drive (*ldn 3*). No I/O configuration changes were necessary because the system is able to keep track of where volumes in the System Volume Set are mounted.

## PRIVATE VOLUMES OVERVIEW

The Private Volumes Facility allows users who have the private volume capability to create and access removable disc volumes on HP 7906, 7920, and 7925 discs. Users access a file using a fully qualified designator causing the system to access, and logically mount if necessary, the appropriate set of volumes on which the file resides. The following paragraphs present an operational overview of the Private Volumes Facility.

### DISC DOMAINS

Under private volumes, the disc drives configured into the operating system are divided into two classes, or domains:

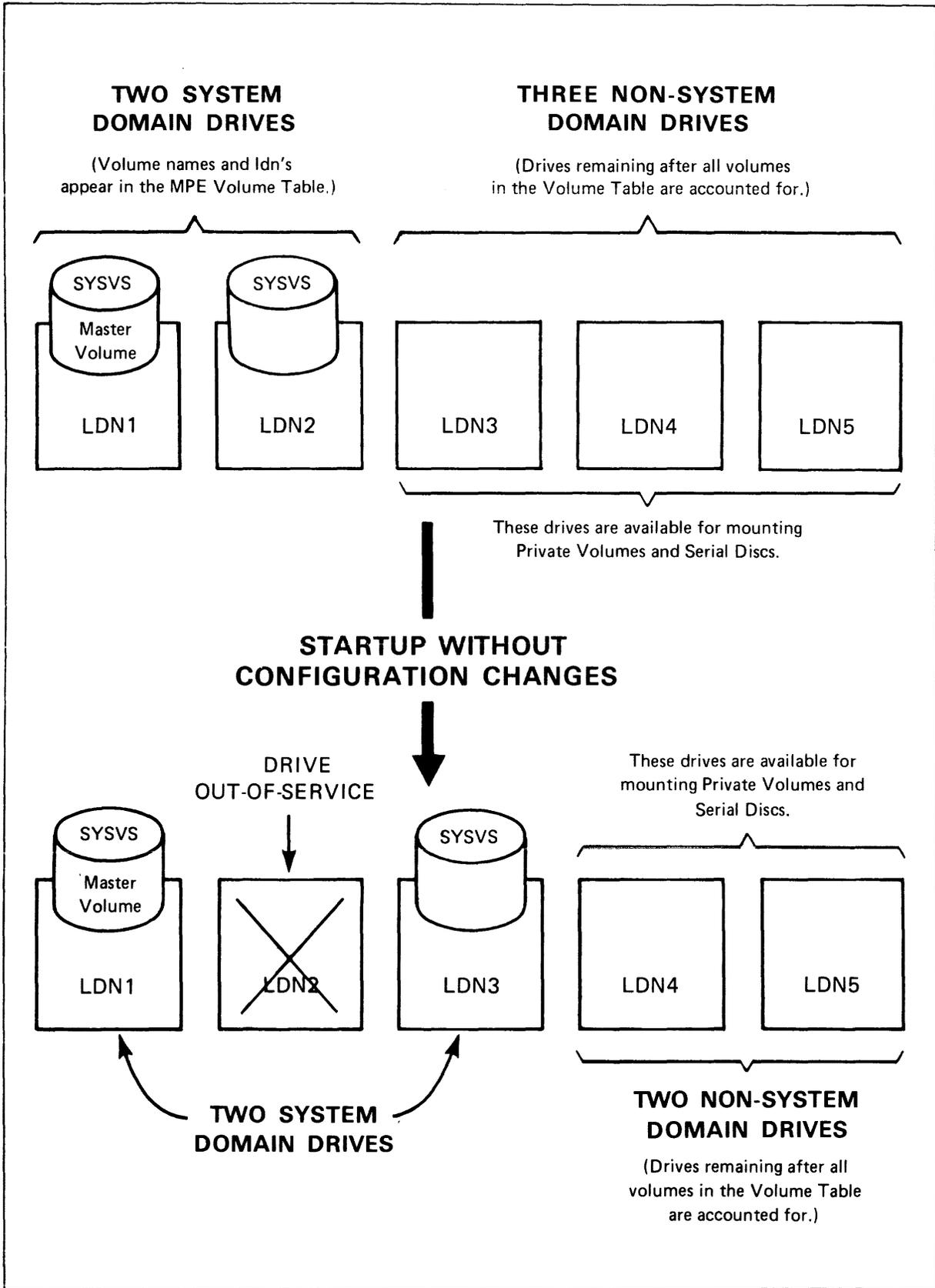
- System Domain Devices
- Non-System Domain Devices

Simply stated, system domain devices cannot be used for mounting private volumes and non-system domain devices can.

Drives are determined to be system or non-system domain devices according to the contents of the Volume Table. The system assumes that each volume the system manager adds to the Volume Table resides on a system domain drive. Each time the system is cold loaded, the Initiator checks that all volumes in the Volume Table are physically present on the system and assigns all other drives that were configured into MPE to the non-system domain. The additional drives are available for mounting private volumes, foreign, and serial discs.

**SYSTEM DOMAIN DEVICES.** System domain devices are considered by the operating system to be permanently mounted. The domain can consist of drives which do not have removable packs and/or those with removable packs which the system manager does not desire to have used as private volume devices. The system disc is always mounted on a system domain device.

**NON-SYSTEM DOMAIN DEVICES.** Non-system domain devices always have removable surfaces, are allocated by the system manager for private volumes use, and can be mounted and dismounted during normal system operation. Private volumes, foreign, and serial discs are always mounted on non-system domain drives.



147021-4

Figure 4-4. Example of Domain Assignment During System Startup

## ALLOCATING DRIVES TO A DOMAIN

When allocating a drive to a domain, one of the following distinct situations exists:

- A new drive will be added to the non-system domain of the current operating system.
- A new drive will be added to the system domain of the current operating system.
- A new drive will not be introduced into the I/O configuration but volumes will be added to, or deleted from, the Volume Table (thus altering the number of devices in each domain).

These procedures are summarized in the following paragraphs. Specific instructions are given in the appropriate sections of the System Manager/System Supervisor Reference Manual and elsewhere in this manual.

**ADDING A NEW PRIVATE VOLUMES DISC.** In adding a new disc, remember that only devices with removable packs can be used for private volumes.

1. Have the new disc “powered-on,” but off-line. No pack need be mounted on the drive.
2. Cold load the operating system using any option that allows I/O configuration changes to be made (any cold load except a WARMSTART).
3. Configure the drive into the I/O system as you would any other device except **DO NOT ADD THE DEVICE TO THE VOLUME TABLE** during the Initiator/User dialog. (Only devices that are defined in the system volume set are assumed to be mounted on a system domain device. Any additional drives are allocated to the non-system domain.)
4. When the system is running, place the drive on-line.
5. If necessary, format and initialize the pack that resides on the drive. (A formatting procedure is given in Section V.)

**ADDING A NEW SYSTEM DISC.** You can add a device to the system domain on any cold load except WARMSTART. The volume name of this new disc also may be changed.

1. Use the =SHUTDOWN command to close-down the operating system.
2. Have the new disc “powered-on” and on-line.
3. Format the disc pack, if necessary, using the stand-alone SLEUTHSM program. (See **FORMATTING SYSTEM PACKS** in the System Manager/System Supervisor Reference Manual.)
4. Start up the operating system using the COLDSTART, RELOAD, or UPDATE options.
5. During the Initiator/User dialog, configure the drive into the I/O system being sure to **ADD THE DEVICE TO THE SYSTEM VOLUME SET TABLE**. This adds a device in the system domain.

6. The following message is printed:

NON-SYSTEM VOLUME ON DEVICE *ldn*  
ADD TO SYSTEM VOLUME SET?

(or)

VOLUME XXXXX NOT IN TABLE  
ADD TO SYSTEM VOLUME SET?

Reply with YES and the device name you gave in step 5 above.

#### NOTE

If the volume name matches the volume you added in step 3,  
then these messages will not appear.

**CONVERTING A SYSTEM DISC TO A PRIVATE VOLUMES DISC.** To make a system domain device available for private volume use:

1. Shutdown the operating system.
2. Have the disc "powered-on," but off-line.
3. Use the RELOAD option to restart the system.
4. Request changes and remove the name of the system volume (previously residing on the drive) from the Volume Table. This removes the device from the system domain and makes it available for private volume and serial disc use.
5. When the system is running, place the device on-line.
6. Use the VINIT utility to initialize the pack for private volumes use or to make it a SCRATCH pack. (Appendix F describes VINIT.)

**CONVERTING A PRIVATE VOLUMES DISC TO A SYSTEM DISC.** To remove a device from the non-system domain:

1. Shutdown the operating system with the =SHUTDOWN command.
2. Have the disc "powered-on" and on-line.
3. Restart the system using COLDSTART, RELOAD, or UPDATE options.

(or)

When prompted, add the volume name to the volume table. This removes a device from the non-system domain and allocates it to the system domain.

4. The MPE Initiator detects the presence of any pack that is initialized for private volumes use and prints the following message at Step 5.8 in the dialog:

```
NON-SYSTEM VOLUME ON DEVICE ldn
ADD TO SYSTEM VOLUME SET?
```

(or)

```
VOLUME XXXXX NOT IN TABLE
ADD TO SYSTEM VOLUME SET?
```

Note: If the volume name matches the volume you added in step 3 above, then these messages will not appear.

5. Respond YES.
6. Assign the pack with the same volume name you assigned in step 3 above.
7. Respond appropriately to the subsequent prompt that asks for pack size.

## PHYSICALLY MOUNTING AND DISMOUNTING DISC PACKS

A PACK SHOULD NEVER BE MOUNTED OR DISMOUNTED WHILE THE SYSTEM IS BEING COLD LOADED! This warning applies to both system and non-system domain discs.

A system domain drive should never be taken off-line while the system is running.

In general, a non-system domain drive can be taken off-line and packs can be removed and installed without interfering with the operating system. Note, however, this is not true if your system has the fixed portion of an HP 7906 drive configured as a system disc and the removable portion configured for mounting and dismounting private volumes and serial discs. In this case, system interference occurs because the 7906 drive must be taken off-line each time a private volumes/serial disc cartridge is installed or removed. This is especially true if the fixed platter is configured as logical device number 1 because *ldn* 1 contains the system directory and virtual memory. For this reason, when removing the private volume pack, the system should be in a pause state with no disc activity.

During normal system operation, a message is printed on the system console each time you start or stop a disc drive. If a private volume is mounted, the on-line message includes the name of the volume and the name of the set to which the volume belongs. If a user was accessing a volume on the drive taken offline, a VOLUME IN USE message is printed.

## VOLUME SETS AND VOLUME CLASSES

A system or account manager uses the :NEWVSET command to combine individual removable volumes into logical units known as volume sets or volume classes. The system references these units when users request access to private volumes. The system also uses volume set or volume class names in all operator commands, console messages, and operator replies concerning volume mounting. A manager can subsequently change volume class/set definitions with the :ALTVSET command, and delete definitions entirely with the :PURGEVSET command.

**VOLUME SETS.** A volume set is a group of volumes that share a common file directory. Each volume set has a MASTER VOLUME which includes not only the accounting directory, but also a table of the volumes defined as members of the set. The MEMBER named in a :NEWVSET command having the same name as the Volume Set Name becomes the set's master volume.

When a manager creates a new group, the group is assigned to a particular volume class/set called a HOME VOLUME SET. A home volume class/set contains the files of the group; it is the set which is referenced when a user logs on under the group. A group can be reassigned to another home volume class/set with the :ALTGROUP command.

**VOLUME CLASSES.** When a user with CV capability defines members of a volume set, he may also assign a subset of those same members to a Volume Class. A Volume Set may contain several volume classes, each with a unique name. Each Volume Class must include the set's master volume. When a user references a file in a group assigned to a volume class, the system checks that ALL volumes assigned to the class are mounted before granting the file access request.

Because all members of a volume set need not be mounted in order for users to access the set, the number of volumes in a set may exceed the number of physical drives available in the non-system domain. However, because all members of a volume class must be mounted in order for users to access the class, the number of volumes in a class may NOT exceed the number of drives in the non-system domain.

## IMPLEMENTING PRIVATE VOLUMES

Private volume sets are made known to MPE with the :NEWVSET command. Once defined, volume sets are associated with accounts and groups by definitions in commands issued by system and account managers.

An account manager uses the VS= parameter of the :NEWGROUP or :ALTGROUP commands to associate a group with a private volume class/set. The specified volume class/set becomes the group's home volume set. Note that if the VS= parameter is never specified, the group's home volume set is the System Volume Set which always resides in the system domain.

MPE users who access files stored on a private volume, but who do not actually create volume set definitions, are given the Use Volumes (UV) capability. Users who define Private Volume sets (with the :NEWVSET command) are given the Create Volumes (CV) capability. These users can subsequently access the volumes they created with no additional capability (CV capability implies UV capability).

## **DISC VOLUME CONDITIONING.**

Before users can access any disc, it must first be conditioned. Listed in the order they are performed, conditioning includes:

- Formatting — Placing addressing and, possibly, timing information on the disc.
- Initializing — Configuring the Free Space and Defective Tracks Tables on the disc.
- Labeling — Giving the volume a name.

**SYSTEM VOLUME CONDITIONING.** System domain discs are always conditioned off-line; that is, the operating system must be shutdown. They are formatted by a stand-alone program named SLEUTHSM, without the presence of the MPE operating system. If MPE is operational, packs outside its current system domain may be formatted while the operating system is up by using the VINIT subsystem. (See **FORMATTING SYSTEM PACKS** pp. 5-35, 5-61 and 5-83 and **APPENDIX D**.)

System discs are initialized during a system RELOAD when the Initiator organizes the Defective Tracks Table.

Discs can be labeled during any system restart, except WARMSTART, when the Initiator detects an unlabeled pack (you are prompted for a volume name).

**PRIVATE VOLUME CONDITIONING.** Private volume packs are conditioned on-line; that is, the operating system is up and running during the conditioning procedure. This means, domains have been established, volume sets have been defined, and accounts and groups exist with the necessary attributes and capabilities when conditioning occurs.

Any user with the System Supervisor (OP) capability can condition a pack if it is mounted on a non-system domain drive that you have DOWNed.

The VINIT Utility is used to condition packs on-line. It provides a >FORMAT command so users can format new discs or reformat discs with track problems; an >INIT command which is used for initializing packs; a >SCRATCH command for making packs “scratch” discs; plus numerous other commands. (Appendix D describes VINIT.)

## **ENABLING PRIVATE VOLUMES**

Users cannot logically “mount” and access private volumes until you enable the facility with the :VMOUNT command. Thus, this command gives you final control over private volumes use.

## **MOUNTING VOLUME SETS**

It is important you understand that “mounting” a volume class/set is a logical operation. It attaches a particular volume class/set to the set of disc devices recognized by the operating system. The system does not consider a volume class/set to be mounted simply because one or all of its member volumes are physically mounted on a spindle. Rather, the system must receive a volume class/set mount request and you must ultimately grant or reject the request.

Mount requests are generated explicitly by the user :MOUNT command or by the console operator's :LMOUNT command. Requests are also generated by the operating system when a user attempts to access files that are stored on a private volume. (In this case, the user may not even be aware that a private volumes facility exists.) :LMOUNT commands entered from the console override all users' mount requests.

Whether a volume set can be mounted largely depends on the individual states of discs in the non-system domain. At any point in time, a device can be in one of the following states:

- **DOWN** — The logical device is out of service. It is not a candidate for assignment to a volume set.
- **AVAILABLE** — The logical device is “up” and not in use. It is available for assignment (that is, for mounting).
- **ASSIGNED** — The logical device is “up” and currently assigned to a volume set. The device is not a candidate for reassignment.

#### NOTE

*States differ for system and non-system domain devices. System domain devices can only be DOWN or ASSIGNED. They can never be AVAILABLE because they are always owned by the operating system. Also, system domain devices change state only with the :UP and :DOWN commands, but non-system domain devices change state with the :UP, :DOWN, :LMOUNT, and :LDISMOUNT commands.*

When the system is cold loaded, non-system discs are AVAILABLE for satisfying mount requests regardless of whether a volume is physically mounted on the device. A subsequent mount request causes an appropriate console message. If the required volume is not in place on the spindle of an AVAILABLE device, physically place the pack containing the requested volume on the logical device named in the message and reply YES to the prompt. The system will recognize the volume, grant the request, mount the volume, and place the drive (or drives) in the ASSIGNED state.

## DISMOUNTING PRIVATE VOLUMES

As with mount requests, dismount requests can be generated by users and by you. Users generate the requests explicitly with the :DISMOUNT command, implicitly through their programs, or by logging off the system. You can enter :LDISMOUNT commands to override users' mount/dismount requests. For example, a user cannot mount or access a volume set/class that you have dismounted.

## MANAGING PRIVATE VOLUMES

From the discussion of states, it becomes apparent how you can selectively control mount requests without disabling the Private Volume Facility. :UP and :DOWN commands place a particular logical device in the AVAILABLE or DOWN state causing mount requests to be satisfied or rejected at the device level. :LMOUNT and :LDISMOUNT commands place a device in the AVAILABLE or ASSIGNED state also causing mount requests to be satisfied or rejected, but this time at the volume set/class level.

The system manager and those account managers who have the CV capability can create, alter, and purge volume sets. Once defined with a `:NEWVSET` command, a volume set/class definition remains in the system directory until explicitly deleted by a `:PURGEVSET` command, or until implicitly deleted by a `:PURGEGROUP` or a `:PURGEACCT` command.

Private volumes users can backup files using the `:STORE` and `:RESTORE` commands. These commands function the same for both system and non-system volumes except that with private volumes, users must always issue an explicit mount request (except on `SYSDUMP`) if files are destined to or originate from a group other than the log-on group.

Any user with the system supervisor (OP) capability can backup any private volume with `> COPY` command of the VINIT Utility.

Private volume sets can be transported from one system to another if the following conditions are met:

- The second system must have sufficient drives of the type required to hold all the volumes of a volume class.
- The volume set must be defined on the second system, via the `:NEWVSET` command, and must be associated with the same group and account as on the first system.
- For the files that will be accessed, accounts, groups, and users must exist with the same attributes and capabilities as on the first system.

#### **OBTAINING INFORMATION ABOUT PRIVATE VOLUMES**

You can list the users who currently have one or more volume sets mounted with the `:VSUSER` command. This command displays job/session numbers, the names of mounted volume sets/classes, and the fully qualified names of users associated with each.

You can list the volumes that physically reside on each drive with the `:DSTAT` command. The information displayed includes: logical device number, device type, device state, and the name of the currently mounted volume. If the device resides in the non-system domain, the name of the volume set to which the mounted volume belongs and the volume generation number is also displayed.

## FOREIGN DISC FACILITY

The Foreign Disc Facility (FDF) allows non-privileged users to access and alter data on disc volumes that are not in standard MPE format. A foreign disc has a free format and thus is not required to have a standard MPE file system label. Since a foreign disc is another type of non-system domain disc, it may be mounted and dismounted during normal system operation.

With FDF, MPE recognizes any disc volume as “foreign,” if it does not have one of the following label formats:

1. Valid private volume
2. Scratch volume
3. System volume
4. Unformatted volume
5. Serial disc volume

Since foreign discs are allowed to have completely arbitrary information formats, it is conceivable that a foreign disc could mimic a private volume, serial disc, etc. If a foreign disc volume is erroneously auto-recognized, it will be necessary for the operator to intervene. To inform the system that a particular disc volume is in fact a foreign disc, the console operator enters:

`:FOREIGN ldn`                    where *ldn* is the logical device number of the device on which the disc volume is mounted

This command forces the system to treat the volume currently mounted on the specified device as a foreign disc. The specified device must be in a foreign device class; the device must be up and the volume must not be in use.

### \*\*\*OPERATION CAUTION\*\*\*

If the restrictions stated above are met, the system will treat any volume mounted on the logical device as a foreign disc. As long as the volume is not a member of the running system domain (i.e., not in the volume table), no security checking is done. Therefore, any disc (system, private volume, etc.) could be accidentally mounted and used as a foreign disc. Since one characteristic of FDF is the ability to write on the MPE label area, file labels could be destroyed and important information lost.

For additional information on Foreign Disc Facility, refer to the System Manager/System Supervisor Manual.

# DEVICE MANAGEMENT

## THE ASSOCIATE AND DISASSOCIATE COMMANDS

These user commands give to or take from a user the capability to be the controller of a device. This means that once a user has ASSOCIATED a device, (s)he can use any operator command dealing with all devices in that deviceclass, and that (s)he receives device status messages about that device. While a device remains ASSOCIATED no status messages will be printed on the system console.

In order to provide the master operator some control, a file, ASOCIATE.PUB.SYS, specifies who may associate what deviceclass. This file is maintained by the system utility, ASOCTABL.

When a user associates or disassociates a device, the operator is notified by a message to the system console, such as:

CAROLE.JOHNSON HAS ASSOCIATED DEVICE CLASS TAPE

Additionally, if you (the master operator) issue a command to control an associated device, you will be notified that the device is associated, and requested to verify your action, i.e.,

```
time/#Sxxx/pin/USER.ACCT IS ASSOCIATED TO LDEV ldn.  
CONTINUE (Y/N)?
```

This is to prevent inadvertent control of the device by you.

### NOTE

A "Y" response causes your command to be executed. An "N" response causes your command to be ignored.

Associations continue until the associator of the device or the master operator explicitly DISASSOCIATES the device, or implicitly when the users logs off.

The SHOWDEV command may be used to determine associations, as in the following example:

```
:SHOWDEV  
LDEV  AVAIL  OWNERSHIP  VOLID  ASSOCIATION  
  
1    DISC    1 FILES  
2    DISC    0 FILES  
3    DISC    15 FILES  
5    DISC    58 FILES  
6    SPOOLED DOWN  
7    AVAIL  
8    AVAIL  
9    AVAIL  
10 A AVAIL  
11 SPOOLED SPOULER OUT  
12 AVAIL  
13 AVAIL  
14 AVAIL  
15 AVAIL  
16 AVAIL  
17 AVAIL  
18 A AVAIL  
  
#S18-LP  
#S18-TAPE  
#S18-TAPE  
#S18-TAPE  
  
#S18-LP  
#S18-TAPE  
#S18-TAPE  
#S18-TAPE  
#S18-TAPE
```

## THE CONSOLE COMMAND

This command changes the system console from its current device (usually ldev 20) to another job-accepting, non-bisync terminal.

Users with System Manager (SM) capability may use the :CONSOLE command even if they have not been ALLOWed the command.

If the account you are using does not have SM capability, before executing this command, first ALLOW yourself the CONSOLE command (see :ALLOW, pages 3-7 and 3-8). This will enable you to move the console back to the operator's terminal.

Care should be exercised in granting the console to users, and especially in granting use of the ALLOW command, since the console operator is essentially in control of the entire system. Once a user has been ALLOWed the ALLOW command, (s)he can ALLOW the CONSOLE (or any other operator command) to her/himself, thereby passing usual system security.

Entering the :CONSOLE command with no parameters will return the device number of the terminal which is currently the system console. No special capability is required to use the CONSOLE command in this way.

## USER LOGGING OVERVIEW

The operator's function as related to user logging is to START, RESTART, and STOP user logging processes, and to assist with recovery procedures after a system failure or power failure. If logging to tape, mounting and changing tapes on a dedicated tape drive will be required.

### LOGGING STARTUP

Logging startup corresponds to the start (and end) of a logging cycle, that is, from backup to backup. The logging process can only be started and stopped from the master console via the :LOG command. (See Section III.) If the log file is on tape, (User Logging requires labelled tapes), the system will first ask for the volume name to be used, and then for the tape to be mounted. Whether the log file is on disc or on tape, the system will then respond with the message:

```
8:00/6/USER LOGGING PROCESS logid IS RUNNING
```

Users may now begin posting logging transactions.

### LOGGING SHUTDOWN

Logging shutdown marks the end of the logging cycle, and probably in most cases would be done just prior to either system or database backup. You would therefore want to ascertain that no users are accessing the log files, either by the :SHOWLOGSTATUS command, (see MPE Commands Manual, Section IX), or simply a :SHOWJOB in conjunction with your usual :WARN prior to backup. When you have determined that no logfiles are active, enter on the master console, :LOG *logid*, STOP. The system will then generate the message:

```
17:00/6/USER LOGGING PROCESS logid HAS TERMINATED
```

If there are users still logging, the following message will be printed on the system console:

```
17:00/6/LOGGING PROCESS logid IN USE, TERMINATION PENDING
```

In this case you should communicate with the user or users that logging is to be stopped for backup, and request that they log off the system until backup is completed.

When all logging processes have terminated, an end-of-file is posted to the logfile, and it is closed. The normal system backup (or database backup) would then protect log files on disc, and tape log files should be labelled and saved.

Note that log files on disc must be emptied before logging can START again, although RESTART may be used if for some reason the user wishes to continue logging to the same file. In either case, the user should provide you with whatever information and procedures are required for their particular application. After backup, logging can be started again as previously described.

### SYSTEM FAILURE

A system failure does not always result in the "\*\*\*\*SYSTEM FAILURE . . ." message. It could be a lock up, system halt, etc. In any case, a WARMSTART is extremely important to recover the logging disc buffer. If you are logging to disc, and do not do a WARMSTART after a system failure, the entire last block of the disc log file is lost! If logging to tape, WARMSTART recovers the disc buffer and writes it to the end of the log tape. (Refer to instructions 5-13 under POWERFAIL RECOVERY WHEN LOGGING TO TAPE for correct procedures for resetting the tape drive after WARMSTART.

Note that it may also be necessary to restore any databases affected by the system failure at this point from the backup copies made at the start of the logging cycle, and then recover the transactions in the log files. Information and procedures for this should be supplied by the Logging Manager or Data Base Administrator. (See IMAGE Manual for instructions on data base backup and recovery).

After recovery is completed, it is a good precaution to do a new backup, and then a new logging cycle should be started.

Figure 4-5 shows the path taken by a log record. The user process writes to the log file. The record is sent to the User Logging process for that file, which writes the record to the Logging Memory Buffer. When the buffer is full, it is written to the Disc Buffer (in the case of a disc logfile, the disc buffer is the logfile itself). If you are logging to tape, the information is moved to the tape when the Disc Buffer becomes full. Note that the memory buffer is always lost when the system fails, and that WARMSTART is the only way to recover the Disc Buffer/Disc Logfile.

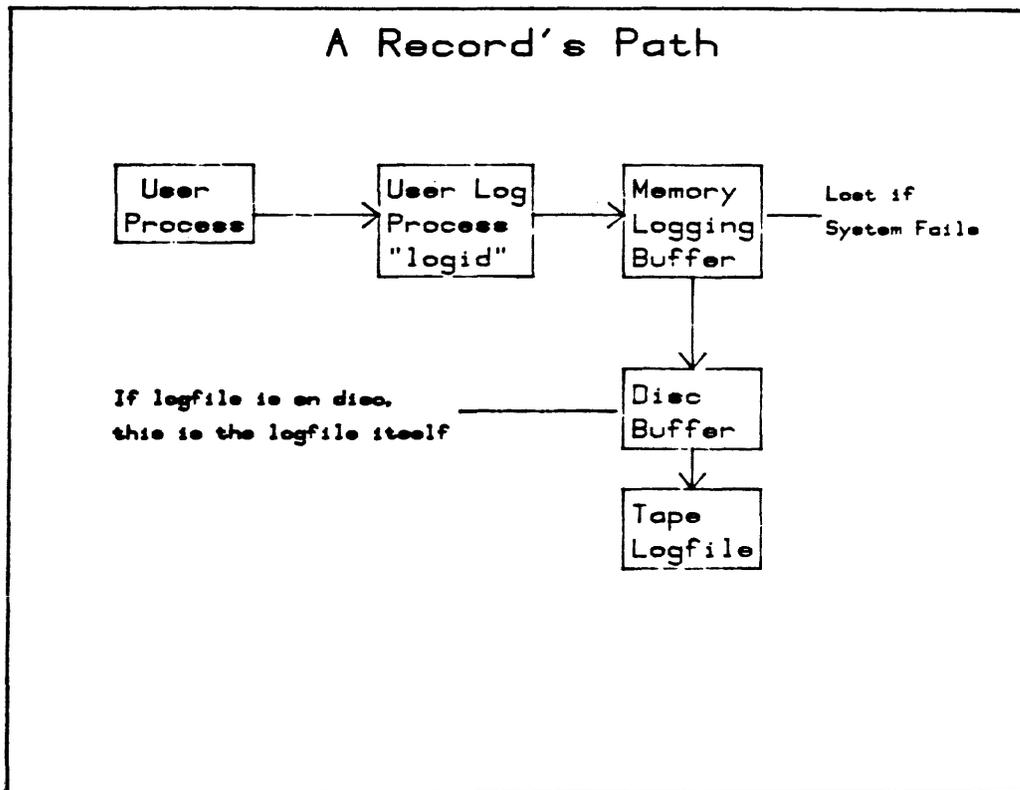


Figure 4-5

#### POWERFAIL RECOVERY WHEN LOGGING TO TAPE

In the event of a power failure, system recovery is usually automatic, with the exception of input spooling (see Section IV), and user logging to tape. (No action is necessary if logging to a disc file.)

If a power failure occurs during a “quiet” period, that is, in between writes to the tape, the usual powerfail recovery routines may not be sufficient to guarantee recovery of the disc logging buffer. This is because the tape drive may lose tension when the power fails, and in attempting to recover tape tension and position, when power is restored and the tape drive is placed back online, tape parity errors can occur before posting of the final disc buffer takes place. This results in not being able to recover any data written after the first parity error, i.e., the contents of the disc buffer and following log records are not accessible.

When logging to tape, therefore, it is safer to HALT the system and then WARMSTART after a power failure than to risk losing the contents of the disc logging buffer, which may represent up to two hours of data entry time.

Note that complete recovery of the contents of the disc logging buffer cannot be guaranteed after a power failure in any case. However, the following procedure is known to be the most reliable method of recovery at this time. Be certain that you follow these steps precisely in order to obtain the desired results.

1. Power failure occurs. Power is restored, and the message “POWERFAIL” appears on the console.
2. The message “LDEV *ldn* NOT READY” (where *ldn* is the tape drive dedicated to user logging), may appear on the console. DO NOT TOUCH THE TAPE DRIVE! Any movement of the tape at this point may result in parity errors or “garbage” being written to the tape, making recovery of data impossible.
3. :WARN users that a WARMSTART is about to take place, and that all users must log off the system during this procedure.
4. Manually HALT the system using the HALT switch on the system front panel.
5. WARMSTART the system (see WARMSTART instructions in Section IV).
6. The message “RECOVERING LOGFILE *logid* . . .” will appear on the master console. When internal recovery of the disc buffer is complete, a tape request will appear on the console for the volume identification (tape label name) of the log file tape.
7. Mount the first reel of tape, and reply to the request for VOLID.
8. The WARMSTART clean-up procedure will post the contents of the final disc buffer to the tape, and then display a message stating how many records were and were not recovered.
9. The tape will reposition itself to loadpoint.
10. RESTART logging (:LOG *logid*, RESTART).
11. Depress ONLINE.
12. Reply to the tape request on the console.
13. The tape will then read forward to the end of data, and append new log records to the end of the tape.

## NOTE

If continuation reels are required in your application, you should be aware that if a power failure or system failure occurs while you are in the process of changing reels, the data contained in the disc logging buffer is not recoverable. This is due to the fact that the system has no way to label the continuation reel immediately after a failure, and the tape is unusable to the logging process without a label.

In order to safeguard against such an occurrence, it is recommended that when you see a tape nearing the end, you stop the logging process (:LOG *logid*, STOP), mount a new reel, and then START or RESTART the process. By using this method, each tape is properly labelled, and the data is protected.

# FUNCTIONS OF A CONSOLE OPERATOR

**SECTION**

**V**

Although a console operator performs many tasks during the day-to-day activities at a computer site, the primary responsibility is control of the HP 3000 Computer System. System control can be divided into major functions involving:

- Jobs
- Devices
- Spooling
- MPE Maintenance
- System Recovery

The functions are described throughout this manual on the pages referenced in Table 5-1. The actual step-by-step procedures you need to carry out special tasks are given in this section.

Table 5-1. Console Operator Functions

FUNCTION	PAGE NUMBER
<b>JOBS:</b>	
Control Job/Session Limits	3-32
Control Job Selection	3-9
Control Streaming Facility	3-59
Accept :JOB and :DATA Commands	3-6
Don't accept :JOB and :DATA Commands	3-45
Aborting Jobs	3-4
Aborting all Jobs and Sessions	3-36
Reading Statements with a Colon in Column One	5-5
<b>DEVICES:</b>	
Allocating I/O Devices	3-46
Changing Forms on a Line Printer	5-6
Clearing I/O Requests from Devices	3-3
Deleting Ready Spoolfiles or Active Spoolfiles	3-15
Downing I/O Devices	3-18
Controlling Spooled Output Files	3-11
Enabling a Downed Device	3-62
Adding an I/O Device	5-32, 5-52, 5-79
Deleting an I/O Device	5-33, 5-54, 5-81
Adding a New Private Volumes Disc	4-29
Converting a System Disc to a Private Volume Disc	4-30
Converting a Private Volumes Disc to a System Disc	4-30

Table 5-1. Console Operator Functions (Continued)

FUNCTION	PAGE NUMBER
<b>SPOOLING:</b> Starting Input Spooling Stopping Input Spooling Deleting Active Input Spooled Files Resuming Spooler Output Suspending Spooler Output Deferring Output Spooled Files	3-56 3-58 3-15 3-49 3-60 3-11
<b>MPE MAINTENANCE:</b> System Power-up System Power-Down System Startup System Shutdown Formatting System Disc Packs (SLEUTHSM) Formatting Private Volumes Disc Packs (VINIT) File and System Backup (:SYSDUMP) Restoring User Files from SYSDUMP Tapes Restoring User Files from Serial Disc Turning System Logging On and Off Replying to System and User Requests Sending Warning Messages to Users Restarting User Logging	5-18, 5-19, 5-39, 5-66 5-15, 5-16, 5-38, 5-64 5-4 5-3 5-35, 5-61, 5-83 D-1 5-7 5-9 5-9 5-10 3-46 3-65 5-13
<b>SYSTEM RECOVERY:</b> Dumping Computer Memory (Soft Dump) Diagnosing a System Problem	5-34, 5-63, 5-83 B-1

# SYSTEM SHUTDOWN

OPERATOR FUNCTION: SYSTEM SHUTDOWN

DESCRIPTION: This procedure shuts down the operating system in an orderly manner. Before using this procedure, it is your responsibility to WARN all logged-on users.

STEP	PROCEDURE
1	:STORE any spoolfiles you wish to preserve.
2	Inhibit new users from logging on. <u>:LIMIT 0, 0</u>
3	Check for logged-on users. If none exist, go to step 7. <u>:SHOWJOB</u>
4	Warn sessions of impending shutdown. <u>:WARN @;message</u>
5	After a reasonable length of time, abort any remaining sessions. <u>:ABORTJOB #Snn</u>
6	Clear all outstanding allocation messages. <u>:RECALL</u> <u>:REPLY pin,0 or =REPLY pin,0</u>
7	Shut any communication lines on the system <u>:DSCONTROL ldn;SHUT</u>
8	Close down the operating system. <u>=SHUTDOWN</u>
	The system should print a shutdown message and then halt. Occasionally a pending I/O operation prevents the orderly halt, making it necessary for you to manually halt the computer. If the system continues to run for more than two minutes after the SHUTDOWN command, press the RUN/HALT switch which is located on the System Control Panel, or enter HALT at the CMP prompt (→).

# STANDARD INSTRUCTIONS

OPERATOR FUNCTION: SYSTEM STARTUP (STANDARD INSTRUCTIONS)

DESCRIPTION: These instructions apply to systems that are configured with only one disc controller.

A COLDSTART, UPDATE, or RELOAD from a serial disc requires these standard instructions when it is necessary for both the system disc and the start-up serial disc to be configured on the same controller.

STEP	PROCEDURE
1	Mount the system disc on logical device number one (ldn 1) and set the unit number of ldn 1 to some unused value. Place the drive on-line.
2	Mount the serial disc on logical device number x (ldn x) and set the unit number of ldn x to zero (unit-0). Place the drive on-line.
3	Cold load the system using steps 1 through 6 (1 through 8 for Series II/III) of the COLDSTART, UPDATE, or RELOAD startup procedure.
4	<p>The Initiator checks the system volume table and finds that the system disc is not mounted on ldn 1. It next prompts with the questions:</p> <p><b>**WARNING** SYSTEM DISC AND COLD LOAD DEVICE ARE ON SAME DRT SYSTEM DISC MUST BE ONLY UNIT ZERO ON THIS DRT MAKE DISC UNIT # CHANGES NOW READY? NEW SERIAL DISC UNIT #?</b></p> <p>Before you respond to this prompt:</p> <ol style="list-style-type: none"><li>Set the unit number of ldn x back to its correct unit number according to the MPE I/O configuration.</li><li>Set the unit number of ldn 1 back to unit-0 (as specified in the MPE I/O configuration).</li></ol> <p>Now reply YES to the message READY? and reply with the new unit number of ldn x.</p>
5	The Initiator continues with the DATE? and TIME? prompts described in steps 7 and 8 of the COLDSTART, UPDATE, and RELOAD procedures.

# READING JOB CONTROL STATEMENTS

OPERATOR FUNCTION: READING STATEMENTS WITH A COLON IN COLUMN ONE

DESCRIPTION: This procedure describes how to use :JOB and :DATA accepting devices to read statements that contain MPE job commands as raw data.

STEP	PROCEDURE
1	:STOPSPool <i>Idn</i> Stops the spooler.
2	:ABORTIO <i>Idn</i> Aborts pre-read request number 1.
3	:ABORTIO <i>Idn</i> Aborts pre-read request number 2.
4	:REFUSE <i>Idn</i> Removes ACCEPT attributes; disables auto-recognition.
5	:REPLY <i>pin,Idn</i> Allocates the device to the user process.
6	:ACCEPT <i>Idn</i> Reenables auto-recognition, accept DATA, and accept JOB attributes.
7	:STARTSPool <i>Idn</i> Starts input spooler.

## NOTES

If the device is not spooled, start with step 4 and end with step 6.

# CHANGING FORMS

OPERATOR FUNCTION: CHANGING FORMS ON A LINE PRINTER.

DESCRIPTION: This procedure describes how to respond to special forms messages on the console. A user's forms message is printed along with a request to mount the forms and reply.

## NOTE

*The forms should be mounted before the reply is made.*

Messages in the description are only examples because they differ according to system configuration and each user's request.

STEP	PROCEDURE
1	10:50/#S93/22/FORMS: PLEASE MOUNT MAILING LABELS ? 10:50/#S93/22/SP#12/LDEV# FOR #S93; OUTFILE ON LP (NUM)?  The first message includes instructions from the programmer. The second is a request from the system and requires a REPLY.
2	:REPLY <u>pin,ldn</u> Allocates the output device.
3	? 10:51/#S93/22/LDEV# 12 FORMS ALIGNED OK (Y/N)?  This message gives the opportunity to mount a form and align it for printing. Each NO response causes a test line of characters to be printed on the line printer. When the test line is printed in the correct position, respond YES and output to special forms begins.
4	:REPLY <u>pin,</u> { YES } { NO }
5	11:15/22/STANDARD FORMS ? 11:15/#S98/22/SP#12/LDEV# FOR #S98;L ON LP (NUM)?  The system displays forms messages when the spoolfile requesting them becomes ACTIVE. After special forms have been printed, the next spoolfile to become ACTIVE that requests no special forms will cause a mount STANDARD FORMS message to be generated on the console. This happens at the beginning of printing of the next spoolfile which may be long after the special forms have finished printing.
6	:REPLY <u>pin,ldn</u>

## NOTES

Refer to Forms Message in Section IV.

# SYSDUMP

OPERATOR FUNCTION: FILE AND SYSTEM BACKUP (:SYSDUMP)

DESCRIPTION: This procedure copies the operating system, the current directory and accounting information, and users' files.

STEP	PROCEDURE
1	Log on the system. <u>:HELLO MANAGER.SYS</u>
2	Check for logged-on users. <u>:SHOWJOB</u>
3	Warn sessions of impending system dump and prevent any new job/session from starting. <u>:WARN @ ;message</u> <u>:LIMIT 0,0</u>
4	After a reasonable length of time, abort any remaining sessions. <u>:ABORTJOB#Snn</u>
5	Clear all outstanding allocation messages. <u>:RECALL</u> <u>:REPLY pin,0</u> or <u>:REPLY pin,N</u>
6	Define the output file(s) where the system is to be copied. <u>:FILE filename;DEV=devclass</u>
7	Initiate the dump and respond to the prompts. <u>:SYSDUMP *dump filename [, *list filename]</u> ANY CHANGES? <u>NO</u> ENTER DUMP DATE?  <u>return</u> Dumps the I/O configuration and MPE. When this copy is used for a COLD-START, the accounting structure and all files remain intact; however, when it is used for a RELOAD, the accounting structure and all files are lost.  <u>future date</u> Dumps the I/O configuration, MPE, and the accounting structure (but no files).  <u>backup date</u> (The date of the most recent SYSDUMP.) Dumps the I/O configuration, MPE, the accounting structure, and all files that have been modified since the specified date.  <u>0</u> Dumps the entire system.

# SYSDUMP

STEP	PROCEDURE
8	<p>ENTER DUMP FILE SUBSET(S)? <i>return or any valid list of file subsets.</i></p> <p>LIST FILES DUMPED? <i>YES or NO.</i></p> <p>You are now requested to allocate the output device. After your reply, the system is copied to the backup medium. If multiple volumes are required, you receive mount requests at the appropriate times.</p>
9	<p>END OF SUBSYSTEM</p> <p>After the SYSDUMP termination, label the backup copy (or copies) clearly and store in a safe place.</p>

## NOTES

In the :SYSDUMP command, each filename is preceded by an asterisk (\*) to indicate a back-referenced :FILE command.

When prompted to ENTER DUMP FILE SUBSET(S), entering a carriage return is equivalent to entering @.@.,i.e., all files in all accounts are dumped.

When the :SYSDUMP is complete, carefully and clearly label the backup volumes with volume names, volumes set names, generation date, etc. (or develop a numbering system that references this information).

MPE provides three methods for backing up disc files — the :SYSDUMP command (shown in step 7), the :STORE command, and the >COPY command of the VINIT Utility. The basic differences between :SYSDUMP, :STORE, and >COPY are explained in Section IV under System Backup and Recovery. In general, however, you should:

- Use :SYSDUMP for daily system backup because it provides a record of the latest accounting information.
- Use :STORE to backup only those files that belong to a particular set of groups or accounts.
- Use >COPY to create an exact duplicate of a particular private volumes disc.

## NOTE

*The “;LABEL=” parameter cannot be used in the :FILE command for the dumpfile. An attempt to use this parameter will result in an error abort.*

# RESTORING FILES

OPERATOR FUNCTION: RESTORING FILES FROM A BACKUP COPY

DESCRIPTION: This procedure retrieves users' files from SYSDUMP and STORE volumes. The volumes can be either magnetic tapes or a serial disc. The procedure allows you to restore specific files of a particular group or account or to restore all the files from the backup copy.

STEP	PROCEDURE
1	Log on the system manager's account.  <u>:HELLO MANAGER.SYS</u>
2	Define the tape or disc drive where the backup copy is mounted.  <u>:FILE <i>devicefile</i>;DEV=<i>devclass</i></u>
3	Define the standard RESTORE list file to the desired list output device.  <u>:FILE SYSLIST;DEV=<i>devclass</i></u>
4	Restore the files and print a listing.  <u>:RESTORE *<i>devicefile</i> [<i>filename.group.acct</i>] [;SHOW] [;KEEP]</u>
5	Respond to the console message which requests device allocation.  <u>:REPLY <i>pin,ldn</i></u>  The system restores users' files requesting that you mount additional volumes as required.

## NOTES

A file will be restored to the system domain only if the account, name, group name, and file creator exist in the system directory.

A file will be restored to a private volume only if the home volume for the group in which the file resides is physically mounted.

Files currently opened, loaded into memory, or being stored or restored, cannot be acted upon by a :RESTORE command.

Users with System Manager (SM) or System Supervisor capability (OP) can restore any file into any group and account.

Users without SM & OP capability can only restore files they have Write access to if the file exists; or restore files into groups they have Save access to if the file does not exist. In addition, these users may only restore files with negative file codes (i.e. IMAGE Data Bases) if they also have Privileged Mode capability (PM).

# ENABLING/DISABLING LOGGING

OPERATOR FUNCTION: TURNING LOGGING ON AND OFF

DESCRIPTION: This procedure initiates a SYSDUMP and, during the ensuing dialog, turns logging on or off.

STEP	PROCEDURE
1	Log on the system manager's account.  <u>:HELLO MANAGER.SYS</u>
2	Define the output file(s) where the system is to be copied.  <u>:FILE filename;DEV=devclass</u>
3	Initiate the SYSDUMP and respond to prompts.  <u>:SYSDUMP *dumpfilename [, *listfilename]</u> ANY CHANGES? <u>YES</u> SYSTEM ID = HP32002B.00.76? <u>return</u> MEMORY SIZE = XXX? <u>return</u> I/O CONFIGURATION CHANGES? <u>return</u> SYSTEM TABLE CHANGES? <u>return</u> MISC CONFIGURATION CHANGES? <u>return</u> LOGGING CHANGES? <u>YES</u> LIST LOGGING STATUS? <u>NO</u> STATUS CHANGES? <u>YES</u> ENTER TYPE, ON/OFF? <u>1,ON</u> or <u>1,OFF</u> (Turns logging on or off.) ENTER TYPE, ON/OFF? <u>return</u> LIST LOGGING STATUS? <u>NO</u> LOG FILE RECORD SIZE (SECTORS) = XXX? <u>return</u> LOG FILE SIZE (RECORDS) = XXXX? <u>return</u> DISC ALLOCATION CHANGES? <u>return</u> SCHEDULING CHANGES? <u>return</u> SEGMENT LIMIT CHANGES? <u>return</u> SYSTEM PROGRAM CHANGES? <u>return</u> SYSTEM SL CHANGES? <u>return</u> ENTER DUMP DATE? <u>return</u> (Dumps only MPE and the I/O configuration. When this copy is used for system startup, all files and the accounting structure remains unchanged.)  ENTER DUMP FILE SUBSET(S)? <u>return</u>
4	You are now requested to allocate the output device. After your reply, the system is copied to the backup medium.
5	END OF SUBSYSTEM :

# ENABLING/DISABLING LOGGING

## NOTES

When the copy which is produced by this SYSDUMP procedure is subsequently used to COLD-START the system, logging is permanently disabled until the next COLDSTART, RELOAD, or UPDATE if you specified 1,OFF in step 4. However, logging is not permanently enabled when you specify 1,ON in step 4 because you still can disable logging during a system startup dialog with the Initiator. The DISABLE LOGGING? prompt is described in Section VI of the *System Manager/System Supervisor Reference Manual* under Step 5.5 of the Initiator-User Dialog.

# SERIALIZING A DISC

OPERATOR FUNCTION: SERIALIZING A DISC PACK

DESCRIPTION This procedure allows you to serialize a disc pack by accessing the Vinit subsystem.

STEP	PROCEDURE
1	Take the disc you want serialized off-line.  :DOWN <i>Idn</i>
2	Log on as a User. Account with System Manager (SM) or System Supervisor (OP) capability.  :HELLO MANAGER.SYS
3	Invoke the Vinit subsystem.  :VINIT
4	Change the volume label to indicate the disc is a serial disc.  >SERIAL <i>Idn</i>
5	Exit from the Vinit subsystem.  >EXIT
6	Allow the disc you serialized to function again.  :UP <i>Idn</i>

# RESTART USER LOGGING

OPERATOR FUNCTION: RESTARTS THE USER LOGGING PROCESS

DESCRIPTION: This procedure responds to a request by a user to restart a logging process.

STEP	PROCEDURE
1	11:06/#S8/14/FROM/LC.SMITHCO/;START LOG PROCESS WITH LOGID SMITHCO. The message is a request from LC.SMITHCO to start the log process with logid SMITHCO.
2	List the current logging identifiers on the system to determine the log filename for logid SMITHCO.  : <u>LISTLOG</u>
3	To determine if the log file LGFILE01 is a new file or existing file, list the file.  : <u>LISTF LGFILE01.PUB.SMITHCO,1</u>  The current end-of-file location is displayed, and shows that the file already has data in it.
4	RESTART the logging process for logid SMITHCO. (If the file had been empty the START option would have been selected.)  : <u>LOG SMITHCO;RESTART</u>
	The following message will be printed on the System Console:  USERLOG SMITHCO RESTARTED (ULOGMSG 16)
5	Inform LC.SMITHCO user logging is running.  : <u>TELL LC.SMITHCO;LOG PROCESS SMITHCO STARTED.</u>
6	To stop the logging process, enter:  : <u>LOG SMITHCO;STOP</u>  The following message will be displayed on the System Console:
	USER LOGGING PROCESS SMITHCO IS TERMINATED (ULOGMSG 11)

# LOADING/UNLOADING A FLEXIBLE DISC

OPERATOR FUNCTION: LOADING AND UNLOADING A FLEXIBLE DISC

DESCRIPTION: This procedure describes the proper method of loading and/or unloading a flexible disc into a 7902A disc drive.

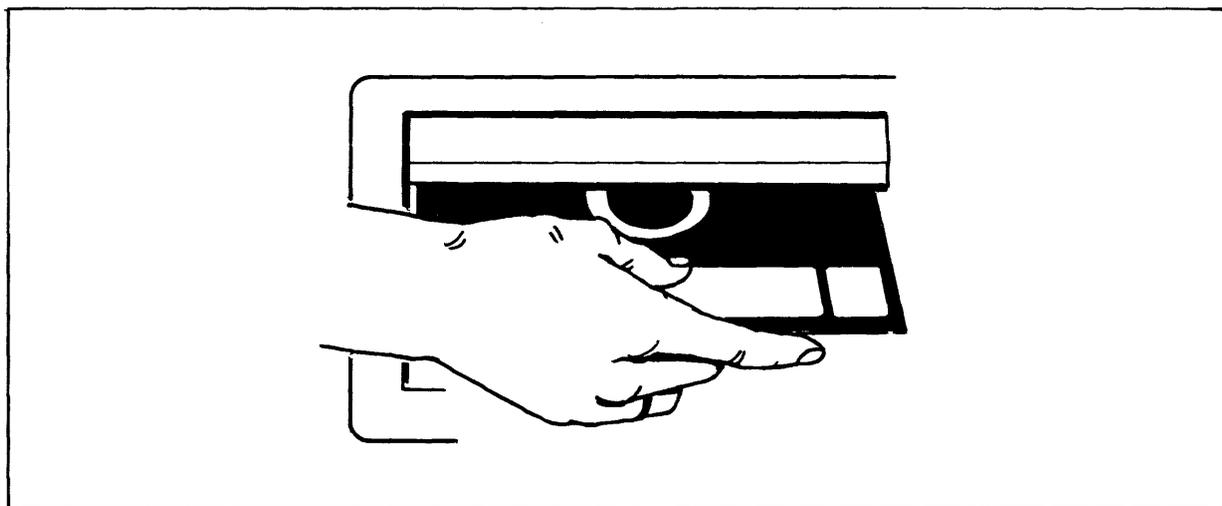


Figure 5-3. Flexible Disc

STEP	PROCEDURE
1	Open the door on the front of the drive by pressing in on the door latch.
2	Insert the disc into the drive, with the label on the disc facing right, as shown above.
3	Move the latch handle to the right until it locks in place.  You now are capable of reading from and/or writing on the flexible disc.
4	To eject the disc press in on the door latch. The door will rise and the flexible disc will pop out.
5	Return the disc to its storage envelope. Improper storage can cause permanent damage to the discs. Flexible discs can be stored flat but no more than ten high. Flexible disc storage modules should be selected to provide support and protection without compression. Hewlett-Packard will furnish vertical storage boxes for flexible discs shipped with the system. Flexible discs must always be kept in their envelopes when not inserted in the flexible disc drive.

## NOTES

When you first turn on the system, you can not read from or write on the flexible disc; the disc is going through a self-test. (For further information on handling flexible discs, refer to Appendix F.)

# POWER-DOWN

(Series II and Series III - Model 32421A)

OPERATOR FUNCTION: SYSTEM POWER-DOWN

DESCRIPTION: This procedure describes how to power-down the entire system.

STEP	PROCEDURE
1	Shut the MPE system down as described previously in the SYSTEM SHUTDOWN function.
2	Set all disc drive RUN/STOP switches to STOP. Allow time for discs to stop rotating. Remove power from the peripheral devices.
3	Open the Central Processor Unit (CPU) door. Set the SYSTEM DC POWER and the LOWER/UPPER 128K MEMORY switches to the STANDBY position. At this point, a printed circuit board can be removed without damage to the board or the system.
	<p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>This ends the routine shutdown procedure. You can use the following steps to remove AC power from the system, BUT DO THIS ONLY WHEN IT IS ABSOLUTELY NECESSARY.</i></p>
4	Place all the power supply switches in the OFF position.
5	At the rear of the rightmost system bay and working from right to left, turn off all AUXILIARY SYSTEM POWER circuit breakers. Turn off the MAIN SYSTEM POWER circuit breaker last.

## NOTES

HP recommends maintaining your system in a power ON operating state at all times due to the potential impact to system reliability that may be experienced in frequent power-down/power-up situations. Component failures have been shown to be directly proportional to the amount of applied stress caused by power cycling. Furthermore, cycling system power applies two distinctly different types of stress not normally experienced in a continuous power condition (i.e., thermodynamic stress and power surge stress). The energy saving realized by powering off your system on nights and weekends, for example, can be offset or negated by reduced system reliability.

If, however, your operation requires frequent power shutdowns, it is essential that the power-down and power-up procedures documented in this manual be followed implicitly.

# POWER DOWN

(Series III - Model 32435A or B)

OPERATOR FUNCTION: SYSTEM POWER-DOWN

DESCRIPTION: This procedure describes how to power-down the entire system.

STEP	PROCEDURE
1	Shut the MPE system down as described previously in the SYSTEM SHUTDOWN function.
2	Set all disc drive RUN/STOP switches to STOP. Allow time for discs to stop rotating. Remove power from the peripheral devices.
3	Open the Central Processor Unit (CPU) door. Set the LOGIC DC POWER and MEMORY DC POWER switches to the DISABLE position. At this point, a printed circuit board can be removed without damage to the board or the system.
<p><b>NOTE</b></p> <p><i>This ends the routine shutdown procedure. You can use the following step to remove AC power from the system, BUT DO THIS ONLY WHEN IT IS ABSOLUTELY NECESSARY.</i></p>	
4	At the rear of the Central Processor Unit (CPU) bay, turn off the SWITCHED 120V OUTLETS BREAKER and the INTERNAL POWER BREAKER. Turn off the MAIN POWER BREAKER last.

## NOTES

HP recommends maintaining your system in a power ON operating state at all times due to the potential impact to system reliability that may be experienced in frequent power-down/power-up situations. Component failures have been shown to be directly proportional to the amount of applied stress caused by power cycling. Furthermore, cycling system power applies two distinctly different types of stress not normally experienced in a continuous power condition (i.e., thermodynamic stress and power surge stress). The energy saving realized by powering off your system on nights and weekends, for example, can be offset or negated by reduced system reliability.

If, however, your operation requires frequent power shutdowns, it is essential that the power-down and power-up procedures documented in this manual be followed implicitly.

# POWER-UP Series II and Series III (Model 32421A)

OPERATOR FUNCTION: SYSTEM POWER-UP

DESCRIPTION: This procedure describes how to turn-on the system power.

STEP	PROCEDURE
1	At the rear of the rightmost system bay, and working from left to right, turn on the MAIN SYSTEM power circuit breaker and all AUXILIARY SYSTEM POWER circuit breakers. If the MAIN SYSTEM POWER circuit breaker will not stay on, try pressing the EMERGENCY OFF switch (located on the upper right-hand corner of the central processor bay).
2	Turn all the power supply switches to the ON position.
3	On the DC Control Panel (located behind the top right door of the rightmost system bay) turn the SYSTEM DC POWER switch and the LOWER/UPPER 128K MEMORY switch to the ON position.
4	Turn-on the peripheral devices and place them on-line. Note that moving head discs perform a head load cycle each time the AC power to the drive is removed, then restored; or the RUN/STOP front panel switch on the drive is cycled (e.g., RUN-STOP-RUN). This takes about two minutes.
5	Startup the MPE operating System using one of the procedures described in this section.
6	Run the MEMLOGAN utility program by entering :RUN MEMLOGAN.PUB.SYS;PARAM=1. This utility clears all previously recorded memory errors.

# POWER-UP Series III (Model 32435A or B)

OPERATOR FUNCTION: SYSTEM POWER-UP

DESCRIPTION: This procedure describes how to turn on the system power.

STEP	PROCEDURE
1	At the rear of the Central Processor Unit (CPU) bay, turn on the MAIN POWER BREAKER, the INTERNAL POWER BREAKER, and the SWITCHED 120V OUTLETS BREAKER.
2	On the DC Power Control Panel (located behind the Central Processor Unit door in the lower half of the bay), turn the LOGIC DC POWER switch and MEMORY DC POWER switch to the ENABLE position.
3	Turn on the peripheral devices and place them on-line. Note that moving head discs perform a head load cycle each time the AC power to the drive is removed, then restored; or the RUN/STOP front panel switch on the drive is cycled (e.g., RUN-STOP-RUN). This takes about two minutes.
4	Startup the MPE operating System using one of the procedures described in this section.
5	Run the MEMLOGAN utility program by entering :RUN MEMLOGAN.PUB.SYS:PARAM=1. This utility clears all previously recorded memory errors.

# WARMSTART — Series II/III

OPERATOR FUNCTION: SYSTEM STARTUP (WARMSTART)

DESCRIPTION: This procedure cold loads the system from the system disc. It is the only restart procedure which results in recovery of incompletely processed spooled jobs and spooled device files.

WARMSTART should only be used to recover spoolfiles and IMAGE transaction logging mag-tape buffer on disc. SPOOK may be used to store large spoolfiles for subsequent processing. After spoolfiles have been taken care of, the system should immediately be =SHUTDOWN and a COOLSTART initiated.

STEP	PROCEDURE
1	<p>On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the system disc which is always configured as logical device number one (ldn 1) (usually % 000004).</p> <p>or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the system disc.</p>
2	<p>While pressing the ENABLE switch, press the LOAD switch.</p>
3	<p>Wait for the RUN light to go out. The SYSTEM HALT light should not be lit.</p>
4	<p>Press the RUN/HALT switch. The RUN light should be lit.</p>
5	<p>Press RETURN on the system console. The MPE Initiator begins execution and prints the following message:</p> <p style="text-align: center;"><i>HP32002v.uu.ff</i></p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
6	<p>WHICH OPTION &lt;WARMSTART/COOLSTART&gt;? <u>WARMSTART</u></p> <p>At this point, there is about a one-minute delay.</p>
7	<p>DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i>.</p> <p>TIME (H:M)? Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the WARMSTART.</p>
8	<p>You now receive the *WELCOME* message.</p>
9	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="text-align: center;">:HELLO OPERATOR.SYS;HIPRI</p>
10	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p style="text-align: center;"><i>time/pin/MEMORY ERROR LOGGING INITIATED</i>  <i>time/pin/SP#n/SPOOLED IN</i>  <i>time/pin/SP#n/SPOOLED OUT</i>  <i>time/#Sn/pin/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</i></p>

# WARMSTART

## NOTES

After a WARMSTART the following conditions exist: STREAMS = OFF; JOBFENCE = 14; OUTFENCE = 14; JLIMIT = 0; SLIMIT = 0.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 9.

If User Logging was taking place prior to the warmstart, the system will print the following message:

```
time/pin/RECOVERING USER LOGGING PROCESS logid
```

If the process associated with *logid* is a tape file, the next request will be to mount the tape associated with the process. This will be a standard mount request.

After the User Logging files have been recovered, the following message will be printed:

```
time/pin/USER LOGGING FILE logfile name RECOVERED INCLUDING XXX  
OPENS AND XXX CLOSES
```

If there was an error during recovery, an error message will be printed.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

# COOLSTART — Series II/III

## OPERATOR FUNCTION: SYSTEM STARTUP (COOLSTART)

**DESCRIPTION:** This procedure cold loads the system from the system disc. It is the standard way to restart the system after a routine shutdown. A COOLSTART deletes all Spooled Jobs and all Input and Output Spoolfiles. An attempt to preserve these can only be attempted by first doing a WARMSTART before COOLSTARTing.

STEP	PROCEDURE
1	<p>On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the system disc which is always configured as logical device number one (ldn 1).</p> <p>or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the system disc.</p>
2	<p>While processing the ENABLE switch, press the LOAD switch.</p>
3	<p>Wait for the RUN light to go out. The SYSTEM HALT light should not be lit.</p>
4	<p>Press the RUN/HALT switch. The RUN light should be lit.</p>
5	<p>Press RETURN on the system console. The MPE Initiator begins execution and prints:</p> <p style="padding-left: 40px;">HP32002v.uu.ff</p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
6	<p>WHICH OPTION &lt;WARMSTART/COOLSTART&gt;? <u>COOLSTART</u></p>
7	<p>ANY CHANGES? <u>return</u> (Return implies NO)</p> <p>At this point, there is about a one-minute delay.</p>
8	<p>DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i>.          TIME (H:M)? Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the COOLSTART.</p>
9	<p>You now receive the *WELCOME* message.</p>
10	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="padding-left: 40px;">:HELLO OPERATOR.SYS;HIPRI</p>
11	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p style="padding-left: 40px;"><i>time/pin</i>/MEMORY ERROR LOGGING INITIATED  <i>time/pin/SP#n</i>/SPOOLED IN  <i>time/pin/SP#n</i>/SPOOLED OUT  <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #<i>n</i></p>

# COOLSTART

## NOTES

After a COOLSTART, the following conditions exist: STREAMS = OFF;JOBFENCE = 0; OUTFENCE = 1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can make changes to the system configuration during a COOLSTART. Respond YES to the ANY CHANGES? prompt in step 7 and the Initiator begins the Initiator/User dialog described in Section VI of the *System Manager/System Supervisor Reference Manual*.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in Step 10.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

# COLDSTART — Series II/III

## OPERATOR FUNCTION: SYSTEM STARTUP (COLDSTART)

### DESCRIPTION:

This procedure cold loads the system from magnetic tape or from serial disc. In each case, the procedure allows you to modify the system configuration while retaining users' information. COLDSTART is commonly used when an installation maintains several backup versions, each with a different configuration.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE: Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "STANDARD INSTRUCTIONS" (pg 5-17) before doing a COLDSTART from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller of ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, the Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE: On the System Control Panel, set bits 5, 6, 13, and 14 of the SYSTEM SWITCH REGISTER to octal 3006.</p> <p style="text-align: center;">or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the magnetic tape drive.</p> <p>FOR STARTUP FROM A SERIAL DISC: On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the disc drive where the serial disc is mounted (usually % 000004).</p> <p style="text-align: center;">or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the disc drive where the serial disc is mounted.</p>
3	While pressing the ENABLE switch, press the LOAD switch.
4	Wait for the RUN light to go out. The SYSTEM HALT light should not be lit. (The MPE Initiator is being read into memory.)
5	Press the RUN/HALT switch. The RUN light should be lit.

# COLDSTART

STEP	PROCEDURE
6	<p>Press RETURN on the system console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP32002v.uu.ff</p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
7	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>COLDSTART</u></p>
8	<p>ANY CHANGES? <u>return</u> (Return implies NO.)</p> <p>If this is a startup from tape, the tape is read and rewound.</p>
9	<p>DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i>.          TIME (H:M)? Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
10	<p>The system now prints the following message:</p> <p style="text-align: center;">CORE RESIDENT MPE nnn, BANK O USED DURING BOOT nnn</p> <p>where nnn is the number of words.</p>
11	<p>You now receive the *WELCOME* message.</p>
12	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="text-align: center;">:HELLO OPERATOR.SYS;HIPRI</p>
13	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p style="text-align: center;"><i>time/pin</i>/MEMORY ERROR LOGGING INITIATED  <i>time/pin/SP#n</i>/SPOOLED IN  <i>time/pin/SP#n</i>/SPOOLED OUT  <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</p>

## NOTES

You cannot COLDSTART the system from an HP 7905 serial disc. After a COLDSTART, the following conditions exist: STREAMS = OFF; JOBFENCE = 0; OUTFENCE = 1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a COLDSTART. Respond YES to the ANY CHANGES prompt (step 8) and the Initiator begins the Initiator/User Dialog described in Section VI of the *System Manager/System Supervisor Reference Manual*.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 12.

# COLDSTART

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

# UPDATE — Series II/III

## OPERATOR FUNCTION: SYSTEM STARTUP (UPDATE)

**DESCRIPTION:** This procedure cold loads the system from magnetic tape or from a serial disc. This is the standard procedure used when starting the system with an updated MPE operating system from HP or an MPE backup copy prepared on a different 3000 system.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE: Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "STANDARD INSTRUCTIONS" (pg 5-4) before doing an UPDATE from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller of ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During startup, the Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE: On the System Control Panel, set bits 5, 6, 13, and 14 of the SYSTEM SWITCH REGISTER to octal 3006.</p> <p style="text-align: center;">or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the magnetic tape drive.</p> <p>FOR STARTUP FROM SERIAL DISC: On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the disc drive where the serial disc is mounted.</p> <p style="text-align: center;">or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the disc drive where the serial disc is mounted.</p>
3	While pressing the ENABLE switch, press the LOAD switch.
4	Wait for the RUN light to go out. The SYSTEM HALT light should not be lit. (The MPE Initiator is being read into memory.)
5	Press the RUN/HALT switch. The RUN light should be lit.
6	<p>Press RETURN on the system console. The MPE Initiator begins execution and prints:</p> <p>In message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>

# UPDATE

STEP	PROCEDURE
7	WHICH OPTION <COLDSTART/RELOAD/UPDATE>? <u>UPDATE</u>
8	ANY CHANGES? <i>return</i> (Return implies NO.)
9	SYSTEM DISC = DRT 4? (Y/N) (Return implies YES) If this is an update from tape, the tape is read and rewound.
10	DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i> . TIME (H:M)? Enter the time (24-hour clock) as <i>hh:mm</i> .  The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.
11	You now receive the *WELCOME* message.
12	The system automatically logs on OPERATOR.SYS by printing:  :HELLO OPERATOR.SYS;HIPRI
13	The system may now print one or more of the following, depending on your system's configuration:  <i>time/pin</i> /MEMORY ERROR LOGGING INITIATED <i>time/pin</i> /SP# <i>n</i> /SPOOLED IN <i>time/pin</i> /SP# <i>n</i> /SPOOLED OUT <i>time</i> /# <i>Sn</i> / <i>pin</i> /LOGON FOR: OPERATOR.SYS,PUB ON LDEV # <i>n</i>

## NOTES

You cannot UPDATE the system from an HP 7905 serial disc. After an UPDATE, the following conditions exist: STREAMS = OFF; JOBFENCE = 0; OUTFENCE = 1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during an UPDATE. Respond YES to the ANY CHANGES prompt (step 8) and the Initiator begins the Initiator/User Dialog described in Section VI of the *System Manager/System Supervisor Reference Manual*.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in Step 12.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

# RELOAD — Series II/III

OPERATOR FUNCTION: SYSTEM STARTUP (RELOAD)

DESCRIPTION: This procedure cold loads the ENTIRE system including all system files and configuration information. The system is reloaded from a backup copy which was produced by a :SYSDUMP to magnetic tape or serial disc.

A RELOAD DESTROYS ANY FILES WHICH MAY BE ON ANY OF THE SYSTEM DISC VOLUMES.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE: Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "STANDARD INSTRUCTIONS" (pg 5-4) before doing an UPDATE from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller of ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, the Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE: On the System Control Panel, set bits 5, 6, 13, and 14 of the SYSTEM SWITCH REGISTER to octal 3006. or For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the magnetic tape drive.</p> <p>FOR STARTUP FROM SERIAL DISC: On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the disc drive where the serial disc is mounted. or For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the disc drive where the serial disc is mounted.</p>
3	While pressing the ENABLE switch, press the LOAD switch.
4	Wait for the RUN light to go out. The SYSTEM HALT light should not be lit. (The MPE Initiator is being read into memory.)
5	Press the RUN/HALT switch. The RUN light should be lit.

# RELOAD

STEP	PROCEDURE
6	<p>Press RETURN on the system console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;"><i>HP32002v.uu.ff</i></p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
7	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>RELOAD</u></p>
7a	<p>WHICH OPTION &lt;SPREAD/COMPACT/RESTORE/ACCOUNTS/NULL&gt;?</p> <p>The reload options are described in the NOTES that follow this table. Press RETURN to select SPREAD (by default).</p>
8	<p>ANY CHANGES? <i>return</i> (Return implies NO.)</p> <p>If this is a RELOAD from tape, the tape is read and rewound.</p>
9	<p>DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i>.          TIME (H:M)? Enter the time (24-hour clock) as <i>hh/mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
10	<p>You now receive the *WELCOME* message.</p>
11	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="text-align: center;">:HELLO OPERATOR.SYS;HIPRI</p>
12	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p style="text-align: center;"><i>time/pin/MEMORY ERROR LOGGING INITIATED</i>  <i>time/pin/SP#n/SPOOLED IN</i>  <i>time/pin/SP#n/SPOOLED OUT</i>  <i>time/#Sn/pin/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</i></p>

## NOTES

You cannot RELOAD the system from an HP 7905 serial disc. After a RELOAD, the following conditions exist: STREAMS = OFF; JOBFENCE = 0; OUTFENCE = 1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a RELOAD. Respond YES to the ANY CHANGES prompt (step 8) and the Initiator begins the Initiator/User Dialog described in Section VI of the *System Manager/System Supervisor Reference Manual*.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in Step 11.

# RELOAD – SERIES II/III

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

## RELOAD OPTIONS

Your response in step 7a selects the algorithm the system uses to RELOAD the discs. The algorithm determines on which system disc a file is stored and whether the account.group.user structure is placed in the appropriate directory area. RELOAD options are:

### SPREAD

MPE attempts to place the file back on a disc of the device class as it was originally created. If this fails, MPE attempts to replace the file on a disc of the same type and sub-type as the disc on which it was previously located (for instance, on a cartridge disc). If this fails, MPE

# RELOAD – SERIES II/III

attempts to place it on a disc of the same type (for example, a moving-head disc). If this fails, MPE attempts to place the file on any disc in device class DISC. If this fails, a message is printed and the file is not reloaded. In each of these attempts, the files are spread among similar discs, if possible. Suppose, for example, that when the system was dumped, there was one cartridge disc that was full, and when it is reloaded there are two cartridge discs; in this case, each disc will be approximately half full. The advantages of the SPREAD option are reduced disc seeking since files are spread out, and reduced fragmentation since the disc is repacked. The disadvantage is that if the discs are nearly full, it may not be possible to restore all files that were previously stored on the discs. This situation is encountered very rarely: when it is, one of the other options may be used.

## COMPACT

MPE attempts to place the file back on the same volume from which it came. If this fails, the SPREAD option is used. The major advantage of COMPACT is that if there are no new deleted tracks and the same discs are used, reloading of the system is guaranteed, no matter how full the discs are. In addition, each disc is compacted within the area between deleted tracks (if there are  $n$  deleted tracks, there will be at most  $(n+1)$  fragments). The disadvantage is that the discs may become disparately full.

## RESTORE

MPE attempts to place the files back on the same volume at the same locations from which they came. If this fails, MPE attempts to place the files anywhere on the volume from which they came. If this fails, the SPREAD option is used. The advantages to RESTORE are that it offers the same guarantee made in COMPACT for reloading the system, and that the same files that were previously using alternate tracks are still using them. The disadvantage is that no compacting of the discs is done so that the same fragmentation still exists.

## ACCOUNTS

This option loads the system, creates a directory from the backup copy, and loads the system files which reside in the PUB group of the SYS account. No user files are loaded onto the system.

The directory which is created will consist of all accounts, groups, and user structures which were current at the time the backup copy was written (by the :SYSDUMP Configurator program).

This option is useful because files saved by the :SYSDUMP program are compatible with files stored using the :STORE command. In this way you could, for example:

1. Create a new directory structure if the previous directory was destroyed.
2. Conserve vital disc space by selectively loading files into certain accounts with the :RESTORE command (after the system is operational).

## NULL

MPE creates a null directory and no user files are copied to the disc.

Generally, the SPREAD option should be used for reloading the system (in fact, this is the default method). Use the COMPACT option if all files cannot be reloaded with SPREAD. Use RESTORE only when fragmentation is not important but maintaining alternate track assignments is.

# ADDING I/O DEVICES — Series II/III

OPERATOR FUNCTION: ADDING STANDARD I/O DEVICES

DESCRIPTION: This procedure describes one method for adding input/output devices to the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the *System Manager/System Supervisor Manual*.

STEP	PROCEDURE
1	<p>On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the system disc.                      or                      For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the system disc.</p>
2	While pressing the ENABLE switch, press the LOAD switch.
3	Wait for the RUN light to go out.
4	Press the RUN/HALT switch.
5	<p>Press RETURN on the system console and respond to the Initiator prompts.</p> <p>HP32002v.uu.ff <u>return</u>                      WHICH OPTION &lt;WARMSTART/COOLSTART&gt;? <u>COOL</u>                      ANY CHANGES? <u>YES</u>                      LOAD MAP? <u>return</u>                      MEMORY SIZE = nnn.? <u>return</u>                      I/O CONFIGURATION CHANGES? <u>YES</u>                      LIST I/O DEVICES? <u>YES</u>                      LIST CS DEVICES? <u>YES</u>                      HIGHEST DRT? = nnn.? <u>return or a higher number</u>                      LOGICAL DEVICE #? <u>nnn</u>                      DRT #? <u>nnn</u>                      UNIT #? <u>nnn</u>                      CHANNEL #? <u>n</u>                      TYPE?                      SUB TYPE?                      RECORD WIDTH?                      OUTPUT DEVICE?                      ACCEPT JOBS/SESSIONS? <u>YES or NO</u>                      ACCEPT DATA? <u>YES or NO</u>                      INTERACTIVE? <u>YES or NO</u>                      DUPLICATIVE? <u>YES or NO</u>                      INITIALLY SPOOLED? <u>YES or NO</u>                      INPUT OR OUTPUT? <u>IN or OUT</u> (Spooled devices only)                      DRIVER NAME? (See Appendix A of the <i>System Manager/System Supervisor Manual</i>)                      DEVICE CLASSES? <u>device class name</u> <i>Supervisor Manual</i>)                      IS classname A SERIAL DISC CLASS? <u>YES or NO</u>                      LOGICAL DEVICE #? <u>return</u>                      MAX # OF OPEN SPOOLFILES = nn.? <u>return</u>                      LIST I/O DEVICES? <u>return</u>                      LIST CS DEVICES? <u>return</u>                      CLASS CHANGES? <u>return</u>                      LIST I/O DEVICES? <u>yes</u>                      DISC VOLUME CHANGES? <u>return</u>                      MAX # OF SPOOLFILES KILOSECTORS = nnn.? <u>return</u>                      RECOVER LOST DISC SPACE? <u>return</u>                      DATE (M/D/Y)? <u>mm/dd/yy</u>                      TIME (H:M)? <u>hh:mm</u> (24-hour clock)</p>

# DELETING I/O DEVICES — Series II/III

OPERATOR FUNCTION: DELETING STANDARD I/O DEVICES

DESCRIPTION: This procedure describes one method for deleting input/output devices from the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the *System Manager/System Supervisor Reference Manual*.

STEP	PROCEDURE
1	<p>On the System Control Panel, set the SYSTEM SWITCH REGISTER to the DRT number of the system disc.</p> <p>or</p> <p>For systems with HP-IB Interface Module, set the low order bits (rightmost 8 bits) to % 175, and the high order bits (leftmost 8 bits) to the octal representation of the DRT number of the system disc.</p>
2	While pressing the ENABLE switch, press the LOAD switch.
3	Wait for the RUN light to go out.
4	Press the RUN/HALT switch.
5	<p>Press RETURN on the system console and respond to the Initiator prompts.</p> <p>HP32002v.uu.ff <u>return</u></p> <p>WHICH OPTION &lt;WARMSTART/COOLSTART&gt;? <u>COOL</u></p> <p>ANY CHANGES? <u>YES</u></p> <p>LOAD MAP? <u>return</u></p> <p>MEMORY SIZE = nnn.? <u>return</u></p> <p>I/O CONFIGURATION CHANGES? <u>YES</u></p> <p>LIST I/O DEVICES? <u>YES</u></p> <p>LIST CS DEVICES? <u>YES</u></p> <p>HIGHEST DRT? = nnn.? <u>return</u></p> <p>LOGICAL DEVICE #? <u>nnn</u> (Idn of device being deleted)</p> <p>DRT #? <u>0</u></p> <p>LOGICAL DEVICE #? <u>return</u></p> <p>MAX # OF OPEN SPOOLFILES = nn.? <u>return</u></p> <p>LIST I/O DEVICES? <u>return</u></p> <p>LIST CS DEVICES? <u>return</u></p> <p>CLASS CHANGES? <u>return</u></p> <p>LIST I/O DEVICES? <u>YES</u></p> <p>DISC VOLUME CHANGES? <u>return</u></p> <p>MAX # OF SPOOLFILES KILOSECTORS = nnn? <u>return</u></p> <p>RECOVER LOST DISC SPACE? <u>return</u></p> <p>DATE (M/D/Y)? <u>mm/dd/yy</u></p> <p>TIME (H:M)? <u>hh:mm</u> (24-hour clock)</p>

## NOTES

The logical device number in step 5, may not be a disc drive in the system domain except during *RELOAD*.

# COLD DUMP Series II/III

OPERATOR FUNCTION: DUMPING COMPUTER MEMORY (COLD DUMP)

DESCRIPTION: A cold dump stores all of the computer memory on magnetic tape. Perform a cold dump after a system failure or system halt.

STEP	PROCEDURE
1	Mount a tape with a write ring on unit-0 of the magnetic tape drive that is configured as the dump output device. Press the LOAD and ON-LINE switches on the MAG-TAPE CONTROL PANEL.
2	If you have a Maintenance Control Panel, set the ERROR FREEZE switch to the INHIBIT position (down), otherwise go to step 3.
3	If the computer is in the RUN state, press the RUN/HALT switch. If the computer does not halt, check the PANEL DSBL/ENBL switch to be certain the front panel is enabled. (Switch locations are shown in Figure 2-1.)
4	While pressing (and holding) the ENABLE switch, press the DUMP switch. A number, usually octal 2006*, will appear in the SYSTEM SWITCH REGISTER and the dump will begin.
5	If the computer halts with the correct number for your memory size in the CURRENT INSTRUCTION REGISTER, the dump is complete.** (Refer to the NOTES following this table for memory size to CIR equivalents.) If the computer does not halt with the correct address, mount another tape and go to step 4. (Notice that Series III systems will automatically rewind the tape after the dump has been completed.)

## NOTES

The address, described in step 5, that should appear in the CURRENT INSTRUCTION REGISTER (CIR) is determined by the computer memory size as follows for systems which do not have an HP-IB Interface Module\*\*.

Memory Size	Contents of the CIR
256K	000004
320K	000005
384K	000006
448K	000007
512K	000010
768K	000014
1024K	000020

If you want to print the dump to a line printer, run the DPAN4 Utility program immediately after restarting the system. DPAN4 is described in the MPE System Utilities Reference Manual.

\* Systems with an HP-IB Interface Module will show %175 in the low order bits of the system switch register when DUMP is enabled. If any other number shows, the dump will not be successful.

\*\* On systems with a 7976A Tape Drive, a successful dump is indicated by the tape rewinding, and the drive going off-line.

# FORMATTING SYSTEM PACKS — Series II/III

OPERATOR FUNCTION: FORMATTING SYSTEM DISC PACKS

DESCRIPTION: This procedure describes how to use the stand-alone diagnostic called SLEUTH to format system disc packs. The diagnostic is loaded onto a shutdown system.

STEP	PROCEDURE
1	Mount the cold-loadable magnetic tape containing SLEUTH on a magnetic tape drive. Select unit-0 and place the drive on-line.
2	On the System Control Panel, set the SYSTEM SWITCH REGISTER to octal 3006.
3	While pressing the ENABLE switch, press the LOAD switch. This causes the first portion of the master diagnostic program to be read into main memory.
4	Wait for the system to halt.
5	Set the SYSTEM SWITCH REGISTER to the number which corresponds to the physical position of SLEUTH on the diagnostic tape. This number must be obtained from your HP Customer Engineer.
6	Press the RUN/HALT switch. The system searches the tape for SLEUTH, reads the program into main memory, and rewinds the tape.
7	Press RETURN on the system console. Execution begins with the following prompts: <pre data-bbox="423 1083 837 1140"> D1 SLEUTH 3000 (HP D411.A.x.x.yy) &gt;10</pre>
8	Enter SLEUTH commands for the type of disc to be formatted: <pre data-bbox="345 1241 873 1938"> 2888A Disc Pack &gt;10 <u>DEV 0,drt,14,100,unit</u>                  &gt;10 <u>NOPR</u>                  &gt;20 <u>RC 0</u>                  &gt;30 <u>PR</u>                  &gt;40 <u>FMT 0</u>                  &gt;50 <u>END</u>                  &gt;60 <u>RUN</u>  7900A Disc Pack &gt;10 <u>DEV 0, drt,13,100,unit</u>                  &gt;10 <u>FMT 0</u>                  &gt;20 <u>END</u>                  &gt;30 <u>RUN</u>  7905A Disc Pack &gt;10 <u>DEV 0,drt,15,100,unit</u>                  &gt;10 <u>FMT 0,9</u>                  &gt;20 <u>END</u>                  &gt;30 <u>RUN</u>  7920A Disc Pack &gt;10 <u>DEV 0,drt,12,100,unit</u>                  &gt;10 <u>FMT 0,9</u>                  &gt;20 <u>END</u>                  &gt;30 <u>RUN</u></pre>

# FORMATTING SYSTEM PACKS — Series II/III

STEP	PROCEDURE
	<p>7925A Disc Pack    <u>&gt;10 DEV 0,drt,11,100,unit</u>                                <u>&gt;10 FMT 0,9</u>                                <u>&gt;20 END</u>                                <u>&gt;30 RUN</u></p> <p>In each case, you must supply the DRT number and the unit number of the drive where the pack you are formatting is mounted.</p> <p>9    After the disc is formatted, SLEUTH again prompts for input (&gt;).</p> <p>10   Enter the following program for flagging defective tracks:</p> <pre>           &gt;EP           &gt;10 DEV 0,drt,15,10,unit           &gt;10 DB AA,6144, 0           &gt;10 RC 0           &gt;20 PUT "CYLINDER # TO BE FLAGGED DEFECTIVE?"           &gt;30 GET A           &gt;40 PUT "HEAD #?"           &gt;50 GET B           &gt;60 SEEK 0,A,B,0           &gt;70 IDI 0,AA,B,3,D           &gt;80 PUT "CONTINUE? (0=N/1=Y)"           &gt;90 GET C           &gt;100 IF C=1 THEN 10           &gt;110 END           &gt;120 RUN         </pre> <p>In the second line above, you must supply the DRT number and the unit number of the drive on which the pack you are formatting is mounted.</p> <p>This program asks three questions for each defective track. In response to the first, enter the cylinder number of the defective track; in response to the second, enter the head number of the defective track. The cylinder and head numbers of defective tracks are listed on the "List of Defective Tracks" supplied with each new disc.</p> <p>To the third question, "CONTINUE?", enter the number zero "0" until you have entered all defective tracks, then enter the number "1".</p> <p>11   After the defective tracks have been flagged, SLEUTH again prompts for input (&gt;). Enter another program or halt the computer.</p>

## NOTES

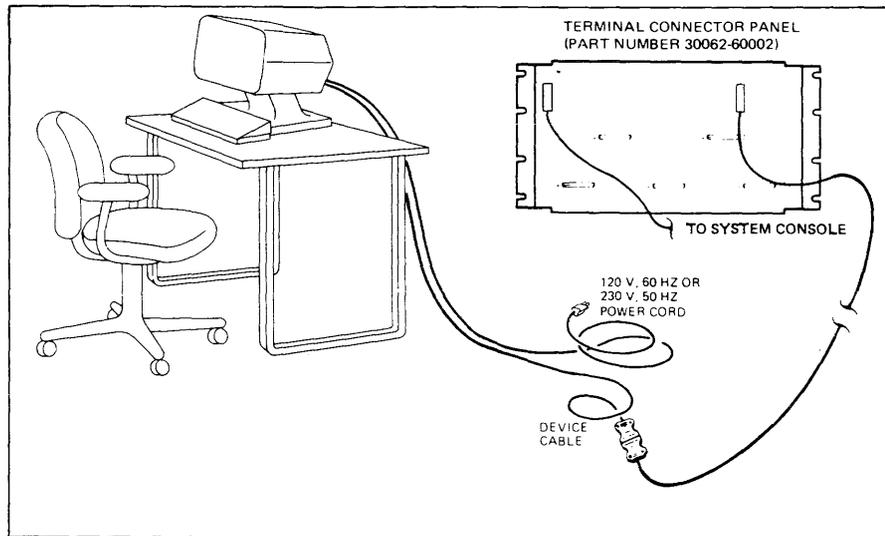
The VINIT subsystem could be used to format a pack that later is used as a system pack. It is only when the pack is needed on-line to satisfy the requirements of the system domain that it needs to be formatted off-line.

Because the SLEUTH programs occasionally may change, periodically check with your HP Customer Engineer to be sure these instructions are correct.

# CONNECTING DATA TERMINALS – SERIES III

OPERATOR FUNCTION: CONNECTING DATA TERMINALS

DESCRIPTION: This procedure describes how to physically connect your data terminals to your HP 3000 Series III system.



An HP 2621A Remote Terminal

STEP	PROCEDURE
1	Make certain that the terminal main power switch is switched OFF.
2	Make certain that the power source voltage matches terminal requirements (see the HP 264X power label).
3	Connect the power cord from the terminal to the power source.
4	Connect the RS-232 compatible cable and keyboard to the printed circuit edge connectors which have been notched to match the cable connectors, on the terminal.
5	Route the free end of the RS-232 cable, as illustrated, from the terminal to the Asynchronous Multiplexor panel. Connect it to the next available RS-232 connector.

## NOTE

After a system failure (quite often on auto restart), hardwired terminals must be manually reset before proper operations resume. To prevent resetting the terminals after each system failure, simply disable (open) Strap U on your hardwired terminals.

(Notice that terminals using 202 modems must enable (close) the strap.)

# POWER DOWN — Series 30/33

OPERATOR FUNCTION: SYSTEM POWER-DOWN

DESCRIPTION: This procedure describes how to Power-down the entire system.

STEP	PROCEDURE
1	Shut the MPE system down as described previously in the SYSTEM SHUTDOWN function.
2	Set all disc drive RUN/STOP switches to stop. Allow time for discs to stop rotating. Turn off all peripheral devices.
3	<p><i>An optional step to be used only if power-fail restart is desired.</i></p> <p>Series 30: Pull the A/C power cord out of the wall socket;</p> <p>Series 33: Turn off the circuit breakers on the Power Control Module (located in the lower-left rear of the computer):</p> <p>This stops power to everything in the system except memory. Thus, everything can be removed from the system without damage except memory boards. A power-fail restart can be performed if desired, or you can go on to step 4.</p>
4	Turn off the PROCESSOR ON/OFF switch. Printed circuit boards can be removed now without damage. Note that a power-fail restart is no longer possible once the PROCESSOR ON/OFF switch is set to off. Series 30 systems are now powered-down; Series 33 systems must go to step 5.
5	Series 33: Turn off all the power breakers on the Power Control Module.

## NOTE

HP recommends maintaining your system in a power ON operating state at all times due to the potential impact to system reliability that may be experienced in frequent power-down/power-up situations. Component failures have been shown to be directly proportional to the amount of applied stress caused by power cycling. Furthermore, cycling system power applies two distinctly different types of stress not normally experienced in a continuous power condition, (i.e., thermodynamic stress and power surge stress). The energy saving realized by powering off your system on nights and weekends, for example, can be offset or negated by reduced system reliability.

If, however, your operation requires frequent power shutdowns, it is essential that the power-down and power-up procedures documented in this manual be followed implicitly.

# POWER UP — Series 30/33

OPERATOR FUNCTION: SYSTEM POWER-UP

DESCRIPTION: This procedure describes how to turn on the system power.

STEP	PROCEDURE
1	For Series 33: Turn on the MAIN POWER circuit breaker and all the peripheral breakers of the Power Control Module (located in the lower-left rear of the computer). (Series 30 has no corresponding step.)
2	Turn on the PROCESSOR ON/OFF switch.
3	Turn on the peripheral devices and place them on-line. Note that moving head discs perform a head load cycle each time the AC power to the drive is removed and then restored, as well as whenever the RUN/STOP front panel switch on the drive is cycled (e.g., RUN-STOP-RUN). The HF 7902 flexible disc does a self-test each time power is removed and reapplied to it. This takes about one minute.
4	Startup the MPE Operating System using one of the system start up procedures described in this section.
5	Run the MEMLOGAN utility program by entering: RUN MEMLOGAN.PUB.SYS; PARM=1. This utility clears all previously recorded memory errors.

# WARMSTART — Series 30/33

OPERATOR FUNCTION: SYSTEM STARTUP (WARMSTART)

DESCRIPTION: This procedure cold loads the system from the system disc. It is the only restart procedure which results in recovery of incompletely processed spooled jobs and spooled device files.

WARMSTART should only be used to recover spoolfiles and IMAGE transaction logging mag-tape buffer on disc. SPOOK may be used to store large spoolfiles for subsequent processing. After spoolfiles have been taken care of, the system should immediately be =SHUTDOWN and a COOLSTART initiated.

STEP	PROCEDURE
1	On the System Control Panel, set the START (Series 30) or WARMSTART (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of your system disc. The system disc is always configured as logical device number one (ldn 1).
2	<p>For startup from the System Control Panel, press the START (Series 30) or WARMSTART (Series 33) key.</p> <p>For startup from the System Console, press the START key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)</p>
3	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints the following message.</p> <p style="text-align: center;"><b>HP 32033 v.uu.ff</b></p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p> <p>At this point, there is about a one or two-minute delay.</p>
4	<p>WHICH OPTION &lt;WARMSTART/COOLSTART&gt;? <u>WARMSTART</u></p> <p>At this point, there is about a one-minute delay.</p>
5	<p>DATE (M/D/Y)? Enter the current date in the form <i>mm/dd/yy</i>.</p> <p>TIME (H:M)? Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the WARMSTART.</p>
6	<p>You now receive the *WELCOME* message.</p> <p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="text-align: center;"><b>:HELLO OPERATOR.SYS; HIPRI</b></p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
7	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p><i>time/pin</i>/MEMORY ERROR LOGGING INITIATED  <i>time/pin</i>/SP #<i>n</i>/SPOOLED IN  <i>time/pin</i>/SP #<i>n</i>/SPOOLED OUT  <i>time</i>/#<i>Sn</i> /<i>pin</i> / LOGON FOR:OPERATOR.SYS,PUB ON LDEV #<i>n</i></p>

# WARMSTART — Series 30/33

## NOTES

After a WARMSTART the following conditions exist: STREAMS = OFF; JOBFENCE = 14; OUTFENCE = 14; JLIMIT = 0; SLIMIT = 0.

If User Logging was taking place prior to the warmstart, the system will print the following message:

```
time/pin/RECOVERING USER LOGGING PROCESS logid
```

If the process associated with “logid” is a tape file, the next request will be to mount the tape associated with the process. This will be a standard mount request.

After the User Logging files have been recovered, the following message will be printed:

```
time/pin/USER LOGGING FILE logfile name RECOVERED INCLUDING XXX OPENS  
AND XXX CLOSES
```

If there was an error during recovery, an error message will be printed.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 6.

# COOLSTART — Series 30/33

OPERATOR FUNCTION: SYSTEM STARTUP (COOLSTART)

DESCRIPTION: This procedure cold loads the system from the system disc. It is the standard way to restart the system after a routine shutdown.

A COOLSTART deletes all Spooled Jobs and all Input and Output Spoolfiles. An attempt to preserve these can only be attempted by first doing a WARMSTART before COOLSTARTing.

STFP	PROCEDURE
1	On the System Control Panel, set the START (Series 30) or WARMSTART (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of your system disc. The system disc is always configured as logical device number one (ldn 1).
2	For startup from the System Control Panel, press the START (Series 30) or WARMSTART (Series 33) key. For startup from the System Console, press the START key while pressing the CNTL key. (Be sure the Console keys are enabled.)
3	When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints the following message:  <div style="text-align: center;">HP 32022v.uu.ff</div> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
4	WHICH OPTION<WARMSTART/COOLSTART>? <u>COOLSTART</u>
5	ANY CHANGES? <u>return</u> (Return implies NO)  At this point, there is about a one or two-minute delay.
6	DATE(M/D/Y)?     Enter the current date in the form <i>mm/dd/yy</i> . TIME (H:M)?       Enter the time (24-hour clock) as <i>hh:mm</i> .  The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the COOLSTART.
7	You now receive the *WELCOME* message.
8	The system automatically logs on OPERATOR.SYS by printing:  <div style="text-align: center;">:HELLO OPERATOR.SYS;HIPRI</div> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
9	The system may now print one or more of the following, depending on your system's configurations:  <i>time/pin</i> /MEMORY ERROR LOGGING INITIATED <i>time/pin</i> /SP # <i>n</i> /SPOOLED IN <i>time/pin</i> /SP # <i>n</i> /SPOOLED OUT <i>time/#Sn/pin</i> /LOGON FOR: OPERATOR.SYS,PUB ON LDEV # <i>n</i>

## NOTES

After a COOLSTART the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT AND SLIMIT are set to values specified during system configuration.

You can make changes to the system configuration during a COOLSTART. Respond YES to the ANY CHANGES? prompt in step 5 and the Initiator begins the Initiator/User dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 8.

# COLDSTART — Series 30/33

OPERATOR FUNCTION: SYSTEM STARTUP (COLDSTART)

DESCRIPTION: This procedure cold loads the system from magnetic tape or from serial disc. In each case, the procedure allows you to modify the system configuration while retaining users' information. COLDSTART is commonly used when an installation maintains several backup versions, each with a different configuration.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE:</p> <p>Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing a COLDSTART from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC:</p> <p>On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD (Series 30) or COLD LOAD (Series 33) key.</p> <p>For startup from the System Console, press the LOAD key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 <i>v.uu.ff</i></p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>COLDSTART</u></p> <p>ANY CHANGES? <u>return</u> (Return implies NO.)</p>
6	<p>If this is a startup from tape, the tape is read and rewound.</p>

# COLDSTART — Series 30/33

STEP	PROCEDURE
7	<p>DATE (M/D/Y)?    Enter the current date in the form <i>mm/dd/yy</i>. TIME (H:M)?      Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
8	<p>The system now prints the following message: CORE RESIDENT MPE nnn, BANK 0 USED DURING BOOT nnn where nnn is the number of words.</p>
9	<p>You now receive the *WELCOME* message.</p>
10	<p>The system automatically logs on OPERATOR.SYS by printing:            :HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
11	<p>The system may now print one or more of the following, depending on your system's configuration: <i>time/pin</i>/MEMORY ERROR LOGGING INITIATED <i>time/pin/SP #n</i>/SPOOLED IN <i>time/pin/SP #n</i>/SPOOLED OUT <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</p>

## NOTES

After a COLDSTART, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=0; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a COLDSTART. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 10.

# UPDATE — Series 30/33

OPERATOR FUNCTION: SYSTEM STARTUP (UPDATE)

DESCRIPTION: This procedure cold loads the system from magnetic tape or from a serial disc. This is the standard procedure used when starting the system with an updated MPE operating system from HP or an MPE backup copy prepared on a different 3000 system.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE: Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing an UPDATE from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC: On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD(Series 30) or COLD LOAD (Series 33) key.</p> <p>For startup from the System Console, press the LOAD key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 v.uu.ff</p> <p>In the message, <i>v</i> is the current version of MPE, <i>uu</i> is the present update-level number, and <i>ff</i> is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>UPDATE</u></p>
6	<p>SYSTEM DISC DRT <i>nn</i>? <i>return</i> or input the correct drt number.</p>
7	<p>ANY CHANGES? <u>return</u> (Return implies NO.)</p> <p>If this is a startup from tape, the tape is read and rewound.</p>

STEP	PROCEDURE
8	<p>DATE (M/D/Y)?    Enter the current date in the form <i>mm/dd/yy</i>.            TIME (H:M)?    Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, tape NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
9	<p>You now receive the *WELCOME* message.</p>
10	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="padding-left: 40px;">:HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
11	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p><i>time/pin</i>/MEMORY ERROR LOGGING INITIATED  <i>time/pin</i>/SP#<i>n</i>/SPOOLED IN  <i>time/pin</i>/SP#<i>n</i>/SPOOLED OUT  <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #<i>n</i></p>

## NOTES

After an UPDATE, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during an UPDATE. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 10.

# RELOAD — Series 30/33

OPERATOR FUNCTION: SYSTEM STARTUP (RELOAD)

DESCRIPTION: This procedure cold loads the ENTIRE system including all system files and configuration information. The system is reloaded from a backup copy which was produced by a :SYSDUMP to magnetic tape or serial disc.

A RELOAD DESTROYS ANY FILES WHICH MAY BE ON ANY OF THE SYSTEM DISC VOLUMES.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE:</p> <p>Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing a RELOAD from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC:</p> <p>On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch on the octal value of the DRT number (channel number and device address) of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD (Series 30) or COLD LOAD (Series 33) key.</p> <p>For startup from the System Console, press the LOAD key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 v.uu.ff</p> <p>In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>RELOAD</u></p>
5a	<p>WHICH OPTION &lt;SPREAD/COMPACT/RESTORE/ACCOUNTS/NULL&gt;?</p> <p>The reload options are described in the NOTES that follow this table. Press RETURN to select SPREAD (by default).</p>

# RELOAD — Series 30/33

STEP	PROCEDURE
6	<p>ANY CHANGES? <u>return</u> (Return implies NO.)</p> <p>If this is a RELOAD from tape, the tape is read and rewound. Additional volumes or tape reels may be requested.</p>
7	<p>DATE (M/D/Y);     Enter the current date in the form <i>mm/dd/yy</i>.            TIME (H:M)?       Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
8	<p>You now receive the *WELCOME* message.</p>
9	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="padding-left: 40px;">:HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
10	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p><i>time/pin/MEMORY ERROR LOGGING INITIATED</i>  <i>time/pin/SP#n/SPOOLED IN</i>  <i>time/pin/ SP#n/SPOOLED OUT</i>  <i>time/ #Sn/pin/ LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</i></p>

## NOTES

After a RELOAD, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a RELOAD. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 9.

## RELOAD OPTIONS

Your response in step 5a selects the algorithm the system uses to RELOAD the discs. The algorithm determines on which system disc a file is stored and whether the account.group.user structure is placed in the appropriate directory area. RELOAD options are:

### SPREAD

MPE attempts to place the file back on a disc of the device class as it was originally created. If this fails, MPE attempts to replace the file on a disc of the same type and sub-type as the disc on which it was previously located (for instance, on a cartridge disc). If this fails, MPE attempts to place it on a disc of the same type (for example, a moving-head disc). If this fails, MPE attempts to place the file on any disc in device class DISC. If this fails, a message is printed and the file is not reloaded. In each of these attempts, the files are spread among similar discs, if possible. Suppose, for example, that when the system was dumped, there was one cartridge disc that was full, and when it is reloaded there are two cartridge discs; in this case, each disc will be approximately half full. The advantages of the SPREAD option are reduced disc seeking since files are spread out, and reduced fragmentation since the disc is repacked. The disadvantage is that if the discs are nearly full, it may not be possible to restore all files that were previously stored on the discs. This situation is encountered very rarely: when it is one of the other options may be used.

### COMPACT

MPE attempts to place the file back on the same volume from which it came. If this fails, the SPREAD option is used. The major advantage of COMPACT is that if there are no new deleted tracks and the same discs are used, reloading of the system is guaranteed, no matter how full the discs are. In addition, each disc is compacted within the area between deleted tracks (if there are  $n$  deleted tracks, there will be at most  $(n+1)$  fragments).

### RESTORE

MPE attempts to place the files back on the same volume at the same locations from which they came. If this fails, MPE attempts to place the files anywhere on the volume from which they came. If this fails, the SPREAD option is used. The advantages to RESTORE are that it offers the same guarantee made in compact for reloading the system, and that the same files that were previously using alternate tracks are still using them. The disadvantage is that no compacting of the discs is done so that the same fragmentation still exists.

### ACCOUNTS

This option loads the system, creates a directory from the backup copy, and loads the system files which reside in the PUB group of the SYS account. No user files are loaded onto the system.

The directory which is created will consist of all accounts, groups, and user structures which were current at the time the backup copy was written (by the :SYSDUMP Configurator program).

This option is useful because files saved by the :SYSDUMP program are compatible with files stored using the :STORE command. In this way you could, for example:

1. Create a new directory structure if the previous directory was destroyed.
2. Conserve vital disc space by selectively loading files into certain accounts with the :RESTORE command (after the system is operational).

NULL

MPE creates a null directory and no user files are copied to the disc.

Generally, the SPREAD option should be used for reloading the system (in fact, this is the default method). Use the COMPACT option if all files cannot be reloaded with SPREAD. Use RESTORE only when fragmentation is not important but maintaining alternate track assignments is.

# ADDING I/O DEVICES — Series 30/33

OPERATOR FUNCTION: ADDING STANDARD I/O DEVICES

DESCRIPTION: This procedure describes one method for adding input/output devices to the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the System Manager/System Supervisor Manual.

STEP	PROCEDURE
1	On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the system disc.
2	<p>For startup from the System Control Panel, press the LOAD (Series 30) or COLD LOAD (Series 33) key.</p> <p>For startup from the System Console, press the LOAD key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)</p>
3	<p>When the system quits accessing the cold load medium, press RETURN on the System Console and respond to the Initiator prompts.</p> <pre> HP 32033 v.uu.ff          <u>return</u> WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>COLDSTART</u> ANY CHANGES? <u>YES</u> LOAD MAP? <u>return</u> MEMORY SIZE=nnn.? <u>return</u> I/O CONFIGURATION CHANGES? <u>YES</u> LIST I/O DEVICES? <u>YES</u> HIGHEST DRT?=nnn.? <u>return or higher number</u> LOGICAL DEVICE #? <u>nnn</u> DRT #? <u>nnn</u> UNIT #? <u>nnn</u> SOFTWARE CHANNEL #? <u>n</u> TYPE? <u>return</u> SUB TYPE? <u>return</u> RECORD WIDTH? <u>return</u> OUTPUT DEVICE? <u>return</u> ACCEPT JOBS/SESSIONS? <u>YES or NO</u> ACCEPT DATA? <u>YES or NO</u> INTERACTIVE? <u>YES or NO</u> DUPLICATIVE? <u>YES or NO</u> INITIALLY SPOOLED? <u>YES or NO</u> INPUT OR OUTPUT? <u>IN or OUT</u> DRIVER NAME? DEVICE CLASSES? <u>device class name</u> IS classname A SERIAL DISC CLASS? <u>YES or NO</u>                 </pre> <p style="margin-left: 400px;">} See Appendix B of System Manager/ System Supervisor Manual</p> <p style="margin-left: 400px;">(Spooled devices only)</p> <p style="margin-left: 400px;">(See Appendix A of System Manager/ System Supervisor Manual)</p>

# ADDING I/O DEVICES — Series 30/33

STEP	PROCEDURE
3 (cont.)	LOGICAL DEVICE #? <u>return</u> MAX # OF OPEN SPOOLFILES= <i>nn</i> .? <u>return</u> LIST I/O DEVICES? <u>return</u> CLASS CHANGES? <u>return</u> LIST I/O DEVICES? <u>YES</u> DISC VOLUME CHANGES? <u>return</u> MAX # OF SPOOLFILES KILOSECTORS= <i>nnn</i> ? <u>return</u> RECOVER LOST DISC SPACE? <u>return</u> DATE (M/D/Y)? <u>mm/dd/yy</u> TIME (H:M)? <u>hh:mm</u> (24-hour clock)

# DELETING I/O DEVICES — Series 30/33

OPERATOR FUNCTION: DELETING I/O DEVICES

DESCRIPTION: This procedure describes one method for deleting input/output devices from the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the System Manager/System Supervisor Reference Manual.

STEP	PROCEDURE
1	On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the system disc.
2	For startup from the System Control Panel, press the LOAD (Series 30) or COLD LOAD (Series 33) key. For startup from the System Console, press the LOAD key while pressing the CNTL key. (Be sure the Front Panel keys are enabled.)
3	Press RETURN on the system console and respond to the Initiator prompts.  HP 32033 v.uu.ff <u>return</u> WHICH OPTION <COLDSTART/RELOAD/UPDATE> <u>COLDSTART</u> ANY CHANGES? <u>YES</u> LOAD MAP? <u>return</u> MEMORY SIZE=nn.? <u>return</u> I/O CONFIGURATION CHANGES? <u>YES</u> LIST I/O DEVICES? <u>YES</u> HIGHEST DRT?=nnn.? <u>return</u> LOGICAL DEVICE #? <u>nnn</u> (Idn of device being deleted) DRT #? <u>0</u> LOGICAL DEVICE #? <u>return</u> MAXIMUM # OF OPEN SPOOLFILES=nn.? <u>return</u> LIST I/O DEVICES? <u>return</u> CLASS CHANGES? <u>return</u> LIST I/O DEVICES? <u>YES</u> DISC VOLUME CHANGES? <u>return</u> RECOVER LOST DISC SPACE? <u>return</u> DATE (M/D/Y)? <u>mm/dd/yy</u> TIME (H:M)? <u>hh:mm</u> (24-hour clock)

## NOTES

The LOGICAL DEVICE # may not be a disc drive in the system domain except during a RELOAD.

# RUNNING THE MAINTENANCE INTERFACE DIAGNOSTIC — Series 30/33 Only

OPERATOR FUNCTION: RUNNING THE MAINTENANCE INTERFACE DIAGNOSTIC

DESCRIPTION: The Maintenance Interface diagnostic allows you to test the maintenance interface board. It is stored on a terminal data cartridge tape and is loaded into the system console. (The system must be Shutdown.)

STEP	PROCEDURE
1	If MPE is running, perform a System Shutdown to properly logoff all current sessions.
2	Turn the PROCESSOR switch to its OFF position and then return it to its ON position in order to insure that the system is in micro run.
3	On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the cold load device you want to test.
4	Place the REMOTE key in its up position and the CAPS LOCK key in its down position on the System Console.
5	Rapidly press the RESET TERMINAL key to fully reset the System Console.
6	Insert the cartridge tape that has the Maintenance Interface diagnostic and Cold Load Self-Test in the left slot (default) of the system console. If you are forced to use the right side make sure the console is set to read from this side (refer to the 2645A User's Manual for further instructions).
7	<p>Press the READ key on the console. The Maintenance Interface diagnostic is loaded first. The following title message and question are output to the system console:</p> <pre style="text-align: center;"> MAINTENANCE INTERFACE DIAGNOSTIC VERSION X.XX STANDARD TEST (Y OR N)? <u>Y</u> TEST STARTED, time=30 sec           </pre>
8	<p>Type "Y" and the diagnostic runs once and halts.</p> <p>If no errors are detected during execution, an error message is output and the diagnostic outputs the following message:</p> <pre style="text-align: center;"> END OF DIAGNOSTIC – NO ERROR DETECTED PRESS "READ" TO EXECUTE COLD LOAD SELF TEST           </pre> <p>If an error is detected during execution, an error message is output and the diagnostic outputs the following message:</p> <pre style="text-align: center;"> END OF DIAGNOSTIC – REPLACE THE MAINTENANCE INTERFACE PRESS "READ" TO EXECUTE COLD LOAD SELF TEST           </pre>
<p>NOTE</p> <p><i>The diagnostic can be stopped at any time by pressing any key. The diagnostic then prints the CONTINUE (Y OR N) question. Entering "N" causes the diagnostic to abort.</i></p>	

# RUNNING THE MAINTENANCE INTERFACE DIAGNOSTIC

STEP	PROCEDURE
9	<p>Type "N" and the following question is output to the console:</p> <p style="text-align: center;">LOOP (Y OR N)?</p> <p>The LOOP option causes the entire diagnostic to loop. If you enter "Y" the following message and question is output to the console:</p> <p style="text-align: center;">PASS XXX (where XXX is the pass number) SUPPRESS HALT (Y OR N)?</p> <p>Type "Y" and you eliminate the CONTINUE (Y OR N) question and halt the diagnostic.</p> <p>Type "N" and the diagnostic begins to execute.</p>

# RUNNING SELF-TEST — Series 30/33 Only

OPERATOR FUNCTION: RUNNING THE COLD LOAD SELF-TEST

DESCRIPTION: The Cold Load Self-Test program is designed to check the system hardware used when a COLD LOAD operation is performed. Self-Test assumes that the system console and the Maintenance Interface board are functional; therefore, it is important that these modules be tested prior to execution of this program.

STEP	PROCEDURE
1	Perform steps 1 through 6 described previously in RUNNING THE MAINTENANCE INTERFACE DIAGNOSTIC function.
2	<p>Press the READ key on the console. The Maintenance Interface diagnostic is loaded first. If you do not want to run the Maintenance Interface diagnostic, press the READ key twice to load the Cold Load Self-Test. The following message is output to the system console:</p> <p style="text-align: center;">COLD LOAD SELF TEST Version X.XX</p> <p>After the program is loaded, the following instruction and prompt (&gt;) are output:</p> <p style="text-align: center;">TO START TEST TYPE "GO" RETURN</p>
3	<p>Type "GO" and press RETURN. The console starts the test. If anything besides "GO" is entered, the previous message is repeated.</p> <p>When testing is started, the message</p> <p style="text-align: center;">COLD LOAD SELF TEST STARTED</p> <p>is output to the console.</p> <p>Once testing has started no further action is required and all tests are run. The console updates the screen to indicate which test is being performed at any given time.</p> <p>When an error is detected, testing pauses, an error message and the following instructions are output:</p> <p style="text-align: center;">TO RESTART PUSH RESET TERMINAL TO CONTINUE TYPE "GO" RETURN TO EXIT TYPE "EX" RETURN</p> <p>The program restarts at step 2, and a prompt (&lt;) is output when the RESTART key is pushed. The program control passes to the end of the program, issues the following message:</p> <p style="text-align: center;">COLD LOAD SELF TEST COMPLETED</p> <p>and pauses when EX and a carriage return is typed. The program continues to execute when GO and a carriage return is typed.</p>

## NOTES

If Self-Test fails "GIC TRANSMIT DATA TEST", check to insure that the COLD LOAD thumbwheel switches are set to channel 7 and device 1; and the I/O panel test port HP-IB cable is connected between the switch J2 and the test port.

# CONNECTING DATA TERMINALS – SERIES 33

OPERATOR FUNCTION: CONNECTING DATA TERMINALS

DESCRIPTION: This procedure describes how to physically connect your data terminals to your HP 3000 Series 33 system.

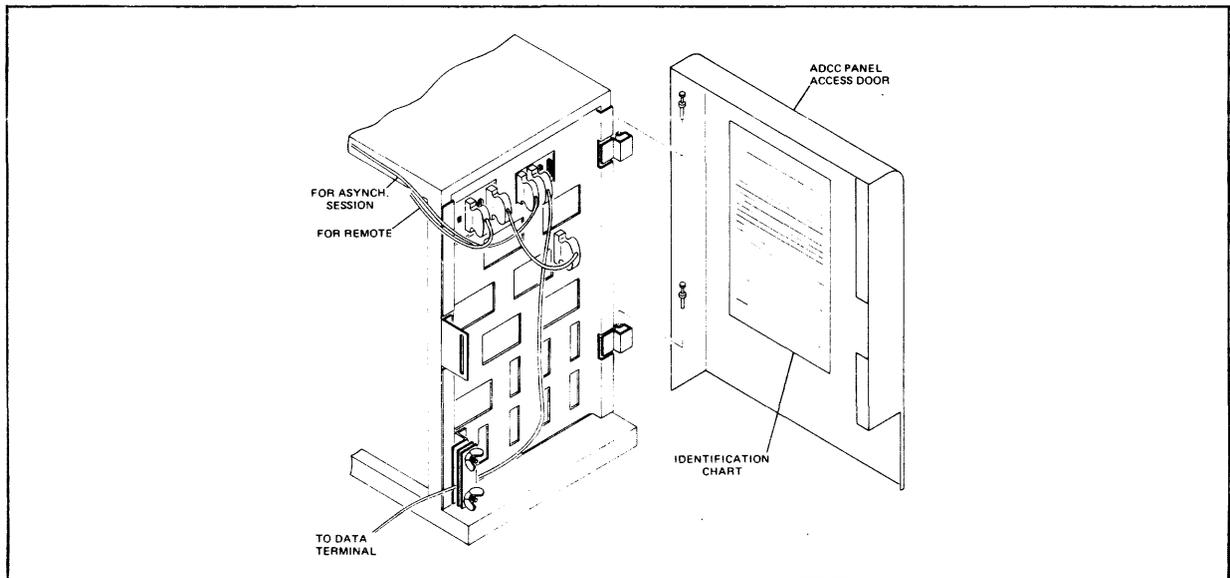


Figure 5-2. Series 33 Cable Routing

STEP	PROCEDURE
1	Make certain that the terminal main power switch is switched OFF.
2	Make certain that the power source voltage matches terminal requirements (see the HP 264X power label).
3	Connect the power cord from the terminal to the power source.
4	Connect the RS-232 compatible cable and keyboard to the printed circuit edge connectors which have been notched to match the cable connectors, on the terminal.
5	Route the free end of the RS-232 cable, as illustrated, from the terminal to the processor terminal panel. Connect it to the next available RS-232 terminal panel connector.  The terminal panel connector's identification chart, located in the Support Log Binder for the Series 30 and on the inside of the access door in the Series 33, should identify which ADCC channel corresponds to the panel connectors.

## NOTE

After a system failure (quite often on auto restart), hardwired terminals must be manually reset before proper operations resume. To prevent resetting the terminals after each system failure, simply disable (open) Strap U on your hardwired terminals.

(Notice that terminals using 202 modems must enable (close) the strap.)

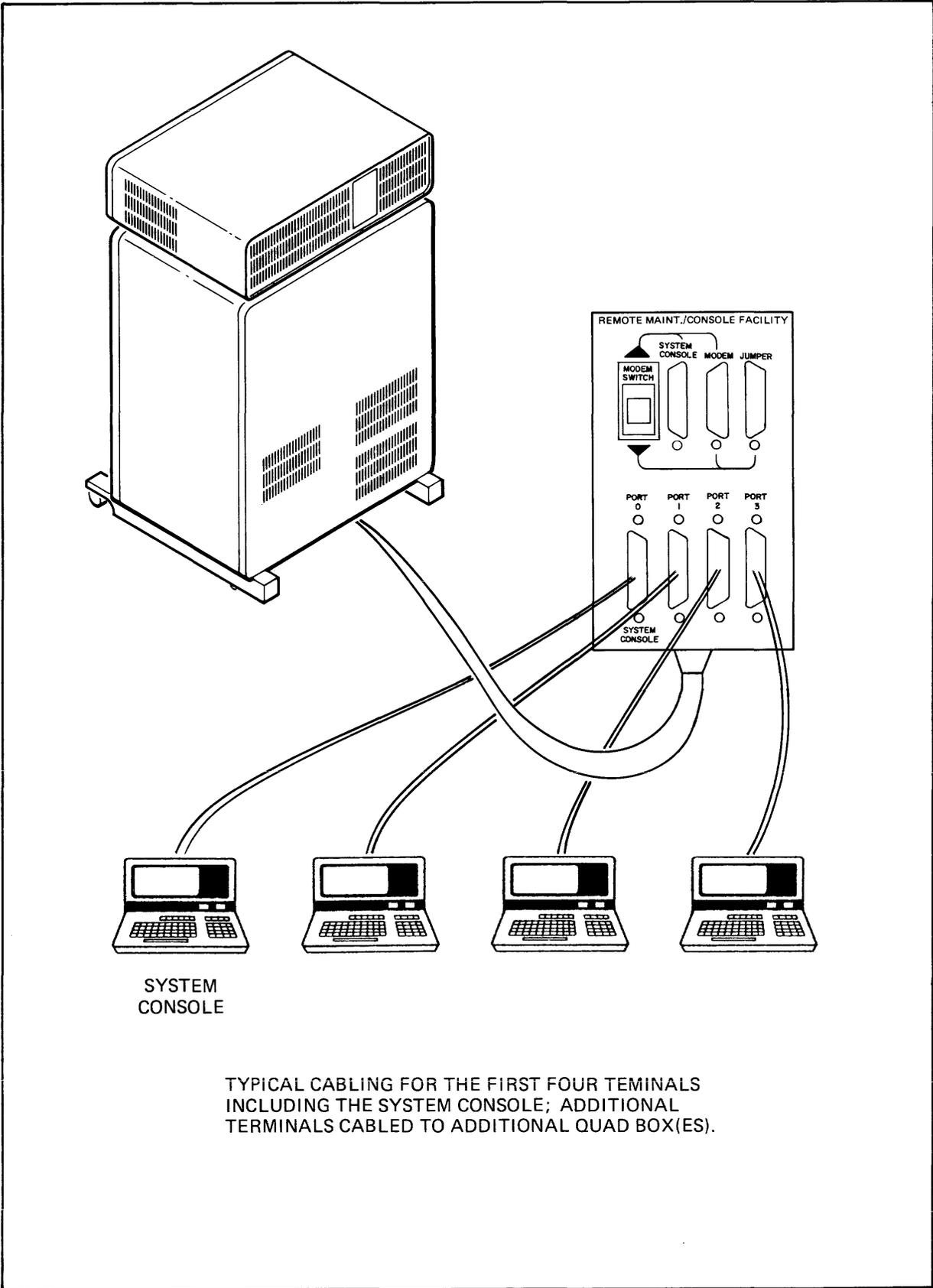


Figure 5-3. Series 30 Cable Routing

# LOADING THE DIAGNOSTIC UTILITY SYSTEM

## — Series 30/33

OPERATOR FUNCTION: COLD LOADING THE DIAGNOSTIC UTILITY SYSTEM

DESCRIPTION: The Diagnostic/Utility System (DUS) is memory resident and allows you to run diagnostic and utility programs. The DUS is on a stand-alone diskette or magnetic tape and is loaded onto a SHUTDOWN system.

### SYSTEMS WITH FLEXIBLE DISC DRIVE

STEP	PROCEDURE
1	Insert the diskette containing the Diagnostic Utility System into the HP 7902 or 9895 flexible disc drive.
2	On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the flexible disc drive.
3	For cold loading from the System Control Panel, press the HALT key and the LOAD (Series 30) or COLD LOAD (Series 33) key.  For cold loading from the System Console, perform the following steps: <ul style="list-style-type: none"> <li>● While pressing the CNTL key, press the HALT key.</li> <li>● While pressing the CNTL key, press the LOAD key, (Be sure the Front Panel keys are enabled.)</li> </ul> At this point DUS is read into memory. This takes approximately 30 seconds.
4	When the cold load is complete, the following message appears on the console: DIAGNOSTIC/UTILITY SYSTEM      REVISION xx.xx ENTER YOUR PROGRAM NAME      (Type HELP for program information.) :

### SYSTEMS WITH MAGNETIC TAPE DRIVE

STEP	PROCEDURE
1	Mount the tape containing the Diagnostic Utility System on the tape drive and place the drive on-line.
2	On the System Control Panel, set the LOAD (Series 30) or COLD LOAD (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the tape drive.
3	For cold loading from the System Control Panel, press the HALT key and the LOAD (Series 30) or COLD LOAD (Series 33) key.  For cold loading from the System Console, perform the following steps: <ul style="list-style-type: none"> <li>● While pressing the CNTL key, press the HALT key.</li> <li>● While pressing the CNTL key, press the LOAD key. (Be sure the Front Panel keys are enabled.)</li> </ul> At this point the tape containing the DUS is read into memory, and the following message appears on the system console:
	DIAGNOSTIC/UTILITY SYSTEM      REVISION xx.xx ENTER YOUR PROGRAM NAME      (Type HELP for program information.) :

# FORMATTING SYSTEM PACKS – SERIES 30/33

## OPERATOR FUNCTION: FORMATTING SYSTEM DISC PACKS

**DESCRIPTION:** This procedure describes how to use the Sleuth Simulator, which is part of the Diagnostic Utility System (DUS) to format system disc packs. The DUS is on a stand-alone flexible disc and is loaded onto a shutdown system. The Sleuth Simulator is known as SLEUTHSM.

STEP	PROCEDURE
1	Load the Diagnostic/Utility System as described previously in LOADING THE DIAGNOSTIC UTILITY SYSTEM function.
2	<p>Type "AID" on the console and press RETURN.</p> <p>The following message appears on your console:</p> <pre style="margin-left: 40px;">AID xx.xx &gt;10</pre>
3	<p>Type "LOAD SLEUTHSM" on the console and press RETURN.</p> <p>The Sleuth Simulator is loaded into memory. The System Console displays the next line number in the program and you are ready to enter the dialog necessary to format a disc pack.</p>
4	<p>Enter the following statements to format any disc on the HP 3000 Series 30 or Series 33 system:</p> <pre style="margin-left: 40px;">&gt;5000      <u>DEV 0,channel #,device #,20,unit #</u> &gt;5010      <u>FMT 0</u> &gt;5020      <u>RUN</u></pre>
5	After the disc is formatted, SLEUTHSM again prompts for input (>).
6	<p>Enter one of the following programs for flagging defective tracks corresponding to the type of disc pack:</p> <p>7906, 7920 Disc Pack</p> <pre style="margin-left: 40px;">&gt;EP &gt;5000 DEV 0, &lt;CHAN NO.&gt;, &lt;DEV NO.&gt;,10, 0 &gt;5010 DB AA, 6144, 0 &gt;5020 RC 0 &gt;5030 PRINT "CYLINDER # TO BE FLAGGED DEFECTIVE ?" &gt;5040 INPUT A &gt;5050 PRINT "HEAD #?" &gt;5060 INPUT B &gt;5070 SEEK 0,A,B,0 &gt;5080 IDI 0,AA(0) ,3,D &gt;5090 PRINT "CONTINUE? (YES/NO)" &gt;5100 INPUT &amp;BB &gt;5110 IF &amp;BB ="YES" THEN 5020 &gt;5120 RUN</pre>

# FORMATTING SYSTEM PACKS – SERIES 30/33

STEP	PROCEDURE
	<p>7925 Disc Pack</p> <pre>&gt;EP &gt;5000 DEV 0, &lt;CHAN NO.&gt;, &lt;DEV NO.&gt;, 10, 0 &gt;5010 DB AA, 8192, 0 &gt;5020 RC 0 &gt;5030 PRINT "CYLINDER # TO BE FLAGGED DEFECTIVE?" &gt;5040 INPUT A &gt;5050 PRINT "HEAD #?" &gt;5060 INPUT B &gt;5070 SEEK 0, A, B, 0 &gt;5080 IDI 0, AA(0), 3, D &gt;5090 PRINT "CONTINUE? (YES/NO)" &gt;5100 INPUT &amp;BB &gt;5110 IF &amp;BB = "YES" THEN 5020 &gt;5120 RUN</pre> <p>In line 5000 of the above programs, you must supply the channel number and the device number of the drive on which the disc pack is mounted.</p> <p>The program asks three questions for each defective track. In response to the first, enter the cylinder number of the defective track; in response to the second, enter the head number of the defective track. The cylinder and head numbers of defective tracks are listed on the "List of Defective Tracks" supplied with each new disc.</p> <p>To the third question, "CONTINUE? (YES/NO)", enter "NO" until you have entered all defective tracks, then enter "YES".</p> <p>7 After the defective tracks have been flagged, SLEUTHSM again prompts for input (&gt;). Enter another program or halt the Computer.</p>

# SOFTWARE DUMP – SERIES 30/33

OPERATOR FUNCTION: DUMPING MAIN MEMORY

DESCRIPTION: The software Dump Facility stores all of main memory to a serial storage device. Perform a software dump after a system failure or system halt.

STEP	PROCEDURE
1	Mount a serial storage device on a logical device specified by the device class DDUMP, then place the drive on-line.
2	On the System Control Panel, set the DUMP (Series 30) or MEMORY DUMP (Series 33) thumb-wheel switch to the octal value of the DRT number (channel address and device address) of the system disc.
3	From the System Control Panel, press the DUMP (Series 30) or MEMORY DUMP (Series 33) key.  or  From the System Console, press the DUMP key while pressing the CNTL key. (Be sure the Console keys are enabled.)
4	At this point, SDF will begin a serial execution of the file SDFCOM which contains ASCII commands (located on the system disc.) As SDF goes through the file SDFCOM, the following message will appear on the console.  SOFTWARE DUMP FACILITY (VER XX.XX/XX)  When the HALT light comes on, the console operator should check to see that the serial storage device is on-line and ready, then press the RUN key. Main memory is then stored to the serial storage device and the system pauses awaiting further instructions. At this point you may start up the system using any of the system startup options described in this section.

## NOTES

- a) Entering a CNTL Y from the console causes SDF to abort the current command and read all remaining commands from the console.
- b) For further information on the Software Dump Facility, refer to Appendix E.
- c) If Software Dump fails, see the discussion of Backup Software Dump in Appendix E.
- d) If you want to print the dump to a line printer, run the DPAN2 Utility program immediately after restarting the system. DPAN2 is described in the MPE System Utilities Reference Manual.

# POWER DOWN — Series 44

OPERATOR FUNCTION: SYSTEM POWER-DOWN

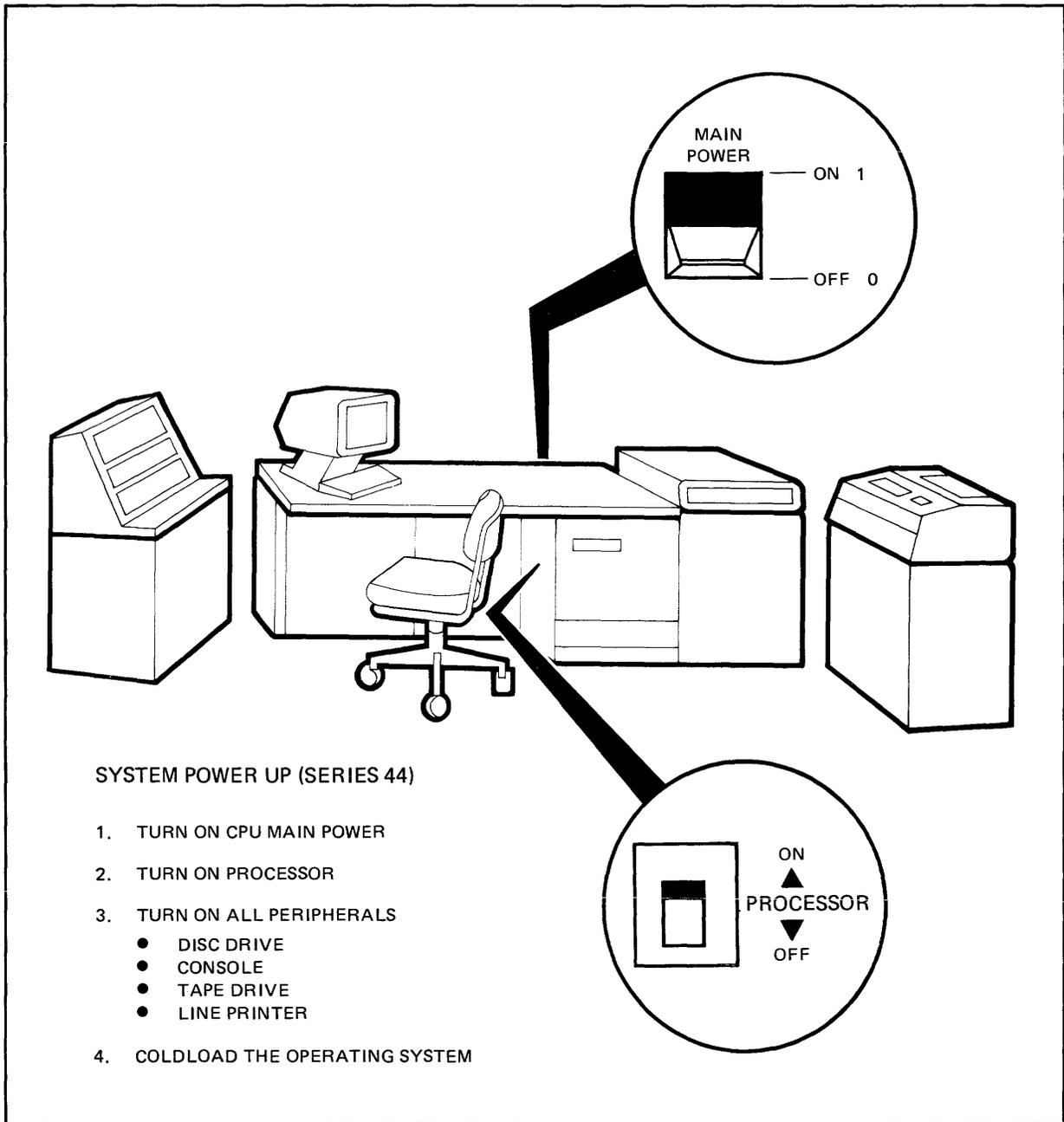
DESCRIPTION: This procedure describes how to power-down the entire system.

STEP	PROCEDURE
1	Shut down the MPE operating system as previously described in the SYSTEM SHUTDOWN function.
2	Set all disc drive RUN/STOP switches to STOP. Allow time for discs to stop rotating. Turn off all peripheral devices.
3	<p>Turn off the MAIN POWER switch (located at the lower-left rear of the computer).</p> <p>This stops power to everything in the system except memory. Thus, everything can be removed from the system without damage except memory boards.</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>A power-fail restart can be performed at this point by turning the MAIN POWER switch back to the ON position. This procedure simulates a power failure, and initiates the power-fail recovery routines. If a power-fail restart is not desired, proceed to step 4.</i></p>
4	Turn off the PROCESSOR ON/OFF switch. Printed circuit boards may now be removed without damage. Note that a power-fail restart is no longer possible once the PROCESSOR ON/OFF switch is set to the OFF position.

## NOTE

HP recommends maintaining your system in a power ON operating state at all times due to the potential impact to system reliability that may be experienced in frequent power-down/power-up situations. Component failures have been shown to be directly proportional to the amount of applied stress caused by power cycling. The energy saving realized by powering off your system on nights and weekends, for example, can be offset or negated by reduced system reliability.

If your operation requires frequent power shutdowns, it is essential that the power-down and power-up procedures documented in this manual be followed implicitly. An alternate method is to perform steps 1, 2, and 4 above, which realizes some energy saving, yet prevents the power surge stress experienced in a complete power-down/power-up situation.



147020-4

Figure 5-4. Series 44 Power-Up Procedures

# POWER UP — Series 44

OPERATOR FUNCTION: SYSTEM POWER-UP

DESCRIPTION: This procedure describes how to turn on the system power.

STEP	PROCEDURE
1	Turn on the MAIN POWER switch (located at the lower-left rear of the computer).
2	Turn on the PROCESSOR ON/OFF switch.
3	Turn on the peripheral devices and place them on-line. Note that moving head discs perform a head load cycle each time the AC power to the drive is removed and then restored, as well as whenever the RUN/STOP front panel switch on the drive is cycled (e.g., RUN-STOP-RUN). This takes about one minute.
4	Startup the MPE Operating System using one of the system start up procedures described in this section.
5	Run the MEMLOGAN utility program by entering: RUN MEMLOGAN.PUB.SYS; PARM=1. This utility clears all previously recorded memory errors.

# WARMSTART — Series 44

OPERATOR FUNCTION: SYSTEM STARTUP (WARMSTART)

**DESCRIPTION:** This procedure cold loads the system from the system disc. It is the only restart procedure which results in recovery of incompletely processed spooled jobs and spooled device files.

WARMSTART should only be used to recover spoolfiles and IMAGE transaction logging mag-tape buffer on disc. SPOOK may be used to store large spoolfiles for subsequent processing. After spoolfiles have been taken care of, the system should immediately be =SHUTDOWN and a COOLSTART initiated.

STEP	PROCEDURE
1	On the System Control Panel, set the START thumbwheel switch to the channel address and device address of your system disc. The system disc is always configured as logical device number one (ldn 1).
2	For startup from the System Control Panel, press the START key.  For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B <sup>C</sup> ); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter START on the system console.
3	When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints the following message.  HP 32033 v.uu.ff  In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.  At this point, there is about a one or two-minute delay.
4	WHICH OPTION <WARMSTART/COOLSTART>? <u>WARMSTART</u>  At this point, there is about a one-minute delay.
5	DATE (M/D/Y)? Enter the current date in the form mm/dd/yy. TIME (H:M)? Enter the time (24-hour clock) as hh:mm.  The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the WARMSTART.
6	You now receive the *WELCOME* message.  The system automatically logs on OPERATOR.SYS by printing:  :HELLO OPERATOR.SYS; HIPRI  The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.
7	The system may now print one or more of the following, depending on your system's configuration:  time/pin/MEMORY ERROR LOGGING INITIATED time/pin/SP #n/SPOOLED IN time/pin/SP #n/SPOOLED OUT time/#Sn  pin / LOGON FOR:OPERATOR.SYS,PUB ON LDEV #n

# WARMSTART — Series 44

## NOTES

After a WARMSTART the following conditions exist: STREAMS = OFF; JOBFENCE = 14; OUTFENCE = 14; JLIMIT = 0; SLIMIT = 0.

If User Logging was taking place prior to the warmstart, the system will print the following message:

*time/pin/RECOVERING USER LOGGING PROCESS logid*

If the process associated with “logid” is a tape file, the next request will be to mount the tape associated with the process. This will be a standard mount request.

After the User Logging files have been recovered, the following message will be printed:

*time/pin/USER LOGGING FILE logfile name RECOVERED INCLUDING XXX OPENS  
AND XXX CLOSES*

If there was an error during recovery, an error message will be printed.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 6.

# COOLSTART — Series 44

## OPERATOR FUNCTION: SYSTEM STARTUP (COOLSTART)

**DESCRIPTION:** This procedure cold loads the system from the system disc. It is the standard way to restart the system after a routine shutdown.

A COOLSTART deletes all Spooled Jobs and all Input and Output Spoolfiles. An attempt to preserve these can only be attempted by first doing a WARMSTART before COOLSTARTing.

STEP	PROCEDURE
1	On the System Control Panel, set the START thumbwheel switch to the channel address and device address of your system disc. The system disc is always configured as logical device number one (ldn 1).
2	For startup from the System Control Panel, press START key.  For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B <sup>C</sup> ); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter START on the system console.
3	When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints the following message:  HP 32022v.uu.ff  In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.
4	WHICH OPTION<WARMSTART/COOLSTART>? <u>COOLSTART</u>
5	ANY CHANGES? <u>return</u> (Return implies NO)  At this point, there is about a one or two-minute delay.
6	DATE(M/D/Y)? Enter the current date in the form mm/dd/yy. TIME (H:M)? Enter the time (24-hour clock) as hh:mm.  The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date/time message is correct, press RETURN to continue the COOLSTART.
7	You now receive the *WELCOME* message.
8	The system automatically logs on OPERATOR.SYS by printing:  :HELLO OPERATOR.SYS;HIPRI  The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.
9	The system may now print one or more of the following, depending on your system's configurations:  time/pin/MEMORY ERROR LOGGING INITIATED time/pin/SP #n/SPOOLED IN time/pin/SP #n/SPOOLED OUT time/#Sn/pin/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n

# COOLSTART — Series 44

## NOTES

After a COOLSTART the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT AND SLIMIT are set to values specified during system configuration.

You can make changes to the system configuration during a COOLSTART. Respond YES to the ANY CHANGES? prompt in step 5 and the Initiator begins the Initiator/User dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 8.

# COLDSTART — Series 44

## OPERATOR FUNCTION: SYSTEM STARTUP (COLDSTART)

**DESCRIPTION:** This procedure cold loads the system from magnetic tape or from serial disc. In each case, the procedure allows you to modify the system configuration while retaining users' information. COLDSTART is commonly used when an installation maintains several backup versions, each with a different configuration.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE:</p> <p>Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing a COLDSTART from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC:</p> <p>On the System Control Panel, set the LOAD thumbwheel switch to the channel address and device address of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD key.</p> <p>For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B<sup>C</sup>); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter LOAD on the system console.</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 v.uu.ff</p> <p>In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>COLDSTART</u></p> <p>ANY CHANGES? <u>return</u> (Return implies NO.)</p>
6	<p>If this is a startup from tape, the tape is read and rewound.</p>

# COLDSTART — Series 44

STEP	PROCEDURE
7	<p>DATE (M/D/Y)?    Enter the current date in the form <i>mm/dd/yy</i>. TIME (H:M)?      Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
8	<p>The system now prints the following message: CORE RESIDENT MPE nnn, BANK 0 USED DURING BOOT nnn where nnn is the number of words.</p>
9	<p>You now receive the *WELCOME* message.</p>
10	<p>The system automatically logs on OPERATOR.SYS by printing:        :HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
11	<p>The system may now print one or more of the following, depending on your system's configuration: <i>time/pin</i>/MEMORY ERROR LOGGING INITIATED <i>time/pin/SP #n</i>/SPOOLED IN <i>time/pin/SP #n</i>/SPOOLED OUT <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</p>

## NOTES

After a COLDSTART, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=0; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a COLDSTART. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 10.

OPERATOR FUNCTION: SYSTEM STARTUP (UPDATE)

**DESCRIPTION:** This procedure cold loads the system from magnetic tape or from a serial disc. This is the standard procedure used when starting the system with an updated MPE operating system from HP or an MPE backup copy prepared on a different 3000 system.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE:</p> <p>Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing an UPDATE from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC:</p> <p>On the System Control Panel, set the LOAD thumbwheel switch to the channel address and device address of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD key.</p> <p>For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B<sup>C</sup>); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter LOAD on the system console.</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 v.uu.ff</p> <p>In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>UPDATE</u></p>
6	<p>SYSTEM DISC DRT nn? <u>return</u> or input the correct drt number.</p>
7	<p>ANY CHANGES? <u>return</u> (Return implies NO.)</p>
	<p>If this is a startup from tape, the tape is read and rewound.</p>

# UPDATE — Series 44

STEP	PROCEDURE
8	<p>DATE (M/D/Y)?    Enter the current date in the form <i>mm/dd/yy</i>. TIME (H:M)?      Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, tape NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
9	You now receive the *WELCOME* message.
10	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="padding-left: 40px;">:HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
11	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p><i>time/pin</i>/MEMORY ERROR LOGGING INITIATED <i>time/pin/SP#n</i>/SPOOLED IN <i>time/pin/SP#n</i>/SPOOLED OUT <i>time/#Sn/pin</i>/LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</p>

## NOTES

After an UPDATE, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during an UPDATE. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 10.

# RELOAD — Series 44

OPERATOR FUNCTION: SYSTEM STARTUP (RELOAD)

DESCRIPTION: This procedure cold loads the ENTIRE system including all system files and configuration information. The system is reloaded from a backup copy which was produced by a :SYSDUMP to magnetic tape or serial disc.

A RELOAD DESTROYS ANY FILES WHICH MAY BE ON ANY OF THE SYSTEM DISC VOLUMES.

STEP	PROCEDURE
1	<p>FOR STARTUP FROM MAGNETIC TAPE:</p> <p>Mount the MPE backup tape on the unit-0 magnetic tape drive and place the device on-line.</p> <p>FOR STARTUP FROM A SERIAL DISC:</p> <p style="text-align: center;">NOTE</p> <p style="text-align: center;"><i>The instructions given here apply to computers with more than one disc controller. If your system has a serial disc and system disc configured on one controller, read "Standard Instructions" (pg. 5-18) before doing a RELOAD from serial disc.</i></p> <p>Mount the backup serial disc pack on any drive that does not share the controller on ldn 1. Set the drive to unit-0 being sure no other drives on the same controller are also set to unit-0. (During start-up, Initiator dynamically allocates this drive to the non-system domain making it available for private volumes use once the startup is complete.)</p>
2	<p>FOR STARTUP FROM MAGNETIC TAPE OR SERIAL DISC:</p> <p>On the System Control Panel, set the LOAD thumbwheel switch to the channel address and device address of the cold load device.</p>
3	<p>For startup from the System Control Panel, press the LOAD key.</p> <p>For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B<sup>C</sup>); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter LOAD on the system console.</p>
4	<p>When the system quits accessing the cold load medium, press RETURN on the System Console. The MPE Initiator begins execution and prints:</p> <p style="text-align: center;">HP 32033 v.uu.ff</p> <p>In the message, v is the current version of MPE, uu is the present update-level number, and ff is the fix-level number.</p>
5	<p>WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>RELOAD</u></p>
5a	<p>WHICH OPTION &lt;SPREAD/COMPACT/RESTORE/ACCOUNTS/NULL&gt;?</p> <p>The reload options are described in the NOTES that follow this table. Press RETURN to select SPREAD (by default).</p>

# RELOAD — Series 44

STEP	PROCEDURE
6	<p>ANY CHANGES? <u>return</u> (Return implies NO.)</p> <p>If this is a RELOAD from tape, the tape is read and rewound. Additional volumes or tape reels may be requested.</p>
7	<p>DATE (M/D/Y);     Enter the current date in the form <i>mm/dd/yy</i>. TIME (H:M)?       Enter the time (24-hour clock) as <i>hh:mm</i>.</p> <p>The system prints the day, date, and time. If the date or time is incorrect, type NO and the system repeats the DATE and TIME prompts. If the date and time are correct, press RETURN to continue the dialog.</p>
8	<p>You now receive the *WELCOME* message.</p>
9	<p>The system automatically logs on OPERATOR.SYS by printing:</p> <p style="padding-left: 40px;">:HELLO OPERATOR.SYS;HIPRI</p> <p>The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon.</p>
10	<p>The system may now print one or more of the following, depending on your system's configuration:</p> <p><i>time/pin/MEMORY ERROR LOGGING INITIATED</i> <i>time/pin/SP#n/SPOOLED IN</i> <i>time/pin/ SP#n/SPOOLED OUT</i> <i>time/ #Sn/pin/ LOGON FOR: OPERATOR.SYS,PUB ON LDEV #n</i></p>

## NOTES

After a RELOAD, the following conditions exist: STREAMS=OFF; JOBFENCE=0; OUTFENCE=1; JLIMIT and SLIMIT are set to the values specified during system configuration.

You can change the system configuration during a RELOAD. Respond YES to the ANY CHANGES? prompt (step 6) and the Initiator begins the Initiator/User Dialog described in Section VI of the System Manager/System Supervisor Reference Manual.

When prompted for DATE (M/D/Y)?, if a carriage return is entered instead of an actual date, the system will assume the default date/time of WED NOV 1, 1972 12:00 AM. Although this is a built-in feature of MPE, it is intended for factory use only. Always be sure to enter the correct date and time on system startup to assure proper operation of functions (i.e., :SYSDUMP) related to the system clock.

The user OPERATOR must exist in the SYS account as master operator (with OP capability) prior to system startup in order to accomplish the automatic logon in step 9.

## RELOAD OPTIONS

Your response in step 5a selects the algorithm the system uses to RELOAD the discs. The algorithm determines on which system disc a file is stored and whether the account.group.user structure is placed in the appropriate directory area. RELOAD options are:

### SPREAD

MPE attempts to place the file back on a disc of the device class as it was originally created. If this fails, MPE attempts to replace the file on a disc of the same type and sub-type as the disc on which it was previously located (for instance, on a cartridge disc). If this fails, MPE attempts to place it on a disc of the same type (for example, a moving-head disc). If this fails, MPE attempts to place the file on any disc in device class DISC. If this fails, a message is printed and the file is not reloaded. In each of these attempts, the files are spread among similar discs, if possible. Suppose, for example, that when the system was dumped, there was one cartridge disc that was full, and when it is reloaded there are two cartridge discs; in this case, each disc will be approximately half full. The advantages of the SPREAD option are reduced disc seeking since files are spread out, and reduced fragmentation since the disc is repacked. The disadvantage is that if the discs are nearly full, it may not be possible to restore all files that were previously stored on the discs. This situation is encountered very rarely: when it is one of the other options may be used.

### COMPACT

MPE attempts to place the file back on the same volume from which it came. If this fails, the SPREAD option is used. The major advantage of COMPACT is that if there are no new deleted tracks and the same discs are used, reloading of the system is guaranteed, no matter how full the discs are. In addition, each disc is compacted within the area between deleted tracks (if there are  $n$  deleted tracks, there will be at most  $(n+1)$  fragments).

### RESTORE

MPE attempts to place the files back on the same volume at the same locations from which they came. If this fails, MPE attempts to place the files anywhere on the volume from which they came. If this fails, the SPREAD option is used. The advantages to RESTORE are that it offers the same guarantee made in compact for reloading the system, and that the same files that were previously using alternate tracks are still using them. The disadvantage is that no compacting of the discs is done so that the same fragmentation still exists.

### ACCOUNTS

This option loads the system, creates a directory from the backup copy, and loads the system files which reside in the PUB group of the SYS account. No user files are loaded onto the system.

The directory which is created will consist of all accounts, groups, and user structures which were current at the time the backup copy was written (by the :SYSDUMP Configurator program).

This option is useful because files saved by the :SYSDUMP program are compatible with files stored using the :STORE command. In this way you could, for example:

1. Create a new directory structure if the previous directory was destroyed.
2. Conserve vital disc space by selectively loading files into certain accounts with the :RESTORE command (after the system is operational).

NULL

MPE creates a null directory and no user files are copied to the disc.

Generally, the SPREAD option should be used for reloading the system (in fact, this is the default method). Use the COMPACT option if all files cannot be reloaded with SPREAD. Use RESTORE only when fragmentation is not important but maintaining alternate track assignments is.

# ADDING I/O DEVICES — Series 44

OPERATOR FUNCTION: ADDING STANDARD I/O DEVICES

DESCRIPTION: This procedure describes one method for adding input/output devices to the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the System Manager/System Supervisor Manual.

STEP	PROCEDURE
1	On the System Control Panel, set the LOAD thumbwheel switches to the channel address and device address of the cold load device.
2	<p>For startup from the System Control Panel, press the LOAD key.</p> <p>For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B<sup>C</sup>); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter LOAD on the system console.</p>
3	<p>When the system quits accessing the cold load medium, press RETURN on the System Console and respond to the Initiator prompts.</p> <pre> HP 32033 v.uu.ff          <u>return</u> WHICH OPTION &lt;COLDSTART/RELOAD/UPDATE&gt;? <u>COLDSTART</u> ANY CHANGES? <u>YES</u> LOAD MAP? <u>return</u> MEMORY SIZE=nnn.? <u>return</u> I/O CONFIGURATION CHANGES? <u>YES</u> LIST I/O DEVICES? <u>YES</u> HIGHEST DRT?=nnn.? <u>return or higher number</u> LOGICAL DEVICE #? <u>nnn</u> DRT #? <u>nnn</u> UNIT #? <u>nnn</u> SOFTWARE CHANNEL #? <u>n</u> TYPE? <u>return</u> SUB TYPE? <u>return</u> RECORD WIDTH? <u>return</u> OUTPUT DEVICE? <u>return</u> ACCEPT JOBS/SESSIONS? <u>YES or NO</u> ACCEPT DATA? <u>YES or NO</u> INTERACTIVE? <u>YES or NO</u> DUPLICATIVE? <u>YES or NO</u> INITIALLY SPOOLED? <u>YES or NO</u> INPUT OR OUTPUT? <u>IN or OUT</u> DRIVER NAME? DEVICE CLASSES? <u>device class name</u> IS classname A SERIAL DISC CLASS? <u>YES or NO</u>                     </pre> <p style="text-align: right;">                     See Appendix B of                      System Manager/                      System Supervisor                      Manual                 </p> <p style="text-align: right;">                     (Spooled devices only)                      (See Appendix A of System Manager/                      System Supervisor Manual)                 </p>

# ADDING I/O DEVICES — Series 44

STEP	PROCEDURE
3 (cont.)	LOGICAL DEVICE #? <u>return</u> MAX # OF OPEN SPOOLFILES=nn.? <u>return</u> LIST I/O DEVICES? <u>return</u> CLASS CHANGES? <u>return</u> LIST I/O DEVICES? <u>YES</u> DISC VOLUME CHANGES? <u>return</u> MAX # OF SPOOLFILES KILOSECTORS=nnn? <u>return</u> RECOVER LOST DISC SPACE? <u>return</u> DATE (M/D/Y)? <u>mm/dd/yy</u> TIME (H:M)? <u>hh:mm</u> (24-hour clock)

# DELETING I/O DEVICES — Series 44

OPERATOR FUNCTION: DELETING I/O DEVICES

DESCRIPTION: This procedure describes one method for deleting input/output devices from the system. The description is a summary intended to illustrate a general technique. Complete instructions and guidelines must be obtained from the System Manager/System Supervisor Reference Manual.

STEP	PROCEDURE
1	On the System Control Panel, set the LOAD thumbwheel switches to the channel address and device address of the cold load device.
2	For startup from the System Control Panel, press the LOAD key.  For startup from the CMP: If the system is already running, simultaneously depress the CNTL key and B (B <sup>C</sup> ); if the system is not running depress Carriage Return. When you see the CMP prompt character (→) enter LOAD on the system console.
3	Press RETURN on the system console and respond to the Initiator prompts.  HP 32033 v.uu.ff <u>return</u> WHICH OPTION <COLDSTART/RELOAD/UPDATE> <u>COLDSTART</u> ANY CHANGES? <u>YES</u> LOAD MAP? <u>return</u> MEMORY SIZE=nn.? <u>return</u> I/O CONFIGURATION CHANGES? <u>YES</u> LIST I/O DEVICES? <u>YES</u> HIGHEST DRT?=nnn.? <u>return</u> LOGICAL DEVICE #? <u>nnn</u> (Idn of device being deleted) DRT #? <u>0</u> LOGICAL DEVICE #? <u>return</u> MAXIMUM # OF OPEN SPOOLFILES=nn.? <u>return</u> LIST I/O DEVICES? <u>return</u> CLASS CHANGES? <u>return</u> LIST I/O DEVICES? <u>YES</u> DISC VOLUME CHANGES? <u>return</u> RECOVER LOST DISC SPACE? <u>return</u> DATE (M/D/Y)? <u>mm/dd/yy</u> TIME (H:M)? <u>hh:mm</u> (24-hour clock)

## NOTES

The LOGICAL DEVICE # may not be a disc drive in the system domain except during a RELOAD.

# SOFTWARE DUMP — Series 44

OPERATOR FUNCTION: DUMPING MAIN MEMORY

DESCRIPTION: The Software Dump Facility stores all of main memory to a serial storage device. Perform a software dump after a system failure or system halt.

STEP	PROCEDURE
1	Mount a serial storage device on a logical device specified by the device class DDUMP, then place the drive on-line.
2	On the System Control Panel, set the DUMP thumbwheel switch to the channel and device address of the system disc.
3	From the System Control Panel, press the DUMP key.  OR  Enable the CMP by depressing Carriage Return. When you see the CMP prompt character (→), enter DUMP on the system console.
4	At this point, SDF will begin a serial execution of the file SDFCOM which contains ASCII commands (located on the system disc). As SDF goes through the file SDFCOM, the following message will appear on the console.  SOFTWARE DUMP FACILITY (VER XX.XX/XX)  When the HALT light comes on, the console operator should check to see that the serial storage device is on-line and ready, then press the RUN key on the System Control Panel, or enter RUN in response to the CMP prompt. Main memory is stored to the serial storage device, and the system pauses awaiting further instructions. At this point you may start up the system using any of the system startup options described in this section.

## NOTES

- a) Entering a CNTL Y from the console causes SDF to abort the current command and read all remaining commands from the console.
- b) For further information on the Software Dump Facility, refer to Appendix E.
- c) If Software Dump fails, call your HP Customer Engineer.
- d) If you want to print the dump to a line printer, run the DPAN4 Utility program immediately after restarting the system. DPAN4 is described in the MPE System Utilities Reference Manual.

# FORMATTING SYSTEM PACKS — Series 44

OPERATOR FUNCTION: FORMATTING SYSTEM DISC PACKS

DESCRIPTION: This procedure describes how to use the Sleuth Simulator, which is part of the Diagnostic Utility System (DUS) to format system disc packs. The DUS is on a stand-alone flexible disc and is loaded onto a shutdown system. The Sleuth Simulator is known as SLEUTHSM.

STEP	PROCEDURE
1	Load the Diagnostic/Utility System as described previously in LOADING THE DIAGNOSTIC UTILITY SYSTEM function.
2	Type "AID" on the console and press RETURN.  The following message appears on your console:  AID xx.xx >10
3	Type "LOAD SLEUTHSM" on the console and press RETURN.  The Sleuth Simulator is loaded into memory. The System Console displays the next line number in the program and you are ready to enter the dialog necessary to format a disc pack.
4	Enter the following statements to format any disc on the HP 3000 Series 44:  >5000 <u>DEV 0,channel #,device #,20,unit #</u> >5010 <u>FMT 0</u> >5020 <u>RUN</u>
5	After the disc is formatted, SLEUTHSM again prompts for input (>).
6	Enter one of the following programs for flagging defective tracks corresponding to the type of disc pack:  7906, 7920 Disc Pack  >EP >5000 DEV 0, <CHAN NO.>, <DEV NO.>,10, 0 >5010 DB AA, 6144, 0 >5020 RC 0 >5030 PRINT "CYLINDER # TO BE FLAGGED DEFECTIVE ?" >5040 INPUT A >5050 PRINT "HEAD #?" >5060 INPUT B >5070 SEEK 0,A,B,0 >5080 IDI 0,AA(0) ,3,D >5090 PRINT "CONTINUE? (YES/NO)" >5100 INPUT &BB >5110 IF &BB ="YES" THEN 5020 >5120 RUN

# FORMATTING SYSTEMS PACKS – SERIES 44

STEP	PROCEDURE
	<p>7925 Disc Pack</p> <pre>&gt;EP &gt;5000 DEV 0, &lt;CHAN NO.&gt;, &lt;DEV NO.&gt;,10, 0 &gt;5010 DB AA,8192,0 &gt;5020 RC 0 &gt;5030 PRINT "CYLINDER # TO BE FLAGGED DEFECTIVE?" &gt;5040 INPUT A &gt;5050 PRINT "HEAD #?" &gt;5060 INPUT B &gt;5070 SEEK 0,A,B,0 &gt;5080 IDI 0,AA(0) ,3,D &gt;5090 PRINT "CONTINUE? (YES/NO)" &gt;5100 INPUT &amp;BB &gt;5110 IF &amp;BB ="YES" THEN 5020 &gt;5120 RUN</pre> <p>In line 5000 of the above programs, you must supply the channel number and the device number of the drive on which the disc pack is mounted.</p> <p>The program asks three questions for each defective track. In response to the first, enter the cylinder number of the defective track; in response to the second, enter the head number of the defective track. The cylinder and head numbers of defective tracks are listed on the "List of Defective Tracks" supplied with each new disc.</p> <p>To the third question, "CONTINUE? (YES/NO)", enter "NO" until you have entered all defective tracks, then enter "YES".</p>
7	After the defective tracks have been flagged, SLEUTHSM again prompts for input (>). Enter another program or halt the Computer.

# LOADING THE DIAGNOSTIC UTILITY SYSTEM – SERIES 44

OPERATOR FUNCTION: COLD LOADING THE DIAGNOSTIC UTILITY SYSTEM

DESCRIPTION: The Diagnostic/Utility System (DUS) is memory resident and allows you to run diagnostic and utility programs. The DUS is on a stand-alone magnetic tape and is loaded onto a SHUTDOWN system.

STEP	PROCEDURE
1	Mount the tape containing the Diagnostic Utility System on the tape drive and place the drive on-line.
2	On the System Control Panel, set the LOAD thumbwheel switch to the channel address and device address of the tape drive.
3	<p>From the System Control Panel: Press the HALT key, then press the LOAD key.</p> <p>From the CMP: Depress the Carriage Return. When the CMP prompt (→) appears on the system console, enter HALT. When another prompt is printed, enter LOAD.</p> <p>At this point the tape containing the DUS is read into memory, and the following message appears on the system console:</p> <p style="text-align: center;">DIAGNOSTIC/UTILITY SYSTEM    REVISION XX.XX</p> <p style="text-align: center;">ENTER YOUR PROGRAM NAME    (Type HELP for program information.)</p> <p style="text-align: center;">:</p>

# CONSOLE MESSAGES

APPENDIX

A

The system console can be used to send messages to users, to reply to messages from the MPE system, and to receive messages from the system and from users.

The format message sent to the system console are:

$$[?] \text{ time } [/\# \left. \begin{array}{l} \text{J} \\ \text{S} \end{array} \right\} \text{ number}] \text{ /pin/message}$$

time	The time of day the message was sent.
pin	The Process Identification Number assigned the message sender.
#Jnumber	The job number assigned the sender.
#Snumber	The session number assigned the sender.
message	The message (in ASCII) input by the sender.

System messages are listed in Table A-1.

Other type of messages received at the console are error and warning messages issued by the MPE Command Interpreter. These messages report errors or unusual conditions that occur during the interpretation or execution of an MPE command. Such messages are signified by the parenthetical statements CIERR *nnn* or CIWARN *nnn*, and are listed in the table A-2.

Table A-3 lists some of the most common console messages along with a brief explanation of their meaning, and recommended recovery procedures.

Table A-1. System Messages

SYSTEM MESSAGES	
1	LDEV #ldn IN USE BY FILE SYSTEM
2	LDEV #ldn IN USE BY DIAGNOSTICS
3	LDEV #ldn IN USE, DOWN PENDING
5	IS ----- ON LDEV #ldn (Y/N)?
6	LDEV #ldn FOR "formaldesignator" ON deviceclass (NUM)?
8	FROM OPERATOR: message
9	OPERATOR WARNING: message
10	WRONG VOLUME ON LDEV #ldn. ANOTHER AVAILABLE (Y/N)?
11	LDEV #ldn NOT READY
12	LDEV #ldn INVALID HOLLERITH COL# columnnumber
13	LDEV #ldn POWER FAIL OR RESET
14	LDEV #ldn PAPER OUT
15	LDEV #ldn VFC INITIALIZED
16	LDEV #ldn QUEUE EMPTY
17	LDEV #ldn READ CHECK
18	JOB OVERLOAD, TYPE -----
19	MOUNT NEXT REEL ON LDEV #ldn
20	MOUNT VOLUME #volumenumber ON LDEV #ldn
21	MOUNT PREVIOUS VOLUME, VOLUME #volumenumber, ON LDEV #ldn
22	LDEV #ldn DOWNLOAD COMPLETE
24	----- ON INVALID DEVICE, LDEV #ldn
33	LOGON FOR: username.accountname,groupname ON LDEV #ldn
34	HP3000 / MPE IV version.updatelevel.fixlevel
37	CPU=cpuseconds. CONNECT=connectminutes.
38	REQUEST REQUIRING OPERATOR REPLY FOR PIN pin# HAS BEEN ABORTED.
41	LOGOFF
42	:JOB nnn
43	JOB NUMBER = #Jnnn
44	PRIORITY = operatingpriority; INPRI = inputpriority
45	CPU SEC. = cpuseconds. ELAPSED MIN. = connectminutes
49	:SESSION nnn
50	PRIORITY = operatingpriority; INPRI = inputpriority; TIME = cpuseconds SECONDS.
51	PRIORITY = operatingpriority; HIPRI; TIME = cpuseconds SECONDS
52	PRIORITY = operatingpriority; HIPRI
53	ENTER GROUP PASSWORD:
54	ENTER ACCOUNT PASSWORD:
55	ENTER USER PASSWORD:
56	INCORRECT PASSWORD
57	ACCOUNT OUT OF TIME
58	GROUP OUT OF TIME
61	MISSING GROUP FOR "username.accountname.groupname" ON LDEV #ldn
62	MISSING ACCT FOR "username.accountname,groupname" ON LDEV ldn
63	MISSING USER FOR "username.accountname,groupname" ON LDEV #ldn

Table A-1. System Messages (Continued)

64	NO HOME GROUP FOR "username.accountname" ON LDEV #ldn
65	INVALID PASS FOR "username.accountname,groupname" ON LDEV #ldn
66	NO ACCOUNT CPU TIME FOR "username.accountname,groupname" ON LDEV #ldn
67	NO ACCOUNT CONNECT TIME FOR "username.accountname,groupname" ON LDEV #ldn
68	MISSING PASS FOR "username.accountname,groupname" ON LDEV #ldn
69	MISSING BA CAPABILITY FOR "username.accountname,groupname" ON LDEV #ldn
70	MISSING IA CAPABILITY FOR "username.accountname,groupname" ON LDEV #ldn
71	NO GROUP CPU TIME FOR "username.accountname,groupname" ON LDEV #ldn
72	NO GROUP CONNECT TIME FOR "username.accountname,groupname" ON LDEV #ldn.
150	LDEV #ldn NOT READY. READY (Y/N)?
158	ILLEGAL CAPABILITY
159	UNABLE TO OBTAIN CST ENTRIES
160	UNABLE TO OBTAIN PROCESS DST ENTRY
161	UNABLE TO OBTAIN VIRTUAL MEMORY
167	TOO MANY BACK CLINE REFERENCES
182	READ PENDING
201	LOG FILE NUMBER nnnn ON
202	LOG FILE NUMBER nnnn IS (1/2, 3/4) FULL
203	LOG FILE NUMBER nnnn ERROR #nnn. LOGGING STOPPED
204	LOG FILE NUMBER nnnn ERROR #nnn. LOGGING SUSPENDED
205	LOG FILE NUMBER nnnn. LOGGING RESUMED
206	ALL JOBS LOGGED OFF
207	NEW TAPE REQD. ON LDEV#ldn. IS TAPE MOUNTED (Y/N)?
208	LDEV#ldn, UNIT FAILURE
209	LDEV#ldn DEVICE ERROR - PLEASE NOTIFY C.E.
210	----- (MAX CHARS.=nn)?
211	SP#nnn/LDEV# FOR #-----; ----- ON deviceclass (NUM)?
212	SP#nnn/IS #-----; ----- ON LDEV#ldn (Y/N)?
213	FORMS ON LDEV#ldn: -----
214	STANDARD FORMS ON LDEV#ldn
216	LDEV#ldn FORMS ALIGNED OK (Y/N)?
217	LDEV#ldn READ CHECK HOPPER#nnn
218	LDEV#ldn INVALID HOLLERITH COL#nnn,HOPPER#nnn
219	LDEV#ldn IS PAPER AT TOP OF FORM (Y/N)?
220	LDEV#ldn NO WRITE RING
221	SP#ldn/SPOOLED OUT
222	SP#ldn/STOPPED,NO SUCH DEVICE
223	SP#ldn/STOPPED,SPOOLEE I/O ERROR
224	SP#ldn/STOPPED,SPOOLEE NOT ACCEPTING
225	SP#ldn/STOPPED,SPOOFLE I/O ERROR
226	SP#ldn/STOPPED,STACK TOO SMALL
227	SP#ldn/#Innn DELETED, SPOOLEE I/O ERROR
228	SP#ldn/#Innn DELETED, SPOOFLE I/O ERROR
229	SP#ldn/#Onnn DEFERRED, SPOOLEE I/O ERROR

Table A-1. System Messages (Continued)

230	SP#ldn/#Onnn DEFERRED, SPOOFLE I/O ERROR
231	SP#ldn/#Onnn, PREVIOUS FORMS ASSUMED
232	MAX SPOOFLE KILOSECTORS IN USE, ALL QUEUES SHUT
233	NO MORE SPACE IN SPOOL CLASS, ALL QUEUES SHUT
234	SP#ldn/#Onnn DEFERRED
235	HEADER OR TRAILER LOST
236	SP#ldn/FORMS DONE
237	SP#ldn/STOPPED
238	SP#ldn/SPOOLED IN
241	CAN'T INITIALLY SPOOL LDEV#ldn
242	DEFERRED JOB INTRODUCED ON LDEV#ldn
243	STANDARD FORMS REQUIRED FOR \$STDLIST: LDEV#ldn READY (Y/N)?
244	LDEV#ldn DIAL number ANSWER (Y/N)?
245	LDEV#ldn CS I/O ERROR nnn
247	FILE LABEL ERROR: LDEV#ldn
249	MEMORY LOGGING ERROR #nnn. LOGGING STOPPED
250	LDEV#ldn OFFLINE
251	session/job ABORTED BY SYSTEM MANAGEMENT
252	session/job EXCEEDS TIME LIMIT
253	MOUNT ERROR #nn
254	DISMOUNT ERROR #nn
255	DATE (M/D/Y)?
256	TIME (H:M)?
257	INVALID DATE
258	INVALID TIME
259	date/time? (Y/N) (Date/time verification)
260	LDEV #ldn RESTART OF FILE #Onnn WENT PAST EOF; FILE DEFERRED (SPERR 260)
261	LDEV #ldn RESTART OF FILE #Onnn READ ERROR; FILE DEFERRED (SPERR 261)
262	LDEV #ldn RESTART FILECOUNT POINTED BEYOND EOF. (SPERR 262)
263	LDEV #ldn RESTART PAGECOUNT POINTED BEFORE THE BEGINNING OF FILE (SPERR 263)
264	LDEV #ldn RESTART ATTEMPTED ON NON-EXISTANT SPOOFLE (SPERR 264)
265	LDEV #ldn RESTART FILECOUNT POINTED BEFORE THE BEGINNING OF FILE (SPERR 265)
266	LDEV #ldn RESTART ATTEMPTED OF FILE #Onnn NOT IN READY STATE (SPERR 266)
267	LDEV #ldn CANNOT RESTART 2680A ON A FILE BOUNDARY. (SPERR 267)
268	SP #ldn SUSPENDED
272	LDEV #ldn NOT READY OR NOT A FOREIGN DISC
273	LDEV #ldn NOT READY OR NOT A SERIAL DISC
274	LDEV #ldn WRITE RING? (Y/N)
275	IS "-----" ON LDEV #ldn (Y/N)? -----
276	LDEV# FOR "-----" ON ----- (NUM)-----
277	MOUNT TAPE VOLUME valid ON LDEV FOR "filereference" ON deviceclass
278	MOUNT TAPE VOLUME valid ON LEV# ldn FOR "filereference"

Table A-1. System Messages (Continued)

279	LDEV# ldn NOT REQUESTED DEVICE
280	LDEV# ldn NOT IN CLASS "deviceclass"
281	LDEV ldn SIO FAILURE. I/O STATUS %nn
285	VOL valid MOUNTED ON LDEV #ldn
286	VOL (UNLABELLED) MOUNTED ON LDEV #ldn
287	MOUNT TAPE OF VOLUMESSET nn
288	MOUNT NEXT VOLUME OF SET nn ON LDEV #ldn
289	MOUNT PRIOR VOLUME OF SET nn OF LDEV #ldn
290	VOL ID FOR VOLUME OF SET nn ON LDEV #ldn?
291	OK TO WRITE ON UNEXPIRED VOL ON LDEV #ldn?(Y/N)
300	UNABLE TO LOGON MASTER OPERATOR AS "OPERATOR.SYS"
301	LDEV ldn IS UNAVAILABLE, ASSOCIATED TO DEVICE CLASS deviceclass
302	LDEV ldn HAS BEEN RESET, CHECK PAPER ALIGNMENT AND VFC. I/O STATUS %nn
303	LDEV ldn VFC RESET HAS OCCURRED, CHECK PAPER ALIGNMENT AND DOWNLOAD VFC BEFORE RESUMING. I/O STATUS %nn
304	LDEV ldn GENERAL I/O STATUS %nn
305	LDEV ldn REQUEST ABORTED EXTERNALLY. I/O STATUS %nnn
306	LDEV ldn POWER FAIL ABORT. I/O STATUS %nnn
307	LDEV ldn INVALID FUNCTION OR PARAMETER. I/O STATUS %nnn
308	LDEV ldn TIMEOUT HAS OCCURRED. I/O STATUS %nnn
309	LDEV ldn DATA TRANSFER ERROR. I/O STATUS %nnnn
361	LDEV ldn UNIT NOT ONLINE. I/O STATUS %nnnn (SPERR 361)
362	LDEV ldn DATA BUFFER IS FULL. I/O STATUS %nnnn. (SPERR 362)
363	LDEV ldn CHARACTER MEMORY FULL. I/O STATUS %nnnn. (SPERR 363)
364	LDEV ldn FORMS MEMORY FULL. I/O STATUS %nnnn. (SPERR 364)
365	LDEV ldn SELECT CHARACTER ERROR. I/O STATUS %nnnn. (SPERR 365)
366	LDEV ldn SELECT FORMS ERROR. I/O STATUS %nnnn. (SPERR 366)
367	LDEV ldn SELECT VFC ERROR. I/O STATUS %nnnn. (SPERR 367)
368	LDEV ldn SELECT LOGICAL PAGE TABLE ERROR. I/O STATUS %nnnn. (SPERR 368)
369	LDEV ldn MOVE PEN ERROR. I/O STATUS %nnnn. (SPERR 369)
370	LDEV ldn CHARACTER PROCESSOR SATURATED. I/O STATUS %nnnn. (SPERR 369)
371	LDEV ldn MAXIMUM COPIES EXCEEDED. I/O STATUS %nnnn. (SPERR 371)
372	LDEV ldn HARDWARE MALFUNCTION. CONTACT CE. I/O STATUS %nnnn. (SPERR 372)
373	LDEV ldn BAD SPOOLFILE BLOCK. I/O STATUS %nnnn. (SPERR 373)
374	LDEV ldn CATASTROPHIC ERROR. CALL CE. I/O STATUS %nnnn (SPERR 374)
375	LDEV ldn CONTROLLER IS DEAD. CALL CE. I/O STATUS %nnnn. (SPERR 375)
376	LDEV ldn SIO ERROR. I/O STATUS %nnnn. (SPERR 376)
377	LDEV ldn HPIB PHI LOCKUP. I/O STATUS %nnnn. (SPERR 377)

Table A-1. System Messages (Continued)

378	LDEV ldn CONTROLLER MEMORY ERROR. I/O STATUS %nnnn. (SPERR 378)
379	LDEV ldn JOB OPEN FAILURE. I/O STATUS %nnn. (SPERR 379)
380	LDEV ldn 100 UNIT ERRORS LOGGED DURING JOB. I/O STATUS %nnn. (SPERR 380)
381	LDEV ldn RESTART FAILED. (SPERR 381)
382	LDEV ldn RESTART IN PROGRESS (SPWARN 382)
269	SP #ldn SPOOLER RESUMED

Table A-2. Operator Commands Messages

ERROR NO.	MESSAGE TEXT
3000	EXECUTING THIS COMMAND BY OTHER THAN THE MASTER OPERATOR & REQUIRES PERMISSION VIA THE ALLOW COMMAND. (CIERR 3000)
3001	LOGICAL DEVICE NUMBERS MUST BE BETWEEN 1 AND 255. (CIERR 3001)
3002	DEVICE NUMBER > nnn, THE HIGHEST IN THIS CONFIGURATION. (CIERR 3002)
3003	HEADON HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3003)
3004	HEADOFF HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3004)
3005	DEVICE MUST BE ONE OF EITHER CARD READER, PRINTER, OR CARD READ/PUNCH. (CIERR 3005)
3006	EXECUTING THIS OPERATOR COMMAND BY OTHER THAN THE MASTER OPERATOR REQUIRES PERMISSION VIA THE ALLOW OR ASSOCIATE COMMANDS. (CIERR 3006)
3007	DEVICE nnn MUST NOT BE VIRTUAL DEVICE. (CIERR 3007)
3008	GIVE HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3008)
3009	TAKE HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3009)
3010	DEVICE nnn MUST BE DOWN BEFORE PLACING IN DIAGNOSTICS. (CIERR 3010)
3011	DEVICE nnn ALREADY IN DIAGNOSTICS. (CIWARN 3011)
3012	UP HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3012)
3013	DOWN HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3013)
3014	CANNOT UP DEVICE THAT IS IN DIAGNOSTICS. (CIERR 3014)
3015	DEVICE ALREADY UP (CIWARN 3015)
3016	DEVICE ALREADY DOWN (CIWARN 3016)
3017	DEVICE ALREADY HAS DOWN PENDING (CIWARN 3017)
3018	DEVICE IN USE, DOWN PENDING (CIWARN 3018)
3020	NO REPLIES PENDING (CIWARN 3020)
3021	ONE OR MORE DEVICES IN THAT DEVICE CLASS ARE ASSOCIATED BY OTHERS. (CIERR 3021)
3022	DEVICE nnn NOT IN DIAGNOSTICS. (CIERR 3022)
3023	OUTFENCE HAS EXACTLY ONE PARAMETER, THE OUTPUT FENCE. (CIERR 3023)
3024	EXPECTED OUTFENCE BETWEEN 1 AND 14. (CIERR 3024)
3025	FENCE > 14, 14 USED. (CIWARN 3025)
3026	OUTFENCE < 1, 1 USED. (CIWARN 3026)
3027	ABORTIO HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3027)
3028	NO I/O TO ABORT FOR DEVICE nnn. (CIWARN 3028)
3029	ACCEPT HAS ONLY TWO PARAMETERS. (CIERR 3029)
3030	REFUSE HAS ONLY TWO PARAMETERS. (CIERR 3030)
3031	ACCEPT HAS AT LEAST ONE PARAMETER, THE DEVICE NUMBER (CIERR 3031)
3032	REFUSE HAS AT LEAST ONE PARAMETER, THE DEVICE NUMBER (CIERR 3032)
3033	COMMA EXPECTED AFTER 'DATA' OR 'JOB'. (CIERR 3033)
3034	EXPECTED ONE OF EITHER DATA OR JOBS. (CIERR 3034)

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
3035	DEVICE IS NOT DATA OR JOB ACCEPTING. (CIERR 3035)
3036	DEVICE HAS NO DEFAULT OUTPUT DEVICE. (CIERR 3036)
3037	WELCOME DATA SEGMENTS BUSY. (CIERR 3037)
3038	BREAKJOB HAS EXACTLY ONE PARAMETER, THE JOB ID. (CIERR 3038)
3039	RESUMEJOB HAS EXACTLY ONE PARAMETER, THE JOB ID. (CIERR 3039)
3040	EXPECTED JOB ID IN THE FORM #JNNN. (CIERR 3040)
3041	JOB NUMBER MUST BE POSITIVE INTEGER > 0. (CIERR 3041)
3042	JOB DOES NOT EXIST. (CIERR 3042)
3043	BREAKJOB REQUIRES JOB TO BE ACTIVE. (CIERR 3043)
3044	RESUMEJOB REQUIRES JOB TO BE SUSPENDED. (CIERR 3044)
3046	JOB IN TERMINATION, CANNOT SUSPEND OR RESUME. (CIERR 3046)
3047	JOB SECURITY IS HIGH OR JOB NOT YOURS, CANNOT SUSPEND, RESUME, ALTER, OR ABORT. (CIERR 3047)
3048	REPLY HAS AT LEAST TWO PARAMETERS. (CIERR 3048)
3049	REPLY HAS ONLY THREE PARAMETERS. (CIERR 3049)
3050	EXPECTED PROCESS NUMBER BETWEEN 4 AND 255. (CIERR 3050)
3051	NO REPLY OUTSTANDING FOR PROCESS. (CIERR 3051)
3052	REPLY EXPECTED YES/NO OR NUMBER. (CIERR 3052)
3053	REPLY EXPECTED YES/NO. (CIERR 3053)
3054	REPLY EXPECTED NUMBER. (CIERR 3054)
3055	ASSOCIATE HAS EXACTLY 1 PARAMETER, THE DEVICE CLASS. (CIERR 3055)
3056	DISASSOCIATE HAS ONLY 1 PARAMETER, THE DEVICE CLASS. (CIERR 3056)
3057	YOU ALREADY HAVE ASSOCIATED ONE OR MORE DEVICES IN THAT DEVICE CLASS. (CIERR 3057)
3058	EXECUTING THIS COMMAND REQUIRES PRIOR ASSOCIATION TO THAT DEVICE CLASS. (CIERR 3058)
3059	ASSOCIATING THIS DEVICE REQUIRES SYSTEM MANAGER'S PERMISSION. (CIERR 3059)
3060	THIS REPLY EXPECTS ONLY TWO PARAMETERS. (CIERR 3060)
3061	REPLY STRING TOO LONG, nn CHARACTERS AT MOST EXPECTED. (CIERR 3061)
3062	JOBFENCE HAS EXACTLY ONE PARAMETER, THE JOB PRIORITY. (CIERR 3062)
3063	EXPECTED JOBFENCE PRIORITY BETWEEN 0 AND 14. (CIERR 3063)
3064	PRIORITY < 0, 0 USED. (CIWARN 3064)
3065	COMMA EXPECTED BETWEEN REPLY PARAMETERS. (CIERR 3065)
3066	STREAMS HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3066)
3067	STREAMS DEVICE CAN'T BE A TERMINAL. (CIERR 3067)
3068	STREAMS DEVICE NOT DATA AND JOB ACCEPTING. (CIERR 3068)
3069	CONSOLE HAS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3069)
3070	DEVICE MUST BE JOB ACCEPTING. (CIERR 3070)
3071	EXPECTED ONE OF JOB OR SESSION LIMIT. (CIERR 3071)
3072	LIMIT HAS AT MOST TWO PARAMETERS. (CIERR 3072)
3073	LIMIT EXPECTS A COMMA BETWEEN PARAMETERS. (CIERR 3073)
3074	EXPECTED SESSION LIMIT BETWEEN 0 AND 32767. (CIERR 3074)
3075	EXPECTED JOB LIMIT BETWEEN 0 AND 32767. (CIERR 3075)
3076	EXPECTED ONE OF JOB NUMBER OR JOB NAME. (CIERR 3076)
3077	DEVICE NOT OUTPUT DEVICE. (CIERR 3077)

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
3078	EXPECTED JOB NUMBER IN FORM OF #JNNN. (CIERR 3078)
3079	EXPECTED ONE OF #JNNN OR #SNNN. (CIERR 3079)
3080	EXPECTED [JOBNAME,] USERNAME.ACCOUNTNAME. (CIERR 3080)
3081	USER NAME AND ACCOUNT NAME ARE AT MOST 8 CHARACTERS. (CIERR 3081)
3082	EXPECTED PERIOD BETWEEN USER AND ACCOUNT NAMES. (CIERR 3082)
3083	CANNOT ABORT JOB BEING INTRODUCED. (CIERR 3083)
3084	EXPECTED ACCOUNT NAME. (CIERR 3084)
3085	USER AND ACCOUNT NAMES MUST BE AT LEAST 1 CHARACTER. (CIERR 3085)
3086	EXPECTED ONE OF INPRI OR OUTDEV. (CIERR 3086)
3087	EXPECTED SEMICOLON PRECEDING PARAMETER. (CIERR 3087)
3088	EXPECTED "=" FOLLOWING PARAMETER. (CIERR 3088)
3089	ALTJOB EXPECTS AT LEAST JOB NUMBER AND ONE OF EITHER INPRI OR OUTDEV. (CIERR 3089)
3090	DEVICE OR DEVICE CLASS DO NOT EXIST IN THIS CONFIGURATION. (CIERR 3090)
3091	JOB MUST BE IN INTRODUCED OR WAIT STATE. (CIERR 3091)
3092	INDIRECT FILE CAN'T BE SYSTEM FILE. (CIERR 3092)
3093	INDIRECT MUST BE ASCII AND NOT CCTL. (CIERR 3093)
3094	EXPECTED ONE OF FILE= OR USER.ACCT;COMMANDS=. (CIERR 3094)
3095	EXPECTED USERNAME. (CIERR 3095)
3096	EXPECTED COMMA BETWEEN COMMAND NAMES. (CIERR 3096)
3097	EXPECTED ;COMMANDS=. (CIERR 3097)
3098	NO SUCH OPERATOR COMMAND. (CIERR 3098)
3099	ALLOW AND DISALLOW HAVE AT MOST 20 PARAMETERS. (CIERR 3099)
3100	UNEXPECTED I/O ERROR IN INPUT FILE OR SSTDIN. (CIERR 3100)
3101	NONE OF THE SPECIFIED USER(S) LOGGED ON. (CIERR 3101)
3102	EXPECTED ONE OF EITHER ON OR OFF. (CIERR 3102)
3103	EXPECTED ALL. (CIERR 3103)
3104	EXPECTED AT LEAST VOLUMNSET.GROUP.ACCOUNT. (CIERR 3104)
3105	LMOUNT EXPECTS VOLUMNSET.GROUP.ACCOUNT[;GEN=GENINDEX] (CIERR 3105)
3106	LDISMOUNT HAS EXACTLY 3 PARAMETERS. (CIERR 3106)
3107	EXPECTED SET NAME OR "*". (CIERR 3107)
3108	EXPECTED '.' FOLLOWING SET NAME. (CIERR 3108)
3109	EXPECTED '.' FOLLOWING GROUP NAME. (CIERR 3109)
3110	EXPECTED ;GEN=. (CIERR 3110)
3111	EXPECTED GENERATION NUMBER BETWEEN 0 AND 65535. (CIERR 3111)
3123	DS SUBSYSTEM NOT INSTALLED IN THIS SYSTEM. (CIERR 3123)
3124	MULTIPOINT CAPABILITY NOT INSTALLED IN THIS SYSTEM. (CIERR 3124)
3125	MRJE SUBSYSTEM NOT INSTALLED IN THIS SYSTEM. (CIERR 3125)
3126	AUTO IS ONLY VALID MODIFIER TO 'ON' PARAMETER. (CIERR 3126)
3127	SETNAME MUST BE BETWEEN 1 AND 8 CHARACTERS AND HAVE NO EMBEDDED NON-ALPHANUMERIC CHARACTERS. (CIERR 3127)
3128	JOBSECURITY HAS ONLY 1 PARAMETER, THE SECURITY LEVEL. (CIERR 3128)
3129	EXPECTED ONE OF EITHER HIGH OR LOW. (CIERR 3129)
3130	CONSOLE DEVICE MUST BE JOB-ACCEPTING TERMINAL. (CIERR 3130)
3131	CONSOLE DEVICE CANNOT BE MULTIPOINT OR DS PSEUDO-TERMINAL. (CIERR 3131)

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
3132	DEVICE CLASS NOT ASSOCIATED. (CIERR 3132)
3137	EXPECTED FILE=FORMALDESIGNATOR[;SHOW] (CIERR 3137)
3138	EXPECTED ;SHOW (CIERR 3138)
3141	NO SUCH DEVICE CLASS IN THIS CONFIGURATION. (CIERR 3141)
3144	CONSOLE IS BUSY, REQUEST IGNORED. (CIERR 3144)
3200	EXPECTED SPOOLFILE DEVICEFILE ID (CIERR 3200)
3201	EXPECTED ONE OF #ONNN OR #INNN OR LDEV (CIERR 3201)
3202	EXPECTED LDEV OR DEVICEFILE ID OR #ONNN OR #INNN (CIERR 3202)
3203	DEVICEFILE ID MUST BE POSITIVE INTEGER > 0. (CIERR 3203)
3204	DEVICEFILE ID DOES NOT EXIST (CIERR 3204)
3205	SPOOLFILE NOT IN READY STATE. (CIERR 3205)
3206	DEVICEFILE ID MUST START WITH "#" (CIERR 3206)
3207	SPOOLFILE IS ACTIVE ON LDEV \; DELETED. (CIWARN 3207)
3208	EXPECTED DEVICEFILE ID IN THE FORM #ONNN. (CIERR 3208)
3209	EXPECTED ONE OF DEV, PRI, COPIES, DEFER. (CIERR 3209)
3210	EXPECTED NUMBER 1<= COPIES <= 127. (CIERR 3210)
3211	ALTSPOOLFILE EXPECTS AT LEAST DEVICEFILEID AND ONE OF EITHER PRI, DEV,COPIES,DEFER. (CIERR 3211)
3212	EXPECTED PRIORITY BETWEEN 0 AND 14. (CIERR 3212)
3213	STARTSPOOL REQUIRES EXACTLY 1 PARAMETER, THE LDEV OR DEVICE CLASS. (CIERR 3213).
3214	THE DEVICE CLASS CONTAINS MORE THAN 8 CHARACTERS. (CIERR 3214)
3215	THE DEVICE CLASS IS NOT CONFIGURED IN THIS SYSTEM. (CIERR 3215)
3216	EXPECTED REPLY OF "IN" OR "OUT". (CIERR 3216)
3217	DEVICE IS NOT CORRECT TYPE FOR SPOOLEE. (CIERR 3217)
3218	DEVICE IS ALREADY SPOOLED OUT. (CIERR 3218)
3219	DEVICE IS ALREADY SPOOLED IN. (CIERR 3219)
3220	DEVICE IS OWNED BY ANOTHER PROCESS. (CIERR 3220)
3221	DEVICE IS NOT JOB/DATA ACCEPTING. (CIERR 3221)
3222	DEVICE IS OWNED BY DIAGNOSTICS. (CIERR 3222)
3223	UNABLE TO GET SPOOLER STACK. (CIERR 3223)
3224	UNABLE TO CREATE SPOOLER PROCESS. (CIERR 3224)
3225	STOPSPPOOL REQUIRES EXACTLY 1 PARAMETER, THE LDEV OR DEVICE CLASS. (CIERR 3225)
3226	THE SPOOLER PROCESS IS BUSY, TRY AGAIN. (CIERR 3226)
3228	DEVICE IS NOT SPOOLED. (CIERR 3228)
3229	EXPECTED ONE OF LDEV AND OPTIONALLY "FINISH". (CIERR 3229)
3230	SUSPENDSPOOL EXPECTS 1 OR 2 PARMS: LDEV [;FINISH]. (CIERR 3230)
3231	SUSPENDSPOOL EXPECTS "FINISH" AS SECOND PARAMETER. (CIERR 3231).
3232	RESUMESPOOL REQUIRES AT LEAST ONE PARAMETER, THE LDEV. (CIERR 3232)
3233	SPECIFICATION OF DEFER OVERRIDES PREVIOUS PRI. (CIWARN 3233)
3234	SPECIFICATION OF PRI OVERRIDES PREVIOUS DEFER. (CIWARN 3234)
3235	SPECIFICATION OF PRI OVERRIDES PREVIOUS PRI. (CIWARN 3235).
3236	SPOOLFILE IS ACTIVE ON LDEV \. NOT DELETED. (CIERR 3236)
3237	DEVICE IS NOT SPOOLED FOR OUTPUT. (CIERR 3237)
3238	EXPECTED EITHER "BACK" OR "FORWARD" OR "BEGINNING". (CIERR 3238)
3239	EXPECTED RANGE OF 1 TO 256. (CIERR 3239)
3240	EXPECTED EITHER "PAGES" OR "FILES". (CIERR 3240).

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
3241	EXPECTED AT MOST FOUR PARMS: LDEV, "BACK"/"FORWARD"/"BEGINNING",COUNT, "PAGES"/"FILES". CIERR(3241).
3242	EXPECTED DEVICE CLASS NAME UP TO 8 CHARACTERS LONG. (CIERR 3242).
3243	DEVICE CLASS NOT CONFIGURED IN THIS INSTALLATION. (CIERR 3243)
3244	DEVICE CLASS IS ALREADY SPOOLED. (CIERR 3244)
3245	DEVICE CLASS IS NOT SPOOLED. (CIERR 3245).
3246	DEVICE CLASS TYPE IS NOT VALID SPOOLEE. (CIERR 3246)
3247	EXECUTING THIS OPERATOR COMMAND BY OTHER THAN THE MASTER OPERATOR REQUIRES PERMISSION BY THE ALLOW OR ASSOCIATE COMMANDS. (CIERR 3247)
3301	DEVICE MUST BE 2608 LINE PRINTER, LDEV = \. (CIERR 3301)
3302	MARGIN MUST BE NUMERIC. (CIERR 3302)
3303	MARGIN MUST BE BETWEEN 1 AND 16. (CIERR 3303)
3304	EXPECTED VALID PARAMETER = "DEFAULT"; IGNORED. (CIERR 3304)
3305	SETTING OF MARGIN FAILED ON LDEV \. (CIERR 3305)
3306	TOO MANY PARAMETERS. EXPECTED AT MOST 4 PARAMETERS (CIERR 3306)
3307	DOWNLOAD MUST HAVE AT LEAST TWO PARAMETERS. LDEV AND FILENAME OR MARGIN. (CIERR 3307).
3308	LOGICAL DEVICE NUMBER MUST BE NUMERIC. (CIERR 3308)
3309	LOGICAL DEVICE NUMBER IS INVALID. (CIERR 3309)
3310	DEVICE MUST BE 2608 LINE PRINTER, LDEV = \ (CIERR 3310)
3311	FIRST CHARACTER IN FILE NAME MUST BE ALPHABETIC. (CIERR 3311)
3312	FOPEN ERROR nnn. (CIERR 3312)
3313	TOO MANY PARAMETERS IN VFC CONTROL. (CIERR 3313)
3314	VFC OR MARGIN MUST HAVE AT LEAST ONE PARAMETER. (CIERR 3314)
3315	VFC LINES PER INCH MUST BE NUMERIC. (CIERR 3315)
3316	VFC NUMBER OF PRINTLINES MUST BE NUMERIC. (CIERR 3316)
3317	VFC CANNOT EXCEED 127 LINES/FORM. (CIERR 3317)
3318	WARNING: OPERATOR MUST REALIGN TOP OF FORM AFTER THIS PRINTJOB COMPLETES ON LDEV \ (CIWARN 3318)
3319	VFC DOWNLOAD FAILED ON LDEV \. (CIERR 3319)
3320	THERE ARE NO SYSTEM BUFFERS AVAILABLE FOR DOWNLOAD. (CIERR 3320)
3800	ONLY RECALL, RESUME, AND REPLY COMMANDS ALLOWED HERE. (CIERR 3800)
3810	LOG HAS EXACTLY TWO PARAMETERS. (CIERR 3810)
3811	THE LOGID MUST BE 1 TO 8 CHARACTERS IN LENGTH. (CIERR 3811)
3812	FIRST CHARACTER OF LOGID MUST BE ALPHABETIC. (CIERR 3812)
3813	NON-ALPHANUMERIC CHARACTERS NOT ALLOWED. (CIERR 3813)
3815	EXPECTED ONE OF START, STOP, OR RESTART. (CIERR 3814)
3816	LOG PROCESS IS ALREADY ACTIVE. (CIERR 3816)
3817	UNABLE TO INITIATE LOG PROCESS FOR LOGID. (CIERR 3817)
3850	SPECIFIED DEVICE MUST BE A MOVING HEAD DISC. (CIERR 3850)
3851	FOREIGN EXPECTS EXACTLY ONE PARAMETER, THE DEVICE NUMBER. (CIERR 3851)
3852	VOLUME IS ALREADY FOREIGN. (CIWARN 3852)
3853	NO VOLUME IS MOUNTED ON DRIVE. (CIERR 3853)
3854	VOLUME IS AN IN-USE PRIVATE VOLUME. (CIERR 3854)
3855	VOLUME IS AN IN-USE SERIAL DISC. (CIERR 3855)
3856	SPECIFIED DEVICE IS IN THE SYSTEM DOMAIN. (CIERR 3856)

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
4100	NUMBER OF PARAMETERS EXCEEDS MAXIMUM OF nn. (CIERR 4100)
4101	EXPECTED AT LEAST TWO PARAMETERS: A DS DEVICE CLASS/NUMBER AND A FUNCTION KEYWORD. (CIERR 4101)
4102	EXPECTED A DEVICE CLASS NAME OR LOGICAL DEVICE NUMBER FOR ONE OR MORE DS DEVICES. (CIERR 4102)
4103	USER IS NOT ASSOCIATED WITH DS DEVICE nn. NO CONTROL FUNCTIONS EXECUTED FOR THIS DEVICE. <sup>1</sup> (CIWARN 4103)
4104	USER IS NOT ALLOWED TO USE :DSCONTROL AND IS NOT ASSOCIATED WITH THE DS DEVICE(S). <sup>1</sup> (CIERR 4104)
4105	EXPECTED ONE OR MORE OF THE CONTROL FUNCTIONS: OPEN,SHUT,MON,MOFF,COMP,NOCOMP,TRACE, OR DEBUG. (CIERR 4105)
4106	INVALID CONTROL FUNCTION. EXPECTED ONE OF: OPEN,SHUT,MON,MOFF,COMP,NOCOMP,TRACE, OR DEBUG. (CIERR 4106)
4107	MASTER OVERRIDES PREVIOUS MASTER/SLAVE OPTION. (CIWARN 4107)
4108	SLAVE OVERRIDES PREVIOUS MASTER/SLAVE OPTION. (CIWARN 4108)
4109	SPEED OPTION OVERRIDES PREVIOUS SPEED OPTION. (CIWARN 4109)
4110	OPEN OVERRIDES PREVIOUS OPEN/SHUT FUNCTION. (CIWARN 4110)
4111	SHUT OVERRIDES PREVIOUS OPEN/SHUT FUNCTION. (CIWARN 4111)
4112	TRACE OVERRIDES PREVIOUS TRACE FUNCTION(S). (CIWARN 4112)
4113	DEBUG OVERRIDES PREVIOUS DEBUG FUNCTION(S). (CIWARN 4113)
4114	MON OVERRIDES PREVIOUS MON/MOFF FUNCTION. (CIWARN 4114)
4115	MOFF OVERRIDES PREVIOUS MON/MOFF FUNCTION. (CIWARN 4115)
4116	COMP OVERRIDES PREVIOUS COMP/NOCOMP FUNCTION. (CIWARN 4116)
4117	NOCOMP OVERRIDES PREVIOUS COMP/NOCOMP FUNCTION. (CIWARN 4117)
4118	EXPECTED A ":", ",", ";" OR RETURN AS DELIMITER. (CIERR 4118)
4119	EXPECTED EITHER A ":", ";" OR RETURN AS DELIMITER. (CIERR 4119)
4120	EXPECTED AN "=" AS DELIMITER FOR SPEED OPTION. (CIERR 4120)
4121	EXPECTED A ":", ";" AS DELIMITER BETWEEN OPTIONS. (CIERR 4121)
4122	ILLEGAL OPEN/SHUT OPTION. EXPECTED ONE OF: MASTER, SLAVE, SPEED, OR LINESPEED VALUE. (CIERR 4122)
4123	EXPECTED A POSITIVE DOUBLE VALUE FOR LINESPEED. (CIERR 4123)
4124	CS CAPABILITY REQUIRED TO USE :DSCONTROL. <sup>1</sup> (CIERR 4124)
4125	PM CAPABILITY REQUIRED TO USE DEBUG FUNCTION. <sup>1</sup> (CIERR 4125)
4126	DEBUG FUNCTION MAY ONLY BE USED BY SYSTEM CONSOLE. <sup>1</sup> (CIERR 4126)
4127	EXPECTED NO OPTION FOR DEBUG OR ONE OF THE FOLLOWING: ON, OFF, OR POSITIVE INTEGER VALUE. (CIERR 4127)
4128	EXPECTED NO OPTION FOR MON/MOFF OR ONE OF THE FOLLOWING: CS OR DS. (CIERR 4128)
4129	COMP/NOCOMP FUNCTIONS HAVE NO OPTIONS. (CIERR 4129)
4130	SPEED OPTION IGNORED FOR SHUT FUNCTION. (CIWARN 4130)
4131	EXTRANEIOUS ":", ";" IGNORED. POSSIBLE MISSING FUNCTION? (CIWARN 4131)
4132	EXTRANEIOUS ":", ";" IGNORED. POSSIBLE MISSING OPTION? (CIWARN 4132)
4133	CREATION OF DS MONITOR PROCESS FAILED. <sup>2</sup> (CIERR 4133)
4134	PROGRAM FILE "DSMON.PUB.SYS" MISSING. <sup>2</sup> (CIERR 4134)
4135	DS MONITOR UNABLE TO RUN AS A SYSTEM PROCESS. <sup>2</sup> (CIERR 4135)
4136	CS DEVICE nn IS UNAVAILABLE FOR USE. <sup>2</sup> (CIERR 4136)

<sup>1</sup>Contact your System Manager.<sup>2</sup>Contact your HP representative.

Table A-2. Operator Commands Messages (Continued)

ERROR NO.	MESSAGE TEXT
4137	DS DEVICE MUST BE OPEN PRIOR TO USE. (CIERR 4137)
4138	USER SPECIFIED TRACE FILE NOT ALLOWED WHEN MORE THAN ONE DEVICE IN DEVICE CLASS. (CIERR 4138)
4139	DS DEVICE nn CURRENTLY CONTROLLED ELSEWHERE. (CIWARN 4139)
4140	DS DEVICE nn: OPEN/SHUT NOT EXECUTED DUE TO ABOVE. (CIWARN 4140)
4141	DS DEVICE nn: TRACE NOT EXECUTED DUE TO ABOVE. (CIWARN 4141)
4142	DS DEVICE nn: MON/MOFF NOT EXECUTED DUE TO ABOVE. (CIWARN 4142)
4143	DS DEVICE nn: COMP/NOCOMP NOT EXECUTED DUE TO ABOVE. (CIWARN 4143)
4144	DS DEVICE nn: DEBUG NO EXECUTED DUE TO ABOVE. (CIWARN 4144)
4300	TOO MANY PARAMETERS. (CIERR 4300)
4301	LOGICAL DEVICE NUMBER MISSING. (CIERR 4301)
4302	ILLEGAL LOGICAL DEVICE NUMBER. (CIERR 4302)
4303	NOT A CS DEVICE. (CIERR 4303)
4304	ILLEGAL OPTION. (CIERR 4304)
4305	CS I/O ERROR. #nn (CIERR 4305)
4306	INVALID DELIMITER. (CIERR 4306)
4307	INSUFFICIENT CAPABILITIES TO ACCESS THIS COMMAND. (CIERR 4307)

Table A-3. Console Messages

MESSAGE	MEANING	RECOVERY PROCEDURE		
message (MAX CHARS. = num)?	A message was sent to you by the PRINTOPREPLY intrinsic	The user wants a =REPLY.		
ACCESS TO <i>vcname</i> . <i>group.acct</i> BY <i>user.acct</i> (Y/N)?	A user asked you to grant the specified disc volume ( <i>vcname</i> ).	=REPLY with YES or NO.		
ALL JOBS LOGGED OFF	You aborted all executing jobs with a =LOGOFF or you shut down the system (=SHUT-DOWN).	You must enter the =LOGON command to reestablish the pre-log off limits.		
AVAILABLE DRIVES ON LDEV# <i>ldnlist</i>	The last users of a volume set has just performed a dismount on the specified logical device.	You can physically dismount the volumes and the drive can be made available for other requests.		
CAN'T INITIALLY SPOOL LDEV# <i>ldn</i>	You configured a <i>ldn</i> to be initially spooled. You did not specify a legitimate spooler ( <i>ldn</i> ) or you did not specify a <i>ldn</i> that was job/session accepting or data-accepting.	This indicates a system configuration error. The device specified cannot be spooled. The :ACCEPT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>JOBS,</td></tr><tr><td>DATA,</td></tr></table> <i>ldn</i> command can be used to allow :JOBS or :DATA, if the device is a legitimate spooler. Then start spooler with :STARTSPOOL <i>ldn</i>	JOBS,	DATA,
JOBS,				
DATA,				
DATA COMMAND ERROR <i>number,number</i> ON LDEV # <i>ldn</i>	A data command error was detected on the indicated device (the bracketed numbers are the command interpreter error numbers).	The system detected an invalid :DATA command. Correct syntax for command is: :DATA ( <i>jobname</i> ,) <i>username</i> (/iuserpass) .acctname (/iacctpass) (;ifilename) Most common errors-undefined user or account specified, or groupname specified (not required).		
DATA IN INVALID DEVICE, LDEV # <i>ldn</i>	A user input :DATA on a non-data accepting device.	If not user error, use =ACCEPT DATA, <i>ldn</i> command to allow :DATA from this device.		
DEFERRED JOB INTRODUCED ON LDEV # <i>ldn</i>	A user entered a batched job on a logical device ( <i>ldn</i> ) whose input priority is less than the currently defined job fence.	You must intervene by either lowering the job fence or raising the job's input priority.		
DIAL REMOTE number	The communications link has been initially established.	Dial the number shown in the message and complete the connection. This message is printed only if the SSLC is configured as a dial-up (not a leased) line.		
DISMOUNT ON LDEV# <i>ldn</i>	A drive in the non-system domain (that was not in-use) was switched off-line.	Information only. This message indicates that the drive went off-line but was not in use otherwise, LDEV# <i>ldn</i> NOT READY would appear.		

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
DRIVES FOR <i>vcname.grp.acct</i> BY <i>user.acct</i> (Y/N)?	A mount mechanism needs more drives to satisfy its current request. You are asked if the re-scan for the drives should be performed.	If you =REPLY YES, the drives already reserved are kept and the scan for the remainder of the drives continue. If you =REPLY NO, the drives already reserved are released and a mounted request is rejected due to lack of drives.
FILE LABEL ERROR: LDEV= <i>ldn</i>	During FOPEN the file system found an invalid file label on the disc.	The file cannot be accessed or purged, unless you COOLSTART.
FORMS: <i>formsmsg</i>	A user has requested special forms to be mounted on a line printer. The devicefile and job-num are printed on a following device assignment request by the PIN (Process Identification Number).	Information only.
FROM OPERATOR: <i>msg</i>	You sent a message to the user.	Information only.
:HELLO ON INVALID DEVICE, LDEV # <i>ldn</i>	A user input :HELLO either on a non job-accepting device or on a non-interactive device.	If not user error, use =ACCEPT JOBS, <i>ldn</i> to enable :HELLO from this device.
IN-USE SERIAL DISC DISMOUNTED ON LDEV# <i>ldn</i>	A serial disc you were using was dismounted.	Put the original disc back on-line.
IN-USE VOLUME DISMOUNTED ON LDEV# <i>ldn</i>	A disc volume you were using was dismounted.	Put the drive back on-line.
INVALID PASS FOR <i>username.acctname.grp</i> ON LDEV <i>ldn</i>	A user specified an illegal password.	If the accessor is a legitimate user of the system, instruct the user to specify the proper password.
IS FILE <i>filename</i> ON LDEV= <i>ldn</i>	You are asked by the system whether the specified file is on the specified <i>ldn</i> .	You are required to =REPLY with YES or NO.
JOB ON INVALID DEVICE, LDEV= <i>ldn</i>	A user input a :JOB on a non job-accepting device.	If not a user error, use the :ACCEPT JOBS, <i>ldn</i> to allow :JOBS from this device.
JOB OVERLOAD,TYPE <i>number</i>	It was not possible to initiate a job because of insufficient system resources, as indicated by the TYPE number: 0=no process control block (PCB) available 1=no data segment table (DST) available for stack or not enough virtual memory	Recovery of this type of overload is automatic. However, if the condition occurs frequently it indicates a chronic condition that should be remedied. The System Manager can enlarge the number of entries in the appropriate table using the :SYSDUMP command. (See System Manager/System Supervisor Manual, Step No. 4 of Sysdump dialog.)

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
	<p>2=no DST available for job information table (JIT)</p> <p>3=no DST available for job directory table (JDT)</p> <p>4=no job process count table (JPCNT) entry available</p> <p>5 = no DST available for file system data segment</p>	
LDEV# <i>Idn</i> DIAL number ANSWER (Y/N)?	A user's program did a PHNUM= on DS/3000 or RJE.	Dial the number and =REPLY with YES, or =REPLY with NO if dialing was unsuccessful.
LDEV# FOR <i>filename</i> ON <i>classname</i> (NUM)?	You are asked by the system whether the logical device is for the specified file on the specified class.	You are required to =REPLY with a <i>Idn</i> . (If the REPLY is a 0 (zero), the device is denied.)
LDEV# <i>Idn</i> FORMS ALIGNED OK (Y/N)?	You are asked by the system, following the printing of the standard "forms alignment image," if the FORMS are positioned correctly on the specified <i>Idn</i> .	You are required to =REPLY with YES or NO. If the image is correctly positioned, =REPLY YES and the requesting program will continue. If the image is not correctly positioned, reposition the forms and =REPLY NO (this will cause the alignment image to be printed again and the question will be reissued).
LDEV# <i>Idn</i> IN USE BY FILE SYSTEM	You have attempted to assign a device to diagnostics without taking the device off-line.	With the :DOWN command, take the device off-line then assign the device to diagnostics using the :GIVE command.
LDEV# <i>Idn</i> IN USE BY DIAGNOSTICS	You have attempted to bring UP a device without first TAKEing it from diagnostics.	With the :TAKE command, get the device from diagnostics, then bring the device :UP.
LDEV# <i>Idn</i> IN USE, DOWN PENDING	You have issued a =DOWN command, but the device is in use by the file system.	As soon as the use-count goes to zero, the device will be DOWNed and you will be notified.
LDEV# <i>Idn</i> INVALID HOLLERITH COL# <i>column number</i>	The data from a defective card was not transferred. (The error applies only to a card reader).	You need to fix the card, put it back in the hopper, and ready the device.
LDEV# <i>Idn</i> INVALID HOLLERITH COL# <i>column number</i> , HOPPER# <i>number</i>	The data from a defective card was not transferred. (The error applies only to a card reader).	You need to fix the card, put it back into the specified hopper, and ready the device.
LDEV# <i>Idn</i> NO WRITE RING	You did not put on a WRITE ring.	To allow the process to continue, you will need to remove the reel, put on a write ring, remount the reel and ready the unit. (To abort the I/O request ready the unit without putting in a write ring.)

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
LDEV# <i>Idn</i> NOT READY	You did not ready the indicated device.	Information only.
LDEV# <i>Idn</i> NOT READY OR NOT A SERIAL DISC	The Serial disc on LDEV# <i>Idn</i> has not been auto recognized or the disc on LDEV# <i>Idn</i> is the wrong disc (not a serial disc).	Cycle the disc drive off/on if the message repeats, then mount the correct disc pack. The problem is usually that the wrong pack has been mounted.
LDEV# <i>Idn</i> OFFLINE	You are trying to access a device that is no longer available to the file system.	If the device is functional, use the =UP <i>Idn</i> command to place device on-line.
LDEV# <i>Idn</i> PAPER OUT	You ran out of paper on the indicated device.	You need to install the paper, press PAGE EJECT, and ready the device.
LDEV# <i>Idn</i> QUEUE EMPTY	You attempted an =ABORTIO and no requests were pending the device.	Information only.
LDEV# <i>Idn</i> READ CHECK HOPPER= <i>number</i>	The data from a defective card was not transferred. (The error applies only to a card reader).	You need to fix the card, put it back into the specified hopper, and ready the device
LDEV# <i>Idn</i> UNIT FAILURE	Bad status was returned from the specified logical device.	Retry, if the problem persists call your HP representative.
LDEV# <i>Idn</i> WRITE RING? (Y/N)	The "WRITERING" response to a serial disc request in the =REPLY statement was "NO WRITE RING" (no is the default). The user is attempting to write on the serial disc.	Reply YES, if the user asked for WRITE capability. To abort the request reply NO.
LOCKSEG FAILURE	LOCKSEG intrinsic failure. Internal software problem.	Contact your HP representative.
LOGON FOR: <i>fully qualified jobname</i> ON LDEV# <i>Idn</i>	A job has logged on.	Information only.
LOGOFF	A job has logged off.	Information only.
LOG FILE NUMBER <i>number</i> ON	The System Supervisor created a new log file. This message always appears before the WELCOME message after cold load. When this message appears while the system is running, it indicates that the previous current log file has been closed. File name is LOGxxxx where xxxx=number (with leading zeros).	Information only.

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
LOG FILE NUMBER <i>number</i> IS 1/2 FULL	The total space now occupied by the log file data is half the allotted file size.	Information only.
LOG FILE NUMBER <i>number</i> IS 3/4 FULL	The total space now occupied by the log file data is 3/4 the allotted file size.	Information only.
LOG FILE NUMBER <i>number</i> . LOGGING RESUMED	You successfully executed a :RESUMELOG command.	Information only.
LOG FILE NUMBER <i>number</i> ERROR <i>#number</i> . LOGGING STOPPED	A fatal log file error occurred. Logging is disabled. (Refer to the error numbers explained in Section VI of the <i>MPE System Manager/Supervisor Manual</i> .)	To reenable logging after this error you must shut the system down (when convenient) and Coolstart the system.
LOG FILE NUMBER <i>number</i> ERROR <i>#number</i> . LOGGING SUSPENDED	A recoverable Log File error occurred. Logging is temporarily suspended. (Refer to the error numbers explained in Section VI of the <i>MPE System Manager/Supervisor Manual</i> .)	Recovery is very dependent upon cause of error. Most likely errors are log file space problems or duplicate log file names. To reenable logging, the System Manager or a user with System Supervisor (OP) capability must enter the :RESUMELOG command.
MAX SPOOFLE KILO- SECTORS IN USE, ALL QUEUES SHUT	The configured maximum number of spooled device file kilosectors are in use. MPE shut all output queues (equivalent to :STOPSPPOOL <i>ldn</i> ), so that users are automatically prevented from creating new spooled devicefiles.	When space becomes available, you may reopen the queues with the :STARTSPOOL <i>ldn</i> , command.
MEMORY ERROR LOGGING INITIATED  MEMORY LOGGING ERROR <i>#errnum</i> . LOGGING STOPPED.	Memory error logging was initiated.  You signaled the initiation of memory error logging. The errors are internal MEMLOGP errors ranging from 1 through 10.  1 = FLOCK error on MEMLOG file.  2 = FUNLOCK error on MEMLOG file.  3 = TIO error. Error logging hardware went not ready.  4 = CIO error during copy operation from logging array.  5 = RIO error during scan of logging array.	Information only. (Occurs when the system comes up.)  You can run the MEMLOGAN program to read and interpret the error information logged. You can also modify the time interval between successive memory log updates with the MEMTIMER program (refer to the <i>MPE System Utilities Reference Manual</i> ).

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
	<p>6=TIMEOUT on TIO (lower 128K logging board). Memory logging board did not respond before software TIMEOUT (0.3 second).</p> <p>7=TIMEOUT on TIO (upper 128K logging board). Memory logging board did not respond before software TIMEOUT (0.3 second).</p> <p>Range 20 through 500 are file system errors involving MEM-LOG file. (All file system errors encountered by MEMLOGP are fatal to the process and will cause it to terminate).</p>	
MISSING ACCT FOR <i>username.acctname</i> ON LDEV <i>Idn</i>	A user specified a non-existent account.	If the accessor is a legitimate user of the system, instruct the user to specify the proper account name.
MISSING GROUP FOR <i>username.acctname.grp</i> ON LDEV <i>Idn</i>	A user specified a non-existent group.	If the accessor is a legitimate user of the system, instruct the user to specify the proper group.
MISSING USER FOR <i>username.acctname</i> ON LDEV <i>Idn</i>	A user specified a non-existent user.	If the accessor is a legitimate user of the system, instruct the user to specify the proper user name.
MOUNT NEXT REEL ON LDEV= <i>Idn</i>	You are asked to mount the next tape for multi-reel files on magnetic tape and paper tape reader.	You need to mount the tape on the indicated device and ready the unit.
MOUNT REEL# <i>number</i> ON LDEV# <i>Idn</i>	You are asked to mount the next indicated tape required on the indicated device for multi-reel RESTOREs. (The REEL# is the sequence number (2 for 2nd, 3 for 3rd, etc.)	You need to mount the tape and ready the indicated device.
MOUNT FOR <i>user.acct</i> REJECTED (VMOUNT OFF)	A user attempted to use the Private Disc Volumes Facility but no= VMOUNT ON command has been issued.	Information only.
MOUNT <i>vcname.grp.acct</i> ON LDEV# <i>Idn</i> (Y/N)?	You are asked to mount the specified disc volume on the indicated device.	Mount the requested disc volume on the specified logical device and =REPLY with YES.

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
MOUNT TAPE VOLUME <i>valid</i>	A labeled tapefile was opened but the tape is not mounted.	Mount the requested volume without any reply; or =REPLY <i>PIN,ldn</i> if the volume is already mounted; or =REPLY <i>PIN,0</i> to abort the job.
MOUNT VOL <sub>n</sub> OF VOLUME SET <i>valid</i> ON LDEV# <i>ldn</i>	A file spans more than one volume making it necessary to switch volumes.	Mount the specified volume on the specified logical device. No reply is necessary.
NEW TAPE REQD. ON LDEV# <i>ldn</i> . IS TAPE MOUNTED?	You did not mount the tape on the indicated device.	You need to put a new tape in the paper tape punch and =REPLY with a YES.
NO ACCT TIME FOR <i>username.acctname.grp</i> ON LDEV <i>ldn</i>	A user attempted to log on, but exceeded the time limit. That is, the CPU or connect time has exceeded the account specified.	The System Manager must :RESETACCT or increase the accounts limits.
NO GROUP TIME FOR <i>username.acctname.grp</i> ON LDEV <i>ldn</i>	The user attempted to log on, but exceeded the time limit. That is, the CPU or connect time has exceeded the group specified.	The System Manager must :RESETACCT or increase the accounts limits.
NO HOME GROUP FOR <i>username.acctname</i> ON LDEV <i>ldn</i>	No home group was assigned by default.	If the accessor is a legitimate user of the system, instruct the user to specify a group name.
NO MORE SPACE IN SPOOL CLASS, ALL QUEUES SHUT	There is no more space in the (disc) class SPOOL. MPE shut all output queues (equivalent to :STOPSPool <i>ldn</i> ), so that users are automatically prevented from creating new spooled devicefiles.	When space becomes available, you may reopen the queues with the :STARTSPOOL <i>ldn</i> , command.
NO SYSTEM BUFFER FOR SIGNOFF	A SIGNOFF command failed because no system buffers are available.	To print lost data: <ul style="list-style-type: none"> <li>• =DOWN all MRJE pseudo card readers.</li> <li>• Drain all host printers and punches.</li> <li>• Enter the =MRJE SIGNOFF [<i>hostid</i>] command.</li> <li>• Contact your HP representative.</li> </ul>
OK TO WR ON UNEXPIRED VOL ON LDEV# <i>ldn</i> (Y/N)	A labeled unexpired tape was opened as unlabeled; or an unexpired labeled tape was mounted for a write operation.	YES causes the tape to be over written; NO causes the user's write request to be rejected.

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
SCRATCH VOLUME ON LDEV= <i>ldn</i>	The private disc volume mounted on the drive specified by <i>ldn</i> is a scratch volume - it has been fully conditioned and designated SCRATCH (with the SCRATCH command of the :VINIT Subsystem).	The volume is available for assignment to a volume set by a system or account manager.
SERIAL DISC VOLUME ON LDEV= <i>ldn</i>	A serial disc volume is mounted on the specified private volume device.	Information only.
SP= <i>ldn</i> / <i>≠0 devicefileid</i> DEFERRED	The output spooler on the specified <i>ldn</i> has deferred the spooled devicefile with the specified devicefile identification ( <i>≠0 devicefileid</i> ), due to some action made by you (e.g., refusing a spooler's forms request).	To allow the deferred devicefile to resume output use the :ALTSPoolFILE # <i>Oxxx</i> ; PRI= <i>K</i> (where <i>K</i> is a value above the current outfence).
SP= <i>ldn</i> / <i>≠0 devicefileid</i> DEFERRED, SPOOFLE IO ERROR	The output spooler on <i>ldn</i> has deferred the spooled devicefile with the specified devicefile identification ( <i>≠0 devicefileid</i> ) due to a disc I/O error or an unexpected end of file. (Commonly seen when listing an incomplete spooled file after a WARMSTART.)	To allow the deferred devicefile to resume output use the :ALTSPoolFILE # <i>Oxxx</i> ; PRI= <i>K</i> (where <i>K</i> is a value above the current outfence). To delete the file use the :DELETESPOOLFILE # <i>Oxxx</i> ; command.
SP= <i>ldn</i> / <i>≠0 devicefileid</i> DEFERRED, SPOOLEE I/O ERROR	The output spooler on <i>ldn</i> has deferred the spooled devicefile with the specified devicefile identification ( <i>≠0 devicefileid</i> ) due to a problem accessing the output device on <i>ldn</i> .	To transfer the devicefile to another printer use the :ALTSPoolFILE # <i>Oxxx</i> ; DEV= <i>ldn</i> (where <i>ldn</i> is another printer). If the problem persists, it may be a hardware problem.
SP= <i>ldn</i> / <i>≠1 devicefileid</i> DELETED, SPOOFLE I/O ERROR	The input spooler on the specified spooler <i>ldn</i> has deleted the spooled devicefile with the specified devicefile identification due to a disc I/O error, or a problem obtaining disc space.	Make sure that a sufficient space exists for the spooled devicefile. Have the System Manager :RUN FREE2.PUB.SYS. Check free space for all SPOOL class discs. Delete unreferenced spooled device - files if possible. Allow output spoolers to free up space and try input operation again. Try to recover lost disc space by doing a COOLSTART. If trouble is not disc space, then a disc I/O error is indicated.

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
SP# <i>ldn</i> /#1 <i>devicefileid</i> DELETED, SPOOLEE I/O ERROR	The input spooler on the specified spooler <i>ldn</i> has deleted the spooled devicefile <i>devicefileid</i> due to a problem obtaining a spooled device.	Try reading in the job again, or streaming the job.
SP# <i>ldn</i> FORMS DONE	The spooler on the specified spooler <i>ldn</i> has finished printing the forms.	Information only.
SP# <i>spoolenumber</i> / IS <i>jobnum</i> ; <i>filename</i> ON LDEV# <i>ldn</i> (Y/N)?	You are asked to verify that you did request <i>jobnum</i> ; <i>filename</i> forms on the device ( <i>ldn</i> ) indicated.	You need to =REPLY with a YES, which means they are requested, or NO, which means to reject the request.
SP# <i>spoolenumber</i> / LDEV# FOR: <i>jobnum</i> ; <i>filename</i> ON <i>devclass</i> (NUM)?	You are requested device assignment (or rejection, 0) following a forms request for spooled devicefiles.	You need to =REPLY with a <i>ldn</i> to assign the correct printer (with forms to the requesting job/session).
SP# <i>ldn</i> /#0 <i>devicefileid</i> PREVIOUS FORMS ASSUMED	The output spooled devicefile with the indicated devicefile identification is about to be copied to the spooler <i>ldn</i> , but it was previously deferred while forms were mounted. The spooler assumes these forms are currently mounted on the indicated device ( <i>ldn</i> ).	If correct forms are not mounted, physically stop the printer and enter :ALTPOOLFILE <i>ldn</i> , DEFER . Mount correct forms and resume output with :ALTPOOLFILE # <i>Onnn</i> ;PRI=14.
SP# <i>ldn</i> /SPOOLED IN	The spooler on the specified spooler <i>ldn</i> has begun input spooling.	Information only.
SP# <i>ldn</i> /SPOOLED OUT	The spooler on the specified spooler <i>ldn</i> has begun output spooling.	Information only.
SP# <i>ldn</i> /STOPPED	A normal termination of a spooler on the specified spooler <i>ldn</i> is confirmed.	Information only.
SP# <i>ldn</i> /STOPPED, NO SUCH DEVICE	You attempted to initiate a spooler on an undefined spooler <i>ldn</i> .	Information only.
SP# <i>ldn</i> /STOPPED, SPOOLEE I/O ERROR	The input spooler on the specified spooler <i>ldn</i> has detected a disc I/O error or a problem obtaining disc space for a spooled devicefile; the spooler stops and the active devicefile is deleted.	Make sure that sufficient space exists for the spooled devicefile. Have the System Manager :RUN FREE2.PUB.SYS. Check free space for all SPOOL class discs. Delete unreferenced spooled device — files if possible. Allow output spoolers to free up space and try input operation again. If trouble is not disc space then a disc I/O error is indicated.

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE	
SP# <i>Idn</i> /STOPPED, SPOOLEE I/O ERROR	The spooler on the indicated spooler <i>Idn</i> has detected an error in attempting to read, write, or control its spooler. The spooler stops immediately: an input spooler will delete any currently ACTIVE spooled device file, while an output spooler will defer (set OUTPRI to 0) any currently ACTIVE spooled device file. May be attempting a rewind on a magnetic tape device without a tape mounted.  This generally indicates a hardware problem, but can also occur in response to an =ABORTIO command.	Try and restart the spooler: :STARTSPOOL, <i>Idn</i> . If problem persists the device or the medium (cards, magnetic tape, etc.) if faulty.  If device is magnetic tape, check that a that a tape is mounted.	
SP# <i>Idn</i> /STOPPED, SPOOLEE NOT ACCEPTING	The specified <i>Idn</i> is neither :JOB nor :DATA accepting, causing the input spooler to stop (it cannot recognize further :JOB or :DATA commands).	Use the :ACCEPT <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>JOBS, DATA,</td></tr></table> <i>Idn</i> and :STARTSPOOL, <i>Idn</i> to restart the input spooler.	JOBS, DATA,
JOBS, DATA,			
STANDARD FORMS	You have special forms mounted on a device, and a devicefile not requiring special forms is assigned to the device.	You need to reply to the message by entering a =REPLY YES if standard forms are mounted or NO if special forms are mounted and printing is to be deferred.	
STANDARD FORMS REQUIRED FOR SSTDLIST: LDEV# <i>Idn</i> READY (Y/N)?	You are asked if the specified logical device ( <i>Idn</i> ) is ready to mount the standard forms required for SSTDLIST.	You are required to reply with YES or NO. If the <i>Idn</i> is ready to have forms mounted =REPLY YES. If the <i>Idn</i> is in use =REPLY NO.	
SYSTEM VOLUME ON LDEV# <i>Idn</i>	A system volume is mounted on the specified <i>Idn</i> which is a private volume device.		
UNFORMATTED VOLUME ON LDEV# <i>Idn</i>	An unconditioned volume has been mounted on the specified private volume device.	The volume can be conditioned on-line using the :VINIT Subsystem.	
UNLOCKSEG FAILURE	The UNLOCKSEG intrinsic failed. Internal software error.	<ul style="list-style-type: none"> <li>• COOLSTART the system (to reclaim the line monitor's stack).</li> <li>• Contact your HP representative.</li> </ul>	
UNREADABLE LABEL ON LDEV# <i>Idn</i>	The volume mounted on private volume device <i>Idn</i> contains a media error which prevents its label from being read.		

Table A-3. Console Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
<i>vcsname.grp.acct</i> IN USE BY <i>user.acct</i>	The specified disc volume is being used by the user specified.	Information only.
<i>vname</i> OF <i>vcsname.group</i> . <i>acctout</i> ON LDEV # <i>ldn</i>	A private disc volume has been mounted on the drive specified by <i>ldn</i> . The volume has been fully conditioned and assigned to a volume class/set.	Information only.
VOLUME ID FOR <i>filename</i>	A labeled tape was opened but no volume header information is supplied; or an unlabeled tape was mounted for a write operation when a labeled tape was expected.	Supply a six-character alphanumeric volume header which will be written on the tape as identification (for example, =REPLY 19,VOL02).
VOLID FOR VOL <sub><i>n</i></sub> OF VOLUME SET <i>valid</i> ON LDEV# <i>ldn</i>	An unlabeled tape is mounted.	Supply a six-character volume identification which will be written on the tape for identification.
VOL <i>valid</i> (ANSI) MOUNTED ON LDEV# <i>ldn</i>	The recognized tape has an ANSI-standard label.	Information only.
VOL <i>valid</i> (IBM) MOUNTED ON LDEV# <i>ldn</i>	The recognized tape has an IBM-standard label.	Information only.
VOL UNLABELED MOUNTED ON LDEV# <i>ldn</i>	The recognized tape has no label.	Information only.
WRONG REEL ON LDEV# <i>ldn</i> . ANOTHER AVAILABLE (Y/N)?	When doing multi-reel RESTOREs, you allocated tapes in the wrong order, or you mounted a tape which was not in this tape set.	If another reel is available, you need to =REPLY with a YES and mount the new reel on the logical device specified in the message. If not, =REPLY NO.
ZSIZE ERROR	The ZSIZE intrinsic failed. Internal software error.	Contact your HP representative.

Messages issued by the User Logging Facility are listed in the table A-4.

Table A-4. User Logging Messages

UNABLE TO OPEN USER LOGFILE XXX (ULOGERR 1)  
UNABLE TO OPEN USER LOGGING BUFFER FILE (ULOGERR 2)  
CAN'T OPEN USER LOGGING FILE XXX (ULOGERR 3)  
NO DATA SEGMENT AVAILABLE FOR USER LOGGING PROCESS XXX (ULOGERR 4)  
FILE LABEL ERROR ON USER LOGFILE XXX (ULOGERR 5)  
ERROR WHILE WRITING TO USER LOGGING BUFFER. (ULOGERR 6)  
ERROR WHILE WRITING TO USER LOGGING FILE XXX (ULOGERR 7)  
OUT OF USER FILE SPACE FOR USER LOGGING PROCESS XXX (ULOGERR 8)  
OUT OF DISC SPACE. (ULOGMSG 9)  
USER LOGGING PROCESS XXX IS RUNNING. (ULOGMSG 10)  
USER LOGGING PROCESS XXX IS TERMINATED. (ULOGMSG 11)  
RECOVERED n RECORDS FOR LOGGING PROCESS XXX  
INCLUDING n OPENS AND n CLOSES (ULOGMSG 12)  
ERROR WHILE RECOVERING USER LOGFILE XXX (ULOGMSG 13)  
USER LOGFILE XXX NOT RECOVERED. (ULOGMSG 14)  
RECOVERING USER LOGFILE XXX (ULOGMSG 15)  
USERLOG XXX RESTARTED. (ULOGMSG 16)  
LOGGING FILE FOR LOGGING PROCESS XXX IS EMPTY. (ULOGMSG 17)  
LOGGING PROCESS XXX SUSPENDED, TERMINATION PENDING. (ULOGMSG 18)  
INVALID DISC LOGGING FILE FOR LOGID XXX. (ULOGERR 19)  
UNABLE TO START/RESTART LOGGING PROCESS XXX. (ULOGMSG 20)  
LOGGING PROCESS XXX IN USE, TERMINATION PENDING. (ULOGMSG 21)  
USER LOGGING FILE XXX NOT EMPTY (ULOGMSG 22)

Table A-5. Irrecoverable Communication Error Codes

<p>Irrecoverable errors are divided into the six categories described next. The individual codes you are most likely to receive are described in the second part of this table. If you receive any not explained, contact your HP representative.</p>	
ERROR CODES	DESCRIPTION
1 through 40	The communications software could not open the line, probably due to incorrect MPE I/O configuration.
41 through 50	An internal software error occurred involving CS intrinsics (including COPEN.) Contact your HP representative.
51 through 81	An internal software error occurred involving CS intrinsics (not including COPEN.) Contact your HP representative.
84 through 109	A hardware error occurred or the INP self-test failed.
110 through 113	The INP trace process detected errors.
115 through 124	The mainframe interconnect driver detected an irrecoverable error.
125 through 150	A hardware error occurred.
151 through 200	An error or exceptional condition caused the line to be disconnected. (Drive dependent.)
201 through 250	An error or exceptional condition occurred but the line was not disconnected. (Driver dependent.)

Table A-5. Irrecoverable Communication Error Codes (Continued)

ERROR CODE	DESCRIPTION
0	Communications request completed successfully.
7	Driver not found. Add the CSSMRJEO driver to the MPE configuration.
8	Driver not compatible with the attributes of the communication line. Reconfigure MPE to include the MRJE/3000 devices.
9	Driver not changeable. Reconfigure MPE and specify that the SSLC driver is changeable. (Respond YES to the DRIVER CHANGEABLE? prompt.)
10	The SSLC for MRJE/3000 is undefined in the MPE configuration. Reconfigure MPE to include the SSLC.
11	Device not available. The logical device for the SSLC has been DOWNed. The console operator should UP the device.
12	In the MPE configuration, the DRT numbers specified for the MRJE/3000 pseudo devices do not back reference the SSLC. Reconfigure the MRJE pseudo devices into MPE being certain to enter the logical device number of the SSLC as the DRT number for each associated pseudo devices.
13	The communications line is in use by another data communications subsystem. The console operator should terminate the other subsystem and reenter the MRJE START command.
19	The configuration of the SSLC is not compatible with the line type. Reconfigure MPE.
24	The trace file could not be opened.
53	An I/O error occurred on the trace file.
101	The device is not responding.
102	A transfer error occurred.
103	The data set is not ready. Indicates the remote system disconnected the line, or some sort of problem developed with the modem.
104	Carrier loss. The modem may have disconnected or the phone line has a problem.
105	The data was overrun.
154	Power failure. The line disconnected.
156	An internal error was detected by the SSLC driver. The line disconnected. Contact your HP representative.
157	MRJE/3000 detected a remote protocol error. The line disconnected.
207	Transmission retry count exhausted. MRJE disconnected the line.
209	Receive timeout.

# COLD LOAD HALTS

APPENDIX

B

While cold loading the system, one of the error messages shown in Table B-1 may appear. MPE will output a special message on the operator console and halt. There are hardware halts that also occur while cold loading the system, as shown in Table B-3.

Table B-1. Cold Load Error Messages

MESSAGE	MEANING	RECOVERY PROCEDURE
BAD DISC ADDRESS	An address greater than the available number of sectors on the disc driver. This indicates an error internal to the system.	Attempt to COLDSTART from another tape. If this fails attempt a RELOAD; if this fails use the disc diagnostic to re-format all discs and try to RELOAD again. If RELOAD is unsuccessful contact your HP Customer Engineer.
BAD FILE ADDRESS	You attempted to write outside the range of one of the system files.	You should attempt a RELOAD. If this is unsuccessful use the disc diagnostic to re-format all discs and try to RELOAD again. If this fails contact your HP Customer Engineer.
BANK WRAP-AROUND	You configured too many devices during the I/O Configuration.	You should delete unneeded devices during the I/O Configuration.
COLD LOAD TAPE READ ERROR	A tape-read error was detected during the cold load operation.	You should clean the tape heads and re-try. If this is unsuccessful, try a different tape (any tape produced by :SYSDUMP with the current version of the operating system being cold loadable).
DIFFERENT PROCESSES SPECIFIED FOR DRT <i>num</i>	There are different processes mentioned for the specified DRT.	You should check the device drivers, re-configure the system, and retry.
DIRECTORY ERROR A = < <i>num</i> >, B = < <i>num</i> >	An error occurred while accessing the directory.	Refer to Table B-2 for the meaning of A and B.
DISC SPACE ERROR	A conflict exists between the disc free-space map and the space used as defined in the directory.	You should attempt a RELOAD. If RELOAD is unsuccessful use the disc diagnostic to reformat all discs then attempt to RELOAD again. If this fails contact the HP Customer Engineer.

Table B-1. Cold Load Error Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
DISC DRIVER DOES NOT EXIST	You attempted a transfer to a disc with a type or subtype unknown to the system, which indicates a disc error has occurred on the specified logical device.	You should attempt to cold load again. If any non-standard drivers (non-HP I/O Drivers) are in the configuration they should be deleted. <i>See Operator Functions</i> , Deleting an I/O Device in Section V. If this fails attempt to Cold Load from a different tape. If this fails try to RELOAD. If this fails run the disc diagnostic to format all discs and try to RELOAD again. If RELOAD is unsuccessful contact your HP Customer Engineer.
DISC $\left\{ \begin{array}{l} \text{READ} \\ \text{WRITE} \\ \text{SEEK} \end{array} \right\}$ ERR ON  LDEV# <i>ldn</i> STATUS=% <i>number</i> ADDR=% <i>number</i> WORDS= <i>words</i>	A disc error has occurred on the specified ldn.	You should cold load again as you will be prompted to take action on the bad track.
EOF	An attempt has been made to read past the end of one of the system files.	You should attempt a RELOAD. If this fails use a different system tape and try again. If this fails contact your HP Customer Engineer.
HALT PARM = <i>num</i>	This halt is implemented to allow printing of the STACK MARKER TRACE as follows:  STACK MARKER TRACE ----- ----- ----- 0 0 0 0  This will help the user analyzing a dump.	Information only; it usually follows one of the other Cold Load error messages.
FILE <i>name</i> .PUB.SYS NOT ON DISC	This specified file was needed but was not found in the directory.	Obtain another tape containing the system and UPDATE. If no current system tape is available, attempt UPDATE to an <i>obsolete</i> version of the system as a temporary measure; then contact your HP Customer Engineer for a current copy of the system.
IMPROPER TAPE FORMAT	The information on the tape you used for RELOAD does not agree with the format of tapes produced by the :STORE and :SYSDUMP commands.	You should locate the correct tape set and start the RELOAD operation again. If you are sure the tape set you are using was produced by :SYSDUMP go back to a previous generation of back up tapes and try again. Use a different tape drive if possible. If that fails contact your HP Customer Engineer.

Table B-1. Cold Load Error Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
INITIATOR/COMPLETOR FOR LDEV # <i>ldn</i> SUPPOSED TO BE CORE RESIDENT	The driver is not specified as core resident during a :SYSDUMP.	You should reconfigure the system and retry.
MORE THAN ONE PRIMARY INTERRUPT HANDLER FOR DRT <i>num</i>	You specified more than one primary interrupt handler the specified DRT.	You should check the device drivers for conflicts, reconfigure the system, and retry.
MOUNT CORRECT VOLUMES OR RELOAD	On a COLDSTART or UPDATE, not all of the previously-defined volumes were found.	You should either mount the correct volumes and start the COLDSTART or UPDATE over, or you should RELOAD.
OUT OF BOOTSTRAP DISC SPACE	The 30 sectors of the system disc allocated to the bootstrap program and certain tables have been exceeded; this is an error internal to the system.	You should attempt to RELOAD the system. If this fails attempt to RELOAD from a different tape set. If you are still unsuccessful contact your HP Customer Engineer for assistance.
OUT OF CST ENTRIES	The Initiator has run out of code segment table entries for the system.	Re-build the system tape (through the :SYSDUMP command), increasing the number of entries in this table (step 4.1 of the Configurator/User Dialogue, as described in the <i>System Manager/System Supervisor Reference Manual</i> ).
OUT OF DST ENTRIES	The Initiator has run out of data segment table entries for the system.	Re-build the system tape (through the :SYSDUMP command), increasing the number of entries in this table (step 4.3 of the Configurator/User Dialogue, as described in the <i>System Manager/System Supervisor Reference Manual</i> ).
OUT OF MEMORY	The amount of space needed to build the main-memory resident portion of the system, and contain one segment of the Initiator program and its associated tables, has exceeded the available memory size (usually 128K).	The Initiator program requires a minimum of 128K words (256K bytes) to run. If the system has been configured incorrectly below this value during a cold load, correct the error and try again. If the tables configured have memory sizes greater than 64K words, then all resident tables must reside in bank 0. If the system tape you are using for cold load was configured in error it can be corrected by changing the memory size via the Initiator dialog. (See <i>Operator Functions</i> in Section V.)
OUT OF PCB ENTRIES	The Initiator has run out of process control block table entries for the system.	Re-build the system tape (through the :SYSDUMP command), increasing the number of entries in this table (step 4.4 of the Configurator/User Dialogue, as described in the <i>System Manager/System Supervisor Reference Manual</i> ).

Table B-1. Cold Load Error Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
OUT OF SYSTEM DISC SPACE	The virtual memory, directory, and system file disc space required exceeds that available on the system disc. Usually, the system disc is cluttered with user files and an attempt is made to update to a new system.	The System Manager/Supervisor must create a new system tape to correct the problem. It may be necessary to use the previous system tape to bring up MPE, then delete the files on system disc.
OUT OF WSTAB ENTRIES	The Initiator has run out of working set tables entries for the system.	Re-build the system tape (through the :SYSDUMP command), increasing the maximum number of concurrently running programs allowed on the system (step 9.1 of the Configurator/User Dialogue, as described in the <i>System Manager/System Supervisor Reference Manual</i> ).
PREVIOUS RELOAD ABORTED; MUST RELOAD.	The last cold load was a RELOAD that was aborted.	You must cold load again with a RELOAD.
PREVIOUS TAPE COLD LOAD ABORTED; MUST COLD LOAD FROM TAPE	The last cold load was a COLDSTART or UPDATE that was aborted.	You must cold load again with COLDSTART, UPDATE or RELOAD.
READING BLANK TAPE	There is either a defective tape or a defective tape controller. (Reported by the magnetic tape controller.)	You should try to cold load using a known good system tape. If this fails contact your HP Customer Engineer.
SYSTEM TABLE ON DEFECTIVE TRACKS—CANNOT WARMSTART	At least one of the tables (DST Descriptor table, JMAT, IDD or ODD) which must be recovered for a WARMSTART is located on defective tracks.	You may attempt either a COLDSTART, or RELOAD. You will be requested to take some action on the defective track. See <i>Operator Functions</i> , Defective Disc Track Operations in Section V.
TAPE I/O CMD REJECTED	There is a defective tape controller.	If possible, you should try another tape drive. If this fails, contact your HP Customer Engineer. Possible memory problem.
TAPE PARITY ERROR	A parity error was detected while reading the magnetic tape.	You should clean the tape heads and try again. If the problem persists try another system tape, or try another tape drive if possible. If this fails contact your HP Customer Engineer.

Table B-1. Cold Load Error Messages (Continued)

MESSAGE	MEANING	RECOVERY PROCEDURE
TAPE TRANSFER ERROR	There is a defective tape controller (Reported by the magnetic tape controller.) or a memory parity error.	You should clean the tape heads and try again. If the problem persists contact your HP Customer Engineer.
TAPE UNIT WENT NOT READY	There is either a bad tape controller or you switched the tape unit off-line during an operation.	You should make sure the unit is selected and ready. If this is not the problem contact your HP Customer Engineer.
TIMING ERROR	There is a bad tape controller. (Reported by the magnetic tape controller.)	You should contact your HP Customer Engineer.
VOLUME TABLE DESTROYED; MUST RELOAD	The Volume Table maintained on the system disc has been overwritten.	You must RELOAD the system and format the disc. Possible Power/Ground problem.

Table B-2. Cold Load Directory Errors (Refer to Table B-1)

A = 1 DUPLICATE FILENAME DETECTED	B = NOT RELEVANT
A = 2 NON-EXISTENT NAME AT SOME POINT IN THE SEARCH	B = THE NON-EXISTENT NODE IN THE FORM OF A NUMBER AS FOLLOWS: 0 = FILE 1 = GROUP 2 = ACCOUNT 3 = USER
*A = 3 USER DOES NOT HAVE "SAVE" ACCESS	B = THE ACCESS LEVEL TO WHICH USER DOES NOT HAVE ACCESS IN THE FORM OF A NUMBER AS FOLLOWS: 1 = GROUP 2 = ACCOUNT
A = 4 NO ROOM. CANNOT ACCOMMODATE ANY MORE ENTRY BLOCKS IN DIRECTORY.	B = PERCENTAGE OF TOTAL ENTRY SPACE ACTUALLY IN USE.
*A = 5 NO ROOM. MORE THAN 65K ENTRIES IN DIRECTORY.	B = NOT RELEVANT
A = 6 NO ROOM. CANNOT ACCOMMODATE MORE CONTIGUOUS BLOCKS IN DIRECTORY.	B = NUMBER OF CONTIGUOUS BLOCKS BEING REQUESTED.
*A = 7 ENTRY CANNOT BE PURGED BECAUSE IT IS BUSY.	B = NOT RELEVANT
*A = 8 FILE SPACE LIMIT EXCEEDED	B = THE PERMANENT FILE SPACE REQUESTED HAS BEEN EXCEEDED FOR THE NODE IN THE FORM OF A NUMBER AS FOLLOWS: 1 = GROUP 2 = ACCOUNT
*Invalid error conditions for the Initiator only.	

Table B-3. Cold Load Hardware Halts

SEGMENT NAME (OR CST NUMBER) (snum)	APPROX. DELTA-P (snum)	HALT ARGUMENT (%)	PROCEDURE NAME	OFFSET IN PROCEDURE	CAUSE	ACTION
1		1			Powerfail	Cold load from tape.
1		2			Power on	Cold load from tape.
1		3			Stack overflow	Run diagnostic
1		4			Module interrupt	Run diagnostic
1		0			Data segment absent	Cold load from tape.
1		0			Trace interrupt	Cold load from tape.
1		0			User traps	Cold load from tape.
1		0			Priv. mode violation	Cold load from tape.
1		0			DST violation	Cold load from tape.
1		0			CST violation	Cold load from tape.
1		0			STT violation	Cold load from tape.
1		0			Unimplemented instruction	Cold load from tape.
1		0			Bounds violation	Cold load from tape.
1		10*			Module error	Run diagnostic.
1		12			System parity	Run diagnostic.
1		13			Address parity error.	Run diagnostic.
1		0			Code segment absent before.	Run diagnostic.
1		15			Stack underflow or CST/STT violation.	Run diagnostic.
1		17			STT entry uncallable.	Run diagnostic.
MAINSEG4 (20)		16			Diagnostic halt	Press RUN switch
BOOTSTRAP (37)	104	11	BOOTSTRAP	104	Bad disc cold load information table.	Cold load from tape/serial disc

Table B-3. Cold Load Hardware Halts (Continued)

SEGMENT NAME (OR CST NUMBER) (snum)	APPROX. DELTA-P (snum)	HALT ARGUMENT	PROCEDURE NAME	PROCEDURE (%)	OFFSET IN CAUSE	ACTION
BOOTSTRAP (37)	106	12	BOOTSTRAP	106	Bad disc cold load information table.	Cold load from tape/serial disc
BOOTSTRAP (37)	1127	3**	MHDISK	567	Disc seek error while in bootstrap.	Run diagnostic on system disc
BOOTSTRAP (37)	1453	4**	MHDISK	1113	Disc read/write error while in bootstrap.	Run diagnostic on system disc
BOOTSTRAP (37)	2020	5**	MH7905	1367	Disc read/write error while in bootstrap.	Run diagnostic on system disc.
BOOTSTRAP (37)	2520	2**	FHDISK	253	Disc error while in bootstrap	Run diagnostic on system disc.
BOOTSTRAP	2620	4	ERR-MESSAGE	263	Halts after printing error message***	Cold load from tape/serial disc

\* On Series 30, 33, and 44 an error message is printed in place of Halt Argument 10.

\*\* Applies to Series II/III only.

\*\*\* An error message is printed on the console unless halt occurs during INITIAL cold load. (A list of these messages can be found in Table A-1 (Series II/III, or Table B-1 (Series 30/33 and 44).

# SYSTEM FAILURES/RECOVERY

APPENDIX

C

System failures result in system failure messages followed by a halt. These occur only during system initialization; MPE must be in control (up and running) to receive these messages. When a halt occurs, a cold dump (Series II/III) or a software dump (Series 30/33/44) should be initiated.

System failures fall into seven categories:

1 - 199	SYSTEM INTERNALS	(CHECKER, HARDRES, ININ, LOG, PCREATE, DATASEG, FILEACC, FILEIO, MMDISKR, DEBUG)
200 - 299	I/O SYSTEM	(HARDRES, IOTERMO, NRIO, ININ)
300 - 399	PROCESS AND USER RELATED	(MORGUE, PROCSEG, RINS, ABORTRAP, LOADER1, ALLOCATE, SPOOLCOMS, PROGEN)
400 - 499	FILE SYSTEM	(DIRC, LABSEG, ALLOCATE, FILEACC, FILEIO)
500 - 599	USER INTERFACE	(JOBTABLE, COMM'INT, STORE/RESTORE, MORGUE)
600 - 799	KERNEL	(KERNELC, KERNELD)
900 - 999	DATA COMM	
1000 - 1100	SERIAL DISC	(SDISC)

When a pre-defined system failure occurs, MPE outputs a message on the console, as shown in the following format:

```
****SYSTEM FAILURE # enum; STATUS snum; DELTAP pnum
```

where

*enum* is the error number that identifies the type of error.

*snum* is the code segment number from which the system failure was called.

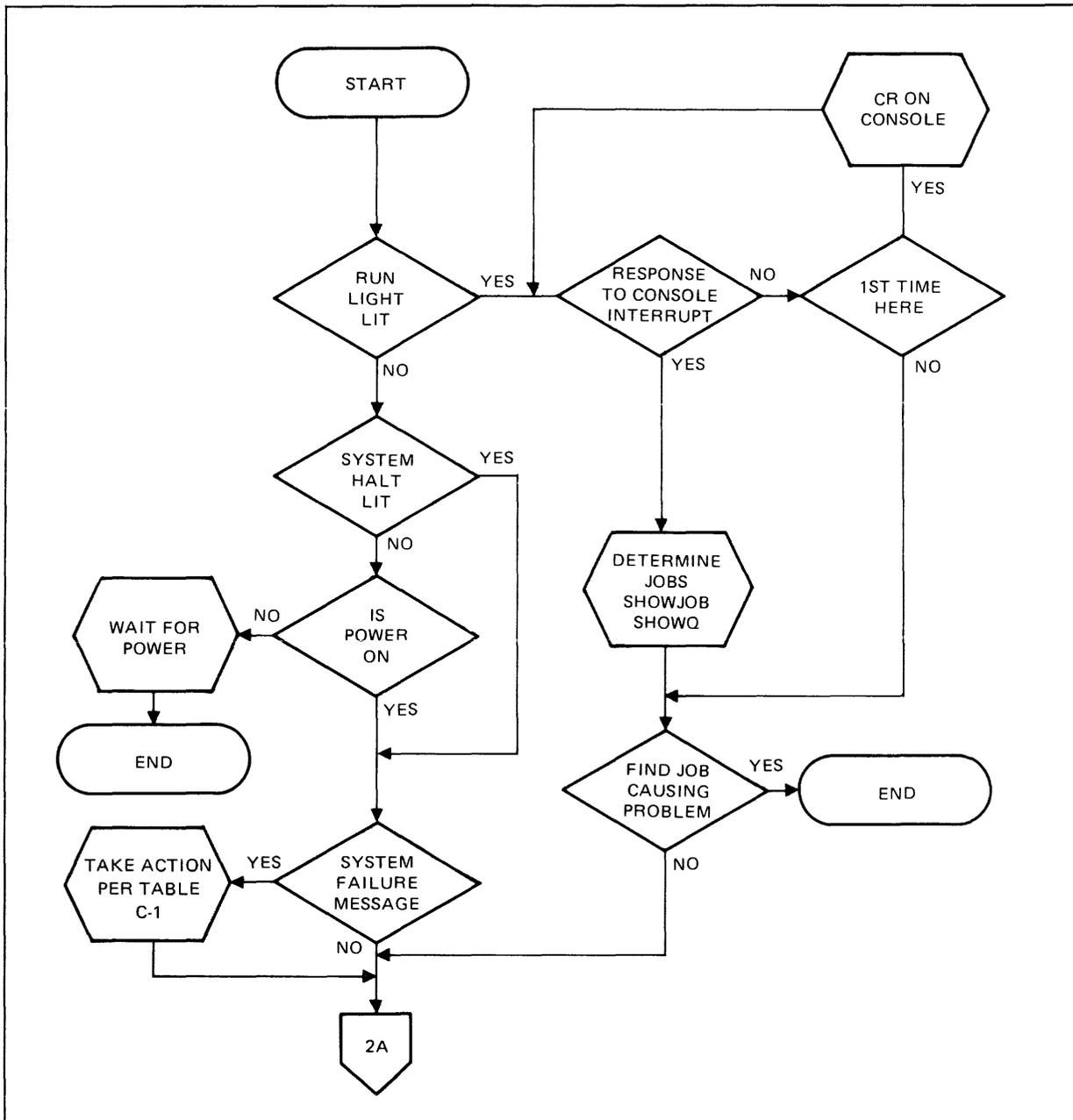
*pnum* is the program counter (delta-P) off-set.

For a discussion of any particular message, refer to table C-1. Notice, that a list of abbreviations used in table C-1 is shown in table C-2. The System Failure table shows error numbers, the names of the modules in which the failure was detected, the cause of the errors, and what action you should take in response to the messages.

Besides the system failures described in this appendix (those failures that are accomplished by a message), others may occur which are detected by abnormal behavior. For example:

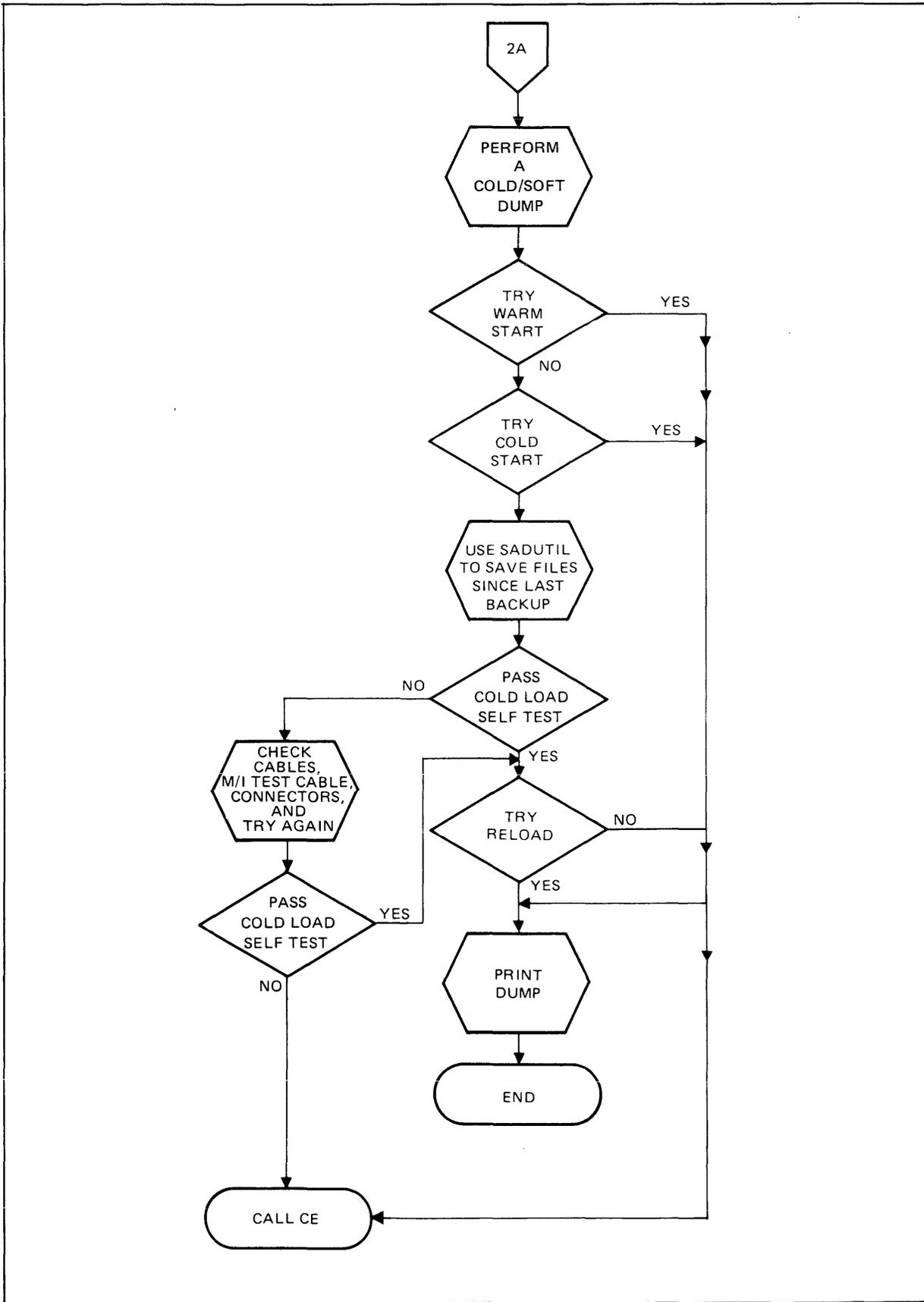
- No response on one or more terminals.
- No system activity
- System halt light is lit (hardware halt).
- Negligible throughput.

Under these circumstances, use the error analysis flowchart in Figure C-1 and attempt to locate the problem. However, **WHEN IN DOUBT PERFORM A COLD/SOFT DUMP.**



147021-5

Figure C-1. Error Analysis Flowchart



147021-6

Figure C-1. Error Analysis Flowchart (Continued)

Table C-1. System Failure List (System Internals)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
1	CHECKER/REQUOP	UCOP request list full	Enlarge the UCOP table (See your System Manager)
2	* HARDRES/TIMER	I/O failure to clock	Hardware problem, run diagnostic
3	HARDRES/TIMEREQ	Timer request list full	Enlarge the table (See your System Manager)
4	MISCSEGC/PSEUDOINT	Illegal pseudo interrupt	Perform a memory dump
7	* HARDRES/TICK	I/O failure to clock	Hardware problem, run diagnostic
8	ININ/TESTCRUNCH	Non-responding module when MPE code executing	Perform a memory dump. See note (2)
9	ININ/TESTCRUNCH	Illegal address in MPE	Perform a memory dump. See note (2)
10	ININ/TESTCRUNCH	Bounds violation, illegal address, non-responding module in MPE	Perform a memory dump. See note (2)
11	ININ/SYSTEMPARITY	System parity error	Hardware problem, run diagnostic
12	ININ/ADDRESSPARITY	Address parity error	Hardware problem, run diagnostic
13	MISCSEGC/ININ/DATAPARITY	Data parity error	Hardware problem, run diagnostic. See note (1)
14	ININ/MODULEINTERRUPT	Module interrupt	Hardware problem, run diagnostic
15	ININ/GHOST	Interrupt from unconfigured device, or undefined internal interrupt	Hardware problem, run diagnostic
16	ININ/DSTVIOLATION	DST violation internal interrupt	Perform a memory dump
23	ININ/STACKOVERFLOW	I/O failure on clock	Hardware problem, run diagnostic
24	HARDRES/ABORTTIMEREQ	Invalid timer request list index	Perform a memory dump. (See your System Manager)
25	HARDRES/TIMEREQ	Free list invalid	Perform a memory dump. (See your System Manager) Enlarge table – See note (3)
26	HARDRES/TIMEREQ	DIT or PCB pointer is zero	Perform a memory dump
27	HARDRES/TICK	DIT or PCB pointer is zero	Perform a memory dump

Table C-1. System Failure List (System Internals) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
28	HARDRES/ABORTTIMEREQ	An attempt was made to return a free entry to the free list	Perform a memory dump
30	LOG(PROCESS)	Process awakened with non-full buffer to be written	Perform a memory dump
31	LOG(PROCESS)	Want to switch to other buffer but it is not empty	Perform a memory dump
32	UTILITY	Invalid log record type number	Perform a memory dump
33	UTILITY	Invalid log record parameter type number	Perform a memory dump
35	UTILITY/FILEACC	An attempt was made to unlock CB without first locking it	Perform a memory dump
51	FILEACC	Invalid buffer number index	Perform a memory dump
52	FILEACC	Closing a DS/3000 line when DS/3000 is not on the system	Have System Manager check for misconfigured I/O devices such as terminals or RJE. (See note (4))
53	FILESYS/IOWAIT	I/O completed for 3270, but 3270 not installed in system	Check for misconfigured I/O devices such as terminals or RJE. See note (4)
59	FILEIO	Bad CB address in Vector Table	Perform a memory dump
60	FILEIO	Unexpected zero word count	Perform a memory dump
61	FILEIO	Bad word size in FCB	Perform a memory dump
62	FILEIO	Bad word size in FCB	Perform a memory dump
63	FILEIO	Bad word size in FCB	Perform a memory dump
64	FILEIO	Bad word size in FCB	Perform a memory dump
86	LABSEG	Data Inconsistency	Perform a memory dump Warmstart the system.
124	KERNELD/RELDATASEG	Attempt made to release a system defined (permanent) DST	Perform a memory dump
128	KERNELD	Releasing a segment which is non-overlayable	Perform a memory dump
160	KERNELD/ABORTDSEG	Attempt to decrement JDT reference counter for shared extra data segment below zero	Perform a memory dump
199	DEBUG/KERNELC	Illegal condition in MANAGE-STOP, LOC=0	Perform a memory dump

Table C-1. System Failure List (I/O Systems) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
200	*HARDRES/TIP	Device state (DSTATE) indicates ready, but software "paircode" is not ready	Perform a memory dump
201	HARDRES/TIP	I/O Failure, non-responding device on I/O Instruction (frequent cause misconfiguration)	Reconfiguration needed, Otherwise it may be a hardware problem so run diagnostic. See note (6)
202	HARDRES/RETURNBUF	Releasing a terminal buffer link when the terminal buffer is already in the free pool	Perform a memory dump
203	*IOTERM0/TERMIOM	Invalid terminal condition	Perform a memory dump
204	HARDRES/RETURNBUF	Returning I/O queue entry already in FREE list	Perform a memory dump
206	HARDRES/ATTACHIO	Invalid logical device	Perform a memory dump
207	**HARDRES	Incorrect transfer byte count	Perform a memory dump
208	HARDRES/TIP	Incorrect transfer byte count	Perform a memory dump, then Warmstart the system
209	**HIOTERM0		
	**HARDRES		
210	**HIOTERM0	Cannot execute SIOP/HIOP successfully	Perform a memory dump, then Warmstart the system
211	**HIOTERM0		Warmstart the system
249	HARDRES/CHECKINDEX	Invalid TBUF, SBUF, IOQ INDEX	Perform a memory dump
250	NRIO/GETSYSBUF	Bad SYSBUF Index	Perform a memory dump
251	HARDRES/RETURNSYSBUF	Bad SYSBUF Index	Perform a memory dump
252	HARDRES/RETURNSYSBUF	Bad SYSBUF Index	Perform a memory dump
260	HARDRES/SIODM	Core wrap around on data transfer	Contact your HP customer engineer. Perform a memory dump
261	HARDRES/SIODM	Completion interrupt on a completed request	Perform a memory dump. Check for peripheral hardware problem
262	*HARDRES/PTRIP	Bad status back from the papertape reader	Perform a memory dump
271	NRIO/IOMESSPROC	Driver asked for reply from operator, but failed to supply a DST number for the reply	Perform a memory dump
289	ININ/TRACE	Invalid SST entry	Perform a memory dump
299	HARDRES/SIODM	Return from IOUNFREEZE	Perform a memory dump

Table C-1. System Failure List (Process and User Related) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
300	MORGUE/EXPIRE	FREELOCRIN failed, RIN locked	Perform a memory dump
301	MORGUE/EXPIRE	UCOP did not kill process	Perform a memory dump
302	PROCSEG/ABORTPROG	Main process does not have a son	Perform a memory dump
303	RINS/FREELOCRIN	Global RIN in local RIN list	Perform a memory dump
310	ABORTDUMP/ABORT	System process aborted	Perform a memory dump
311	ABORTDUMP/ABORT	Process aborting while critical	Perform a memory dump
314	MORGUE	Process aborting with SIR	Perform a memory dump
348	LOADER1	Bad Loader Segment Table	Perform a memory dump
349	LOADER1	Bad Loader Segment Table	Perform a memory dump
350	ALLOCATE/ALLOCENTRY	Failed to increment XDD segment file	Perform a memory dump
351	ALLOCATE/DEALLOCENTRY	Failed to decrement XDD segment file	Perform a memory dump
352	ALLOCATE/SRELINKODD	Logical device not found in ODD head entries	Perform a memory dump
353	ALLOCATE/SPUTXDD	Logical device not found in XDD head entries	Perform a memory dump
360	ALLOCATE/GETCLASS	Bad class table pointer	Perform a memory dump
361	ALLOCATE	Invalid class table pointer	Perform a memory dump
362	ALLOCATE	Bad device number in class table	Perform a memory dump
363	ALLOCATE	Invalid logical device number	Perform a memory dump
364	ALLOCATE	Invalid class index	Perform a memory dump
365	ALLOCATE/GETCLASS	Illegal procedure parameters	Perform a memory dump
366	ALLOCATE/DEALLOCATE	Negative use count upon device deallocation	Perform a memory dump
370	SPOOLCOMS/INITSPoolING	Initial spooling attempt failed	Perform a memory dump
371	SPOOLCOMS/DELETJOB	ABORTJOB failed	Perform a memory dump
372	PROGEN/CONSSHUTDOWN	Unable to stop spooler	Perform a memory dump

Table C-1. System Failure List (File System) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
400	DIRC	Directory I/O error	Reload
401	DIRC	Directory I/O error	Reload
402	DIRC	Directory I/O error	Reload
405	DIRC	Directory I/O error	Reload
406	DIRC	Internal directory error on log on or log off	Perform a memory dump
407	DIRC	Directory I/O error	Reload
415	DIRC/DIRECINSERT		
418	DIRC	Internal directory error while winding or unwinding a group to its home volume set	Perform a memory dump
419	PVSYs/		Perform a memory dump
420	ALLOCATE/DISKDEALLOC	Negative usecount	Perform a memory dump
421	DISKSPC/DISCSpace	Negative count of freespace entries	Perform a memory dump
422	DISKSPC/DISCSpace	Return space that is already free	Perform a memory dump
423	ALLOCATE/DISCSpace	Invalid discspace parameter (NSECT)	Perform a memory dump
450	FILESYS/FGETCB	Bad control block pointer	Perform a memory dump
451	FILESYS/FRELCB	Bad control block pointer	Perform a memory dump
452	FILESYS/LOCACB	Bad control block pointer	Perform a memory dump
453	FILESYS/UNLOCACB	Bad control block pointer	Perform a memory dump
454	FILESYS/FCREATECB	Bad volume table index	Perform a memory dump
457	FILESYS/FLOCKCB	Vector table lock count overflow	Perform a memory dump
460	FILESYS/FCREATECB	Bad CB pointer DST	Perform a memory dump
461	FILESYS/FDELETECB	Bad CB pointer DST	Perform a memory dump
464	FILESYS/FCREATECB	Control block pointer out of range	Perform a memory dump
465	FILESYS/FCREATECB	Attempt to create duplicate CB DST	Perform a memory dump
466	FILESYS/FCREATECB	Illegal strategy	Perform a memory dump
467	FILESYS/SCANFMAVT	Out of FMAVT space	Perform a memory dump
468	FILESYS/FCONVBLK	DISCDEALLOC error	Perform a memory dump

Table C-1. System Failure List (File System) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
469	FILESYS/FOPENDA	DISCDEALLOC error	Perform a memory dump
470	FILESYS/FOPEN	DISCDEALLOC error	Perform a memory dump
471	FILESYS/FCLOSE	DISCDEALLOC error	Perform a memory dump
473	FILESYS/FOPENDA	DISCALLOC error	Perform a memory dump
475	FILESYS/FCONVBLK	CC <> from FCLEAR	Perform a memory dump
476	FILESYS/FCNKEOF	WAITFORIO error	Perform a memory dump
478	FILESYS/FNOBUF	CC <> from FCLEAR	Perform a memory dump
479	FILESYS/GETREC	WAITFORIO error	Perform a memory dump
480	FILESYS/FQUIESCEIO	WAITFORIO error	Perform a memory dump
481	FILESYS/FBREAK	BREAK on \$NULL	Perform a memory dump
482	FILESYS/FUNBREAK	LOCACB error	Perform a memory dump
483	FILESYS/FRSETEOF	RESET EOF on invalid file	Perform a memory dump
484	FILESYS/FOPEN	DIRECFINDFILE error	Perform a memory dump
485	FILESYS/FOPEN	SPOOFLE ATTACHIO error	Perform a memory dump
486	FILESYS	DS error	Perform a memory dump
487	FILESYS/IOWAIT	WAITFORIO error	Perform a memory dump
488	FILESYS/FRENAME	DELETEJENTRY error	Perform a memory dump
489	FILESYS/FCLOSE	FDELETE old \$OLDPASS error	Perform a memory dump
490	FILESYS/FCLOSE	DIRECJENTRY error	Perform a memory dump
491	FILESYS/FCLOSE	DIRECJENTRY error	Perform a memory dump

Table C-1. System Failure List (User Interface) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
500	JOBTABLE/REMJENTRY	Failure to contact DST	Perform a memory dump
501	JOBTABLE/XADDJENTRY	Invalid pointer	Perform a memory dump
502	COMM'INT/CXNEWACCT	Directory cannot be purged	Perform a memory dump
503	COMM'INT/CXNEWACCT	Duplicate entry in directory	Perform a memory dump
504	COMM'INT/CXNEWGROUP	Cannot find account logged on under	Perform a memory dump
	COMM'INT/CXALTGROUP	Cannot find account logged on under	Perform a memory dump
504	COMM'INT/CXNEWUSER	Cannot find account logged on under	Perform a memory dump
	COMM'INT/CXALTUSER	Cannot find account logged on under	Perform a memory dump
505	COMM'INT/CXNEWGROUP	Non-existent name in directory search	Perform a memory dump
	COMM'INT/CXALTGROUP	Non-existent name in directory search	Perform a memory dump
506	COMM'INT/CYDIRERR	Catastrophic directory error	Reload
509	COMM'INITJSMP MORGUE/STARTDEVICE /CLEANUP JOB	Error returned by command interpreter log table during "(command)" logon or logoff	Perform a memory dump
523	STORE-RESTORE/FRESTORE	FSF failed – File skipped forward to tape mark	Perform a memory dump
524	STORE-RESTORE/FRESTORE	DISCSPACE error: NSECT no good	Perform a memory dump
525	STORE-RESTORE/FRESTORE	DISCSPACE error: Table overflow	Perform a memory dump
526	STORE-RESTORE/FRESTORE	DISALLOC error (1)	Perform a memory dump
527	STORE-RESTORE/FRESTORE	DISALLOC error (5)	Perform a memory dump
528	STORE-RESTORE/FRESTORE	XDISKSPACE error (2)	Perform a memory dump
529	STORE-RESTORE/FRESTORE	XDISKSPACE error (3)	Perform a memory dump
530	STORE-RESTORE/ADJUSTFPTR	File level <> 0	Perform a memory dump
531	STORE-RESTORE/FSTORE	Sector count > 0D	Perform a memory dump
533	STORE-RESTORE/ISTORE	Directory problem	Perform a memory dump
534	STORE-RESTORE/RCSTORE		
535	UDC/INITUDC	UDC directory data segment is corrupted	Perform a memory dump

Table C-1. System Failure List (Kernel) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
600	KERNELC	Ran out of entries in special request table	Configure more entries
601	KERNELC	Ran out of entries in disc request table	Configure mor entries
602	PCREATE	Ran out of swappable entries	Configure more entries
603	KERNELC	Entry out of range in RELSYSTABENTRY	Perform a memory dump Warmstart the system
604	KERNELC	Illegal call to wait	Perform a memory dump Warmstart the system
606	KERNELC	Attempt to unlock or unfreeze segment which is not locked or frozen	Perform a memory dump Warmstart the system
607	KERNELC	Attempt to lock or freeze a a segment off ICS	Perform a memory dump Warmstart the system
608	KERNELC	Attempt to abort process requiring scheduling attention	Perform a memory dump Warmstart the system
610	KERNELC	Attempt to unexpectedly awaken process from critical event wait	Perform a memory dump
611	KERNELC	Illegal DB placement	Perform a memory dump Warmstart the system
612	KERNELC	Detection of integrity problem (in-motion-in-mechanism)	Perform a memory dump Warmstart the system
613	KERNELC	Synchronization problem with segment (in-motion-in-mechanism)	Perform a memory dump Warmstart the system
614	KERNELC	Detection of integrity problem in region header or trailer	Perform a memory dump Warmstart the system
615	KERNELC	Read abort problem	Perform a memory dump Warmstart the system
616	KERNELC	Attempting to make resident locked, frozen, or I/O frozen segment into overlay candidate	Perform a memory dump Warmstart the system
617	KERNELC	Request for segment fetch of unassigned ST entry	Perform a memory dump Warmstart the system
618	KERNELC	Memory management problem	Perform a memory dump Warmstart the system
619	KERNELC	Memory management integrity problem	Perform a memory dump Warmstart the system

Table C-1. System Failure List (Kernel) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
620	KERNELC	Low-level message system integrity problem	Perform a memory dump Warmstart the system
621	KERNELC	Impeding off ICS	Perform a memory dump Warmstart the system
622	KERNELC	Bad call to low level message system	Perform a memory dump Warmstart the system
623-629		Currently unassigned	
630	KERNELD	Attempt to release resident segment from RELDATASEG	Perform a memory dump Warmstart the system
631	KERNELD	Attempt to release I/O frozen segment from RELDATASEG	Perform a memory dump Warmstart the system
632	KERNELD	Virtual disc space management integrity problem	Perform a memory dump Warmstart the system
633	KERNELD	PXFILE size < zero?? in ALTPXFILESIZE	Perform a memory dump Warmstart the system
634	KERNELD	Pdisabled count <> zero	Perform a memory dump Warmstart the system
635-639		Currently unassigned	
640	ININ	Second stack overflow while disabled/pdisabled	Perform a memory dump Warmstart the system
641	ININ	Stack overflow while aborting	Perform a memory dump Warmstart the system
642	ININ	Stack overflow while I/O frozen and disabled/pdisabled	Perform a memory dump Warmstart the system
643	ININ	Stack overflow on resident, frozen, or locked stack	Perform a memory dump Warmstart the system
644	ININ	Absence trap while pdisabled	Perform a memory dump Warmstart the system
645	ININ	Invalid STT entry – entry address out of range	Perform a memory dump Warmstart the system
646-649		Currently unassigned	
650	KERNELC	Segment read disc I/O error	Perform a memory dump Warmstart until INITIAL detects defective track
651	KERNELC	Segment write disc I/O error	Perform a memory dump Warmstart until INITIAL detects defective track

Table C-1. System Failure List (Kernel) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
652	KERNELC	Too many devices queued for a segment	Perform a memory dump Warmstart the system
653		Currently unassigned	
654	KERNELC	Attachio returned I/O error code to UPDATEDISCOPY	Perform a memory dump Warmstart until INITIAL detects defective track
655	KERNELC	I/O error when zeroing-out a swap region	Perform a memory dump Warmstart until INITIAL detects a defective track
656-659		Currently unassigned	
660	HARDRES	Attempt to queue disc request that is already queued	Perform a memory dump Warmstart the system
661	HARDRES	Detection of integrity problem with disabling disc request	Perform a memory dump Warmstart the system
662	HARDRES	SIODM told to IOWAKE a process, but no PCB	Perform a memory dump Warmstart the system
663	HARDRES	Current request flag already set in next disc request selected for device	Perform a memory dump Warmstart the system
664-669		Currently unassigned	
680	KERNELC/KERNELD	Attempt to launch process with DB below DL	Perform a memory dump Warmstart the system
690	BIPC/IPC	Internal IPC problem	Perform a memory dump Warmstart the system
777	FILESYS/IOWAIT	CSIOWAIT missing	Reconfigure
800-899		Reserved for future product	

Table C-1. System Failure List (Datacomm Intrinsic) (Continued)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
900	COMSYS1/CSIOWAIT COMSYS4/CREAD /CWRITE	I/O request no longer with caller's process	Perform a memory dump
902	COMSYS3/CSDRIVERLOCK	Unable to freeze or unfreeze segment in main memory	Perform a memory dump
903	COMSYS3/CDRIVERLOCK /CRELEASE' COMSYS5/CCONTROL /CPOLLIST COMSYS6/CDELETETRACE- AREA	Unable to lock or unlock segment in main memory	Perform a memory dump
904	COMSYS5/CCONTROL	Unable to increase data segment size	Perform a memory dump
905	COMSYS6/CDELETETRACE- AREA	Unable to decrease data segment	Perform a memory dump
906	COMSYS3/CDRIVERUNLOCK COMSYS6/CPOLLIST	Unable to unfreeze segment in main memory	Perform a memory dump
907	COMSYS3/CDRIVERUNLOCK	Unable to unlock segment in main memory	Perform a memory dump
909		Invalid pointer to pollist area	Perform a memory dump
910		Unable to find IOQ in CS table	Perform a memory dump
911	FILEIO	IOWAIT to CS	Perform a memory dump
912	DS/DSSEG1, DSSEG4	RFA buffer size less than zero	Perform a memory dump
913	DS/IODS0	DSW and DSWR count disagree	Perform a memory dump
914	DS/IODS0, IODSTRM0	DS use count < 0	Perform a memory dump
915	DS/DSMON	Bad data and DEBUGON, 3	Perform a memory dump
916	DS/DSMON	DEBUGON, 3 and DS error	Perform a memory dump
917	DS/DSSEG2	Unable to locate DS line control block	Perform a memory dump
920	MRJE/IOMCONSO	Irrecoverable buffer state	Contact your HP representative
921	MRJE/IOMCONSO	Irrecoverable buffer state	Contact your HP representative

Table C-1. System Failure List (Serial Disc)

ERROR NUMBER	MODULE/PROCEDURE NAME	CAUSE	ACTION
1020	SDISC/SDISCIO	Invalid number of DST entries on ENTRY	Perform a memory dump
1021	SDISC/SDISCIO	Invalid number of DST entries on EXIT	Perform a memory dump
1042	ALLOCATE	Serial disc device allocated to two users simultaneously	Perform a memory dump

Table C-2. Abbreviations

ABBREVIATION	DESCRIPTION
CB	Control Block
CIR	Current instruction register
CPCB	Current process control block
CST	Code segment table
DB	Data Base
DIT	Device information table
DST	Data segment table
EN	Entry
FSF	File skipped forward
H/W	Hardware or firmware abbreviation
ICS	Interrupt control stack
IOQ	I/O Queue
LDEV	Logical device
MTAB	Memory table
PCB	Process control block
PIN	Process identification number
PSDB	Pseudo disable
RIN	Resource identification number
SBUF	System buffer
TBUF	Terminal buffer

- (1) The following message is printed on the console before the system failure message is printed:  
 PARITY ERROR  
 B = nnn (blank number)  
 A = addr (address)
  - (2) Contact your HP Customer Engineer. These system failures sometimes mask other types of software/hardware problems.
  - (3) The table may also be destroyed due to system problems. If the problem occurs a second time after enlarging the table, contact your HP Customer Engineer.
  - (4) User programs may also be a cause. Programmatic attempts to close a CS or DS line when these products are not on the system, also can cause these failures.
  - (5) The following message is printed on the console before the system failure message is printed: NON-RESPONDING DEVICE DRT nnn, LDEV ldn (The LDEV may not always appear.)
- \* Applies to Series II/III only  
 \*\* Applies to Series 30/33/44 only

The Vinit subsystem allows you to condition disc packs. Unlike the SLEUTH program, which can only be run offline while the system is down, Vinit is run online while the system is up and running.

Vinit can be used to condition disc packs formatted previously with the SLEUTH program, or it can be used to format and condition disc packs not formatted previously by SLEUTH. (For further information on the VINIT subsystem, refer to Appendix I in the System Manager/System Supervisor Reference Manual.)

## VINIT SUBSYSTEM

The Vinit subsystem is accessed with the :VINIT command. You must have System Supervisor (OP) or System Manager (SM) capability to use the VINIT subsystem. The format is:

```
VINIT [listdevice]
```

If *listdevice* is specified, output generated by certain Vinit functions is sent to the device specified.

Once accessed, Vinit displays a “greater than” (>) prompt and awaits a command from you. Vinit commands are described in the following paragraphs.

## INIT COMMAND

The INIT command is used to complete the conditioning of a private volume formatted previously by the SLEUTH program or by the Vinit FORMAT command. Do not use the INIT command to label a disc pack destined for the System Domain; this function is performed during the cold load as it is configured into the system. Also, the INIT command is not applicable to a foreign disc. The format is:

```
>INIT vname,ldn[,vsname.groupname.acctname] [;GEN=genindex]
```

<i>vname</i>	Specifies the name of the volume set member (volume) to be conditioned.
<i>ldn</i>	Specifies the logical device number on which the volume is mounted. This parameter must specify a non-system disc drive that is in the DOWN state.
<i>vsname.groupname.acctname</i>	Specifies the name of the volume set. This parameter (although shown as optional above), must be specified if the volume set name has not been specified in a previous > INIT command.
<i>genindex</i>	A value from 0 to 65535 specifying the generation index of the volume. If not specified, Vinit assigns an index of zero. All volumes of a volume set should be initialized with the same generation index to allow subsequent mountings to be successful.

If *vname* specifies the master volume of a volume set, additional initializing is performed. Specifically, a volume table of volume members, and a volume set file directory nucleus are placed on the volume.

Before a volume can be initialized, the following conditions must be met:

1. The volume must be physically mounted on the device specified by *ldn*.
2. The logical device must be a non-system disc drive in the DOWN state.
3. The volume must be a SCRATCH volume.
4. The volume must have been formatted previously with the SLEUTH program or with the Vinit FORMAT command.

As part of the initializing process, Vinit will construct a Defective Tracks Table. If defective tracks are encountered during initialization, a message indicating the number of suspect tracks detected is printed. You then must use the Vinit DTRACK command after completion of initialization to dispose of the defective tracks.

## FORMAT COMMAND

The FORMAT command allows online formatting of disc packs (including foreign discs). Formatting a volume is necessary only when a new, previously unused volume is to be initialized or when an irrecoverable pack error has been detected on a previously used volume. The format is:

> FORMAT *ldn*

*ldn* Specifies the logical device number of the device on which the volume is mounted. This parameter must specify a non-system disc drive which is in the DOWN state.

## NOTE

The FORMAT switch on the disc drive must be ON for the >FORMAT command to be effective. This switch is located behind the front door of the disc drive. See the appropriate Maintenance Manual for the device if you have any questions.

## SERIAL COMMAND

The SERIAL command is only used with serial disc volumes. It changes the volume label to indicate that the volume is a serial disc. The format is:

>SERIAL *ldn*

## FOREIGN COMMAND

The FOREIGN command allows you to create a foreign disc by filling the label area of a volume with zeros, whether or not it was previously formatted.

> FOREIGN *ldn*

*ldn* Specifies the device on which the volume is mounted. The device must be a non-system domain disc drive in the DOWN state. If the disc is subsequently mounted, the non-standard label area (track 0, sector 0) will result in the disc being automatically recognized as a foreign disc.

## SCRATCH COMMAND

The SCRATCH command allows you to set a volume to the scratch state, thus making it available for assignment to a volume set. In addition, the RESET parameter of this command can be used to set a volume from scratch to non-scratch. This command is not appropriate for foreign discs. The format is:

> SCRATCH *ldn*[;RESET]

*ldn* Specifies the logical device number of the device on which the device is mounted.

;RESET Resets a volume from scratch to non-scratch.

## COPY COMMAND

The COPY command copies the contents of one volume to a second volume. This command operates on a volume-by-volume basis. The master volume of the set need not be mounted; however, it is advisable to copy all members of a volume set at the same time. This command is applicable to foreign discs. The format is:

> COPY *fromldn,toldn* [;GEN=[*genindex* ] ]

*fromldn* The logical device number of the device containing the volume to be copied from.

*toldn* The logical device number of the device containing the volume to be copied to. This parameter must specify a device which is in the DOWN state or which has a scratch volume mounted on it. If it is DOWN but not SCRATCH, the user is prompted to verify that he wishes to destroy the old contents of the disc pack.

**;GEN=*genindex***

A value from 0 to 65535 specifying the generation index of the volume. If not specified, the generation index of the to-volume will be one greater than that of the from-volume. If **;GEN=** is specified but *genindex* is not, the generation index of the to-volume will be the same as that of the from-volume. You may specify a generation index for the to-volume that is different than that of the from-volume.

The following conditions must exist for the COPY command to be successful:

1. Both the to-device and the from-device must be in the DOWN state or have a scratch volume mounted on it.
2. Both devices must be of the same type (i.e., HP 7920A, etc.)
3. The to-device must have no deleted tracks where file extents exist on the from-device. (All defective tracks must have been REASSIGNED.)

The COPY command will place an image of the from-volume on the to-volume. No compaction or other reorganization of the file space on the volume will be performed. Areas in the from-volume's Free Space Table are skipped to speed up the copying process.

COPY operates on only one from-volume at a time. Thus, in order to back up a multi-volume set, multiple COPY operations have to be performed. Please note that because the volume set directory is located only on the master volume of a set, it would be of little practical use to back up only one member of a multi-volume set.

## DSTAT COMMAND

The DSTAT command displays the status of one or more disc drives. The format is:

>DSTAT  $\left[ \begin{array}{c} ldn \\ \{ALL\} \\ @ \end{array} \right]$

*ldn* Specifies the logical device number of a particular disc drive.

ALL or @ Displays the status of all system and non-system disc drives.

<*null*> Displays the status of all non-system disc drives.

## PDEFN COMMAND

The PDEFN command prints a listing from the system directory of the volume set definition for the specified volume set. The listing contains the following information:

Volume set definition.

Number of volumes in the volume set.

The index numbers, names, and device sub-types of all the member volumes.

This command is not applicable to foreign discs.

The format of the PDEFN command is:

```
>PDEFN [vsname*.group.account]
```

\* Specifies the home volume set for the group specified.

*vsname* Specifies a volume set name.

If neither \* nor *vsname* is specified, the listing will be for the volume set specified in the last INIT command.

An example of the PDEFN command:

```
>PDEFN USERVOL2.PUR.SYS
SET DEFINITION: USERVOL2.PUR.SYS      MVTAR INDEX: 0
NUMBER OF VOLUMES: 2  VOLUME MASK: %000003
INDEX  MEMBER  SUBTYPE
-----  -----  -----
  1    USERVOL2    4
  2    SLAVOL2     4
```

## PLABEL COMMAND

The PLABEL command lists the contents of the label of the volume mounted on the specified logical device. If the volume is a scratch volume or serial volume, a message signifying this is printed. Otherwise, the following information is printed for non-system private volumes:

Volume name.

Device type and sub-type.

Creation date and generation index.

Volume set to which the volume belongs.

Master volume set information.

The names of the member volumes of the set.

### NOTE

For all system or non-system disc drives, the volume name, device type, and sub-type are printed only.

This command is not appropriate for Foreign Disc Facility. The information generated is incorrect and is not taken from the label.

The format of the PLABEL command is:

```
>PLABEL ldn
```

*ldn* Specifies the logical device number of the device on which the volume is mounted.

An example of the PLABEL command:

```
>PLABEL 2
LDEV NAME: USERVOL2 , TYPE: 0, SUBTYPE: 4
CREATE DATE: 1/20/78, GENERATION: 0
VS NAMW: USERVOL2, GROUP: PUB , ACCOUNT: SYS
MASTER VOLUME INFORMATION -
DIR, BASE: 48 , DIR.SIZE: 500
```

```
VOLUME DIRECTORY
NAME      SUBTYPE
-----
USERVOL2  4
SLAVOL2   4
```

## PFSPACE COMMAND

The PFSPACE command causes a listing of the free space table for the volume mounted on the specified logical device. The listing contains the following information:

- Number of free space areas on the volume.
- Total volume capacity.
- Total free space available.
- Maximum contiguous area (size of largest free space).
- Number, address, and size of each free space on the volume.

This command is inappropriate for foreign discs.

The format of the PFSPACE command is:

```
>PFSPACE ldn
```

*ldn* Specifies the logical device number of the device on which the volume is mounted.

An example of the PFSPACE command:

```
>PFSPACE 2
NO. OF ENTRIES:      12
TOTAL VOLUME CAPACITY: 38400 SECTORS
TOTAL FREE SPACE AVAILABLE: 3514 SECTORS
MAXIMUM CONTIGUOUS AREA: 2318 SECTORS
NO.  ADDRESS  SIZE
---  -
1.   1594     224
2.   1831      1
3.   4992     336
4.   5358      19
5.  12473     344
6.  12827     246
7.  13133      5
8.  14459      5
9.  15321      6
10. 15362     10
11. 16822      4
12. 36082    2318
```

## PDTRACK COMMAND

The PDTRACK command allows you to print a list of all suspected, reassigned and deleted tracks referenced in the volume's Defective Tracks Table. This command is not appropriate for foreign discs. The format is:

```
>PDTRACK ldn
```

*ldn* Specifies the logical device number of the device on which the volume is mounted.

## COND COMMAND

The COND command will condense all free spaces referenced in a volume's Free Space Table into one contiguous area. The RECOVER option operates like the "Recover lost disc space" option of INITIAL in that it reclaims free unused spaces not referenced by the Free Space Table. This command is not appropriate for foreign discs. The format of the VINIT COND command is:

```
>COND ldn      [;SIZE=n]  
                [;ALL]  
                [;RECOVER]
```

*ldn* Specifies the logical device number of the device on which the volume to be condensed is mounted.

;SIZE=*n* Specifies the size (in sectors) of the smallest free area to be considered for condensing. The smaller the number, the more spaces are used and the longer the condense operation will take. Default value is 50 sectors.

;ALL If specified, all free space on the volume will be condensed.

;RECOVER For Private Volumes only. Equivalent to "Recover lost disc space" option of INITIAL.

If neither SIZE nor ALL is specified, only free areas 50 sectors or greater in size will be condensed.

A condense operation can be performed on either a system volume or a private volume; serial volumes cannot be condensed.

Once a condense operation has started, the VINIT subsystem cannot be aborted until the operation is complete. Interruption of a condense by any event will leave the disc in an unusable state, so always backup a disc before condensing it.

Unless specified otherwise in the COND command, only free areas of 50 sectors or greater in size are condensed. This method is less time consuming but results in less than optimal free space condensing.

If a private volume is to be condensed, the whole volume set that includes that private volume must be mounted. This is because as extents are moved, pointers to them in file labels must be updated.

Normally, a “COND *ldn*;ALL” command will condense all free spaces on a volume. However, areas which contain open permanent files, temporary and new files (including \$OLDPASS), or defective tracks cannot be moved. In addition, if any temporary files were open when a system failure occurred, those areas will not be reclaimed by “COND *ldn*;ALL”. Such space can only be recovered by the “Recover lost disc space” option of INITIAL for system volumes or by “COND *ldn*;RECOVER” for private volumes. The latter option, however, requires that the user of VINIT be the only session or job running in the system and have no temporary files. If any open permanent file is encountered, the RECOVER will be aborted without changing anything on the disc. The RECOVER option is changed to ALL for system volumes.

The condense function also checks that there are no suspect tracks on any member of the volume set (system volume set or private volume set). Any such tracks must be processed by DTRACK for private volumes or INITIAL for system volumes.

## DTRACK COMMAND

The DTRACK command allows you to process defective track errors which may have been detected during normal access to the volume or during initialization of the volume. This command is not applicable to foreign discs. The format is:

```
>DTRACK ldn
```

*ldn* Specifies the logical device number of the device on which the volume is mounted.

An error encountered during normal access to the volume will cause the accessing program to abort and cause the track to be flagged as SUSPECT. You can use VINIT DTRACK command to assign an alternate for the defective track. This also will take place during the next Cold-load.

A SUSPECT track causes the Defective Tracks Table for the volume to be examined. For each SUSPECT track noted in the table, you will be asked to specify a disposition of RECOVER or REASSIGN. It is best to always REASSIGN tracks. When REASSIGNed, files that pass through the track will be deleted. Their names will be listed and you must RESTORE a backup copy to recover the data.

Data tracks on an HP 7902 can only be deleted or recovered; while data tracks on an HP 7906, 7920, and 7925 can only be reassigned or recovered.

If a data track is deleted or reassigned, all files having extents on the track are purged. In this case, the master volume of the volume set should be mounted.

## NOTE

The FORMAT switch on the disc drive must be ON for the >DTRACK command to be effective. This switch is located behind the front door of the disc drive. See the appropriate Maintenance Manual for the device if you have any questions.

## EXIT COMMAND

The EXIT command exits the Vinit subsystem. The format is:

> EXIT

## HELP COMMAND

The HELP command prints a listing of the Vinit commands displaying the command name, syntax, and a brief definition of that command. The format is:

>HELP

An example of the HELP command:

```
:VINIT
VINIT 800.03 (C) HEWLETT-PACKARD CO., 1978
>HELP
  FORMAT ldev    <<writes a SCRATCH label;sets up FST,DTT,spares>>
  SERIAL ldev    <<writes a serial disc type label>>
  INIT volumename,ldev,vsid,gname,aname1;GEN=xx1 <<writes PV label>>
  INIT volumename,ldev[;GEN=xx] <<uses last VS from INIT OR PDEFN>>
  SCRATCH ldev;[RESET] <<writes(resets) a SCRATCH type label>>
  COPY from-ldev,to-ldev[;GEN=xx] <<copies volumes of the same type>>
  COND ldev[;ALL|SIZE=xx] <<condenses disc space holes>>
  COND ldev;RECOVER <<recovers lost disc space for PV>>
  DSTAT [ALL|@ldev] <<gives status of drives>
  PDEFN vsname.gname.acctname <<lists VS specified>>
  PDEFN *.gname.acctname <<lists home VS of gname.acctname>>
  PDEFN <<lists home VS of logon group (or repeats last VS)>>
  PLABEL ldev <<prints disc label>>
  PDTRACK ldev <<prints defective track table contents>>
  PFSPACE ldev <<prints free space table>>
  DTRACK ldev <<processes suspect tracks in defective track table>>
>EXIT

END OF SUBSYSTEM
:
```

## USING THE VINIT SUBSYSTEM

The following steps were used to format and initialize a private volume mounted on logical device number 3:

```
=DOWN 3
13:29/8/DISMOUNT ON LDEV# 3
13:33/8/UNKNOWN VOLUME ON LDEV# 3

:VINIT
VINIT SUBSYSTEM (A. 0)
>DSTAT ALL
  LDEV-TYPE      STATUS      VOLUME (VOLUME SET-GEN)
-----
  1-7920         SYSTEM      MH7920U0
  2-7905(R)      PV-AVAIL   USERVOL1 (USERVOL1.PUB.SYS-0)
  3-7920(R)      DOWNED     (*.0)
  4-7920(R)      PV-AVAIL   SLAVOL1  (USERVOL1.PUB.SYS-0)
  5-7920(R)      PV-AVAIL   SLAVOL2  (USERVOL1.PUB.SYS-0)
  6-7920(R)      PV-AVAIL   SLAVOL3  (USERVOL1.PUB.SYS-0)
>SCRATCH 3
>FORMAT 3
>INIT PRIVOL1,3,PRIVOL1.PUB.SYS
  ENTER DIRECTORY SIZE (SECTORS): 500
>DSTAT ALL
  LDEV-TYPE      STATUS      VOLUME (VOLUME SET-GEN)
-----
  1-7920         SYSTEM      MH7920U0
  2-7905(R)      PV-AVAIL   USERVOL1 (USERVOL1.PUB.SYS-0)
  3-7920(R)      DOWNED     PRIVOL1  (PRIVOL1.PUB.SYS-0)
  4-7920(R)      PV-AVAIL   SLAVOL1  (USERVOL1.PUB.SYS-0)
  5-7920(R)      PV-AVAIL   SLAVOL2  (USERVOL1.PUB.SYS-0)
  6-7920(R)      PV-AVAIL   SLAVOL3  (USERVOL1.PUB.SYS-0)
>EXIT

END OF SUBSYSTEM
```

The following steps demonstrate initialization of the master volume of a volume set. When the master volume is initialized, Vinit asks for the directory size (in sectors). Enter a value between 384 and 6000 (500 was used in the example). The DTRACK command is demonstrated in this example.

```

:VINIT
VINIT SUBSYSTEM (A. 0)
>DSTAT ALL
  LDEV-TYPE      STATUS      VOLUME (VOLUME SET-GEN)
-----
  1-7920         SYSTEM      MH792000
  2-7905(R)      PV-AVAIL   USERVOL1 (USERVOL1.PUB.SYS-0)
  3-7920(R)      DOWNED     (*.0)
  4-7920(R)      PV-AVAIL   SLAVOL1  (USERVOL1.PUB.SYS-0)
  5-7920(R)      PV-AVAIL   SLAVOL2  (USERVOL1.PUB.SYS-0)
  6-7920(R)      PV-AVAIL   SLAVOL3  (USERVOL1.PUB.SYS-0)
>SCRATCH 3
>FORMAT 3
>INIT PRIVOL1,3,PRIVOL1.PUB.SYS
  ENTER DIRECTORY SIZE (SECTORS): 500

```

# OPTIONS ON HOW TO MODIFY YOUR SYSTEM

APPENDIX

E

As a Console Operator, you may need to modify your operating system from time-to-time. Table E-1 gives you a list of five different options you have to make these changes happen; you can perform a WARMSTART, COOLSTART, COLDSTART, RELOAD, or UPDATE; changes can also be made thru Sysdump, which creates a tape from which the system can be coldloaded.

Table E-1. Options to Modify System

OPTION	COOLSTART	WARMSTART	COLDSTART	RELOAD	UPDATE	SYSDUMP
SPREAD				X		
COMPACT				X		
RESTORE				X		
ACCOUNTS				X		
NULL				X		
SYSTEM DISC DRT					X	
LOAD MAP	X	X	X	X	X	
CHANGES	X		X	X	X	X
SYSTEM ID						X
MEMORY SIZE	X		X	X	X	X
I/O CONFIG CHANGES	X		X	X	X	X
LIST I/O DEVICES	X		X	X	X	X
LIST CS DEVICES	X		X	X	X	X
HIGHEST DRT	X		X	X	X	X
LOGICAL DEVICE	X		X		X	X
MAX #OPEN SPOOLFILES	X		X	X	X	X
CLASS CHANGES	X		X	X	X	X
LIST CLASSES	X			X	X	X
DELETE CLASSES	X			X	X	X
ADD CLASSES						
ADD DRIVERS						
DRIVER CHANGES	X			X	X	X
LIST DISC VOLUME	X		X	X	X	X

Table E-1. Options to Modify System (Continued)

OPTION	COOLSTART	WARMSTART	COLDSTART	RELOAD	UPDATE	SYSDUMP
DISC VOL. CHANGES	X			X	X	X
DELETE VOLUME	X		X	X		
ADD VOLUME	X		X	X	X	
LIST DEFECT TRACKS	X		X	X	X	
DELETE TRACK	X		X	X	X	X
DISABLE LOGGING	X		X	X	X	
MAX # SPOOLFILES	X		X	X	X	X
MAX # SECTORS/SPOOL FILE EXTENT						X
RECOVER LOST DISC SPACE	X		X		X	X
LIST VOLUME TABLE	X		X	X	X	
SYSTEM TABLE CHANGES						X
SHARABLE CST						X
PROGRAM CST						X
DST						X
PCB						X
I/O QUEUE						X
TERMINAL BUFFERS						X
SYSTEM BUFFERS						X
MEM. MGMT TABLE						X
ICS						X

Table E-1. Options to Modify System (Continued)

OPTION	COOLSTART	WARMSTART	COLDSTART	RELOAD	UPDATE	SYSDUMP
UCOP RE- QUEST QUEUE						X
TIMER RE- QUEST LIST						X
BREAK- POINT TABLE						X
MISC CONFIG CHANGES						X
LIST GLOBAL RIN'S						X
DEL GLOBAL RIN'S						X
# RIN'S MIN MAX						X
# GLOBAL RIN USED MIN/MAX						X
# SECONDS LOGON						X
MAX # CON- CUR SES- SIONS						X
MAX # CON- CUR JOBS						X
DEFAULT JOB CPU LIMIT						X
LIST MESS CATALOG						X
MESSAGE CAT CHANGES						X
LOGGING CHANGES						X
LIST LOGGING STATUS						X
CHANGE STATUS						X
LOG FILE RECORD SIZE						X

Table E-1. Options to Modify System (Continued)

OPTION	COOLSTART	WARMSTART	COLDSTART	RELOAD	UPDATE	SYSDUMP
LOG FILE SIZE						X
DISC ALLOC CHANGES						X
VIRTUAL MEMORY						X
DIRECTORY USED MIN MAX						X
SCHEDULING CHANGES						X
TERMINAL PRIORITY						X
SEGMENT LIMIT CHANGE						X
MAX # CON-CUR PRO-GRAMS						X
MAX CODE SEG SIZE						X
MAX # SEG/PROCESS						X
MAX STACK SIZE						X
MAX EXTRA DATA SEG SIZE						X
MAX # PER PROCESS						X
STD STACK SIZE						X
SYSTEM PRO-GRAM CHANGE						X
SYSTEM SL CHANGES						X

Table E-1. Options to Modify System (Continued)

OPTION	COOLSTART	WARMSTART	COLDSTART	RELOAD	UPDATE	SYSDUMP
DELETE SEGMENT						X
ADD SEGMENT						X
LIST SEGMENT						X

# CARE AND HANDLING OF STORAGE DEVICES

APPENDIX

F

Storage devices require careful handling to ensure complete and accurate data. If you want to maintain the quality and lengthen the life of your storage devices (disc packs, disc cartridges, flexible discs and magnetic tapes) you should be aware of certain safeguards.

## DISC PACKS AND CARTRIDGES

The following considerations must be given to storing disc packs or cartridges because temperature and cleanliness of the storage area can affect their interchangeability between disc drives:

- The temperature of the disc drive and the disc pack or cartridge must be within +3 C (+5.4 F) of each other to ensure optimum performance. If the waiting time is not critical and the disc packs (or cartridges) are stored in another area, the temperature of the storage area should be maintained between -15 C and 60 C (5 F and 140 F) with the relative humidity between 0 and 95 percent (non-condensing). If the temperature and relative humidity of the storage area are different than the disc pack (or cartridge) operating requirements, the disc packs must be allowed 2 hours for environmental stabilization when brought into the operating area.
- It is desirable to have disc packs (or cartridges) stored in environmental surroundings that are nearly identical to those of the operating area. Storing disc packs (or cartridges) in the same area where the disc drive is located will avoid the waiting time for disc drive and disc pack (or cartridge) temperature equalization.
- Disc packs or cartridges should always be stored flat and in a clean, dust-free area. It is advisable to provide steel storage cabinets with shelves adjusted to an appropriate height. For easy accessibility, it is recommended that disc packs (or cartridges) are not stacked more than two high. Disc packs and cartridges must not come in contact with any magnetic material.
- Always store the disc pack storage case with the top cover resting on the gasket of the bottom cover to minimize the possibility of introducing dust and dirt into the disc pack. It is also advisable to periodically wipe down the outside of the disc pack storage case with a liquid anti-static plastic cleaner.

There are also general precautions you should be aware of when handling disc packs and cartridges, as follows:

- Covers that are cracked, distorted or damaged should be replaced.
- Hands, pens, pencils, or other objects should be kept off the disc surfaces. The disc surfaces can be distorted or damaged through impact, excessive pressure, or abrasion.
- Beverages should be kept off the disc drive and away from the disc pack storage area. Beverages spilled on the disc pack or covers may require that the disc pack be reconditioned because of residue left on recording surfaces.

- Tobacco and all smoking accessories should be kept away from areas where disc packs are in use or disc drives in operation. The disc packs and cartridges could become contaminated.

## **MAGNETIC TAPES**

When storing magnetic tapes there are certain considerations you should be aware of to ensure quality data.

- Cabinets should be provided that allow magnetic tapes to be stored vertically.
- Tapes should not be stored on or adjacent to operating disc drive units because of the magnetic fields which are generated. Arrange the storage area so that the tapes do not contact any magnetic material (for example, magnetic latches on cabinets). Any magnetic field greater than 50 oersteds can destroy information on the tape.
- To reduce read errors, plan the storage area so that extremes of temperature and humidity are avoided. If this cannot be done, you must bring tapes to computer-room temperature from 4 to 16 hours before use.
- Acetate and polyester tapes should be maintained at the same temperature as the computer area.
- Tape heads should be cleaned after every 8 hours of use.

## **FLEXIBLE DISC**

The flexible disc is enclosed in a plastic jacket which is lined with a wiping material that cleans the disc of foreign matter. When not in use, the disc should always be stored in its protective envelope. To ensure error-free disc drive operation, the following additional precautions should be observed.

- Use only HP-approved flexible discs. Use of any others can result in damage to the drive mechanism, high maintenance costs, and data loss. HP warranty does not cover damage caused by the use of flexible discs not approved by HP.
- Return the disc to its storage envelope whenever it is removed from the disc drive.
- Replace storage envelopes when they become worn, cracked, or distorted.
- Do not touch or attempt to clean the surface of the disc. Abrasions may cause the loss of stored data.
- Do not write on the plastic jacket of the disc with a lead pencil or ballpoint pen. Use a felt-tip pen and write only on the label.
- Do not expose the disc to extremes of temperature and/or humidity.
- Keep the flexible discs away from magnetic fields and ferromagnetic materials that may become magnetized. Strong magnetic fields can distort the data recorded on a disc.

# SERIES II/III MICRO-PROGRAMMED DIAGNOSTICS

APPENDIX

G

Stored in the microcode are diagnostics to test the CPU registers, memory, and the I/O channels. You can access these diagnostics by a cold load procedure from the HP 3000 System Control Panel.

The tests are designed as preliminary trouble shooting aids to be run before calling an HP Customer Engineer. It is not necessary for you to completely understand how the tests function. However, it is important that you follow the instructions given in this section and carefully note error conditions if they occur. Record the information displayed in the Current Instruction Register and be prepared to report test results to the HP Customer Engineer when you make the initial service call.

## SERIES II DIAGNOSTIC TESTS

The microdiagnostic tests on the HP 3000 Series II Computer System are the:

- CPU Register Test
- Memory Test
- I/O Test

### CPU REGISTER TEST

This diagnostic tests the various registers. To run this diagnostic, perform the following steps:

1. Load octal 000201 into the SYSTEM SWITCH REGISTER.
2. Press the ENABLE and LOAD switches.

The program runs continuously until the RUN/HALT switch is pressed or until an error occurs.

When an error occurs, the CURRENT INSTRUCTION REGISTER (CIR) displays a coded register number that can be interpreted by referring to table C-1. Normal running time for a complete pass of the diagnostic is approximately one second.

#### NOTE

*When the SYSTEM SWITCH REGISTER bit 8 is set to 0, all memory is initialized with a HALT %10 instruction (%030370) prior to executing the cold load. If bit 8 is set to 1, no initialization occurs prior to the cold load.*

### MEMORY TEST

A test is available from the microprogram for testing memory. The SYSTEM SWITCH REGISTER bit 0 must be in the proper state for the test to run. With bit 0 off, the memory configuration test is accessed. Memory configuration test diagnostic time is approximately ten seconds.

To run the memory diagnostic, perform the following steps:

1. Load octal 000200 into the SYSTEM SWITCH REGISTER. (Note that bit 0 is off.)
2. Press the ENABLE and LOAD switches.

Table G-1. CPU Register Code

CIR	REGISTER	CIR	REGISTER
00	SP1 (1) (Note)	20	OPND (5)
01	PL (1)	21	DL (2)
02	Z (1)	22	SP2 (2)
03	X (1)	23	PB (2)
04	RD (R BUS) (1)	24	PCLK (2)
05	RC (R BUS) (1)	25	RD (S BUS) (2)
06	RB (R BUS) (1)	26	RC (S BUS) (2)
07	RA (R BUS) (1)	27	RB (S BUS) (2)
10	SP0 (1)	30	RA (S BUS) (2)
11	CRTL (2)	31	CTRH (2)
12	P (2)	32	ABS BANK (3)
13	Q (2)	33	PB BANK (3)
14	DB (2)	34	DB BANK (3)
15	SM (2)	35	S BANK (3)
16	STA (4)		
17	SP3 (2)		

- (1) Located on R-Bus PCA
- (2) Located on S-Bus PCA
- (3) Located on Skip-Special Field PCA
- (4) Located on Skip-Special Field PCA and S-Bus PCA
- (5) Located on Current Instruction Register PCA

NOTE

*SP1 is the first register tested and the problem may not necessarily be in SP1 but somewhere previous in the data path (Store logic, Shifter, ALU, etc.).*

The program runs until an error occurs.

When an error occurs the program pauses and the CIR contains the error data (lamp on=error bit). By pressing the RUN/HALT switch, the CIR then contains the address information shown in table G-2. The test should be continued so all memory is tested before any repairs are made. The test can be terminated by pressing the RUN/HALT switch.

Table G-2. CIR Address Information for Series II

CIR BIT	FUNCTION
0:3	Address bits 0:3
6,7	Bank number
10:14	CPX1 register bits 2:6
10	Illegal Address
11	CPU Timer
12	System Parity Error
13	Address Parity Error
14	Data Parity Error
15	Address bit 15

## I/O TEST

A Test Input/Output (TIO) instruction is executed on each I/O device number (%3 through %177) in sequence. Only those device numbers with a device connected will respond; empty device numbers are skipped. To run the I/O test, perform the following steps:

### NOTE

If the HP30354A Maintenance Panel is connected to the system, the TIMERS switch must be set to ENABLE.

1. Load octal 000202 into the SYSTEM SWITCH REGISTER  
Press the ENABLE and LOAD switches.
2. When an existing device number is encountered, the program pauses with the device number in CIR. The RUN light will be lit.
3. Press the RUN/HALT switch. CIR then displays the device status, the RUN light will not be lit.
4. Press the RUN/HALT switch. Steps 2 and 3 are repeated until all device numbers have been interrogated. The diagnostic is finished when the system halts and CIR displays octal 000200 (the RUN light will not be lit).

## SERIES III DIAGNOSTIC TESTS

The microdiagnostic tests on the HP 3000 Series III Computer System include the:

- CPU Register Test
- Memory Address Test
- I/O Test (TIO)

### CPU REGISTER TEST

This diagnostic tests the various registers. To run this diagnostic, perform the following steps:

1. Load octal 000 0001 into the SYSTEM SWITCH REGISTER.
2. Press the ENABLE and LOAD switches.

The program runs continuously until the RUN/HALT switch is pressed or until an error occurs.

When an error occurs, the test will pause in the run mode with the CURRENT INSTRUCTION REGISTER (CIR) displaying *bad-bits*. When the RUN/HALT switch is pressed, the test will system-halt with the CIR displaying a coded register number that can be interpreted by referencing Table G-1.

### MEMORY ADDRESS TEST

A memory address test is available for testing memory.

To run the memory diagnostic, perform the following steps:

1. Load octal 000000 into the SYSTEM SWITCH REGISTER.
2. Press the ENABLE and LOAD switches.

The program runs until an error occurs.

When an error occurs the program halts with the CIR displaying the error type as shown in Table G-3.

Table G-3. Error Type Information for Series III

CIR BIT ON	MEANING
(none)	Data Compare Error
4	System Parity Error
5	Address/Data Bus Parity Error
6	Multiple-Bit Error

Repeatedly depressing the RUN/HALT switch (after an error occurs) will cause the additional information shown in table G-4 to be displayed in the CIR.

Table G-4. CIR Information for Series III

No. Depressions of RUN/HALT Switch	CIR CONTENTS
1st	Bank number
2nd	Address
3rd	Actual data entered
4th	Expected data

**I/O TEST**

A Test Input/Output (TIO) instruction is executed on each I/O device number (%2 through % 177) in sequence. Only those device numbers with a device connected will respond; empty device numbers with a device connected will respond; empty device numbers are skipped. To run the I/O test, perform the following steps:

1. Load octal 000002 into the SYSTEM SWITCH REGISTER and press the ENABLE and LOAD switch.
2. When an existing device number is encountered, the program pauses with the device number in the CIR. The RUN light will be lit.)
3. Press the RUN/HALT switch. CIR then displays the device status.
4. Press the RUN/HALT switch. Steps 2 and 3 are repeated until all device numbers have been interrogated. The diagnostic is finished when the system halts and the CIR displays octal 000200. (The System-Halt Light will be lit.)

From time to time your Hewlett-Packard Customer Engineer or Systems Engineer may request that you run certain diagnostics on your system and report the results to him/her in order to assist in troubleshooting. These tests are available via the CMP. The following text provides you with the information you need to run these diagnostics and accurately report the results to your service person.

## ENTERING COMMANDS

The CMP is connected directly to the configured system console at the lowest address (channel 1, device 0), and is the standard device for use by all diagnostics. If, under MPE, the console has been switched to a terminal other than the configured console, you must be aware that all communication with the CMP takes place from the channel 1, device 0 terminal.

If MPE is operational, you can get the attention of the CMP by simultaneously depressing the CNTL and B keys. The control B character causes the CMP to print a prompt (→) on the system console. When you enter the desired maintenance or diagnostic command, the CMP will respond with the question "IS IT OK TO ABORT THE SYSTEM?" If MPE has not been previously =SHUTDOWN you must answer "YES". It is preferable, however, to =SHUTDOWN the system prior to invoking the CMP to assure that no data is lost. When the =SHUTDOWN command is entered, the CMP prints the HALT message, and then prompts you for further input. Note that in any case MPE MUST NOT BE OPERATIONAL WHEN USING THE CMP FOR MAINTENANCE AND DIAGNOSTICS.

### NOTE

If the CMP control functions are disabled when a CMP command is entered, the CMP will print the message "DISABLED" on the system console. The CONTROL FUNCTIONS switch on the System Control Panel must be set to the ON position, and the command re-entered. If the CMP maintenance functions are disabled when the "DISPLAY" or "SHUTTEST" command is entered, the same message ("DISABLED") is printed on the console. In this case, set the MAINT MODE switch on the System Control Panel to the ON position before re-entering the command.

## CMP COMMANDS FOR DIAGNOSTICS

### SELFTEST

This command initiates a selftest of the system. If MPE is operational when the command is entered, the message "IS IT OK TO ABORT THE SYSTEM?" is displayed. You must enter "Y" to continue the test.

If the system is not aborted, only sections of selftest which do not affect the CPU operation will be performed. When the system is halted, the entire test will be performed. It is best to use the MPE =SHUTDOWN command to make sure that the system is halted without damaging disc files.

To run the basic system selftest, enter the SELFTEST command to the CMP.

A parameter may be specified with the SELFTEST command. The parameter is a decimal number and is assigned a certain meaning. Your HP service person will let you know what (if any) parameter to use with the selftest command. Note that use of parameters causes looping of the specified test. Looping will continue until you type any character on the console, or a failure in selftest is detected.

This section performs tests of the basic system. The selftest will print messages as it tests the various subsystems. If the subsystem test is passed, then the message "< test description > TEST PASSED" is printed. Otherwise "< test description > TEST FAILED" is printed. Some tests will also print error numbers or messages.

The messages printed in a successful test are:

```
→ SELFTEST
CMP TEST
RAM test passed
ROM test passed
UARI test passed

CMP-CPU Interface
SWITCH= 00
  test passed

CPU TEST
0000
0400
0800
0000
1000
1400
E000
E400
E800
  test passed

CONTROL PANEL
STATUS= 06 SYS DISC= NORM
  test passed

ADCC TRANSMIT test passed
ADCC RECEIVE test passed
GIC TEST CHL= 05 test passed
GIC TEST CHL= 06 test passed

SYSTEM TEST passed
→
```

## SHUTTEST

This command tests the power fail and over temperature shutdown circuits on the CMP and power supply. The message "CYCLE POWER TO RESTART SYSTEM" is printed, then all power to the system is shut off except the memory supply, and the overtemp LED on the front panel is turned on. To bring the system back up after this test, cycle (turn off, then on) the main power breaker located at the right rear of the system. If the test fails, the CMP will print the message "TEST FAILED" on the console.

## DCTEST

This test requires that the Data Comm Test Adapter be installed on the system. You should not be asked to perform this test unless the adapter is present.

Enter the DCTEST command to invoke this test. It will test the RS-232C interface to the system and remote consoles. Note that this test cannot be run in Remote Mode.

Error messages are of the form "ERROR IN STEP <step#> <expected data> <actual data> .

## DISPLAY

This command causes the maintenance display to appear on the screen. The following table shows an example of the maintenance display. If your HP service representative requests information from this display, he/she will give you detailed instructions for reading the maintenance display. This command is intended for maintenance use only.

RA	2024	PB	000C	MAINTENANCE DISPLAY 1.0				NIR	EC8A0571AFFF
RB	1A4F	P	0AB3	DL	1BDA	ABNK	0000	CSAR	1861
RC	31FA	PL	10AF	DB	1C58	BBNK	0001	UBUS	0000
RD	0006	PBNK	0001	Q	2A91	DBNK	0001	RUN	MHALT
R4	31FA	R16	0000	R28	0008	SM	3554	SBNK	0001
R5	0000	R17	269B	R29	0020	Z	3AA9	PARITY	UPDATE OFF
R6	297F	R18	0001	R30	FFFF	SWCH	0231	TIMEOUT	DISABLED
R7	297F	R19	0503	R31	36B8	STA	44DE	m I t r o C e l	
R8	000F	R20	10AF	R32	0023	SIR	200E	CSRQ irq nrdi datn disp ICS SS	
R9	00FF	R21	0200	R33	0000	SRR	1A5B		
R10	0080	R22	0000	R34	A000	CIR	2138		
R11	10A3	R23	36E8	R35	0002	CTR	0003	f1	f2 f3 f4
R12	2429	R24	0020	R36	FFFF	SPO	FFFF	MODE:	WW
R13	3555	R25	0024	R37	000A	X	0000	STOPBP	STOP
R14	0000	R26	0020	R38	FFCF	SR	0004	IMB:	013555
R15	0000	R27	3555	R39	4000	OPND	0006	BP	000000
								BPTYPE:	CSARBP

Table H-1. Maintenance Display

## IOMAP

This command prints the current system configuration. The memory size, control panel switches, and all channels and devices in the system are identified. If you follow the IOMAP command with a parameter of 0 (IOMAP 0), looping will continue until you type any character on the system console. If errors are detected, error messages are printed in inverse video. If error messages are printed, the data shown may be incorrect. The following is an example of an IOMAP display.

```
→ IOMAP
I/O CONFIGURATION
1024KB MEMORY
START 110
DUMP 110
LOAD 91
CHL=01   ID# 8011   ADCC/EXTENDER
CHL=02   ID# 8001   ADCC
CHL=10   ID# 0000   GIC
    DEVICE# 01   ID# 2001   2608
CHL=11   ID# 0000   GIC
    DEVICE# 00   ID# 0002   DISC(s)
    DEVICE# 01   ID# 4002   INP
    DEVICE# 02   ID# 2003   2617
CHL=09   ID# 0000   GIC
    DEVICE# 01   ID# 0183   7970
```

## GENERAL CMP ERROR MESSAGES

The following error messages may be generated during system selftests. Generally, serious error messages are shown in inverse video by the CMP. You may be requested to relay this information to your HP Customer Engineer to aid in diagnosing problems on your system.

Table H-2. General CMP Error Messages

ERROR MESSAGE	MEANING
CAN'T MHALT	CPU cannot be microhalted.
CAN'T MS	CPU is frozen.
CAN'T READ	The CMP cannot read the channel or device switches on the system control panel.
CAN'T PS	The CPU cannot be program stepped because it is microhalted or program running.
CAN'T SET	The register specified cannot be set.
CMP FAILURE	A failure has been detected that is probably on the CMP. Additional information will be printed to further describe the source of the failure.
CPU BAD	During the CPU PROM test, the CPU did not execute NOP microinstructions properly.
CPU FROZEN	The CPU cannot execute NOP microinstructions.
CSRQ	While performing the GIC test, the GIC did not assert CSRQ properly.
DISABLED	The function requested has been disabled on the system control panel. Change the enable switches on the control panel and re-enter the command.
DMA	While performing the GIC test, the GIC did not perform a good DMA transfer into memory.
DNV	While performing the GIC test, the GIC did not assert DNV correctly.
IRQ	While executing the GIC test, an error was found in the GIC'S assertion of IRQ.
NO ADCC	Channel 1 is not an ADCC. Consequently the ADCC loopback test cannot be performed.
NO IMB DEV	A timeout occurred on the IMB while reading/writing to memory or I/O.
NOT CONTROLLER	While performing the GIC test, the GIC was found to be configured not to be a controller. Therefore, the test was aborted.
NOT VERIFIED	The baud rate was not changed because the letters "MPE" were not read at the new baud rate.
OVER TEMP SHUTDOWN	The system control panel indicates the system is overheating. Therefore, the CMP will assert PFW to cause main power supplies to turn off.
REG	During the GIC test, the pattern test of registers found a failure on the GIC.
SELFTTEST FAILED	Somewhere during execution of selftest, a failure was found. Examination of prior messages should give a more specific message.
SYSTEM HALTED	The CPU is halted. The parameter printed, if present, gives the system halt or CPU selftest parameter.
TEST FAILED	The selftest step under execution failed.
TIMER FAILED	The CMP timer is not functional. The CMP will probably be unable to function properly.

# SERIES 30/33/44 SOFTWARE DUMP FACILITY

APPENDIX

I

The Software Dump Facility gives you the capability of storing all of main memory to a serial disc or magnetic tape. It operates in a stand-alone environment, that is, after a system failure has occurred or a system halt was performed.

## NOTE

If your Base System configuration consists of a single 7906A disc drive operating in split mode (i.e., the system on the fixed disc, and the cartridge as a private volume/serial disc) you **must** have a copy of the Software Dump Facility on a separate serialized flexible disc (diskette) or a dedicated removable serial disc pack (the upper removable cartridge of a 7906) in order to perform a memory dump. For all other configurations, it is recommended that you have the Software Dump Facility on diskette or cartridge for backup purposes, that is, in case a system failure should cause the system disc or its files to be inaccessible. (See Creating an SDF Backup Disc in this Section.)

To access a software dump, for all except 7906A Base Systems which operate in split mode:

1. On the System Control Panel set the DUMP (Series 30,44), or MEMORY DUMP (Series 33) thumbwheel switches to the channel address and device address of the system disc drive.
2. From the System Control Panel, press the DUMP (Series 30,44), or MEMORY DUMP (Series 33) key.

or

SERIES 30/33 - From the System Console, press the DUMP key while pressing the CNTL key. (Be sure the Front Panel Keys are enabled.)

SERIES 44 - From the CMP, enter DUMP after the CMP prompt (→) on the system console. (Enter a carriage return if the CMP is not already enabled.)

3. At this point, SDF will attempt to serially execute a file (SDFCOM) containing ASCII formatted commands (which are located on the system disc), until one of the following are encountered: either a WARMSTART command, a HALT command, or an end-of-file condition. For a complete list of these commands and their functions, refer to Table I-1.

If the Software Dump Facility is loaded correctly, the following message will appear on the console:

SOFTWARE DUMP FACILITY (VER XX.XX/XX)

The system will then halt.

4. Insert or mount a serial storage device, place the drive on-line, and press the RUN key if working from the System Control Panel; or (Series 30/33) simultaneously depress CNTL and RUN on the System Console; or (Series 44) enter RUN in response to the CMP prompt (→). This will initiate the dump to the device previously specified in the device class DDUMP. The word DUMP will appear on the console screen.
5. When the dump is complete, the system will pause awaiting further instructions. You may now start the system using any of the system startup procedures described in Section V.

#### NOTE

*Entering a CNTL Y from the console causes SDF to abort the current command and read all remaining commands from the console.*

If the system halted while performing the software dump the following error message will appear on the console:

\*\*\*DUMP FAILED

This message indicates that an error has been detected, and the SDF is unable to execute. A backup dump must be performed. (For step-by-step procedures on backing up a software dump, refer to "BACKUP SOFTWARE DUMP" in this section.)

If the SDF command file does not exist or has been scrambled, the program automatically goes into interactive mode.

SDF prompts you for a command by printing a greater-than sign (>), at which point you enter the desired commands (refer to table I-1).

Table I-1. Software Dump Facility Commands

COMMAND SYNTAX	FUNCTION
>COMMENT <i>string</i>	Defines the comment string.
>CONSOLE <i>drt#</i>	Changes the console's channel address and device address.
>DEBUG	Causes SDF to enter the HELP debugging routine. (Valid only in interactive mode.)
>DUMP [ <i>bank#</i> ]	Dumps main memory to the dump device. <i>bank#</i> specifies the highest bank to dump. (By omitting this value, all banks are dumped.)
>DUMPDEV <i>drt#[,unit#]</i>	Changes the dump device's channel address and device address.
	NOTE
	If this command is not entered, then SDF will dump to the device class, DDUMP.
>HALT	Causes SDF to halt its execution. (Do not confuse with the Series 44 CMP HALT command.) (SDF's execution may be continued by pressing the RUN key.)
>HELP [[ <i>command name</i> ] [ <i>command name</i> ] ... [ <i>command name</i> ]]	Prints a brief explanation and syntax of the specified commands.  Default: If no command name is input, then all commands will be explained.
>INTERACTIVE	Obtains any remaining SDF commands from the console. SDF prints the ">" prompt character when it is ready for another console command.
	NOTE
	Commands which cause output to either the dump device or line printer may require you to change paper or volumes. SDF will prompt you by issuing the appropriate message on the console.
>WARMSTART	Executes the microcode warmstart instruction.

## CREATING AN SDF BACKUP DISC

It is a wise precaution to have one or more backup copies of the Software Dump Facility on serialized disc, regardless of your system's configuration. However, if your Base System configuration consists of a single 7906A disc operating in split mode (see note on page I-1) this is the *only* method available for performing a memory dump. In other instances, a system failure may cause the system disc or its files to be inaccessible. In any of these cases you would need a backup copy of the SDF on a serialized disc. REMEMBER THAT AN SDF BACKUP DISC CANNOT BE CREATED AFTER A SOFTWARE DUMP HAS FAILED; YOU MUST HAVE ONE ALREADY ON HAND. AN SDF BACKUP DISC SHOULD BE CREATED WHEN THE SYSTEM IS INITIALLY CONFIGURED.

### HOW TO CREATE AN SDF BACKUP DISC

#### Systems With Flexible Disc Drive:

If your flexible disc has not been previously serialized, or if you are not sure whether it has or not, perform steps 1 through 6.

#### NOTE

*If you do not need to serialize your flexible disc, simply mount it in your disc drive and close the door, then proceed to step 7.*

1. Mount a flexible disc in your disc drive and close the door.
2. In session mode enter :DOWN *ldn* (the logical device number of the flexible disc drive)
3. Enter VINIT.
4. The VINIT subsystem will prompt you with greater-than (>) sign.

Enter >SCRATCH *ldn*

>FORMAT *ldn*

>SERIAL *ldn*

5. Exit the VINIT Subsystem.

6. Enter :UP *ldn*.

7. In session mode type in

:FILE SDFLOAD=SDFLOAD.PUB.SYS

:FILE SDFBACK; DEV=  $\left. \begin{array}{l} \textit{serial disc} \\ \textit{ldn} \end{array} \right\}$

:RUN SDFGEN.PUB.SYS

#### NOTE

*serial disc, as used here, represents the classname, defined in the configuration, of the serial device to which the dump is to be done.*

*ldn represents the logical device number of that device*

8. When the program finishes remove the flexible disc and keep it for future use.

#### Systems With No Flexible Disc Drive:

Since the microcode on Series 30, Series 33 and Series 44 systems does not allow a magnetic tape version of SDF, the only way to create a backup SDF is by putting a copy of SDF onto a dedicated removable serial disc pack such as the removable (upper) cartridge of the 7906 disc.

If your system does not have a non-system domain disc drive available for serial disc use, then you cannot create a backup SDF. In such cases, contact your Hewlett-Packard customer engineer if an attempted memory dump fails.

#### NOTE

Users with a single 7906 disc operating in split mode MUST have a backup SDF disc in order to perform a software dump.

If using a 7906 removable cartridge, make sure that the 7906 disc drive is configured with two subtypes: subtype 10 for the removable cartridge, and subtype 11 for the fixed platter. (If you are operating in split mode, this has already been done.)

Note also, that when the drive is taken off-line to change the removable cartridge, the following message may be transmitted to the system console:

LDEV #1 NOT READY

This is because the system resides on the fixed portion of the same drive, and the system enters a complete pause state when the disc is taken off-line. For this procedure only ignore the message and continue.

1. Mount a disc pack or cartridge, which will be dedicated only as a Backup SDF Disc, and place the drive on-line.
2. In session mode enter :DOWN *ldn* (the logical device number of the removable portion of the disc.)
3. Enter the VINIT subsystem (: VINIT).
4. The VINIT subsystem will prompt you with a greater-than (>) sign.

Enter

> SCRATCH *ldn*

> FORMAT *ldn*

> SERIAL *ldn*

5. Exit the VINIT subsystem.

6. Enter :UP *ldn*.

7. In session mode enter:

```
:FILE SDFLOAD=SDFLOAD.PUB.SYS
:FILE SDFBACK;DEV=ldn (ldev of the removable cartridge)
:RUN SDFGEN.PUB.SYS
```

8. When the program finishes, remove the cartridge and keep it for future use.

## HOW TO ERASE AN SDF BACKUP DISC

When performing a software dump using the SDF backup disc, if no DUMPDEV command is entered SDF dumps to itself. This is, it spaces to the end of the SDF command file, then writes the dump on the remainder of the disc. If your SDF disc has been utilized in this way, it is necessary to erase the dump after it has been printed in order to have the SDF backup disc ready for future use. If you need to erase an SDF backup disc mount it in your disc drive, then in session mode enter:

```
:FILE SDFBACK; DEV= { serial disc }
                   { ldn }
:RUN SDFGEN.PUB.SYS, FREE
```

This program erases the entire disc then regenerates the SDF on it, thereby making it ready for future use.

## BACKUP SOFTWARE DUMP

When your SDF is unable to execute, or if you have a single 7906A based system operating in split mode, you will need to use a backup serialized disc which already contains a copy of the Software Dump Facility in order to dump your system's memory. (Refer to the discussion on Creating an SDF Backup Disc in this section.)

You (the console operator) perform essentially the same functions as in a software dump; the only exception being that a serialized disc is accessed for a backup software dump, while the standard software dump resides on the system disc.

1. Generate an SDF backup disc by following the steps outlined on page I-4.
2. Mount an SDF backup disc on the appropriate disc drive, and put the drive on-line.
3. On the System Control Panel, set the DUMP (Series 30,44) or MEMORY DUMP (Series 33) thumbwheel switch to the octal value of the DRT number (channel address and device address) of the disc drive.
4. From the System Control Panel, press the DUMP (Series 30,44) or MEMORY DUMP (Series 33) key.

or

Series 30/33 — From the System Console, press the DUMP key while pressing the CNTL key. (Be sure the Console Control keys are enabled.)

or

Series 44 — From the CMP, enter DUMP after the CMP prompt ( → ) on the system console. (Enter a carriage return if the CMP is not already enabled.)

5. Two things may happen at this point:

A) The SDF is loaded correctly and the following message appears on the console:

**SOFTWARE DUMP FACILITY (VER XX.XX/XX)**

SDF automatically enters an interactive mode. If no DUMPDEV command is entered, SDF dumps to itself.

B) The system halts while performing the backup dump and the following error message may appear on the console:

**\*\*\*DUMP FAILED**

If this happens, call your Customer Engineer.

## CHANGING THE SDF COMMAND FILE

There are times when you may wish to change the records (SDF commands) in your SDF command file. To accomplish this:

1. Create the desired command file by initiating the Editor subsystem. (See example on page E-9.)
2. Incorporate the file into MPE through the SYSDUMP command using the following dialog:

```
:SYSDUMP *filename
ANY CHANGES? YES
SYSTEM ID=32033B.00.00? return
MEMORY SIZE=XXX? return
I/O CONFIGURATION CHANGES? return
SYSTEM TABLE CHANGES? return
MISC CONFIGURATION CHANGES? YES
LIST GLOBAL RINS? NO
DELETE GLOBAL RINS? NO
#OFRINS MIN=<YY>,MAX=<XXX>.? return
#OF GLOBAL RINS USED=<YY>.MAX=<XXX>.? return
#OF SECONDS TO LOG ON=<XXX>.? return
MAX # OF CURRENT RUNNING SESSIONS=<XXX>.? return
MAXIMUM # OF CONCURRENT RUNNING SESSIONS=<XXXX>.? return
MAXIMUM # OF CONCURRENT RUNNING JOBS=<XXX>.? return
DEFAULT JOB CPU TIME LIMIT=<XXXX>.? return
LIST MESSAGE CATALOG? return
MESSAGE CATALOG CHANGES? return
SOFTDUMP COMMAND CHANGES? YES
SOFTDUMP COMMAND FILE NAME? filename ← At this point, SYSDUMP runs a
NEW COMMAND FILE CREATED           utility program (SDFCHECK),
LOGGING CHANGES? return           which syntax checks the input
DISC ALLOCATION CHANGES? return     file. If the errors are detected
SCHEDULING CHANGES? return         SDFCHECK generates the
SEGMENT LIMIT CHANGES? return     SDFCOM temporary file.
SYSTEM PROGRAM CHANGES? return
SYSTEM SL CHANGES? return
ENTER DUMP DATE? return

END OF SUBSYSTEM
```

(Refer to the operator function in Section V on SYSDUMP.)

### NOTE

*It is now necessary to perform a coldload with the tape or disc created by the above SYSDUMP in order to incorporate the new SDF Command file.*

The following is an example of an SDF command file which could be used to dump to a magnetic tape, and then automatically perform a warmstart. Refer to Table E-1, Software Dump Facility Commands.

```

1  COMMENT *****
2  COMMENT *
3  COMMENT * S O F T W A R E D U M P F A C I L I T Y *
4  COMMENT *
5  COMMENT *****
6  COMMENT
7  COMMENT *** MOUNT TAPE ON 7970
8  COMMENT
9  COMMENT
10 COMMENT
11 COMMENT *****
12 COMMENT
13 COMMENT
14 DUMPDEV 41,0
15 HALT
16 DUMP
17 WARMSTART

```

*tape drt#*  
*tape unit#*  
*system halt*  
*dump main memory to specified tape unit*  
*executes microcode warmstart instructions*

The above file could be created with the EDITOR subsystem and kept to a unique filename. This filename would then be entered in response to SYSDUMP's SOFTDUMP COMMAND FILE NAME? question, and the new command file would be written to the device specified in the SYSDUMP file equation. You would then coldload the system with this tape, which would incorporate the new SDF command file into the system.

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# THE SERIES 30/33 REMOTE CONSOLE FACILITY

APPENDIX

J

The Remote Console Facility allows you to operate the HP 3000 Series 30 and Series 33 systems from a remote site. It consists of:

- a software module, which is loaded from a tape cartridge into the System Console;
- a data communications card, which is plugged into the system console;
- a switching module, which is located at the upper left of the Terminal/Data Comm. Junction panel; and
- various cables, one of which is used to connect to a Bell 103 series modem.

The Remote Console Facility is a diagnostic aid which in conjunction with various other diagnostic tools allows Hewlett-Packard service personnel to give you prompt service; HP personnel are able to examine memory locations, run diagnostics, and diagnose problems from a remote location.

When making a service call, the Customer Engineer now can be provided with the right parts and secondly can receive prompt backup support from the System Specialist in repairing stubborn or unusual problems. You will find that the Remote Console Facility can also be used by the Operating System Specialist to determine possible causes to software failures by examining specified locations within main memory.

## **HARDWARE REQUIREMENTS**

Before using this facility, you should be aware of certain hardware requirements.

### **MODEMS**

The remote console facility is designed to use:

- the Bell 103 (300 baud) or compatible modems on-site, and the Bell 103 modem (with at least answer capability) or acoustic coupler at a remote site.
- full-duplex modems
- modems with originate and answer capability.

Originate is used when you call the CE site for assistance; the CE also can dial up a remote session on your system. Answer-type is used for dial-up remote session terminals.

### **TERMINALS**

Terminals with remote console capability must be certain that:

- the CE sites are equipped with HP 2645 terminals.

#### **NOTE**

An HP 2640B may be used if function keys f1-f8 are entered as the appropriate escape sequence (ESCp-ESCw).

- the remote terminals are set for EVEN parity and 300 baud.

## **THE SOFTWARE MODULE**

The software module is loaded into your system console terminal from a tape cartridge.

The software makes no provision for downloading a program in either direction over the telephone line. The local operator loads the diagnostic programs from the tape cartridge or flexible disc at the request of the remote operator.

## OPERATING PROCEDURES

To operate the system from a remote site, perform the following steps:

STEP	PROCEDURE
1	On the System Console, set the REMOTE/LOCAL key to its up position (The console now is in local mode).
2	Place the cartridge tape (containing the remote terminal code) into the left drive of the system console terminal, and press the READ key.  The tape is loaded and execution begins automatically. The following message is printed on the terminal:  REMOTE TERMINAL NOT READY
3	Set the Remote Maintenance/Console facility switch on the Terminal/Data Comm. Junction panel to the SYSTEM CONSOLE position. Establish a telephone connection to remote site from which operation is to be performed.  At this point, the following message "READY" is printed on both terminals and the remote console code is active. The TRANSMIT lamp on the local console blinks: <ul style="list-style-type: none"><li>● If the lamp blinks once per second, the modem connection is not ready.</li><li>● If the lamp blinks three times per second, the modem is ready.</li></ul> <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Characters with parity error or over-run are processed by the local console as deletes, and echos back to the remote console as backslashes (/).</p>
5	When this remote operation is completed, disconnect the telephone connection, and restore the Remote Maintenance/Console facility switch to the MODEM position.

To terminate the operation, perform the following steps:

STEP	PROCEDURE
1	<p>On the System Console, depress the RESET key twice in rapid sequence. The program is deleted from the system console's memory.</p> <p>At this point the remote console code is no longer active. The TRANSMIT lamp on the local console has stopped blinking.</p>
2	<p>Open the door to the Terminal/Data Comm. Junction panel and set the Remote Maintenance/Console facility switch to the MODEM position (refer to figure J-1 and J-2).</p>

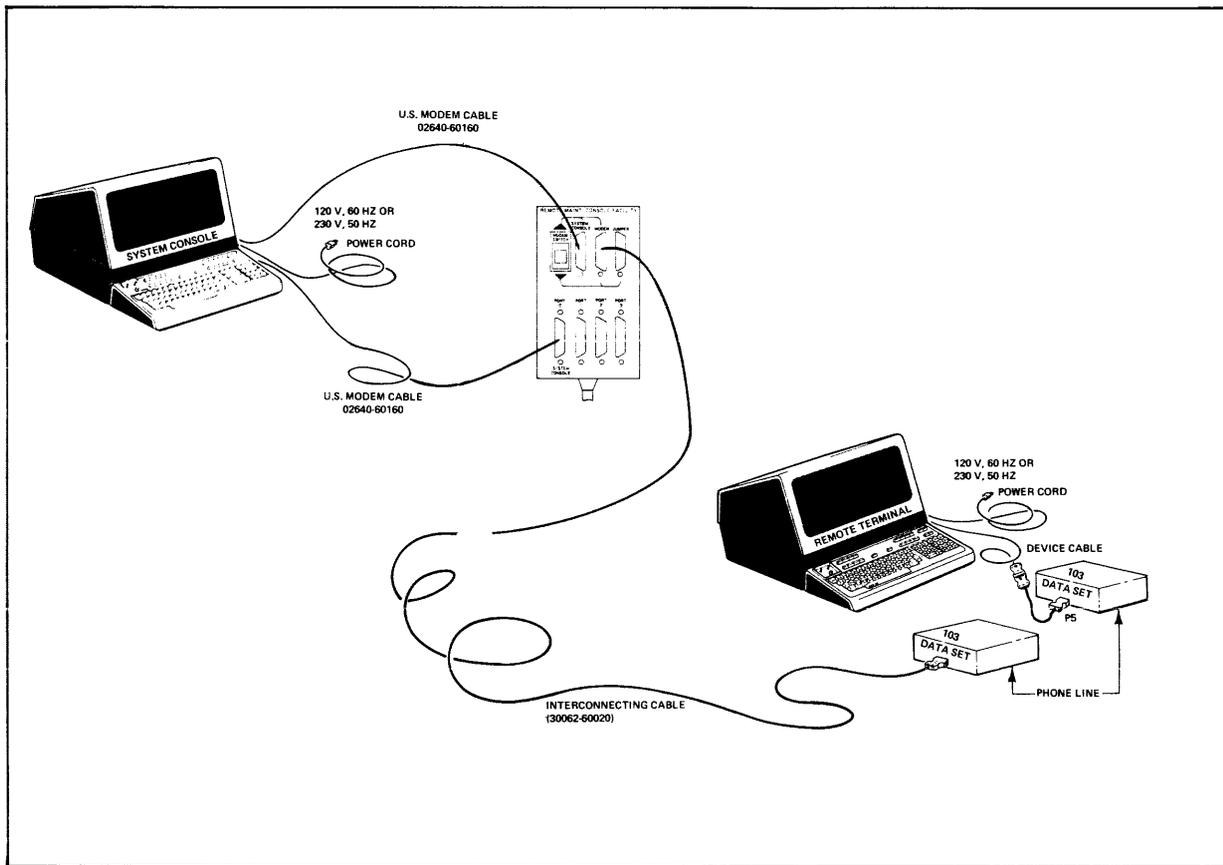


Figure J-1. Series 30 Remote Console Facility Hardware Connections

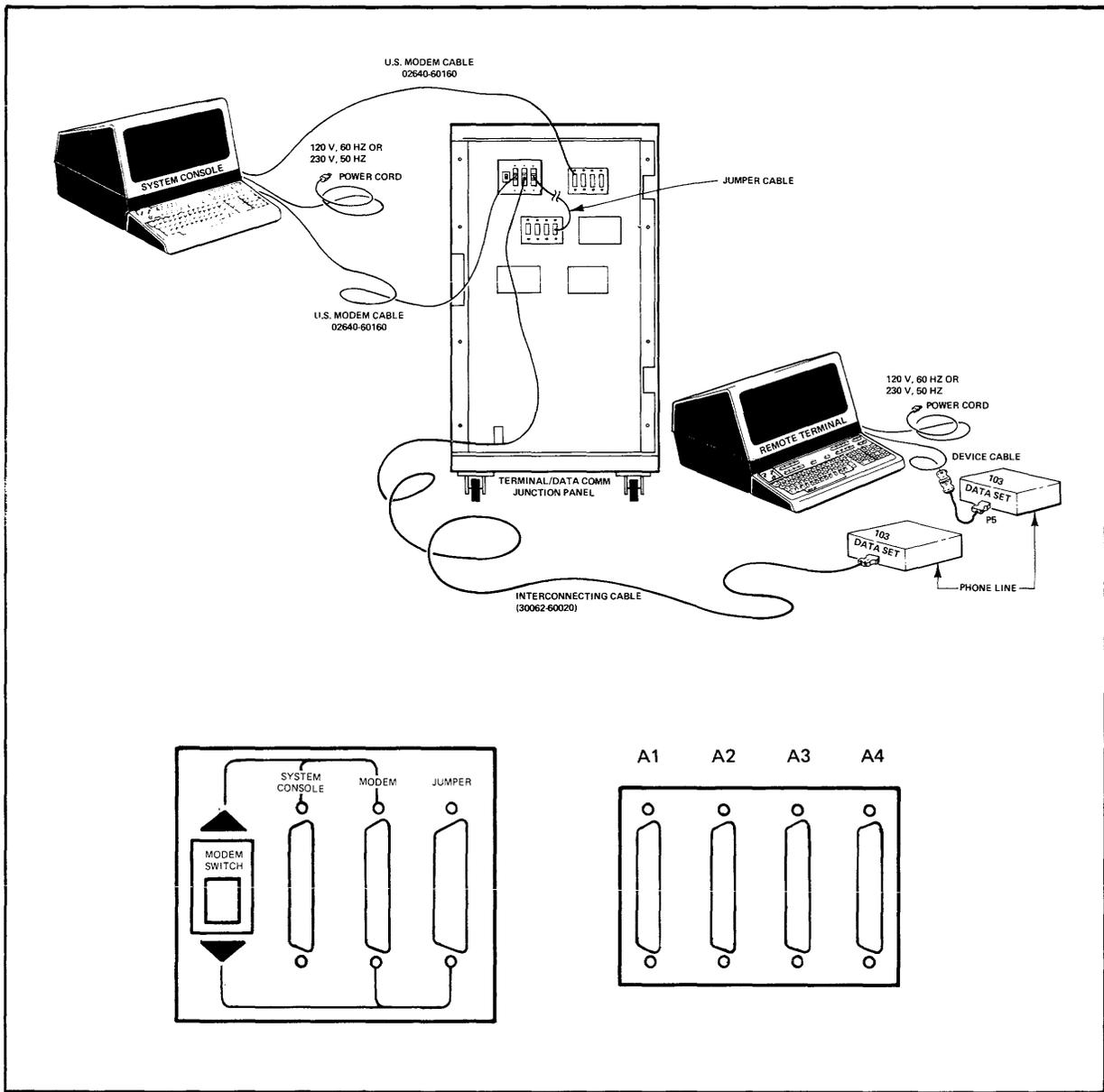


Figure J-2. Series 33 Remote Console Facility Hardware Connections

## OPERATIONAL DIFFERENCES

There are certain operations unique to the Remote Console Facility you should be aware of:

### SYSTEM CONSOLE CONTROL PANEL KEYS

To use the System Console Control Keys (RUN, HALT, START, DUMP, LOAD and DISPLAY STATUS), you simply use the "ESCAPE/" as follows:

DISPLAY STATUS	ESC/0
RUN	ESC/1
HALT	ESC/2
START	ESC/4
DUMP	ESC/5
LOAD	ESC/6

### TERMINAL TO TERMINAL COMMUNICATION

The operators for both the system console and remote site can communicate over the data link by sending messages from one terminal to the other. This accomplished by preceding the message with "ESCAPE?", as shown below:

(ESC ?) THIS IS AN EXAMPLE *return*

Messages done in this manner are not transmitted to the system.

## ERROR MESSAGES

The errors recognized are data communication errors from the remote terminal to the local terminal. These errors are as follows:

- parity error

If a character parity error is detected, or the input buffer is full, the character is ignored and a backslash is echoed to the remote terminal.

- MODEM NOT READY (Transmit lamp blinks slowly)

The modem is not presenting signals CLEAR TO SEND (CB) and CARRIER DETECT (DF), either because it is not connected or it is not in data mode with another modem.

- MODEM READY (Transmit lamp blinks rapidly)

The above condition has been corrected.

- DATACOMM CARD REMOVED (Transmit lamp does not blink)

The system console is not equipped with a data communication card or the data communication card is not configured to address %17.

- DATACOMM CARD INSTALLED

The above condition has been corrected.

# THE SERIES 44 REMOTE CONSOLE FACILITY

APPENDIX

K

The Remote Console Facility allows you to operate the HP 3000 Series 44 system from a remote site. It is a diagnostic aid which, in conjunction with various other diagnostic tools, allows Hewlett-Packard service personnel to give you prompt service. HP personnel are able to examine memory locations, run diagnostics, and diagnose problems from a remote location.

When making a service call, the Customer Engineer can be provided with the right parts, and can receive prompt backup support from the System Specialist in repairing stubborn or unusual problems. The Remote Console Facility can also be used by the Operating System Specialist to determine possible causes of software failures by examining specified locations within main memory.

## HARDWARE REQUIREMENTS

Before using this facility, you should be aware of certain hardware requirements. The remote console facility is designed to use:

- The Bell 103 (300 baud), 212 (1200 baud), or equivalent modem on-site, and equivalent modem (with at least answer capability) or acoustic coupler at a remote site.
- Full-duplex modems.
- Modems with originate and answer capability.

Originate is used when you call the CE site for assistance; the CE also can dial up a remote session on your system. Answer-type is used for dial-up remote session terminals.

## OPERATING PROCEDURES

The remote console operates in parallel with the local console. The CMP firmware makes absolutely no distinction between remote and local commands. All events are displayed on both consoles.

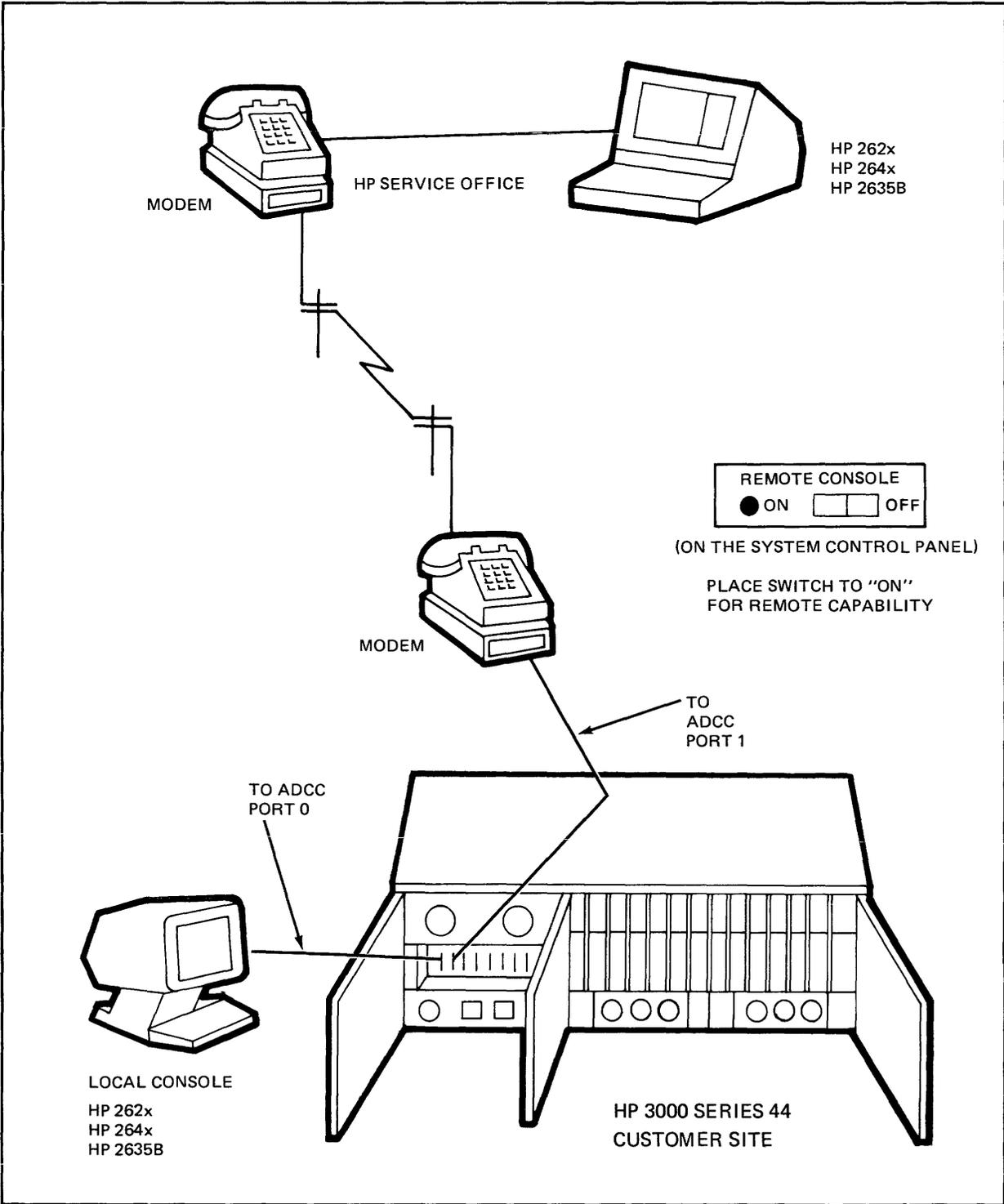
The modem must be connected to channel 1, port 1 of the ADCC. (The label on the connector reads "REM CONS/1".) To use remote, first make sure the baud rate of the system console is the same as the baud rate of the modem. Use the CMP :SPEED or SPEED command to set the baud rate properly. Set the remote switch on the system control panel to the ON position. Then use the modem phone to call the CE, or wait for the CE to call into the modem (if it is auto-answer). The modem lights will indicate when the connection is established. To exit remote, set the remote switch to the OFF position.

## TERMINAL TO TERMINAL COMMUNICATION

The operators for both the system console and remote site can communicate over the data link by sending messages from one terminal to the other. This is accomplished by preceding the message with a question mark (?) at the CMP prompt, as shown below.

→ ?THIS IS AN EXAMPLE carriage return

Messages done in this manner are not transmitted to the system.



147020-5

Figure K-1. Local to Remote Console Connection

# CMP SYSTEM HALT AND HARDWARE FAILURE CODES

**APPENDIX**

**L**

## STANDARD SYSTEM HALT NUMBERS

HALT #	CAUSE
1	STTV with source seg < 2 (including internal and external interrupt setup)
2	Absence on ICS.
3	Trace or absence with Dseg# < 2.
4	Stack overflow on ICS.
5	Sys CSTL=0.
6	Load/Start/Dump — channel program timeout.
7	Load/Start/Dump — bootstrap channel program checksum error.
8	Load/Start/Dump — bootstrap channel program abort.
9	PSFB Macro found.

## HARDWARE FAILURE CODES FROM CPU RESIDENT COMPONENT OF SELFTEST

32	Unconditional branches (CTL, ALU)
33	Conditional branches (ALU, CTL)
34	Can R14Z hold zero? (ALU, CTL)
35	F-bus and zero testing (ALU, CTL)
36	Branch sequencing (CTL, ALU)
37	NXOR, Ubus testing (ALU, CTL)
38	IOR, (ALU, CTL)
39	SPO (ALU, CTL)
40	Preliminary register test: R6 or R13 failed, but not both, (ALU, CTL).
41	Preliminary register test: Both R6 and R13 failed, (CTL, ALU).
42	IOR LSL (ALU, CTL).
43	ZL, ZR, (ALU, CTL)
44	SR controls and tests (ALU, CTL)
45	CIR register and specials (ALU, CTL)
46	POS, NFG, BIT8 (CTL, ALU)

HALT #	CAUSE
47	Flags- controls and tests (CTL, ALU)
48	ALU tests (ALU, CTL)
49	Carry (ALU, CTL)
50	Link (CTL, ALU)
51	Exhaustive tests of the 6 fundamental ALU operations (ALU, CTL)
52	Remaining shift-less ALU ops (CTL, ALU)
53	Preliminary 16 bit shift tests (ALU, CTL)
54	Preliminary 32 bit shift tests (ALU, CTL)
55	Remaining 16 bit shifts (CTL, ALU)
56	Remaining 32 bit shifts (CTL, ALU)
57	Register direct accessing (ALU, CTL)
58	Register indirect accessing (CTL, ALU)
59	Register bit testing (ALU, CTL)
60	Jmp user mode (CTL)
61	Repeat (CTL, ALU)
62	XEO (CTL, ALU)
63	Decrement SR (CTL, ALU)
64	Overflow (ALU, CTL)
65	NBCC (ALU, CTL)
66	CCB (ALU, CTL)
67	MPY (CTL, ALU)
68	DIV (CTL, ALU)
69	DNEG (CTL, ALU)
70	NDEC (CTL, ALU)
72	CCA (ALU, CTL)
73	CCOC, CLO, COCL (ALU, CTL)

HALT #	CAUSE
74	PSHA, POPA, (CTL, ALU)
75	Namer (CTL, ALU)
80	SIR- reset SIR, SIR(6), SIR(10) (ALU, CTL)
81	SIR Timer (ALU, CTL)
82	SIR(12:14) (ALU, CTL) Includes ICS, SS, DISP.
112	Force IBM timeout and test (ALU, CTL)
113	Initialize MCL (MCL, ALU, CTL). R10(7)=1 if parity error. R10(8)=1 if IMB timeout.
114	Initialize first 256KB to zero. (MCL, ALU). Failing address in ABNK, R4. R10(7)=1 if parity error. R10(8)=1 if timeout.
115	Read back first 256KB, check for zero. (MCL, SMA). Failing address in BBNK, R4. OPND has failing data. R10(7)=1 if parity error. R10(8)=1 if timeout.
116	Write address in first 128KB, not (address) in second 128KB. (MCL, SMA). Failing address in DBNK, R4. OPND should = R4 if DBNK=0, OPND should = not(R4) if DBNK=1. R10(7)=1 if parity error. R10(8)=1 if timeout.
117	Write not (address) in first 128KB, address in second 128KB. (SMA, MCL) Failing address in SPNK, R4. OPND should=not (R4) if SBNK=0, OPND should=R4 if SBNK=1. R10(7)=1 if parity error.
118	Read, write 1's memory op (RWA). (MCL)
119	IMB commands RONP, DROP, WRB, ROA (CTL)
122	NEXT sequencing (CTL, ALU)
123	The test attempted to return to the main microcode after completion or when an error was detected, but the attempt (CSAR) failed. Previous error code, if any, lost. (CTL, ALU).

# RECOMMENDED BACKUP PROCEDURES

APPENDIX

M

Since the Series 33 can be used without a magnetic tape in the base configuration, the question of system backup often arises. The following illustrations and discussion describe some of the many possible configurations, with some short notes on backup. Your HP Customer Engineer can provide you with further details on these and other HP-supported configurations.

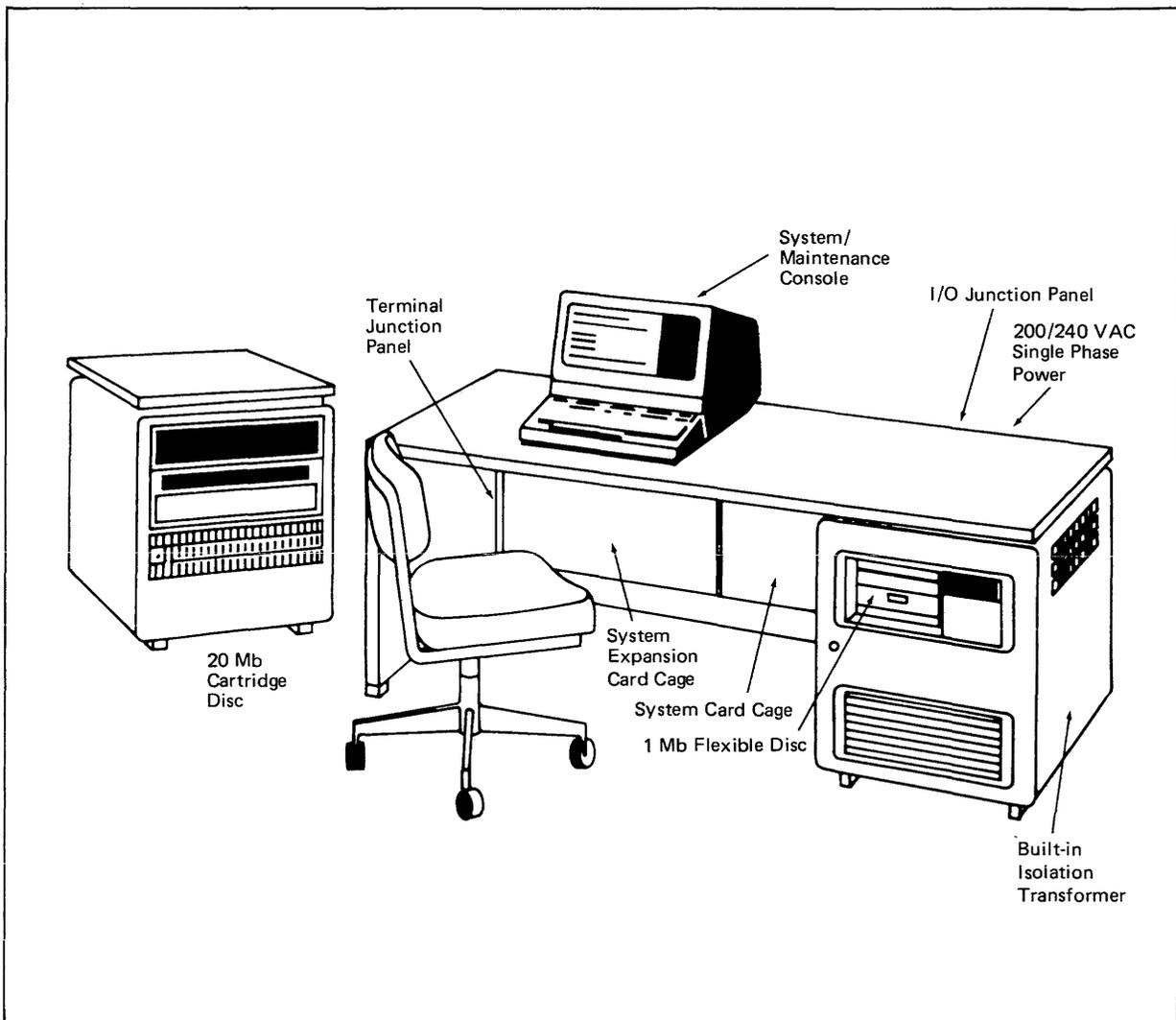


Figure M-1. Base System — 7906, No Mag Tape

The 7906 should be configured as 2 volumes: Put the system on the fixed disc as subtype 11, and use the cartridge as a private volume (PV)/serial disc (SDISC), subtype 10. Backup: SYSDUMP the system data to the cartridge as a serial disc (SDISC): the data on the private volume is backed up via STORE to 10 flexible discs.

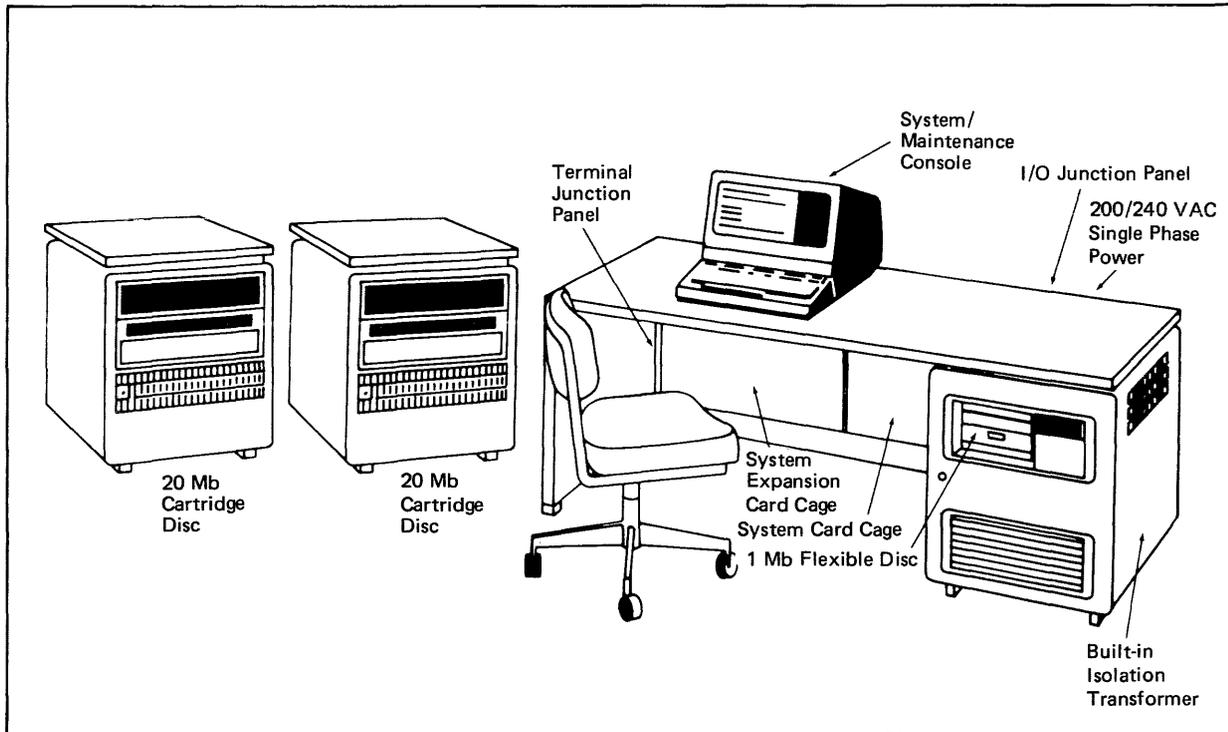


Figure M-2. Dual 7906 System, No Mag Tape

Configuration: The first 7906, unit 0, is configured as a full system disc, subtype 12. The second 7906, unit 1, is configured as 2 volumes: Put the system on the fixed disc, subtype 11 and use the cartridge as a private volume (PV)/serial disc (SDISC), as subtype 10. Backup: SYSDUMP the system data to the serial disc (SDISC) on multiple cartridges; the data on the private volume is backed up via STORE to 10 flexible discs.

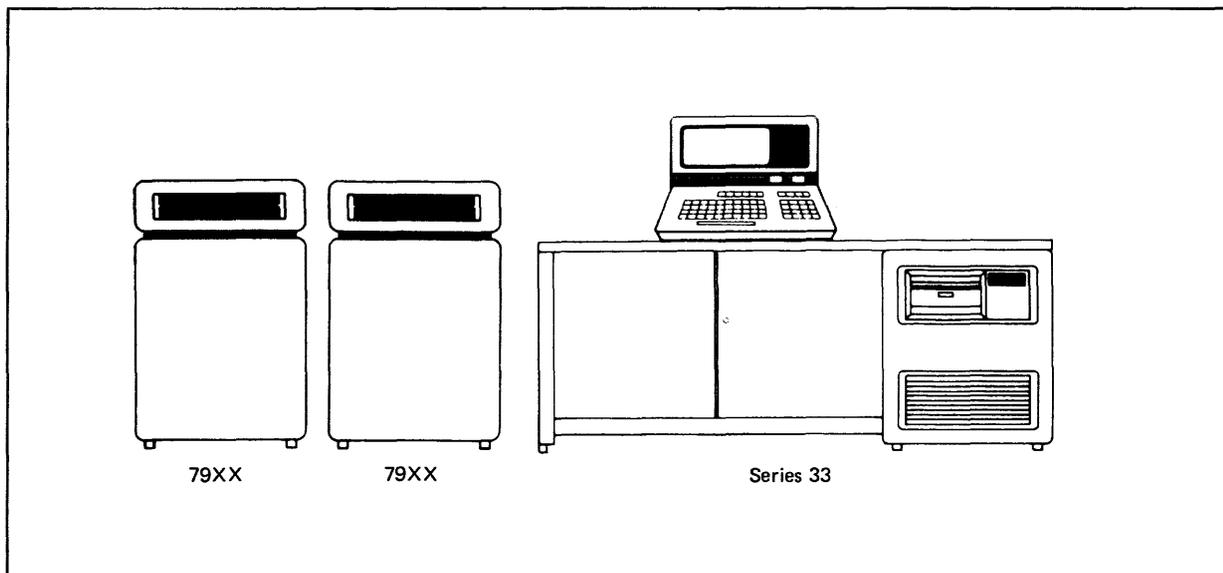


Figure M-3. Dual 7920/7925 System, No Mag Tape

This configuration is OK IF the second disc is to be used exclusively for backup. BACKUP: SYSDUMP the system volume to the private volume used as a serial disc.

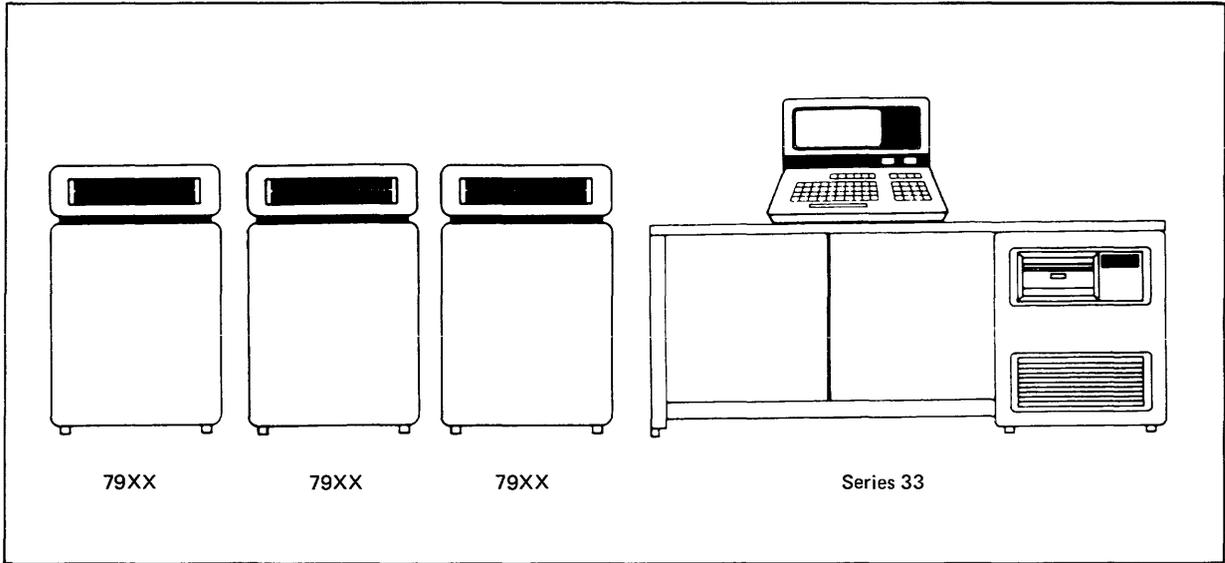


Figure M-4. Three or More Discs — No Mag Tape

BACKUP: Configure one disc as a system disc and the other two as private volumes. Use SYS-DUMP or :STORE to backup to one of the private volumes as a serial disc (SDISC).

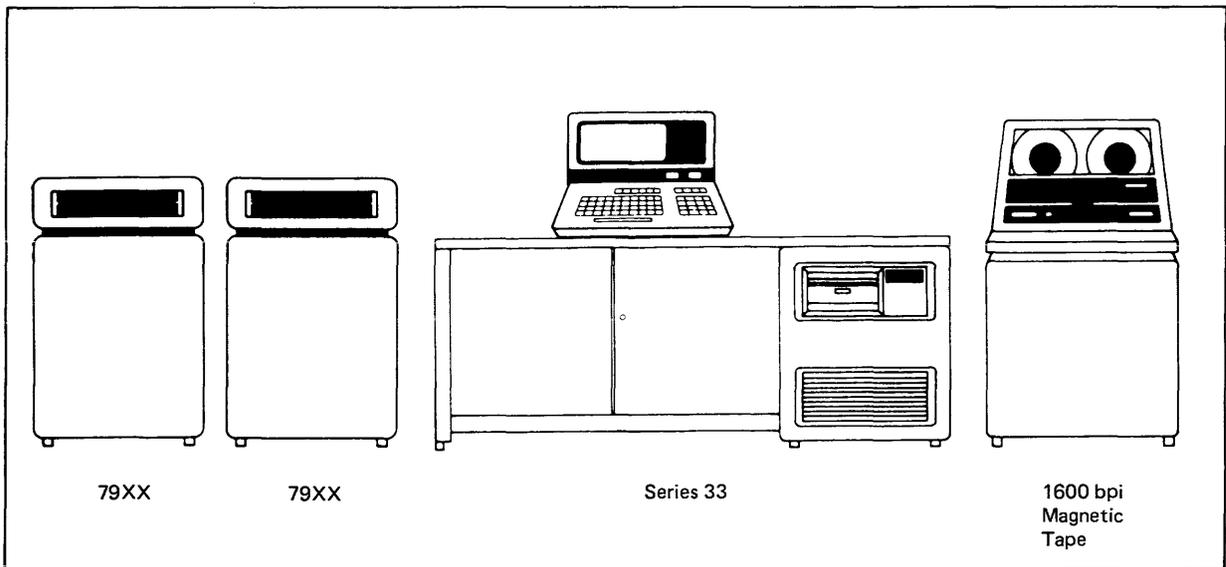


Figure M-5. 1-8 Discs with Mag Tape

BACKUP: Use mag tape and/or the backup described above for correct disc configuration.

## NOTES

System backup is a very important operation in any installation. Following are some points to consider in choosing the right backup procedure for your particular application.

- Effect on system performance
- Cost and Time effectiveness
- Reliability
- Operation intervention
- Risk factor
- Supportability

You will want to be assured that the backup procedure you choose provides sufficient protection of your data, and at the same time you must consider how any given configuration will affect overall system performance. You will also want to consider the cost and time effectiveness of one backup media versus another, in relation to frequency of your backups, volume required of your chosen backup media, and down time during backup. How much operator intervention is required and the margin for operator errors are also considerations. Are there less risks involved in some methods than others? Finally, you will want to consider supportability; that is configurations which can be supported by your HP Customer Engineer.

The examples in this section show just a few of the many possible configurations and backup methods. With such a wide range of available backup procedures and media, you will wish to consider carefully before deciding on the one best suited to your operating environment in regard to hardware and application in order to ensure a successful, and smooth operating installation.

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