Burroughs

Operation Handbook

B 5000/B 6000/
B 7000 Series

Operator Display Terminal (ODT)

(Relative to the Mark 3.3 System Software Release)

Priced Item
Printed in U.S.A.
January 1983

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1. INTRODUCTION

Operator Display Terminal (ODT) commands play an essential role in monitoring and maintaining the many operations available on Burroughs B 5000/B 6000/B 7000 series systems. By entering a simple ODT command, an operator can display information concerning the system, start a utility program, obtain a printout, communicate with the Controller and MCP, initialize the Data Comm network, execute controlled dumps, and perform many other system functions. ODT commands are designed with the user's specific needs in mind, and they can be adapted to a variety of circumstances arising in the course of normal system use.

SCOPE OF THIS MANUAL

The B 5000/B 6000/B 7000 Operator Display Terminal (ODT) Manual provides complete descriptions of all ODT commands. This manual references these commands alphabetically and thus serves as a convenient source of explanation. Throughout this manual an attempt has been made to explain the specific effects of each command as well as its usefulness in solving operational problems that may be encountered.

This manual is intended for operators using ODT commands on B 5000/B 6000/B 7000 series systems. Some general acquaintance with the basic concepts underlying Burroughs large systems is expected, including cataloging, queueing, file storage media, file attributes, initialization of Halt/Load units, and library maintenance procedures.

ORGANIZATION OF THIS MANUAL

This manual is divided into the following sections. An appendix, an acronym list, a glossary, and an index follow.

Section 1 INTRODUCTION

This section introduces this manual. Each section of the manual is described, related documents are cited, and notation and syntax are explained.

Section 2 ODT COMMANDS

This section cross-references the old and new forms for certain ODT commands. Identical commands with separate syntax diagrams for B 5000/B 6000 and B 7000 series systems are also listed. Finally, all the ODT commands are arranged alphabetically, with information about each command organized in a uniform manner throughout the manual.

Appendix A FUNCTIONAL COMMAND GROUPINGS

This appendix organizes the ODT commands into the following functional command groupings for ease of reference: (1) Automatic Display Mode and ODT Control Commands; (2) Program Communication Commands; (3) Directory and Disk File Management Commands; (4) Peripheral Commands; (5) Disk-Pack Commands; (6) Line

Printer and Card Punch Commands; (7) Tape Commands; (8) Data Communication Commands; (9) System Security Commands; (10) MCP Commands; (11) Memory Management Commands; (12) Log Commands; (13) Maintenance Commands; (14) Job Queue Commands; (15) Burroughs Network Architecture (BNA) Commands; (16) System Configuration Commands.

Acronym List

This section lists the acronyms with their meanings as they are used in this manual.

Glossary

This section defines ODT-related terms used throughout this manual.

Index

This section provides page locations for metatokens, key words, command names, and important reserved words that appear throughout this manual.

RELATED DOCUMENTS

Document	Form No.
B 7000 Systems Hardware Operational Guide	5011166
B 7000/B 6000 Series System Software Operational Guide, Volume 1	5011661
B 5000/B 6000/B 7000 Series System Software Operational Guide, Volume 2	5011679
B 5000/B 6000/B 7000 Series I/O Subsystem Reference Manual	5001779
B 5000/B 6000/B 7000 Series Work Flow Language Reference Manual	5011794

RAILROAD DIAGRAMS

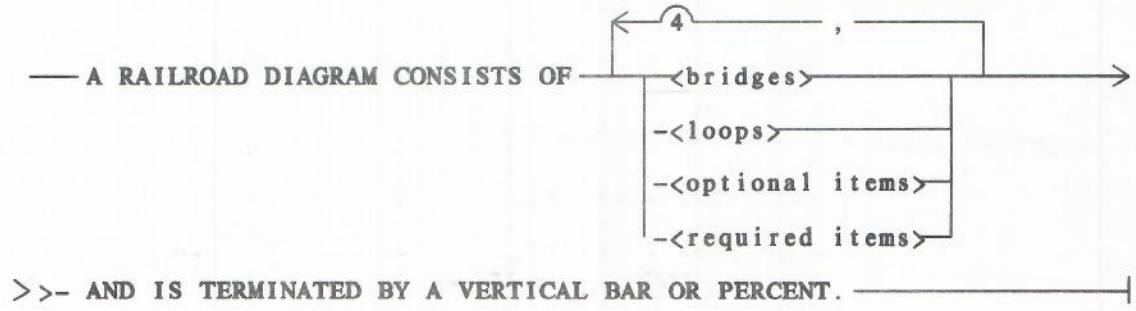
Railroad diagrams are graphic representations of the syntax.

The railroad diagrams are traversed left to right or in the direction of the arrowhead. Adherence to the limits illustrated by bridges produces a syntactically valid statement. Continuation from one line of a diagram to another is represented by a right arrow (>) appearing at the end of the current line and the beginning of the next line. The complete syntax diagram is terminated by a vertical bar (|).

Items contained in broken brackets (<>) are syntactic variables which are defined in the manual or are information that the user is required to supply.

Uppercase items not enclosed in broken brackets must appear literally; the minimum abbreviations are underlined.

Example:



The following are some of the syntactically valid constructs that may be generated from the preceding diagram:

A RAILROAD DIAGRAM CONSISTS OF <bridges> AND IS TERMINATED BY A VERTICAL BAR OR PERCENT.

A RAILROAD DIAGRAM CONSISTS OF <optional items> AND IS TERMINATED BY A VERTICAL BAR OR PERCENT.

A RAILROAD DIAGRAM CONSISTS OF <bridges>, <loops> AND IS TERMINATED BY A VERTICAL BAR OR PERCENT.

A RAILROAD DIAGRAM CONSISTS OF <optional items>, <required items>, <optional items>, <bridges>, <loops> AND IS TERMINATED BY A VERTICAL BAR OR PERCENT.

Railroad Components

<required items>

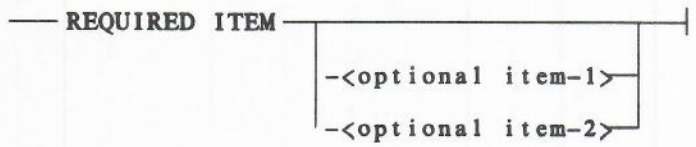
No alternate path through the railroad diagram exists for required items or required punctuation.

Example:

<optional items>

Items shown as a vertical list indicate that the user may make a choice of the items specified. An empty path through the list allows the optional item to be absent.

Example:



The following valid constructs may be generated from the preceding diagram:

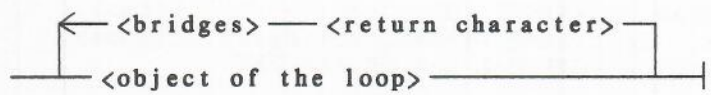
REQUIRED ITEM

REQUIRED ITEM <optional item-1>

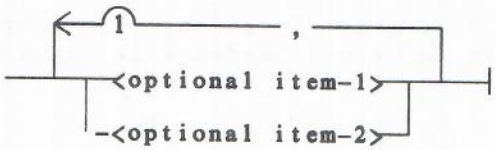
REQUIRED ITEM <optional item-2>

<loops>

A loop is a recurrent path through a railroad diagram and has the following general format:



Example:



The following are some of the valid constructs that may be generated from the preceding diagram:

<optional item-1>

<optional item-1>,<optional item-1>

<optional item-2>,<optional item-1>

The loop must be traversed in the direction in which the arrowhead points, and the limits specified by bridges cannot be exceeded.

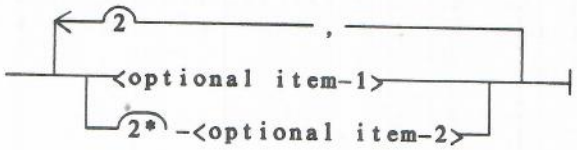
<bridges>

A bridge illustrates the minimum or maximum number of times a path may be traversed in a railroad diagram.

Two forms of bridges exist:

/n	n is an integer that specifies the maximum number of times the path may be traversed.
/n*	n is an integer that specifies the maximum number of times the path may be traversed. The asterisk (*) indicates that the path must be traversed at least once.

Example:



The loop may be traversed a maximum of two times, and the path for <optional item-2> must be traversed at least once but no more than twice.

The following are some of the valid constructs that may be generated from the preceding diagram:

<optional item-1>,<optional item-2>

<optional item-2>,<optional item-2>,<optional item-1>

<optional item-2>

HOW TO READ THIS MANUAL

The information in this manual is presented in a logical hierarchy from general topics to specific subtopics. Section headings and level headings in the Table of Contents provide a guide to the actual location of items and to their level of detail.

Major topics in the manual are discussed in separate sections. Section headings appear in all capital letters at the top of the first page of a section, and they are indented one space in the Table of Contents. A section heading appears as follows:

1. SECTION HEADING

Major subtopics within each section of the manual are indicated by first-level headings. First-level headings appear in all capital letters indented one space on the page and indented four spaces in the Table of Contents. Usually a first-level heading appears at the top of a new page in the section. A first-level heading appears as follows:

FIRST-LEVEL HEADING

Subtopics of the major subtopics within a section are indicated by second-level headings. Second-level headings appear in initial capital letters indented one space on the page and indented seven spaces in the Table of Contents. A second-level heading appears as follows:

Second-level Heading

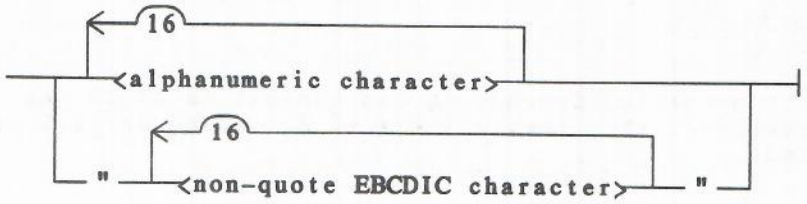
Subtopics of the lowest level in the manual are indicated by third-level headings. Third-level headings appear in all capital letters indented one space on the page and indented ten spaces in the Table of Contents. A third-level heading appears as follows:

THIRD-LEVEL HEADING

BASIC CONSTRUCTS

The following items commonly appear as syntactic variables in the syntax diagrams featured in this manual:

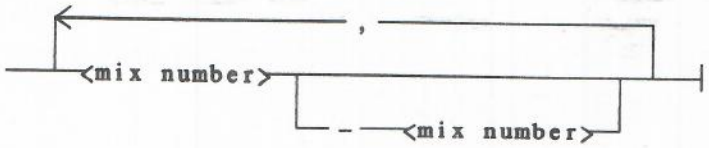
<identifier>



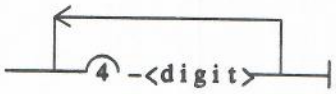
<alphanumeric character>
Any of the characters A-Z or 0-9.

<non-quote EBCDIC character>
Any upper-case or lower-case letter, number, or special character except a quotation mark.

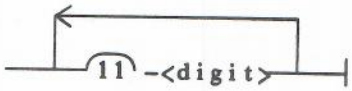
<mix number list>



<mix number>



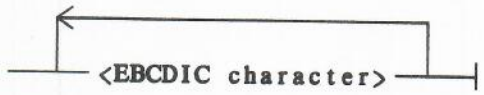
<number>



The size of the <number> permitted depends on the context in which the item is used. Where necessary, the limit is discussed as part of the semantics of the command.

<digit>
Any character 0 through 9.

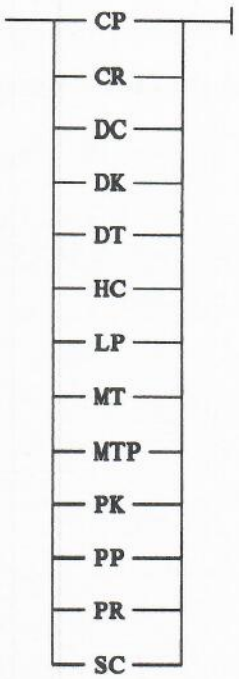
<text>



The length of the <text> permitted depends on the context in which the item is used. Where necessary, the length limit is discussed as part of the semantics of the command.

<EBCDIC character>
Any letter, number, or special character.

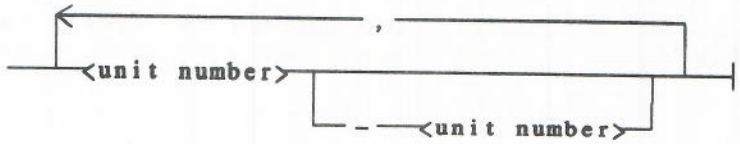
<device>



Device mnemonics are defined as follows:

<device>	Meaning
CP	Card Punch.
CR	Card Reader.
DC	Data Comm. (valid only for MLIP systems)
DK	Disk.
DT	Diskette.
HC	Host Control.
LP	Line Printer.
MT	Magnetic Tape Drive.
MTP	Phase-encoded Tape. (PETAPE)
PK	Pack.
PP	Paper Tape Punch.
PR	Paper Tape Reader.
SC	ODT.

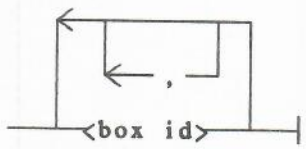
<unit number list>



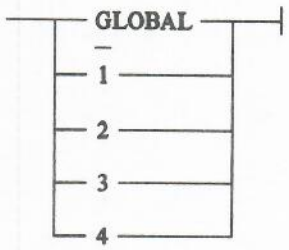
<unit number>

A number used to identify a particular peripheral device. The number must be between 1 and 255 (inclusive).

<box id list>

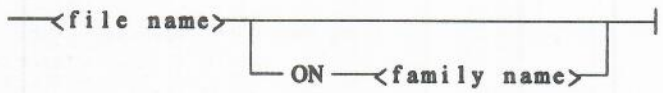


<box id>



A <box id> identifies a specific memory subsystem, with "G" referring to GLOBAL (TM)* Memory. Each of the local memory boxes are identified by "1," "2," "3," and "4."

<file title>

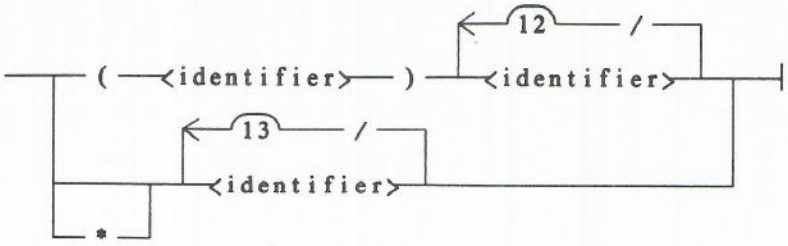


File titles containing the suffix ON <family name> specify a family other than the default family (DISK).

---

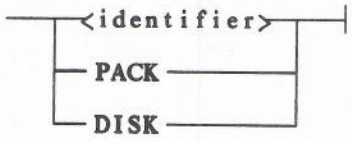
*GLOBAL is a trademark of Burroughs Corporation.

<file name>



A <file name> is a sequence of 1 to 14 identifiers separated by slashes (/) and optionally preceded by a usercode (enclosed in parentheses) or by an asterisk (*). The quoted form of <identifier> may not be used for the usercode. If the <file name> is part of a <file title> that includes an ON <family name> specification, then the <file name> may contain a maximum of 13 (not 14) identifiers.

<family name>



A "family" is a logical means of grouping mass storage devices together so that they function as one logical unit. Specification of <identifier> as the <family name> refers to a named native-mode disk pack (with any continuation packs) whose name is the specified <family name>. Specification of PACK as the <family name> refers to a system-resource disk pack. A file with KIND=DISK or KIND=PACK refers, by default, to the DISK family. The quoted form of <identifier> may not be used as a <family name>.

<family index>

A base unit relative integer between 1 and 255 (inclusive) that is used to specify a member of a multi-member family.

<range>

2. ODT COMMANDS

The ODT commands described in this section are labeled to designate the systems to which they are applicable. The conventions used are as follows:

a. No special reference is given for the commands that are identical on all B 5000/B 6000/B 7000 series systems.

b. Commands that have different syntax are appropriately labeled and separately listed.

Table 2-1 cross-references the old and new forms of some of the ODT commands. Old mnemonics are retained in this table and are currently accepted as valid command inputs, although they may be de-implemented in the future after appropriate warnings.

Table 2-1. Old and New Forms

Old	New	Definition
AP	AB	Auto Backup
BRK	CQ	Clear Queued
CI	SI	System Intrinsics
WS	CS	Change Supervisor
DC	ID	Initialize Data Comm
DP	DUMP	Dump Memory
EI	HS	Hold Schedule
EQ	MQ	Make or Modify Queue (Use MQ -)
IV	RC	Reconfigure (Disk) (Use RC IV option)
LI	PLI	Periodic Logging Interval
LR	TL	Transfer Log
M	MX	Mix Entries
MIXL	ML	Mix Limit
NEXT	NS	Next Screen
P	PER	Peripheral Status
PC	SC	System Configuration
PU	MU	Make User (Use MU PRIVILEGED option)
RESTORE	SUPPRESS	Suppress Display (Use SUPPRESS -)
RET	RES	Reserve (Use RES -)
RO	OP	Options (Use OP -)
RR	SR	Secure Reader (Use SR -)
SO	OP	Options (Use OP +)
TD	TDIR	Tape Directory
TO	OP	Options
UA	UR	Unit Reserved (Use UR -)
WD	TD	Time and Date
WI	SI	System Intrinsics
WT	TD	Time and Date
XS	FS	Force Schedule
??DP	??DUMP	Primitive command
??EI	??HS	Primitive command
??XS	??FS	Primitive command

Table 2-2 lists commands that have separate syntax diagrams, one for B 5000/B 6000 and another for B 7000 series machines:

Table 2-2. Separate Syntax Diagrams

Mnemonic	Definition
ACQUIRE	Acquire Resource
FREE	Free Resource
LH	Load Host
RF	Reliability Factor
RY	Ready
SC	System Configuration
SV	Save
UR	Unit Reserved

ODT COMMAND DESCRIPTIONS

Each of the ODT command listings in this section features the following four levels of description:

a. A brief introductory description explaining the command's function and its specific applications.

b. A syntax diagram outlining the command's various options.

c. A semantics section describing each of the syntax options.

d. Examples conveying various command inputs as well as possible responses from the system. These system responses are indented in order to distinguish them from the command inputs.

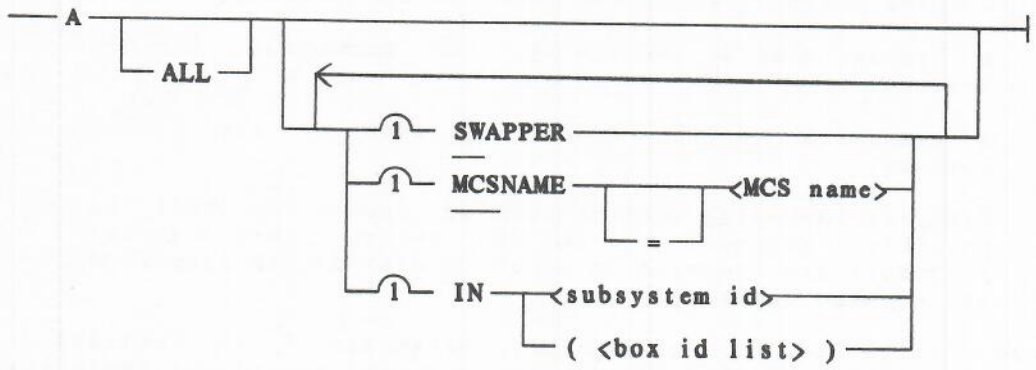
In some cases a fifth level of description, "Pragmatics," is included. This optional level of description indicates various exceptions, warnings, and conditions relating to the semantics and examples already documented.

The command descriptions are organized alphabetically according to the mnemonic assigned to each command. At the end of this section a separate subsection is reserved for "primitive" ODT commands.

A (Active Mix Entries)

The A (Active Mix Entries) command lists all active jobs and tasks in the mix.

Syntax:



Semantics:

A
Displays all active jobs or tasks that have not been suppressed by the SUPPRESS (SUPPRESS Display) command.

ALL
Displays all active jobs or tasks, including any that have been suppressed.

SWAPPER
Displays only jobs or tasks running in swapspace.

MCSNAME <MCS name>
MCSNAME=<MCS name>
Display only jobs or tasks that originated from the specified Message Control System (MCS).

IN <subsystem id>
IN (<box id list>)
Display only jobs or tasks running in the specified subsystem or memory subsystem, respectively.

Examples:

In the following examples, the " " between the job and task numbers indicates that the job is under the control of an MCS. (On some ODTs, the character displayed to denote the MCS control may be an "x".) Swapjobs are flagged with a "#" between the priority number and the name. The number in the active entry heading is the total number of active entries, including suppressed entries.

On a Tightly-Coupled system, each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL Memory task, or a blank for a task whose subsystem location is currently unassigned.

```
A

     -----7 ACTIVE ENTRIES-----

     0232 JOB   80 DCP/0
     0234 JOB   70 SYSTEM/CANDE
     0243/0244 55 NEWP JKL
     0254/0254 55#DCALGOL JHOST2/HOST
    *0255 0256 55 ALGOL KAP
```

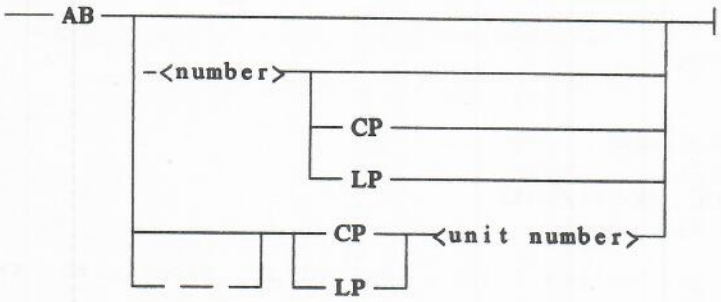
The following command displays all active tasks (including suppressed tasks) that originated from SYSTEM/CANDE:

```
A ALL MCSNAME=SYSTEM/CANDE

     -----4 ACTIVE ENTRIES MCSNAME = SYSTEM/CANDE-----
     1735 2385 50 OBJECT/LISDOC
     .... 2384 50 (SOFTDOC)OBJECT/WORK/LISDOC ON SOFTDOC
     .... 2381 50 (DRK)OBJECT/DRK ON SOFTDOC
     .... 2377 50 OBJECT/ED
```

AB (Auto Backup)

The AB (Auto Backup) command sets the maximum number of line printers or card punches, or both, to be used for the automatic output of backup files. Also, when a line printer or card punch is ABed, the specified output device is assigned preferred status as an AUTOBACKUP unit. As a result, the AUTOBACKUP facility always attempts to use an ABed unit before a non-ABed unit. Output of backup files is directed to a non-ABed unit only if no ABed units are available.

Syntax:



Semantics:

AB
Displays the current AUTOBACKUP settings.

AB <number>
Specifies the maximum number of copies of AUTOPRINT allowed for printer.

AB <number> CP
AB <number> LP
Specify the maximum number of copies of AUTOPRINT allowed for card punch (CP) or printer (LP).

AB LP <unit number>
AB CP <unit number>
Mark the specified output device as a preferred AUTOBACKUP unit. AUTOBACKUP always attempts to use such a unit before trying to use a non-ABed unit.

AB - CP <unit number>
AB - LP <unit number>
Remove the preferred AUTOBACKUP status from the specified output device. The unit is no longer used by AUTOPRINT in preference to other non-ABed units.

Examples:

The following command interrogates the current AUTOBACKUP settings. The maximum AB setting and the current number of ABed line printers and card punches are displayed.

```
AB

    AB MAX=2; CP MAX=1; AB-ED LPS=0; AB-ED CPS=1
```

The following command specifies that a maximum of three printer AUTOBACKUPs may be run at one time. The system responds by confirming this new specification and displaying the number of output devices that have been ABed.

```
AB 3

    AB MAX=3; CP MAX=1; AB-ED LPS=0; AB-ED CPS=1
```

The following command designates that a maximum of three copies of AUTOPRINT are allowed for printers:

```
AB 3 LP

    AB MAX=3; CP MAX=1; AB-ED LPS=0; AB-ED CPS=1
```

The following command designates that the printer specified by unit number 14 is to be ABed:

```
AB LP 14

    AB MAX=3; CP MAX=1; AB-ED LPS=1; AB-ED CPS=1
```

The following command removes the ABed status of the card punch specified by unit number 15:

```
AB - CP 15

    AB MAX=3; CP MAX=1; AB-ED LPS=1; AB-ED CPS=0
```

The following command designates that no automatic punching is to occur for card punches:

```
AB 0 CP

    AB MAX=3; CP MAX=0; AB-ED LPS=1; AB-ED CPS=0
```

Pragmatics:

The maximum number of devices to be used for AUTOBACKUP is set to zero at Halt/Load time if the run-time MCP option AUTORECOVERY is RESET.

When AUTOBACKUP is looking for a line printer or card punch to use for automatic output of backup files, it begins looking for on-line ABed units. If AUTOBACKUP cannot find any ABed units, it tries any on-line line printer or card punch.

In the event that all line printers and card punches are freed of AB status and AB is set to 0, the queue of backup files yet to be printed is forgotten. The actual backup files are not affected, but they are not printed automatically by AUTOBACKUP. If any LP is subsequently given AB status or if AB is set to a nonzero number, all disk and native-mode pack units are searched for backup files, which are then queued for printing or punching.

Backup files copied from tape to disk by library maintenance are picked up after the rebuilding of the queues and printed in turn if their titles conform to the standard backup name format.

The format of a printer backup disk file name is as follows:

BD/<job number>/<task number>/<modified file name>

The format of a punch backup disk file name is as follows:

BP/<job number>/<task number>/<modified file name>

Refer to Volume 1, Chapter 1 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a more detailed discussion of AUTOBACKUP and BACKUP facilities.

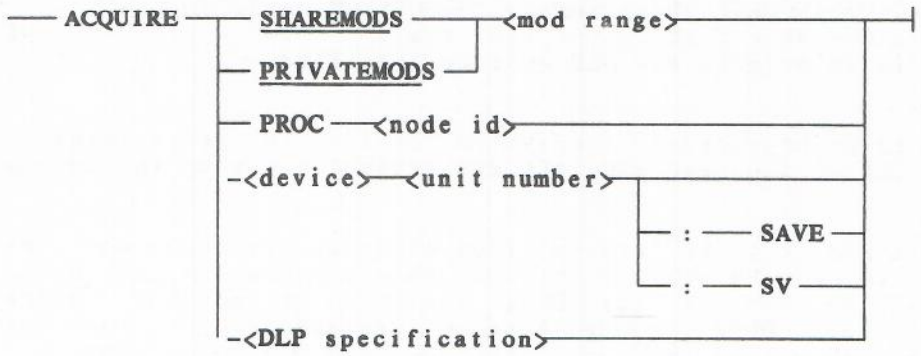
Related ODT commands that affect the AUTOBACKUP or BACKUP facilities include the SB (Substitute Backup) command, the OU (Output Unit) command, the DL (Disk Location) command, and the PB (Printer Backup) command. These commands are also described in this section.

ACQUIRE (ACQUIRE Resource - B 5000/B 6000 Series Systems)

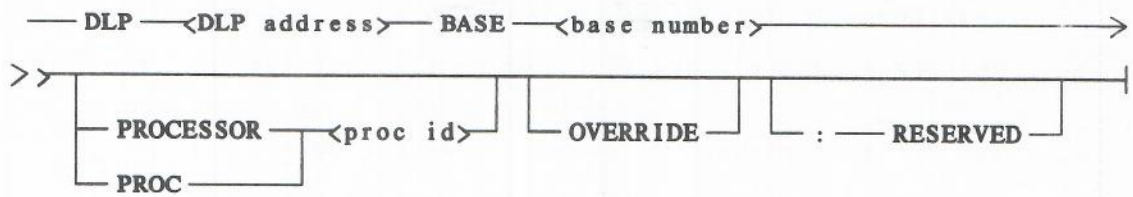
The ACQUIRE (ACQUIRE Resource) command allows an active group to acquire additional resources.

When a unit is ACQUIREd, it is automatically RYed (Readied) (unless the SAVE option is specified). On a Loosely-Coupled system, if a group has a unit that is not in use and another group wishes to acquire that unit, the desired unit is SAVEd, CLOSEd, and automatically FREEd.

Syntax:



<DLP specification>



Semantics:

ACQUIRE SHAREMODS <mod range>
Acquires shared module(s) of GLOBAL Memory (16k words each) at a specified <mod range>. These modules are used for Loosely-Coupled communications by way of BNA GLOBAL Memory stations.

ACQUIRE PRIVATEMODS <mod range>
Acquires module(s) of GLOBAL Memory specific to one group at a specified <mod range>. These modules may then be readied using the RY MOD command, and they become available for normal use after the next Halt/Load.

ACQUIRE PROC <node id>
Acquires the processor identified by the <node id>. The processor is not available to the group until after the next Halt/Load.

ACQUIRE <device> <unit number>
Acquires the unit identified by <device> and <unit number>.

: SAVE
: SV
Cause the specified unit to be acquired in the saved state.

ACQUIRE DLP <DLP address> BASE <base number>
Acquires the DLP identified by the <DLP address> and <base number>.

ACQUIRE DLP <DLP address> BASE <base number> PROCESSOR <proc id>
When acquiring a DLP on a Tightly-Coupled system, the <proc id> of the processor that is to acquire the DLP must be specified..

:RESERVED
Causes the DLP to be acquired by the system but left in the reserved state; otherwise, the DLP is acquired and left available for use by the system.

OVERRIDE
Specifies that a DLP is to be "stolen" from whatever processor owns the DLP. This option is to be used only in the case when a processor goes down, as a means of acquiring one of its DLPs for use by another processor. Reconfiguration of DLPs among running processors can and must be accomplished through use of the normal FREE/ACQUIRE DLP operations.

Rules for stealing a DLP are as follows:

a. The DLP being stolen must be designated in the configuration file as being "stealable."

b. The DLP cannot already be owned by the host issuing the steal.

c. The DLP must already be owned by another host.

d. The base in which the DLP resides must be shared between the stealing host and the host that currently owns the DLP.

e. The DLP residing in the shared base cannot be designated in the configuration file as being visible to more than one host.

f. The DLP cannot be controlled by an outboard host (for example, an LSP controlled by an NSP). Such DLPs are reconfigurable by having designated them in the configuration file as being visible to the specified potential hosts.

Examples:

Before a unit is ACQUIREd, the PER (PERipheral Status) command can be used to interrogate the current peripheral status and determine whether or not a unit is available to a group. In the following example, the first peripheral status display shows that MT units 82 and 83 are not currently available. After unit 82 is ACQUIREd, the next peripheral status display shows that unit 82 is ACQUIREd and automatically RYed. When unit 83 is ACQUIREd with the SAVE option specified, the third peripheral status display shows that unit 83 is ACQUIREd but not RYed.

```
PER MT

    ***** MT STATUS *****
    81*P  [PETE   ] 1600  #1 1:0 MEMORY/DUMP [1,2]
    82  NOT AVAILABLE TO GROUP
    83  NOT AVAILABLE TO GROUP

ACQUIRE MT 82

    MT82 WILL BE ACQUIRED


PER MT

    ***** MT STATUS *****
    81*P  [PETE   ] 1600 #1 1:0 MEMORY/DUMP [1,2]
    82*P  [MIKE   ] 1600    S C R A T C H [1,2]
    83    NOT AVAILABLE TO GROUP

ACQUIRE MT 83:SAVE

    MT 83 WILL BE ACQUIRED

PER MT

    ***** MT STATUS *****
    81*P  [PETE   ] 1600 #1 1:0 MEMORY/DUMP [1,2]
    82*P  [MIKE   ] 1600    S C R A T C H [1,2]
    83*P  [000001] SAVED

ACQUIRE PROC A

    PROC AT PORT A000 WILL BE ACQUIRED

ACQUIRE PRIVATEMOD 48

    MOD 48 WILL BE ACQUIRED

ACQUIRE SHAREMOD 48

    MOD 48 WILL BE ACQUIRED

ACQUIRE DLP 5 BASE 2/3/0

    DLP 5 WILL BE ACQUIRED

ACQUIRE DLP 5 BASE 2/3/0 OVERRIDE

    DLP 5 WILL BE ACQUIRED
```

Pragmatics:

Any change made by an ACQUIRE (ACQUIRE Resource) or FREE (FREE Resource) command permanently alters the current definition of the group; that is, the results of alterations are maintained across Halt/Loads but not reconfigurations. The original group definition, whether obtained from the configuration file or through the default configuration, specifies the initial definition of a group. When a modification alters the current definition of a group, it does not alter the group definition in the configuration file. The current group definition can be interrogated by using the GC (Group Configuration) command, described later in this section.

On a Loosely-Coupled system, any group that wishes to acquire a resource negotiates with all other active groups in the system for the rights to that resource. This assures that at most only one group at a time is logically connected to the resource, though the others may still be physically connected to the resource. On disjoint systems that share resources, this function cannot be performed automatically. It is the operator's responsibility to ensure that the resource is FREEd from all other systems or that it has no physical path to these systems before the resource is acquired by a particular system.

ACQUIRE (ACQUIRE Resource - B 7000 Series Systems)

The ACQUIRE (ACQUIRE Resource) command allows an active group to acquire additional resources.

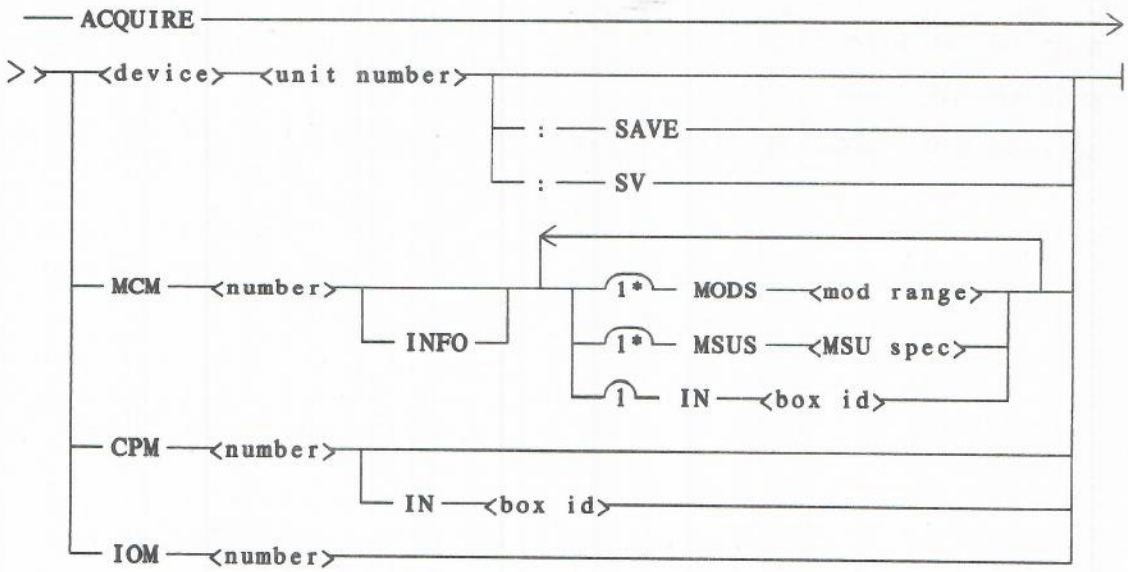
When a unit is ACQUIREd, it is automatically RYed (Readied) (unless the SAVE option is specified).

If a partition has a unit that is not in use and another partition wishes to acquire that unit, it is the operator's responsibility to make certain that the unit is FREEd from the first partition before it is acquired by the second partition.

Any change made by a SV (SaVe), RY (ReadY), ACQUIRE (ACQUIRE Resource), or FREE (FREE Resource) command permanently alters the current definition of the group; that is, the results of alterations are maintained across Halt/Loads but not reconfigurations. The original group definition, whether obtained from the configuration file or through the default configuration, specifies the initial definition of a group. When a modification alters the current definition of a group, it does not alter the group definition of a configuration file. The current group definition can be interrogated by using the GC (Group Configuration) command, described later in this section.

Refer to Volume 2, Chapter 18 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for more information concerning module selection and reconfiguration.

Syntax:



Semantics:

ACQUIRE <device> <unit number>
Acquires the unit identified by <device> and <unit number>.

: SAVE
: SV
Cause the unit to be acquired in the saved state.

ACQUIRE CPM <number>
Acquires the designated Central Processing Module (CPM). If the IN <box id> option is specified, the <box id> must refer to a local memory box.

ACQUIRE MCM <number> MODS <mod range> MSUS <MSU spec>
ACQUIRE MCM <number> MSUS <MSU spec> MODS <mod range>
Acquire the designated Memory Control Module (MCM). The MCM <number> must be in the range of 0 through 7. The <mod range> must be in the range of 0 through 63. The <MSU spec> must be in the range of 1 through 8.

INFO
If the INFO option is specified, the system does not use the memory. This option is intended for running on-line MCM confidence testing.

ACQUIRE IOM <number>
Acquires the specified Input/Output Module (IOM).

Examples:

```
ACQUIRE MT 15

ACQUIRE CPM 6 IN 4

ACQUIRE IOM 0

ACQUIRE MCM 2 MODS 32-47 MSUS 1-4
```

AD (Access Duplicate)

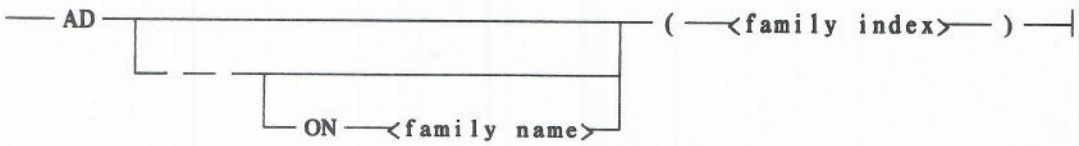
The AD (Access Duplicate) command causes the access structure (SYSTEM/ACCESS or SYSTEM/CATALOG) to be duplicated.

The duplicate structure has the family index number appended; for example, SYSTEM/ACCESS/002 or SYSTEM/CATALOG/003.

If CATALOGING is being run, the access structure is called SYSTEM/CATALOG; if CATALOGING is not being run, the access structure is called SYSTEM/ACCESS. By default, the access structure is always located on the Halt/Load family; this location may be changed by the DL CATALOG command. Refer to the DL (Disk Location) command, described later in this section.

Refer to the DD (Directory Duplicate) command later in this section for related information.

Syntax:



Semantics:

AD (<family index>)
Causes the access structure to be duplicated on the specified <family index>.

AD- (<family index>)
Causes the duplicate access structure on the specified <family index> to be removed.

AD- ON <family name> (<family index>)
Allows the operator to remove a previous and currently unused access structure on the specified <family name> and <family index> that may still have system-file status.

Examples:

The following AD command assumes that the access structure is located on the family DISK. When the AD command is entered, the MCP independent runner COPYDIR is initiated to find and duplicate the specified access structure.

```
AD (2)

    *608 JOB 80 COPYDIR

AD- (2)

    SYSTEM/ACCESS/002 REMOVED ON DISK PK097
```

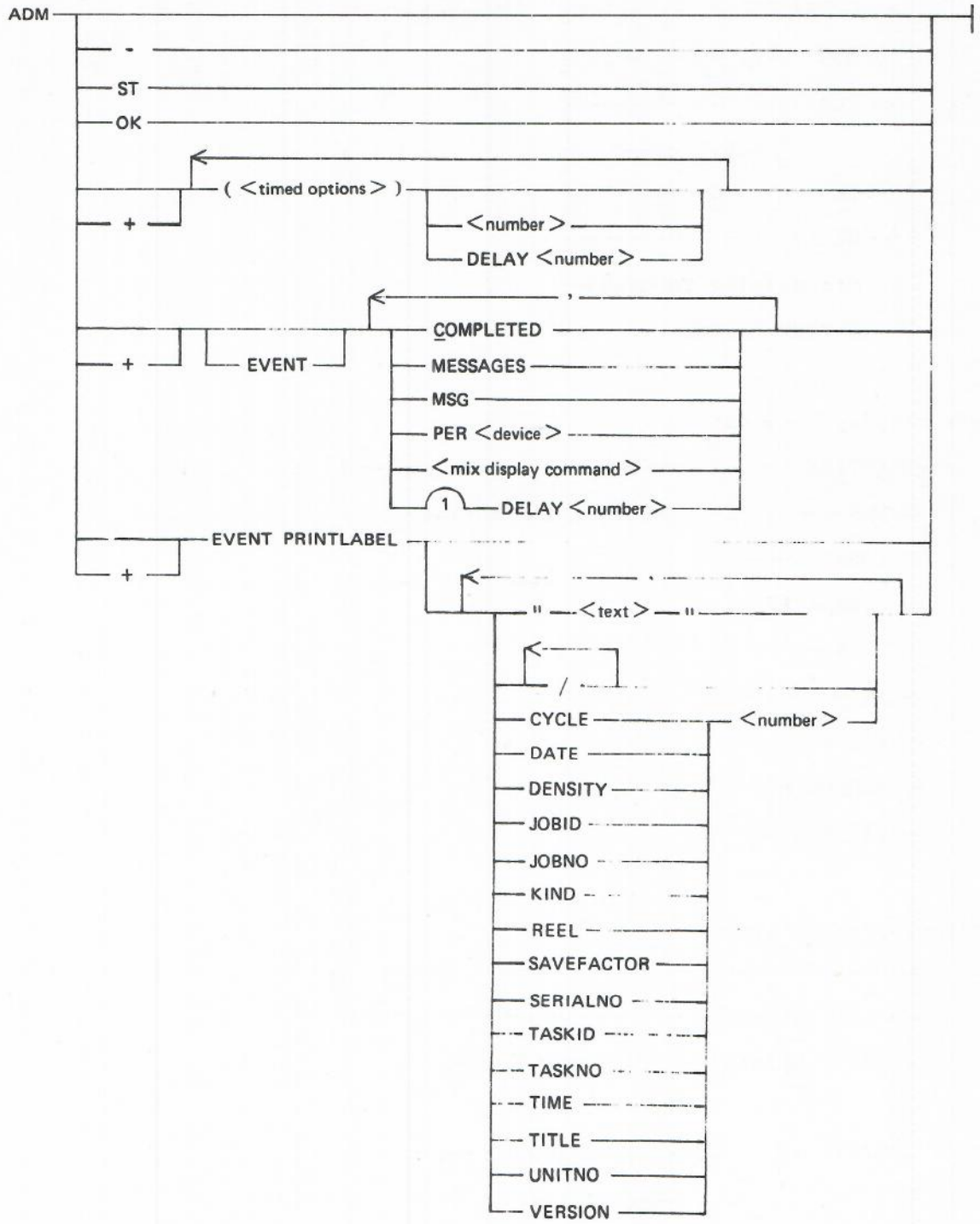
ADM (Automatic Display Mode)

The ADM (Automatic Display Mode) command allows the user to initiate or stop automatic display of current system status information on the same ODT at which the ADM command is entered.

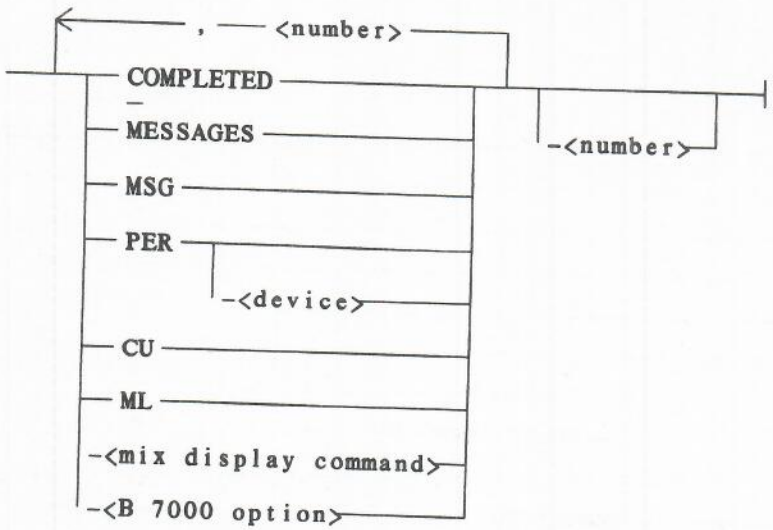
ADM settings may be changed at any time from the ODT. The ADM mode is a valuable tool for monitoring the status of scheduled and completed entries, jobs currently in the mix, libraries, database stacks, messages from the MCP, peripheral units such as line printers, queue settings, and other automatic display information.

Two different ADMs exist, "event-driven" ADM and "time-driven" ADM. In the case of event-driven ADM, any new event that occurs is automatically reflected in the display. Time-driven ADM automatically updates its display at specified time intervals.

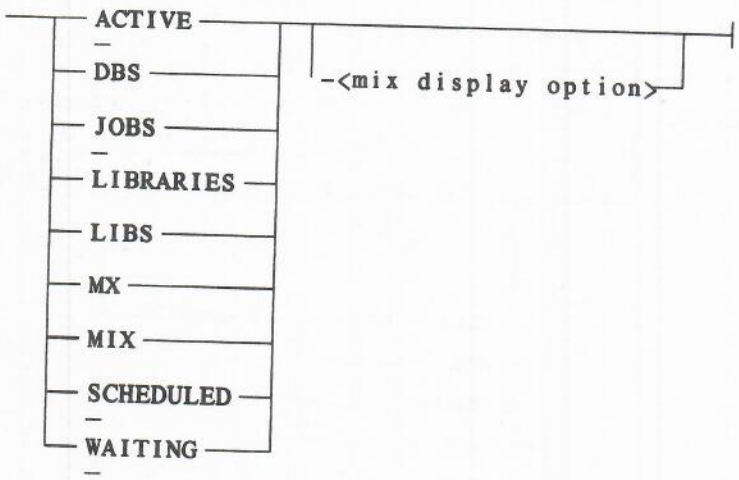
Syntax:


ADM
-
ST
OK
+
(<timed options>)
<number>
DELAY <number>
,
+
EVENT
COMPLETED
MESSAGES
MSG
PER <device>
<mix display command>
1
DELAY <number>
EVENT PRINTLABEL
+
,
"
<text>
"
/
CYCLE
<number>
DATE
DENSITY
JOBID
JOBNO
KIND
REEL
SAVEFACTOR
SERIALNO
TASKID
TASKNO
TIME
TITLE
UNITNO
VERSION

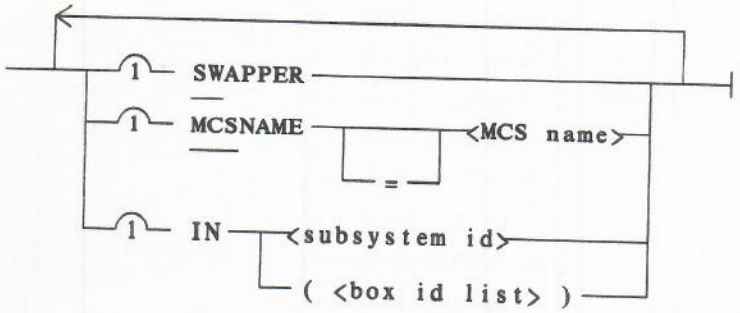
<timed options>



<mix display command>



<mix display option>



<B 7000 option>

Semantics:

ADM
Displays the current ADM options under which the terminal is operating. If ADM has been cancelled, this command sets up ADM with the following default options: ADM (A7, W3, S2, C5, MSG) DELAY 9.

ADM OK
Resumes ADM. This key word is used after ST (Stop), and also to restart ADM after a program has opened that supervisory console as a CON file and is still using it. (GO and OK are synonyms.)

ADM ST
Stops ADM. The current ADM instructions remain stored but are not executed.

ADM -
Cancels ADM. ADM instructions are discarded.

ADM EVENT
If the first syntactical item following ADM is the word EVENT, the system automatically updates the appropriate screen display when a change occurs in the status of one of the named displays. For example, if the command ADM EVENT W is entered, the waiting mix list page is displayed whenever the system stops a task requiring operator attention. Despite the frequency of events that occur, messages are not displayed more frequently than the DELAY specified. If no DELAY is specified, the default DELAY time is 10 seconds. Events may be added to event-driven ADM by entering ADM + EVENT. EVENT options are as follows:

Option	Meaning
C	Completed mix entries.
MSG	Most recent messages from the system.
PER	Peripheral entries (must be specified by <device>).
A	Active entries.
DBS	Active database stacks.
JOBS	Job structure.
LIBS	Frozen library stacks.
MX	Mix entries by job structure. (also includes RSVP and DISPLAY messages).
S	Scheduled entries.
W	Waiting entries.

ADM (<timed options>)

If the first item following ADM is a left parenthesis, ADM unconditionally displays the described pages after the specified time interval. In the time-driven mode, each group of <timed options> enclosed in parentheses specifies one page of ADM display. Each page is automatically updated and displayed after the DELAY <number> that is specified. If no DELAY <number> is specified, the default is 10 seconds.

Multiple pages of time-driven ADM may be specified by entering more than one group of <timed options> enclosed in parentheses. In the case of multiple pages, the display rotates from one page to the next.

For example, ADM (J 10, MSG) (W5) displays a page with 10 job lines and the remainder of the page with message lines; then, after a delay (a default of 10 seconds since the delay is not specified), the display would show a page with five lines of waiting entries.

Pages may be added to a time-driven ADM display by entering ADM + (<timed options>).

NOTE

Two or more lines must be specified for each category because the heading itself occupies one line.

The following is a summary of the various items that can be displayed as <timed options>. The syntax for each option is the same as that of its ODT command counterpart.

Option	Meaning
C	Completed mix entries.
MSG	Most recent messages from the system.
PER	Peripheral entries (may be specified by <device>).
CU	System memory usage entry.
ML	Summary of all queues.
A	Active entries.
DBS	Active database stacks.
JOBS	Job Structure.
LIBS	Frozen library stacks.
MX	Mix entries by job structure (also includes RSVP and DISPLAY messages).
S	Scheduled entries.
W	Waiting entries.
U	System utilization (B 7000 Series Systems).

The <number> in the <timed options> syntax diagram specifies the number of lines to be dedicated to the item that is to be displayed. The number must be a positive integer greater than one. Lines need not be specified for the last entry on a page; if lines are not specified, that entry fills the remainder of the page.

ADM EVENT PRINTLABEL
This variation of the ADM command applies to hardcopy ODTs and is used to produce tape labels in any desired format. The text may be printed directly on the gummed labels. The quoted string is used to insert a literal to identify the various data items. The "/" causes a carriage return. The number following the named data items specifies the maximum size that may be used to contain those data. If the data of an alpha type item exceeds the field width, the right-most characters are truncated. If the data of a numeric item exceeds the field width, the field is filled with asterisks (*).

The formatting specification may be extended by using a plus sign (+) following the word ADM. After this ADM type has been set up, the state of the automatic display is marked as STOPPED. The proper forms may then be inserted prior to receiving actual data. To test the formatting specification, PRINTLABEL may be entered. This statement produces the tape label, filling all numeric items with N and all alpha items with A. Once the formatting has been correctly established, ADM OK activates the printing of tape labels each time a tape file is closed. If nothing follows the word PRINTLABEL, a default setting is set up as defined in the CONTROLLER. This default may be changed by the installation.

The default setting is as follows:

```
PRINTLABEL "TITLE: "      TITLE 28/
           "TASK:  "      TASKID 28/
           "SERIAL: "     SERIALNO 10/
           "CYCLE: "      CYCLE 4/
           "UNIT: "       UNITNO 5/
           "DENSITY: "    DENSITY 4/
             DATE 14 TIME 8/
             /////
```

ADM+(...)
Adds the new ADM instruction to the current ADM specification, which must be a time-driven ADM.

ADM+EVENT...
Adds the new ADM instruction to the current ADM specification, which must be an event-driven ADM.

ADM+EVENT PRINTLABEL
Adds the specified items to the PRINTLABEL formatting specification.

The key words featured as syntax tokens in the preceding diagram are defined as follows:

DELAY <number>
Specifies the number of seconds of delay before the next ADM page is to be displayed.

Examples:

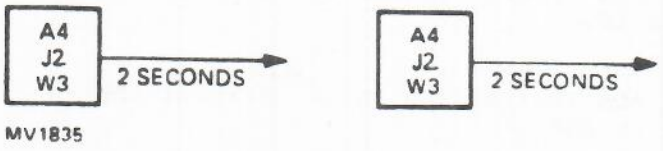
In an ADM display of mix entries, an asterisk ("*") to the left of the mix number indicates that the job or task is being displayed on the ODT screen for the first time. Each time the ODT screen is updated, new mix entries are listed along with old ones; the asterisk enables the user to distinguish between the old and new mix entries.

The mix number in an ADM display represents the job number followed by the task number. This form is standard for all commands that display mix entries, such as the A (Active Mix Entries) command, the C (Completed Mix Entries) command, and the S (Scheduled Mix Entries) command.

In the following examples, the first ADM command specifies a time-driven display. Three lines of active entries are to appear under the title "ACTIVE ENTRIES". One line of job entries is to appear under the title "JOB STRUCTURE". Two lines of waiting entries are to appear under the title "WAITING ENTRIES". After a delay of two seconds, the display of these options is updated.

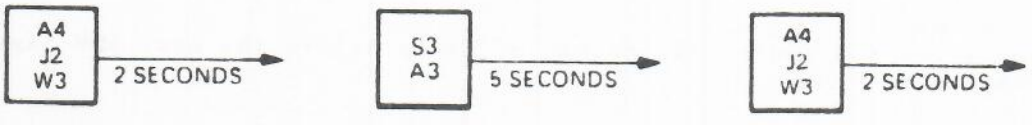
The second ADM command combines the previous ADM settings with new settings. The previously specified ADM options are displayed for two seconds, followed by a five-second display of the new settings (two scheduled entries and two active entries). The old settings are then displayed again for two seconds. This ADM display continues until new options are specified.

ADM (A4, J2, W3) DELAY 2



MV1835

ADM + (S3, A3) DELAY 5



MV1836

AR (Archive Release)

The AR (Archive Release) command initiates the utility, ARCHIVEHANDLER, which releases an old archive log from use and creates a new one. When the archive log is filled to capacity, it is automatically released. An archive log may contain approximately 60,000 records before such action is initiated by the MCP. When it is released, an archive log is crunched and marked as a non-system file. The released archive log may then be processed by the SYSTEM/ARCHIVE utility.

Syntax:

Semantics:

AR
If no <file title> is specified, the on-line archive log is released and a new one created.

AR <file title>
If a <file title> is specified and that file is an archive log, the file is released so that it may be removed. (Archive logs are system files.) The specification of a <file title> is particularly useful when a change of the Halt/Load family causes an archive log to be on disk as a non-removable system file.

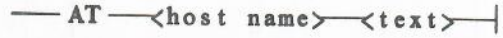
Example:

```
AR

MSG

    THE ARCHIVELOG WAS RELEASED
    A NEW ARCHIVELOG HAS BEEN CREATED
```

AT (AT Remote Host)

The AT (AT Remote Host) command directs an ODT command to another host in a Burroughs Network Architecture (BNA) network. The response to the command, if any is generated, is returned to the ODT at which the command was entered.

Syntax:



Semantics:

AT <host name> <text>
The AT command is accepted only if BNA is operating and the host computer identified by the <host name> clause is usable as a BNA host. The HN (Host Name) command can be used to determine which hosts are currently usable.

The content of the <text> is not checked for syntax at the local host, but is transferred to the remote host. It must conform to the remote host's operator command language and must not violate any security or access control restrictions that are in effect at that host.

The AT command may not be used to send another AT command to a remote host; that is, the <text> clause may not begin with the word "AT". For example, the following command is not permitted:

```
AT HOST1 AT HOST2 PD (US1)=
```

If the local host name is used in an AT command, the following text is displayed:

```
<host name> IS YOUR LOCAL HOST
```

The command can then be resubmitted without the "AT <host name>" prefix.

Examples:

```
AT BLUE W

    *** REPLY FROM BLUE ***

    ----- 1 WAITING ENTRY -----
    1566/1568 50 SYSTEM/CARDLINE ON SYSPACK
    NO FILE CARD (CR)

AT BLUE J

    *** REPLY FROM BLUE ***

    ----- JOB STRUCTURE -----
    2 * 1566 JOB 50 1
    1 *W..1568   50 SYSTEM/CARDLINE ON SYSPACK
```

```
AT BLUE 1568 FA TITLE=(USER)A ON DISK

    *** REPLY FROM BLUE ***

    NO RESPONSE GENERATED
```

Pragmatics:

With each ODT command sent to another host, BNA provides a usercode which that host may use to satisfy its security or access control restrictions. If the command is entered at an ODT to which a terminal usercode has been assigned (refer to the TERM command described later in this section), that usercode is used. Otherwise, the host usercode is used. Refer to the HU (Host Usercode) command for more information.

When a B 5000/B 6000/B 7000 series system receives an ODT command from a remote host, it checks the usercode associated with the command to determine if the usercode has been defined to be a "SYSTEMUSER."

A remote user marked as a SYSTEMUSER has the same set of ODT capabilities as the local system ODT operator, including the ability to enter WFL jobs. Any jobs entered in this manner that do not contain a usercode run without a usercode.

A remote user that is not a SYSTEMUSER may use the following ODT commands to control and interrogate jobs and tasks running under that usercode:

Command	Meaning
AX	Accept.
C	Completed Entries.
CU	Core Usage.
DUMP	DUMP Memory.
DS	DiScontinue.
FA	File Attribute.
FR	Final Reel.
HI	Cause EXCEPTIONEVENT.
J	Job and Task Structure Display.
MX	Mix Entries.
MSG	Display Messages.
OF	Optional File.

Command	Meaning
OK	Reactivate.
OT	Inspect Stack Cell.
RM	ReMove.
ST	STop.
THAW	THAW Frozen Library.
TI	TImes.
WY	Status Interrogate.

In addition, a remote user that is not a SYSTEMUSER may use the following commands to interrogate the status of the system:

Command	Meaning
CS	Change Supervisor.
CU	Core Usage.
HN	Host Name.
ID	Initialize Data Comm.
MM	Memory Module.
SC	System Configuration.
SI	System Intrinsics.
SL	System Library.
SQ	Show Queue.
TD	Time and Date.
TF	Type Factors.
WM	What MCP.

On B 5000/B 6000/B 7000 series systems a task named ODT/HANDLER handles the transfer of ODT commands and responses between hosts. ODT/HANDLER is started automatically by BNA after receiving an AT command on the local host or an ODT request from a remote BNA host. The ODT/HANDLER task terminates automatically when BNA operations are terminated or when no ODT commands are sent to or received from other hosts for five minutes.

AX (Accept)

The AX (Accept) command is used to pass text to a specified program. This transfer of text may be performed in response to, or in anticipation of, a task requesting an ACCEPT message.

A task waiting on an ACCEPT message appears within the W (Waiting Entries) display, also described in this manual.

Syntax:

Semantics:

<mix number list> AX <text>
Passes the <text> to the specified task(s) when they request an ACCEPT message.

Example:

In the following example, an AX command is entered in response to an ACCEPT message from the task named "TEST":

```
W

     -----WAITING ENTRIES-----

     1526/1528 50 TEST
     ACCEPT:WHAT TO DO

1528 AX COMPLETE THE SQUARE
```

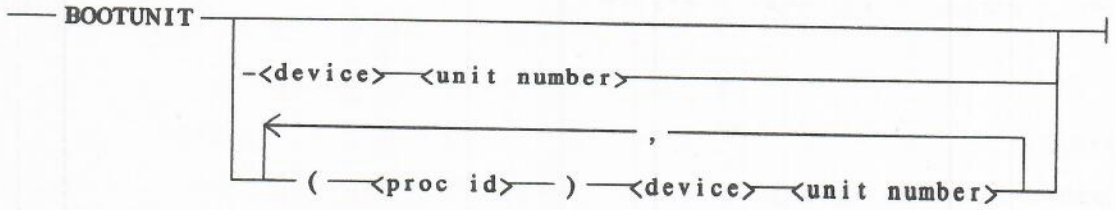
BOOTUNIT (Specify Halt/Load Unit)

The BOOTUNIT (Specify Halt/Load Unit) command allows new Halt/Load units to be specified.

On Message-Level Interface Processor (MLIP) systems, this command provides a software analog to the Halt/Load pins present on Multiplexor (MPX) systems.

The BOOTUNIT command is valid on B 5900 and B 6900 systems only.

Syntax:



Semantics:

BOOTUNIT
Displays the current Halt/Load unit number.

BOOTUNIT <device> <unit number>
Specifies the disk pack or head-per-track disk identified by the <unit number> as the new Halt/Load unit.

BOOTUNIT (<proc id>) <device> <unit number>
Specifies the device identified by the <unit number> as the new Halt/Load unit for the processor specified by <proc id>. The <proc id> must be specified on a Tightly-Coupled system.

Example:

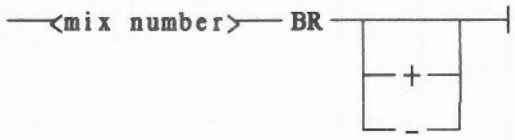
The following command specifies disk pack 50 as the new Halt/Load unit:

```
BOOTUNIT PK 50
```

BR (Breakout)

The BR (Breakout) command initiates a checkpoint for a task. This command applies only to tasks, and is rejected when applied to jobs.

Syntax:



Semantics:

<mix number> BR
Interrogates the status of a task for recovery purpose.

The response to this form of the BR command depends on the value of the CHECKPOINTABLE and BRCLASS attributes associated with the task. The CHECKPOINTABLE attribute is TRUE when a checkpoint may be initiated. However, a TRUE value does not imply that the checkpoint has been successful. The BRCLASS attribute is FALSE when a checkpoint may not be initiated for the task. The BRCLASS attribute is SET by the MCP.

<mix number> BR +
Initiates a checkpoint for a task, when allowed.

<mix number> BR -
Cancels an unsatisfied BR + request.

Examples:

The response to the interrogation form of the BR command depends on the value of the CHECKPOINTABLE and BRCLASS attributes of the task and its job. The different possible answers for task <nnnn> are as follows:

<nnnn> BR

TASK <nnnn> IS NOT CHECKPOINTABLE BY THE OPERATOR

The operator is not allowed to use the BR command to initiate a checkpoint for this task.

<nnnn> BR

TASK <nnnn> IS CHECKPOINTABLE [(CANNOT CONTINUE AFTER BR)]

The operator may use the BR command for this task.

<nnnn> BR

TASK <nnnn> : CHECKPOINT REQUESTED [(CANNOT CONTINUE AFTER BR)]

The operator has already sent a "BR +" command for this task, and the checkpoint has not yet been initiated. The "BR -" command may be used to cancel the request at this time.

<nnnn> BR

TASK <nnnn> : CHECKPOINT RUNNING [(CANNOT CONTINUE AFTER BR)]

A checkpoint is being taken for this task. This checkpoint may be a programmed checkpoint or an operator-initiated checkpoint. In the latter case, the "CANNOT CONTINUE AFTER BR" text may be present to indicate that the task is not allowed to continue at the end of the checkpoint.

At the completion of the checkpoint, the operator may nullify the BR request by using the OF (Optional File) command.

<nnnn> BR

TASK <nnnn> : RESTARTING (PROGRAM/ONCEONLY/MULTIPLE)

The task is being restarted from a checkpoint. The PROGRAM key word indicates that the checkpoint was created by the program. The ONCEONLY key word indicates that the checkpoint is to be removed at the end of the restart phase. The MULTIPLE key word indicates that the checkpoint is to be kept after the completion of the restart phase.

The text "(CANNOT CONTINUE AFTER BR)" appears when the BRCLASS attribute is set to ONCEONLY for either the job or the task.

C (Completed Mix Entries)

The C (Completed Mix Entries) command lists recently completed jobs and tasks and specifies the reasons for their termination.

Syntax:

Semantics:

C

Displays all recently completed jobs and tasks and the reasons for termination.

Reasons for job and mix termination are as follows:

?-DS	Unknown DS (History not set).
A-DS	Attribute DSed (task and job attribute conflict).
D-DS	Data Comm DSed.
EOJ	End of Job.
EOT	End of Task.
F-DS	Fault DSed (for example, a "divide by zero" or "segmented array" error).
I-DS	Input/Output Error DSed.
O-DS	Operator DSed.
P-DS	Programatically DSed.
Q-DS	Queue DSed (job failed queue insertion).
R-DS	Resource DSed (for example, a "printlimit exceeded" or "stack overflow").
S-DS	System DSed.
SNTX	Syntax Error.
U-DS	Unknown DS.

Examples:

```
C

  * 500/501 EOT  COBOL DO6702MAIL/TRANS/PRO
  * 500/500 EOJ  JOB
  * 502/502 EOJ  JOB AUTOBACKUP
  * 498/498 EOJ  JOB
    497/497 EOJ  JOB AUTOBACKUP
    496/496 O-DS JOB
    495/495 EOJ  JOB AUTOBACKUP
    491/491 EOJ  JOB
    491/492 O-DS SYSTEM/DM6700ALL
    494/494 EOJ  JOB AUTOBACKUP
    492/493 F-DS DM6700MAIL
    485/485 EOJ  JOB AUTOBACKUP
    487/487 EOJ  JOB
    487/488 R-DS DM6700MAIL/TRANS/PROG
    475/485 EOJ  JOB AUTOBACKUP
    490/490 O-DS JOB
    489/489 EOJ  JOB DM6700MAIL/TRANS/PROG
    481/481 EOJ  JOB
```

CA (CAndidate)

The CA (CAndidate) command displays the candidates for unmatched local subports and remote subports whose HOSTNAME attribute equals the local host name. A candidate is a subport that is offered for use but not yet matched (connected) to another subport.

Syntax:

Semantics:

CA
For each candidate the following attributes are displayed:

PORTNAME (corresponds to the file attribute TITLE)

MYNAME

SECURITYTYPE

YOURHOSTNAME (corresponds to the file attribute HOSTNAME)

YOURNAME

MAXRECSIZE

YOURUSERCODE

STATUS

CA <port name>
Displays only those candidates whose port names (TITLEs) are equal to <port name>.

Example:

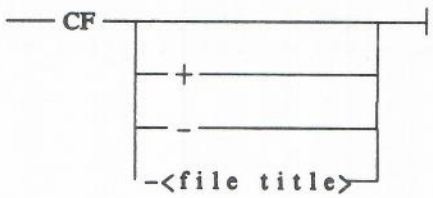
```
CA ODTPORT

   PORTNAME=ODTPORT    YOURHN=MV69ABC     YOURUC=(HOST SERVICES)
   MYNAME=CONTROLLER   YOURNM=ODTDIALOG   STATUS=NOTOFFERED
   SECURITY=PRIVATE    MAXRECSZ=2000
```

CF (Configuration File)

The CF (Configuration File) command either displays the title of the current configuration file or designates a new title.

The CF command does nothing to the configuration file. It merely stores the <file title> in the system tables so that any subsequent reconfiguration knows where to find a description of the configurations. If a RECONFIGURE (RECONFIGURE System) command is to be used to reconfigure the system to any configuration other than DEFAULT, then a configuration file must have been specified. Refer to the RECONFIGURE (RECONFIGURE System) command described later in this section. If the configuration file has not been specified, or if the file does not exist, CONFIGURATOR, the MCP procedure that performs the reconfiguration, generates a "NO FILE" condition.

Syntax:



Semantics:

CF
Displays the title of the current configuration file.

CF+
Designates SYSTEM/CONFIGURATION, the default title, as the configuration file.

CF-
Removes the designation of a configuration file from the system tables.

CF <file title>
Designates the file specified by <file title> as the configuration file.

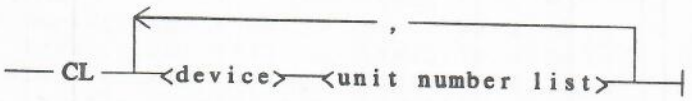
Examples:

```
CF XYZ

    XYZ IS THE CONFIG. FILE

CF

    CONFIGURATION FILE: XYZ

CF+

    SYSTEM/CONFIGURATION IS THE CONFIG. FILE
```

CL (CLear)

The CL (CLear) command clears all exception flags maintained by the MCP for the specified peripheral unit(s) and terminates any task using that unit.

Syntax:



Semantics:

CL <device> <unit number list>
Clears the device(s) identified by the <unit number list>. Clearing a device assigned to a task results in the immediate discontinuation of that task.

Examples:

```
CL MT 116

    MT 116 CLEAR

CL LP10-12

    LP 10 CLEAR
    LP 11 WILL BE CLEAR
    LP 12 CLEAR
```

Pragmatics:

In general, the CL command does not work on disk or pack units unless the unit is assigned to an MCP procedure such as RECONFIGURE. For example, CL only works if a <mix number> appears in the OL command display for the unit. If an I/O is still in process when a command is issued for a unit, the following message is returned by the CONTROLLER:

```
<unit> WILL BE CLEAR
```

On B 7000 systems, in order to restore a hung unit to system use, the operator must CLear that unit. When a unit is Cleared, all I/Os queued to the unit are returned with an Exception Result Descriptor (RD = 0001, Cancelled). If a task is specifically assigned to a unit (for example, if a tape unit is assigned to a task when it is in use), the task is discontinued (DSed) if the task had not been previously QTed.

In the case of diskpacks, all I/Os currently queued are returned with a Cancelled Result Descriptor. Consequently, any program may take programmatic action to handle an Exception RD by the inclusion of appropriate code. In addition, all subsequent I/Os are cancelled until the diskpack is CLOSEd (CLOSE PK <unit number>). This action is required because once the diskpack has been cleared, data corruption could occur if I/Os were allowed to resume after some I/Os were cancelled. While in this state, the pack is noted as "BLASTED" in the response to the PER PK request. In order to CLOSE a diskpack, all tasks must cease communication with the designated unit (that is, all open files must be closed). The diskpack may then be RYed back onto the system. If the ready action is successful, access to the unit is allowed.

CLOSE (CLOSE pack)

The CLOSE (CLOSE Pack) command releases the label information for a disk or disk pack unit.

The CLOSE command is useful when two or more systems have access to the same drive. Multiple systems may not use the same pack because the header core indexes and available space tables conflict. Therefore, a drive that is visible to one system must be FREEd on the other. In order to move the pack from one system to the other, a CLOSE PKnnn and a FREE PKnnn can be issued for one system. Then ready-status can be changed to the other processor, and an ACQUIRE PKnnn command may be performed without having to power down the drive. (The change in ready-status applies only to B 6000 series systems.)

Syntax:

Semantics:

CLOSE PK <unit number>
Causes the pack specified by the <unit number> to become closed.

A subsequent PER PK command shows the pack as CLOSED. An RY PKnnn command can be used to re-establish the in-core label information.

Examples:

```
CLOSE PKO65

    PKO65 WILL BE CLOSED
```

and then

```
    PKO65 UNIT CLOSED

PER PK

    -----PK STATUS-----

        65*U CLOSED

RY PKO65

    PK65 WILL BE READY
```

Pragmatics:

A unit may not be closed if the indicated disk pack has any files open at the time the command is entered.

CM (Change MCP)

The CM (Change MCP) command can be used to establish a different operating system:

It can:

a. Interrogate the next MCP to be used.

b. Change the current MCP to another MCP.

c. Create a new Halt/Load-capable family.

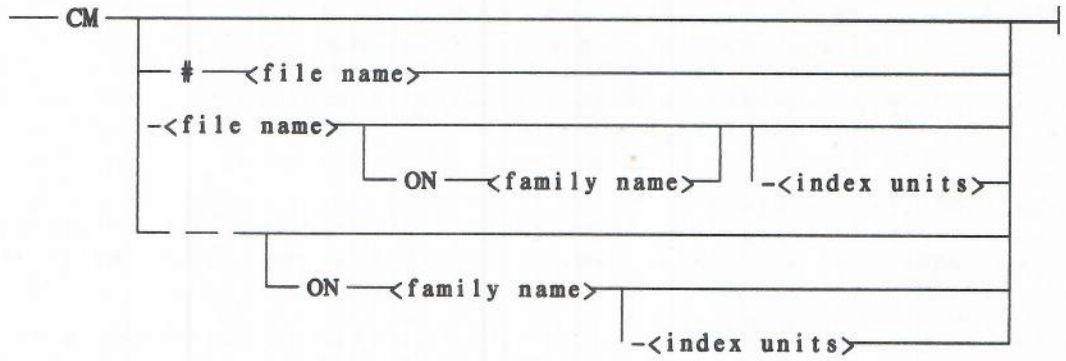
d. Alter the status of the current Halt/Load family.

e. Cause the system to use multiple copies of the MCP.

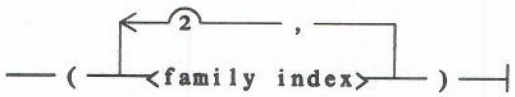
f. Cancel the Halt/Load capability of a family.

g. Cancel a pending CM action.

Syntax:



<index units>



Semantics:

CM
Returns the name of the next MCP, if specified.

CM # <file name>
CM <file name>
Change the operating system code file on the current Halt/Load family to <file name>.

For these commands the target family is always the current Halt/Load family. A Halt/Load to the new operating system follows.

When CMing to the current Halt/Load family, the MCP checks for a null mix; if the mix is not null, CHANGEMCP appears in the list of waiting entries. In contrast, the primitive version of the CM command (??CM) does not wait for a null mix count. Refer to the ??CM listing under "Primitive Commands" later in this section.

If the pound sign (#) is specified, the change in operating system code files is temporary. After the initial Halt/Load required to change to the new MCP, any subsequent Halt/Load causes the MCP to revert to the operating system code file in use before any CM#.

If the change in MCPs is temporary, the MCP name and the creation date remain unchanged, and the bootstrap is left pointing at the old MCP code file(s). (Again, a subsequent Halt/Load causes a return to the old operating system.)

The current MCP code file can be removed once a CM is performed to the new MCP code file.

NOTE

When a CM # is performed, the system-file bit is turned OFF in the old MCP header(s). Once this bit has been turned OFF, the old MCP can be removed. If the old MCP is removed, and a Halt/Load is required before a new permanent MCP has been CMed, the Halt/Load will fail. The only recourse in this situation is either a cool start or a Halt/Load to another pack.

CM <file name> ON <family name>
Creates a Halt/Load-capable family with the indicated code file. The target family is specified by <family name>. The current Halt/Load family cannot be specified in this command.

The system response to this command entry is similar to the response to the CM <file name> command except that no Halt/Load occurs.

This form of the CM command is used only to create new Halt/Load families. A manual Halt/Load after changing the Halt/Load unit designation is required to come up on the new MCP.

CM - ON <family name>
Removes the Halt/Load capability from a specified family or specific units of that family (<index units>). The indicated code file (and copies) are located, and the system-file bit(s) are RESET.

CM -
Cancels an impending change of the MCP.

<index units>
All but the CM # <family name> form of the CM command can be modified with a family index list, which is used to specify duplicate MCPs. The following guidelines should be observed:

1. The list may contain no duplicates. If a list is specified and the CM command is directed to the current Halt/Load family, then the current Halt/Load unit must be included in the list. In addition, each unit referenced in the command must be base-pack-capable.

That is, the unit must either be a base pack or a continuation pack with a duplicate directory; otherwise, the message "CM INVALID OR MISSING DISK" is displayed. If the list is absent, the current list is used. If no list is in use, only the base unit is assumed (family index 1).

2. When the system is running with duplicate MCPs a suffix of the form FMLYINXnnn is appended to the <file name>. <nnn> represents the three-digit family index number of the unit where the code file resides. The advantage of using duplicated MCPs is that I/Os to the MCP code file are rotated between the duplicated files, reducing the I/O activity on the base Halt/Load unit.

3. When entered, the CM <file name> and CM <file name>/FMLYINXnnn> locate the specified file using the full name given in the command. A list of the <file name>s required for each <family index> is then made. If <file name>/FMLYINX<nnn> is specified, <nnn> is changed. If FMLYINX<nnn> is not specified, then this command appends the correct member for each <family index>. The MCP then attempts to locate the required file for each member. If a file is found and the code files (of the file found and the specified file) are determined to be identical by the compiler timestamp, the file found is used for the corresponding member. Otherwise, a new file is built for that member.

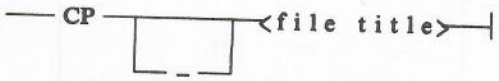
Examples:

```
CM

    NEXT MCP:  SYSTEM/MCP33260

CM # SYSTEM/MCP33260

    SYSTEM/MCP33260 NEXT MCP, MEMONLY

CM SYSTEM/MCP33260

    SYSTEM/MCP33260 WILL BE THE NEXT MCP

CM -

    MCP CHANGE CANCELLED
```

CP (Control Program)

The CP (Control Program) command designates the specified code file as a "control" program. Once a file is designated as a control program, it never becomes scheduled when it is entered into the mix. Moreover, it is never programmatically stopped by the working set mechanism. While running, its priority is higher than any non-CPed program, though lower than any Message Control System (MCS).

Syntax:



Semantics:

CP <file title>
Designates that the code file specified by the <file title> is a control program.

CP - <file title>
Designates that the specified file is no longer a control program.

Example:

```
CP SYSTEM/CANDE

    SYSTEM/CANDE IS A CONTROL PROGRAM

CP - SYSTEM/CANDE

    SYSTEM/CANDE IS NOT A CONTROL PROGRAM
```

CQ (Clear Queue)

The CQ (Clear Queue) command clears the system messages queued for display on this ODT.

Syntax:

Semantics:

CQ
Causes the system to clear all system messages queued for display on the terminal. The system responds with the message "MESSAGES FLUSHED".

Example:

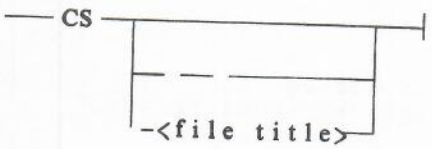
```
CQ

    MESSAGES FLUSHED
```

CS (Change Supervisor)

The CS (Change Supervisor) command displays, cancels, or designates the specified code file as a "supervisor" program.

At Halt/Load time, the supervisor program is automatically entered in the mix. It runs before any other jobs are initiated. If the run-time MCP option DUPSUPERVISOR is SET, the MCP attempts to execute a code file <file name>/FMLYINX<nnn>, where <nnn> represents the family index. If DUPSUPERVISOR is RESET, the MCP attempts to execute the designated supervisor program.

Syntax:



Semantics:

CS
Displays the current supervisor program.

CS-
Cancels the current supervisor program.

CS <file title>
Designates the specified code file as a supervisor program. The file must be present when CS <file title> is executed.

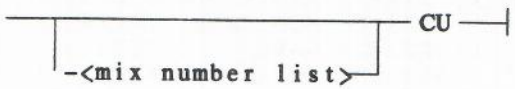
Examples:

```
CS

    SUPERVISOR: SYSTEM/SUPERVISOR

CS-

    SUPERVISOR: SUPERVISOR CANCELLED

CS

    SUPERVISOR: NOT SPECIFIED

CS SUPPRESS/MIX/NOS

    SUPERVISOR: SUPPRESS/MIX/NOS
```

CU (Core Usage)

The CU (Core Usage) command may be used to obtain information regarding the memory usage either of a particular task or of the entire system.

Syntax:



Semantics:

CU
Displays information about memory usage for the entire system. The display for a Tightly-Coupled system includes statistics reflecting memory usage in each local memory subsystem and in the GLOBAL memory subsystem.

<mix number list> CU
Displays memory usage statistics for the tasks specified in <mix number list>. These statistics include the total, save, and working set sizes of both the stack and the code. For swap jobs, the subspace size is also displayed.

Examples:

All statistics given in a CU display are in units of words.

In response to the <mix number list> CU command, WSSIZE denotes the working set size. WSSIZE statistics are provided only if the Working Set Sheriff is running (Factor 1 > 0).

```
502 CU

   502 CORE:   TOTAL   SAVE   WSSIZE

    STACK      32010   6597   23591
     CODE      10970   2551   10606
       TOTAL   42980   9148   34197

CU

   CORE USAGE AT  06:53:06

    AVAILABLE      195299
    NON SAVE        30274
    SAVE            36571
      TOTAL        262144
```

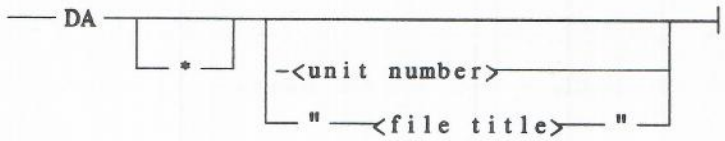
The following example applies to a Tightly-Coupled system with two local memory boxes:

```
CU

    CORE USAGE AT  10:21:04

GLOBAL MEMORY      LOCAL MEMORY 1     LOCAL MEMORY 2     SYSTEM TOTAL
AVAILABLE 255028   AVAILABLE 111967   AVAILABLE  31843   AVAILABLE 398838
NON SAVE  105882   NON SAVE  301632   NON SAVE  357335   NON SAVE  764849
SAVE       32306   SAVE       98401   SAVE      122822   SAVE      253529
TOTAL     393216   TOTAL     512000   TOTAL     512000   TOTAL    1417216
```

DA (Dump Analyzer)

The DA (Dump Analyzer) command executes the utility SYSTEM/DUMPANALYZER to analyze a memory dump. The SYSTEM/DUMPANALYZER options STACK, AREADUMP, UINFO, LINKDUMP, HDR, and QUEUE are set by default. Refer to Volume 1, Chapter 14 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a complete discussion of these options.

Syntax:



Semantics:

DA
Causes SYSTEM/DUMPANALYZER to be executed.

*
Causes the resultant DUMPANALYZER to accept its commands from the ODT where the command is entered, and allows INTERACTIVE mode to be selected.

<unit number>
Specifies a tape drive containing a memory dump, which is used as input to the SYSTEM/DUMPANALYZER utility.

" <file title> "
Specifies a disk file containing a saved memory dump, which is used as input to the SYSTEM/DUMPANALYZER utility.

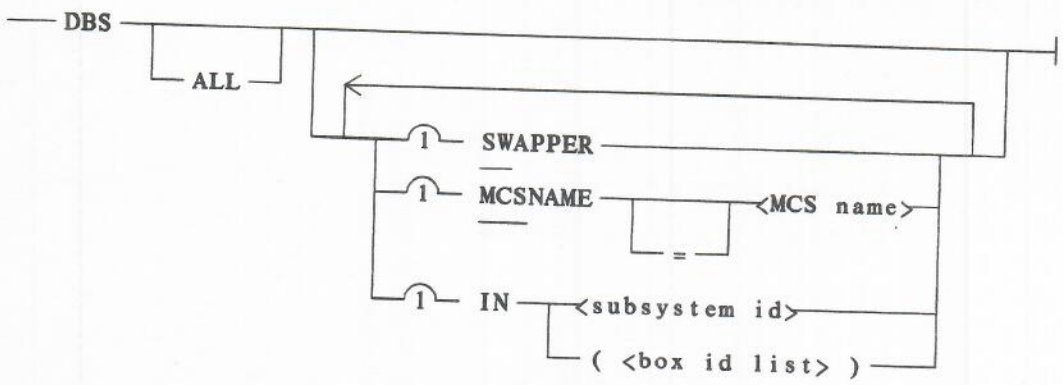
Example:

```
DA

    1187 /1188 50 SYSTEM/DUMPANALYZER
```

DBS (Database Stack Entries)

The DBS (Database Stack Entries) command provides listings of all active database stacks.

Syntax:



Semantics:

DBS
Displays all unsuppressed database stacks.

ALL
Displays suppressed as well as unsuppressed database stacks.

SWAPPER
Displays only database stacks running in swapspace.

MCSNAME <MCS name>
MCSNAME=<MCS name>
Display only database stacks originating from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only data bases with stacks running in the specified subsystem or memory subsystem, respectively.

Examples:

Each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL memory task, or a blank for a task whose subsystem location is currently unassigned.

An asterisk (*) may appear in front of a database stack display to indicate that this active stack is being displayed for the first time.

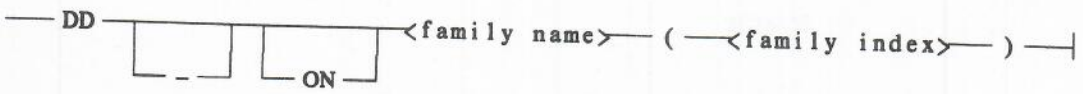
The entry in the following display consists, from left to right, of the mix number, the number of users accessing the database stack, the priority number, and the database name.

```
DBS

     -----1 ACTIVE DATABASE-----

     9250 4    50 FTRDB
```

DD (Directory Duplicate)

The DD (Directory Duplicate) command creates or deletes a backup copy of the flat directory.

Syntax:



Semantics:

DD ON <family name> (<family index>)
Initiates COPYDIR as an independent runner and performs an immediate copy operation. If the specified unit is head-per-track disk, it must have been previously reserved with the LABEL option of the RES (REServe) command. The duplicate directory names are SYSTEMDIRECTORY/NNN, where NNN, an integer between 1 and 255, is the family index of the unit receiving the duplicate.

DD-
Removes the duplicate directory. However, DD- cannot be used if the <family index> member is not on-line at the time.

Example:

```
DD ON MASTERPACK (2)

A

     -----ACTIVE ENTRIES----
     .
     .
     .
     *9303 JOB 80 COPYDIR
```

DIR (DIRectory)

The DIR (DIRectory) command lists the directory of files on the system disk or on a specified disk pack. This command causes the utility SYSTEM/FILEDATA to be invoked with various parameters.

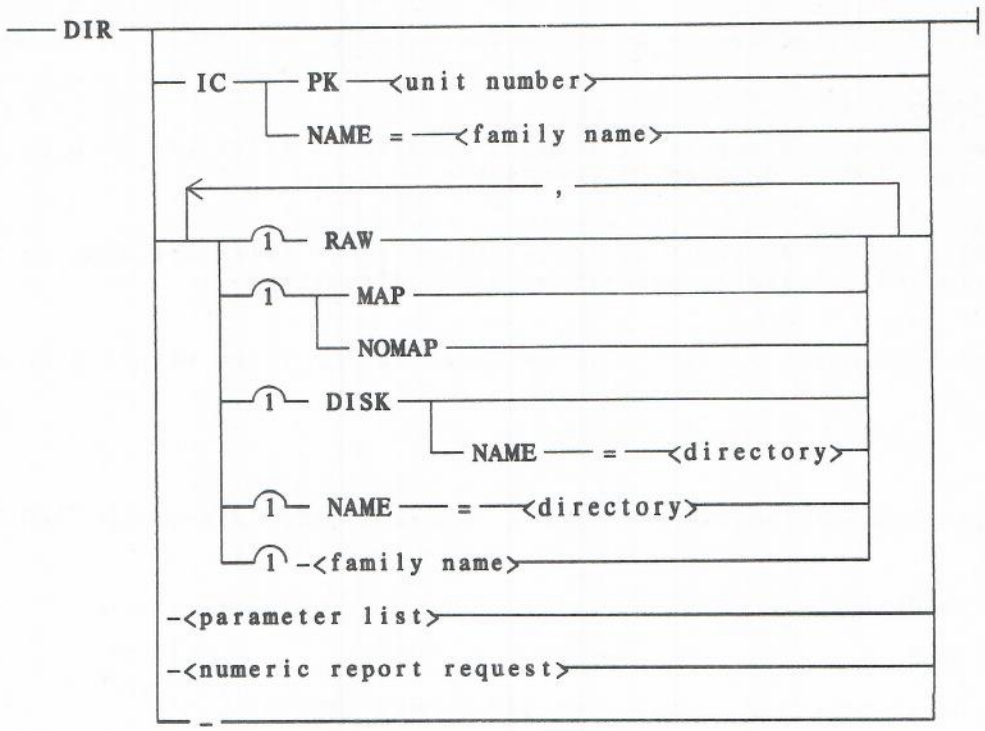
Refer to Volume 1, Chapter 5 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for more information concerning SYSTEM/FILEDATA.

There are two modes of operation for the DIR command. If the text following DIR begins with the IC keyword, a report is generated by way of the MCP for the specified interchange-mode pack. If DIR - (which is equivalent to DIR 1) or DIR <numeric report request> is entered, FILEDATA is initiated with that <numeric report request>. Otherwise, any text is passed to the FILEDATA utility as a string parameter.

If the first token in FILEDATA's string parameter is not a recognizable <task request> or a number, the FILEDATA attempts to translate the text into an equivalent series of <task request>s before beginning functional processing. As a result, there are restrictions and side effects when the <parameter list> or <numeric report request> forms of the DIR command are not used.

<numeric report request>s and <task request>s are explained in Volume 1, Chapter 5 of the B 5000/B 6000/B 7000 Series System Software Operational Guide.

Syntax:



Semantics:

DIR
Causes SYSTEM/FILEDATA to generate a standard report for all files on the DISK family. This report contains a hierarchical directory list and the files area layout (FILENAMES and STRUCTUREMAP <task request>s, respectively). Additional information may be requested by way of the RAW (HEADERCONTENTS <task request>) and MAP (CHECKERBOARD <task request>) keywords.

DIR IC PK <unit number>
Causes the MCP to generate a report for the specified IC (Interchange-mode) pack or family.

DIR IC NAME = <family name>
Obtains a report for the named IC family. A report on less than the full family may be printed by specifying the appropriate <directory>.

RAW
Specifies that each file header is to be listed in HEX.

MAP
Specifies that the report is to include a sorted listing of allocated disk segments. The default is NOMAP.

NOMAP
Suppresses the list of allocated disk segments (default).

DISK
Specifies that a standard report is to be generated of all files on the DISK family.

DISK NAME=<directory>
Specifies that a standard report is to be generated of files residing on the specific portion of DISK denoted by <directory>.

NAME=<directory>
Specifies that a standard report is to be generated of files residing on the specific portion of the family denoted by NAME=<directory>.

<family name>
Specifies that a standard report is to be generated of files residing on the named family.

Examples:

The following DIR commands request a standard report of the directory A/B on the family DISK:

```
DIR DISK NAME=A/B

DIR DISK A/B
```

The following command requests a report on the UZERPK family:

```
DIR UZERPK RAW
```

The following command requests files in the UZERFILES directory on PACK:

```
DIR NAME=PACK/UZERFILES
```

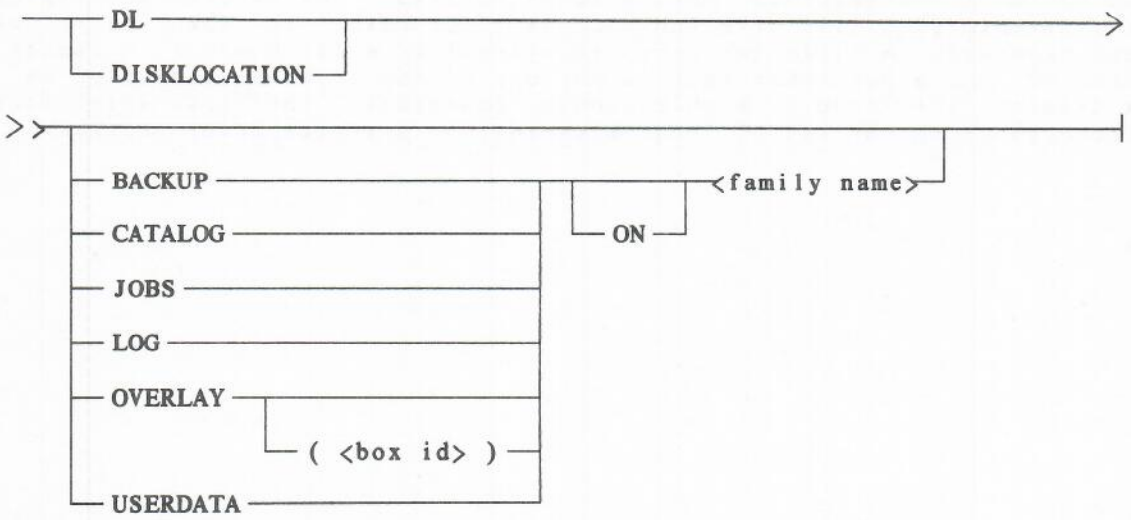
Pragmatics:

If the <parameter list> or <numeric report request> forms of the DIR command are not used, all non-alphanumerics except the slash are translated to blanks and hence are treated as delimiters. Consequently, names preceded by an asterisk (*), parenthesized usercodes, and names containing special characters (whether the names are quoted or not) are forbidden. The /= suffix normally associated with directories must also be omitted. <directory> may represent either a directory, a file with the same name, or both. In the latter case, both are reported. A title <on part> is illegal as well; however, a family may be specified. An alpha token that is not one of the keywords indicated in the syntax diagram is treated as a <directory>; conversely, the first identifier in a <directory> cannot be any of those keywords, or a syntax error occurs.

DL (Disk Location)

The DL (Disk Location) command specifies that system files reside on families other than the Halt/Load family.

Syntax:



Semantics:

DL
DISKLOCATION
Display the current settings of the various DL families.

BACKUP
The DL BACKUP ON <family name> specification allows a site to direct printer and punch BACKUP files to any desired family. The DL BACKUP specification is effective only if the SB (Substitute Backup) setting includes DLBACKUP as a destination.

When DLBACKUP is specified as a substitute backup medium by way of the SB (Substitute Backup) command, the task attribute BACKUPFAMILY is recognized as the family on which printer and punch backup files are to be opened. BACKUPFAMILY may be SET only by the MCP or by an MCS.

The DL BACKUP family name is stored in the BACKUPFAMILY of the job stack when the job is initiated. Task attribute inheritance propagates this BACKUPFAMILY to all stacks initiated under the job. At log-on time, CANDE stores the DL BACKUP family name and propagates it to all tasks begun under the session. Consequently, all backup files for a job or CANDE session are normally directed to a single family, even if the DL BACKUP family specification is changed during the job or CANDE session.

The presence of the specified DL BACKUP family is checked at system initialization time and whenever an attempt is made to change it by way of an ODT input. If the family is not present, an RSVP wait allows the following options:

a. Mount the family base unit and OK (Reactivate) the RSVP wait.

b. Enter the OF (Optional File) command in response to the RSVP wait in order to preserve the missing family as the DL BACKUP specification.

c. DS (DiScontinue) the RSVP wait to disassociate DL BACKUP from the missing family. (At initialization time, the DL BACKUP specification defaults to the <Halt/Load family name>; DSing a wait resulting from an ODT input causes the previous DL BACKUP family specification to be retained.)

The CANDE commands BACKUPPROCESS and BDREMOVE automatically find files on DISK, PACK, and the BACKUPFAMILY of the session.

CATALOG

The DL CATALOG ON <family name> specification allows specification of the catalog family. This specification works in the same fashion as JOBS.

JOBS

The DL JOBS ON <family name> specification allows specification of the family on which JOBDESC is located. When the family specification is changed, no JOBDESC file is actually moved to that family. However, all Halt/Loads subsequent to this re-specification search for the family. If the family is not present, two ODT commands may be used:

a. The search may be directed to another family by way of an IL (Ignore Label) command. This command causes the JOBDESC file to be read on the other family, and the DL (Disk Location) specification is updated on the ILed family.

b. The search may be OFed by way of the OF (Optional File) command (which causes JOB DL to default to the Halt/Load family).

LOG

The DL LOG ON <family name> specification allows a site to maintain the SYSTEM/SUMLOG file on any desired family. Efficiency considerations suggest that the DL LOG family chosen for a Tightly-Coupled system be directly visible to each local processor, but this arrangement is not strictly necessary.

During system initialization, the specified DL LOG family must be present or the DL LOG specification defaults to the <Halt/Load family name> as a non-IAD (Installation Allocated Disk) file.

When an operator attempts to change the DL LOG specification by way of an ODT command, an RSVP wait occurs if the newly-specified family is not present. The following options are available:

a. The family base unit may be made available and the RSVP wait may be OKed (reactivated).

b. The RSVP wait may be OFed or DSed in order to discard the requested change and maintain the previous DL LOG specification.

Assuming the required family is present, MCP action when changing the DL LOG specification is as follows:

1. A TL (Transfer Log) is performed on the SYSTEM/SUMLOG residing on the previous DL LOG family.

2. If a SYSTEM/SUMLOG file already exists on the new DL LOG family, a TL (Transfer Log) is performed and a new SYSTEM/SUMLOG is opened.

OVERLAY (<box id>)

The DL OVERLAY (<box id>) ON <family name> specification allows system OVERLAY files (and the consequent overlaying I/O activity) to be located on any desired family. The <box id> specification for an OVERLAY family is required only for a Tightly-Coupled system and is rejected on ODT inputs to a monolithic system. For a Tightly-Coupled system, each memory subsystem has its own DL OVERLAY specification in order to ensure direct I/O access to the memory being overlayed. Different local memory subsystems may not be able to directly access the same devices, however.

The presence of each pertinent DL OVERLAY family is checked at system initialization time and whenever an ODT input attempts to change a specification. (This "presence" check includes a test for proper I/O visibility on a Tightly-Coupled system.) If a family is not present, an RSVP wait allows the following options:

a. The family base unit may be mounted and the RSVP wait may be OKed (reactivated).

b. The RSVP wait may be OFed or DSed to disassociate DL OVERLAY from the missing family. Refer to the OF (Optional File) and DS (DiScontinue) commands, also described in this section.

At initialization time, the unsatisfied DL OVERLAY specification defaults to the <Halt/Load family name>. On a Tightly-Coupled system the default for a local box is the <Halt/Load family name> for that processor. On a B 7000 series system the operator must specify a unit that is visible to the memory subsystem before initialization can continue. If the wait arises from an ODT input, the previous family specification for the DL OVERLAY case in question is retained.

Whenever a DL OVERLAY specification is changed, the MCP overlay file for the system (monolithic) or memory subsystem (Tightly-Coupled) is immediately moved to the new family. This file is also moved during system initialization if a DL OVERLAY specification is other than the corresponding <Halt/Load family name>. However, when other overlay files have been allocated on a given family, they are never moved. Consequently, changing a DL OVERLAY family while the system is running affects only the allocation of new overlay files.

USERDATA

The DL USERDATA ON <family name> specification allows a site to maintain the SYSTEM/USERDATAFILE on any desired family.

Changing the DL USERDATA family by way of an ODT input is successful as long as no SYSTEM/USERDATAFILE is present on the old USERDATA family (or the old family is not present). If a SYSTEM/USERDATAFILE exists, MCP action is as follows:

1. The presence of the new DL USERDATA family is verified. If it is not present, the resulting RSVP wait may be OFed or DSed to abort the change and retain the previous DL USERDATA specification.

2. A check is made to determine whether a SYSTEM/USERDATAFILE already exists on the new family. If it does, an RSVP wait allows the following options:

   a. The RSVP wait may be DSed to abort the DL USERDATA change.

   b. The RSVP wait may be RMed (ReMoved) to remove the file.

   c. The file may be disposed of in some other way, and the wait may be OKed.

3. The current SYSTEM/USERDATAFILE is copied to the new USERDATA family. The SYSTEM/USERDATAFILE on the old family is renamed USERDATAFILE/<date-time>. (Should the copy fail, the DL USERDATA change is aborted.)

If no SYSTEM/USERDATAFILE exists on the USERDATA family, or if that family is not present, and a non-interactive request is made for USERDATA information, MCP action is as follows:

1. If no family is present, a "REQUIRES PK" message is displayed with OK, DS, or OF options. OK causes repeated demand for the family. DS terminates the requestor. OF causes the code to proceed without the family.

2. If the family is present but has no SYSTEM/USERDATAFILE, or if the "REQUIRES PK" message is answered by the OF command, a "NO FILE" message is displayed. If the IL option is used, the USERDATA DL family is set to the family name of the resulting unit.

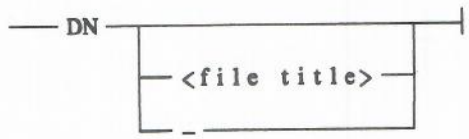
Examples:

```
DL

     DISK LOCATION:

          BACKUP      ON BKPACK
          CATALOG     ON DISK
          JOBS        ON DISK
          LOG         ON DISK
          OVERLAY     ON DISK
          USERDATA    ON DISK

DL BACKUP ON MYPACK

     2134 DL BACKUP FAMILY SET TO:  MYPACK

DL CATALOG ON MYPACK

     DISKLOCATION FOR CATALOG WILL BE CHANGED

DL JOBS ON MYPACK

     DISKLOCATION FOR JOBS WILL BE CHANGED

DL LOG ON MYPACK

     3145 SUMLOG IS ON MYPACK

DL OVERLAY (1) ON MYPACK

     2176 OVERLAY SET TO MYPACK

DL USERDATA ON MYPACK

     SYSTEM/USERDATAFILE WAS MOVED TO MYPACK
```

DN (Dump Name - B 7000 Series Systems)

The DN (Dump Name) command controls the creation and assignment of the disk file used for system memory dumps to disk. A pre-existing file, created by way of a prior DN command or a user program, may be assigned; otherwise, a new file may be created and assigned. The file must contain 730-segment rows, one for each memory module to be dumped, plus one row for a dump header record.

Syntax:



Semantics:

DN
Displays the name of the current dump-to-disk file, if assigned; if the name of the current dump-to-disk file is unassigned, the message "DUMPTODISK FILE NOT PRESENT" is displayed.

DN <file title>
Assigns the file identified by <file title> as the dump-to-disk file. A new file is created before being assigned if <file title> either (1) is not resident, or (2) is too small to hold a dump for the current configuration and does not already contain a valid memory dump. In the latter case, the old file is removed, and a new file is generated with the same name. If the file contains a valid dump but is not large enough for the current configuration, it is still assigned. However, in that event a dump is sent to tape. The contents of a file that does not contain a valid dump are overwritten.

If a new file is created, the independent runner SETUPMEMDUMPDISK requests the operator (by way of an "ACCEPT" message) to specify the number of memory modules the file is to hold. The operator can request any number greater than the minimum specified in the command and less than 256.

The message "<file title> (LOADED)" is displayed to indicate the file has been assigned as the dump-to-disk file.

DN-
Negates the assignment of the dump-to-disk file without actually removing the file. The message "DUMPTODISKFILE NOT PRESENT" is displayed to acknowledge that the assignment of the dump-to- disk file has been negated.

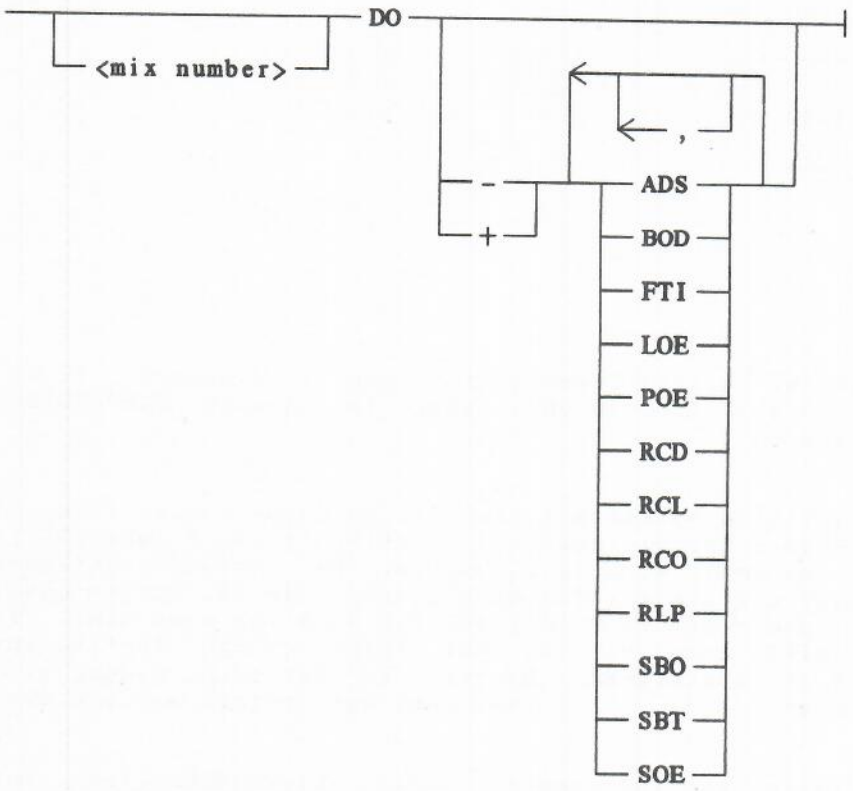
Example:

```
DN DUMPER ON DISK

    DUMPER ON DISK (LOADED)
```

DO (Diagnostic Options - B 7000 Series Systems)

The DO (Diagnostic Options) command displays, SETs (+), or RESETs (-) various options that can be used in on-line confidence tests. Refer to Section 12 of the B 7000 Systems Hardware Operational Guide for complete information about the use of this command.

Syntax:



Semantics:

DO
Displays the current options that are SET for on-line confidence testing.

<mix number> DO
Displays the current options that are SET for the on-line confidence testing of a job identified by <mix number>.

If <mix number> is specified, it must be the number of a "TEST" job.

<mix number> DO +
<mix number> DO -
DO +
DO -
SET (+) or RESET (-) the diagnostic options displayed in the preceding syntax.

The following dump control options are available:

ADS
When this option is SET, a non-fatal DEADSTOP occurs on each Central Processing Module (CPM) as they enter DUMPBOOTSTRAPPERIOM.

BOD
When this option is SET, a program dump is taken for certain MAINFRAMETEST errors or for certain errors when acquiring an MCM.

The following options applicable to on-line confidence programs are available:

FTI
The Freeze Test Case Index option is used with all on-line confidence programs run in AUL 0 or AUL 1. The option serves two functions:

a. If FTI is SET when the Test Control Module (TCM) routine in the MCP is entered, this option causes TCM to enter interactive mode. The options available in this mode of operation are described in Section 12 of the B 7000 Systems Hardware Operational Guide, in the "INTERACTIVE TEST CASE HANDLING" paragraph.

b. If FTI is SET after the interactive mode is terminated, this option causes the current test case to be repeated indefinitely. The current test case is indicated by the Test Case Index (TCI) word, which is located at memory address 1600 (hexadecimal) relative to the base of the 16K program memory area.

The FTI option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

LOE
The Loop On Error option is used with all on-line confidence programs run in AUL 0 or AUL 1. When SET, this option causes the failing portion of a test case to be repeated until the error is no longer reported. The option can be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

POE
The Pause On Error option is used with all on-line confidence programs run in AUL 0 or AUL 1. If this option is SET and an error occurs, TCM goes into a "wait" state after displaying the error. The program may be continued by entering <TCM task number> OK or discontinued by entering <TCM task number> DS. This option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

RCD
The Report to Console Display option is used with all on-line confidence programs run in AUL 0 or AUL 1. If this option is SET and an error occurs, the appropriate error message is written to the ODT. When running confidence programs using this option, it is advisable to stop messages on at least one ODT to prevent the error message from being overwritten. The POE option should also be SET to prevent the screen from being erased. The RCD option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

RCL

The Recycle option is used with all on-line confidence programs run in AUL 0 or AUL 1. If RCL is SET and the test case list has been exhausted, the Test Case Index (TCI) is zeroed and the test case list is processed again. This option may be SET or RESET by the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

RCO

The Recycle Overlay option is used with the CPM on-line confidence programs run in AUL 0 or AUL 1. If this option is SET, the test code overlay that is presently executing is re-executed until either the option is RESET or the test job is DSed. The option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

RLP

The Report Printer option is used with all on-line confidence programs run in AUL 0 or AUL 1. If this option is SET and an error occurs, the appropriate error message is written to a printer. The option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

SBO

The Stop at Beginning of Overlay option is used with the CPM on-line confidence programs run in AUL 0 or AUL 1. If this option is SET, the MCP TCM routine halts after a segment of TEST routine code is loaded, and the following message is displayed:

TEST CODE OVERLAY STOP-ENTER OK

This option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

SBT

The Stop at Beginning of Test option is used with all on-line confidence programs run in AUL 1. When SET, this option causes a Conditional Halt to be executed in the driver program just before each test case is executed. If the CPM that is executing the test has the COND HALT switch SET (ON), the processor halts with a DF in the IER. The test may be continued by pressing the START pushbutton. The option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

SOE

The Stop On Error option is used with confidence programs run in AUL 1 only. If an error occurs and SOE is SET, the test CPM halts with the following register display:

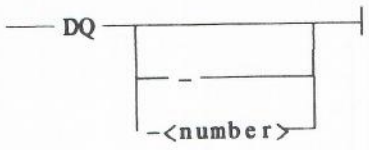
IER:	A variant BF (95BF)
E:	The Test Case ID
F:	The Error Header Word

The error display on the CPM is thus identical with that produced by off-line confidence programs. The START push button on the processor must be pressed to continue. The SOE option may be SET or RESET by either the DO (Diagnostic Options) command or the TEST (Confidence TEST) command. It is RESET by default.

DQ (Default Queue)

The DQ (Default Queue) command designates a specific queue as the system default queue. This queue is used for jobs that do not specify a queue.

Syntax:



Semantics:

DQ
Displays the current default queue.

DQ-
Voids the current default queue specification.

DQ <number>
Assigns a new default queue specification.

Examples:

```
DQ 999

    THE DEFAULT QUEUE IS 999

DQ

    THE DEFAULT QUEUE IS 999

DQ-

    DEFAULT QUEUE CANCELLED
```

Pragmatics:

A default queue need not exist. If none exists, the system inserts jobs in the highest-numbered queue whose limits the job does not exceed.

DR (Date Reset)

The DR (Date Reset) command may be used to change the date currently in use by the MCP.

Syntax:

Semantics:

DR <mm> / <dd> / <yy>
The desired date is specified by <mm>, <dd>, and <yy>, which represent one- or two-digit numeric indications of the month, day, and year, respectively. The delimiter must be a slash (/).

Example:

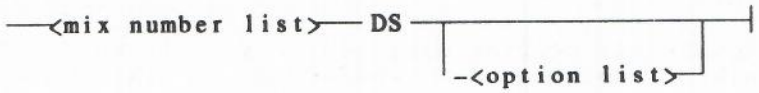
In the following example, the Julian date in parentheses at the end of the response line indicates that the year is 1975 and the date is day 112.

```
DR 04/22/75

    DATE IS TUESDAY APR 22, 1975 (75112)
```

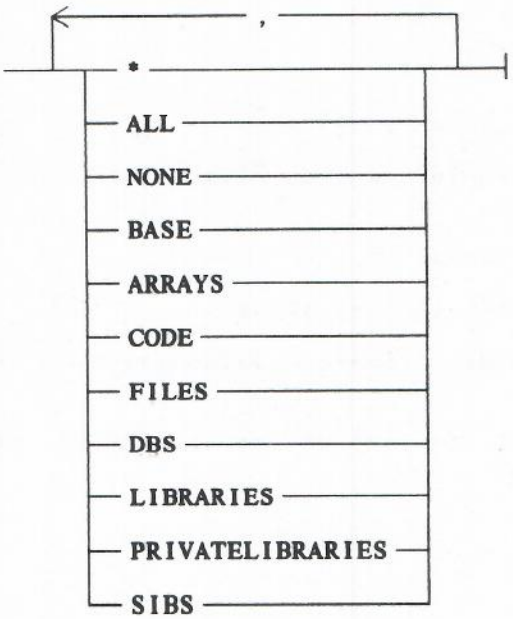
DS (DiScontinue)

When the DS (DiScontinue) command is entered, the specified jobs and tasks are terminated.

Syntax:



<option list>



Semantics:

<mix number list> DS
Terminates the jobs and tasks specified by the <mix number list>.

<option list>
If the program has been initiated and options appear in the DS command, these options are used to control a program dump taken at the time of termination.

Options for the program dump are as follows:

*	Combines options already SET by the task with options specified in the command; the net result is used to control the program dump.
ALL	Causes a program dump with all options SET.
NONE	RESETs all program dump options. If no other options are specified in this command, no program dump is taken.
BASE	Dumps the base of the stack (used by the operating system).
ARRAYS	Dumps all present arrays.
CODE	Dumps all code segments.
FILE	Dumps all areas used by files.
DBS	Dumps SIBs (Stack Information Blocks) and database stacks.
LIBRARIES	Dumps library stacks.
PRIVATELIBRARIES	Dumps only PRIVATE library stacks.
SIBS	Dumps only SIBs (Stack Information Blocks).

If the asterisk (*) is not specified, all the dump options are RESET, except those explicitly specified in the command.

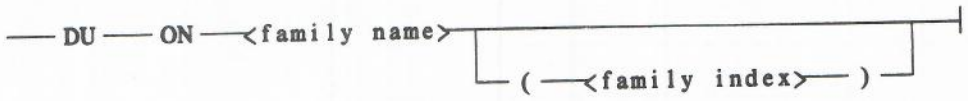
Example:

```
3132 DS

    3132 OPERATOR DSED @002:001D:1
```

DU (Disk Utilization)

The DU (Disk Utilization) command displays total available segments and size, in segments, of the largest available area on the specified <family name>.

Syntax:



Semantics:

DU ON <family name>
Displays the total available segments and the size of the largest available area for the specified <family name>.

(<family index>)
When a specific family index is specified, only available segments for that unit are displayed.

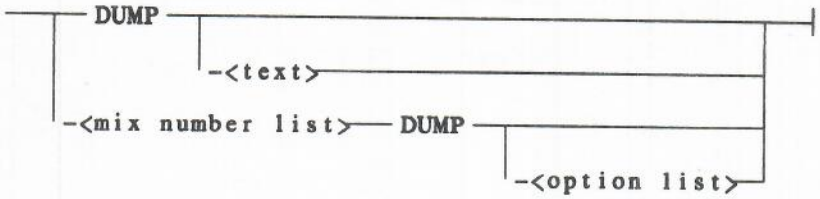
Example:

```
DU ON PACK

    AVAILABLE = 208674, LARGEST AREA = 19683
```

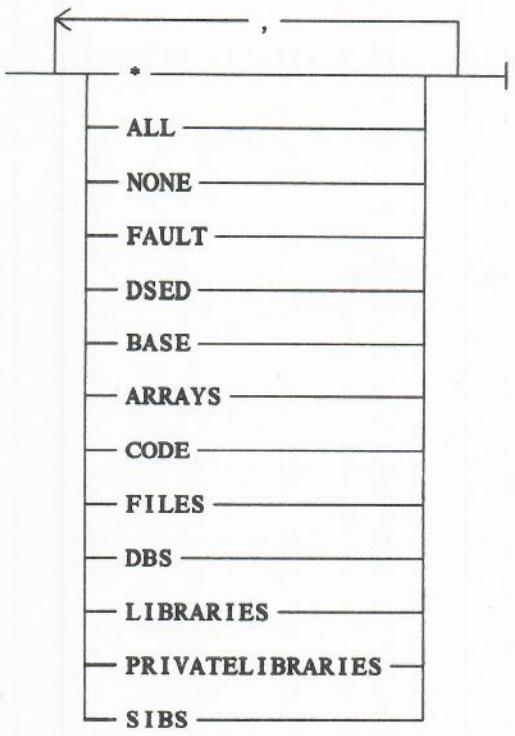
DUMP (DUMP Memory)

The DUMP (DUMP Memory) command dumps the entire contents of memory or invokes the program dump procedure for the specified programs. A DUMP with options specified can also be performed.

Syntax:



<option list>



Semantics:

DUMP
Dumps the entire contents of memory.

DUMP <text>
Causes the first 16 characters of <text> to appear in the memory dump as the reason for the dump.

<mix number list> DUMP
Invokes the program dump procedure for the program(s) specified by the <mix number list>.

<option list>
Specifies options to be used to control a program dump. Options for the program dump are as follows:

*	Combines options already SET by the task with options specified in the command; the net result is used to control the program dump.
ALL	SETs all dump options, including DSED and FAULT. Specifying this option causes the program dump not to be invoked when the command is entered.
FAULT	Causes a program dump if a fault (such as segmented array or divide-by-zero) occurs in the program. Specifying this option causes the program dump not to be invoked when the command is entered.
DSED	Requests a program dump if the program is DSed for any reason other than a fault. Specifying this option causes the program dump not to be invoked when the command is entered.
NONE	RESETs all program dump options. If no other options are specified in this command, no program dump is taken.
BASE	Dumps the base of the stack (used by the operating system).
ARRAYS	Dumps all present arrays.
CODE	Dumps all code segments.
FILE	Dumps all areas used by files.
DBS	Dumps SIBs (Stack Information Blocks) and database stacks.
LIBRARIES	Dumps library stacks.
PRIVATELIBRARIES	Dumps only PRIVATE library stacks.
SIBS	Dumps only SIBs (Stack Information Blocks).

The DUMP command for a program permanently SETs/RESETs the dump options for that program. If the asterisk (*) is not specified, all the dump options are RESET, except those explicitly specified in the command

Example:

```
3132 DUMP ALL
```

EP (Eliminate Print Queue)

If AUTOPRINT is not active, the EP (Eliminate Print Queue) command discards job files waiting to be printed.

Refer to the SP (Show Print Queue) command later in this section.

EP does not remove the printer backup files for the specified job(s); the main effect of this command is that the job summary is not printed.

Syntax:

Semantics:

EP

Causes the system to eliminate the print queue if AUTOPRINT is not active. (That is, AB=0 and no AUTOPRINT tasks are running.) If AUTOPRINT is not active, the system responds by displaying the message, "PRINT QUEUE DELETED". If AUTOPRINT is active, the system responds by displaying the message, "AB IS RUNNING OR SET".

Examples:

```
EP

    PRINT QUEUE DELETED

EP

    AB IS RUNNING OR SET
```

FA (File Attribute)

The FA (File Attribute) command is primarily used to respond to system messages or RSVPs that inform the user of incompatible attributes, "NO FILE" conditions, or "REQUIRES <device>" conditions. In particular, this command enables the user to change any changeable attribute.

Not all attributes can be changed. Refer to the B 5000/B 6000/B 7000 Series I/O Subsystem Reference Manual for more detailed information about file attributes.

Syntax:

Semantics:

<mix number list> FA <file attribute assignment>
Assigns a value (or a new value) to one or more of the file attributes associated with the task(s) denoted by the <mix number list>.

Example:

In the following example, the W (Waiting Entries) command displays a system message indicating that no permanent file can be found with a genealogy matching that of the tape file ABC. A subsequent PER (PERipheral Status) command reveals that the tape file's CYCLE and VERSION attributes have the values 13 and 12, respectively. An FA command then changes the attributes to conform to the required values.

```
W

     -----WAITING ENTRIES-----

     7986/7988 50 TESTX ON PACK
     UNMATCHED GENEALOGY ABC(MT) #1 18:12

PER MT

     114*P[000123] #1 13:12 ABC

7988 FA VERSION=12, CYCLE=13
```

Pragmatics:

The FA command response to a system message or RSVP does not apply to missing code files; it is only valid for tasks and is ignored for WFL jobs. Moreover, the command may not be used for library maintenance tasks.

FAS (Failure Analysis Summary - B 7000 Series Systems)

The FAS (Failure Analysis Summary) command displays, in matrix form, the current intermittent failure counts for each requestor, for each MCM, and between each requestor/MCM pair. The single-bit (1B) error counts for each MCM are also shown.

Syntax:

Semantics:

FAS
Returns the failure-analysis information in matrix form.

Example:

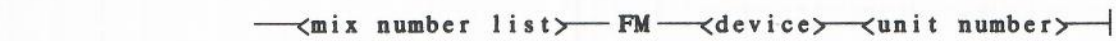
```
FAS

                FAILURE ANALYSIS SUMMARY

MCM: * : 0 : 1 : 2 : 3 : 4 : 5 : 6 : 7
-----------------------------------
REQ: * :   :   :   :   :   :   :   :
-----------------------------------
 0 :   :   :   :   :   :   :   :   :
-----------------------------------
 1 :   :   :   :   :   :   :   :   :
-----------------------------------
 2 :   :   :   :   :   :   :   :   :
-----------------------------------
 3 :   :   :   :   :   :   :   :   :
-----------------------------------
 4 :   :   :   :   :   :   :   :   :
-----------------------------------
 5 :   :   :   :   :   :   :   :   :
-----------------------------------
 6 :   :   :   :   :   :   :   :   :
-----------------------------------
 7 :   :   :   :   :   :   :   :   :
-----------------------------------
1B :   :   :   :   :   :   :   :   :
```

FM (Form Message)

The FM (Form Message) command is used to restart a program that has been suspended because of an unsuccessful attempt to open a file in which the FORMMESSAGE attribute is SET. (Alternatively, the program can be terminated using a DS (DiScontinue) command, or the FORMMESSAGE attribute can be altered by using the FA (File Attribute) command.) The FM command also specifies the output unit to which the file in question is to be assigned.

For a more detailed discussion of the FORMMESSAGE attribute, refer to the B 5000/B 6000/B 7000 Series I/O Subsystem Reference Manual.

Syntax:



Semantics:

<mix number list> FM <device> <unit number>
Specifies the task whose file is to be assigned to the specified device.

Example:

In the following example, the W (Waiting Mix Entries) command informs the user that a program has been suspended because the specified FORM could not be located. The FM command then restarts the program by directing the file in question to the line printer identified by unit number 11. Refer to FORM command in this section for a related discussion.

```
W

     -----WAITING ENTRIES-----

     3423 JOB 80 AUTOPRINT/LPO11/#3420
     REQUIRES FM:ABC

3423 FM LP11
```

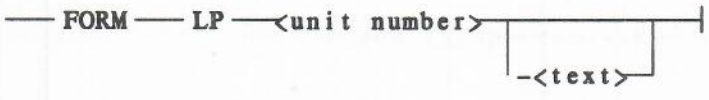
FORM (Assign FORM ID)

The FORM (Assign FORM ID) command displays or specifies the string used as a printer's FORM.

A subsequent CL (CLear) command removes the FORM specification from the printer.

Refer to the B 5000/B 6000/B 7000 Series I/O Subsystem Reference Manual for a more detailed discussion of the FORM attribute.

Syntax:



Semantics:

FORM LP <unit number>
Displays whether the specified line printer is "FORMED" or "NOT FORMED".

FORM LP <unit number> <text>
Makes the <text> the FORM to be assigned to the specified printer. If a program uses the FORMMESSAGE file attribute giving the same string, the program is assigned to the printer and no operator action is needed.

Examples:

```
FORM LP11 "ABC"

    LP11 FORMED

FORM LP11

    LP11 FORM ID : ABC

CL LP11

    LP11 CLEAR

FORM LP11

    LP11 NOT FORMED
```

FR (Final Reel)

The FR (Final Reel) command specifies that the input tape reel just read by a tape unit is the final reel of an unlabeled tape file.

The FR command may also be used to respond to a "RECOPY REQD" message generated during a COPY&COMPARE action. When the FR command is entered, further use of the tape unit on which the copy error occurred is terminated. The COPY&COMPARE then continues with the other remaining tape units involved in the COPY&COMPARE action.

Syntax:

Semantics:

<mix number list> FR
Designates the input file reel(s) associated with the <mix number list> as the final reel(s) of an unlabeled tape file.

Example:

```
4423 FR
```

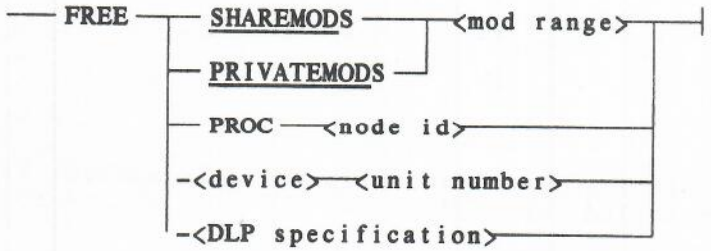
FREE (FREE Resource - B 5000/B 6000 Series Systems)

The FREE (FREE Resource) command detaches resources from an active group.

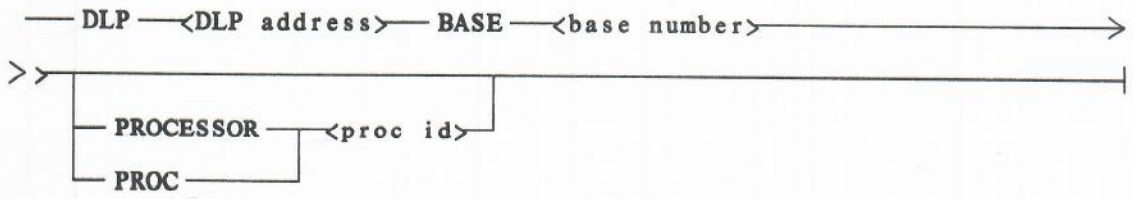
Devices must be SaVed before they can be FREEd. Disk packs must first be CLOSEd before being SaVed.

Any change permanently alters a group; that is, the results of alterations are maintained across Halt/Loads but not reconfigurations. The original group definition, whether obtained from the configuration file or through default configuration, specifies the initial definition of a group. Though a modification alters the current definition of a group, it does not alter the group definition stored in the configuration file.

Syntax:



<DLP specification>



Semantics:

FREE SHAREMODS <mod range>
Detaches the shared memory modules specified by the <mod range> from the former group and makes them available to any group.

FREE PRIVATEMODS <mod range>
Detaches the private memory modules specified by the <mod range> from the former group and makes them available to any group.

FREE PROC <node id>
Detaches the specified processor from its former group at the next Halt/Load and makes it available to any group.

FREE <device> <unit number>
Detaches the specified device (line printer, magnetic tape drive, or other device) from the former group and makes it available to any group.

FREE DLP <DLP address> BASE <base number>
Detaches the Data Link Processor (DLP) specified by the <DLP address> and <base number> from the former group and makes it available to any group.

Examples:

In the following example, the PER command indicates that MT 82 is currently in use. In this case, the FREE MT 82 command is disallowed because the unit must first be SAVEd. A subsequent PER command shows that the unit is detached from the former group but is now available to the group requesting the unit.

```
PER MT

    ---- MT STATUS ----
    81*P  [PETE ] 1600 #1 1:0 MEMORY/DUMP [2,1]
    82*P  [MIKE ] 1600     S C R A T C H  [2,1]

FREE MT 82

    UNIT IN USE

SV MT 82

    MT 82 SAVED

FREE MT 82

    MT82 FREED

PER MT

    ----- MT STATUS -----
    81*P  [PETE  ] 1600 #1 1:0 MEMORY/DUMP [2,1]
    82  NOT AVAILABLE TO GROUP
```

The following commands FREE the SHAREMOD and PRIVATEMOD specified by the <mod range> of 48:

```
FREE SHAREMOD 48

    MOD 48 WILL BE FREED

FREE PRIVATEMOD 48

    MOD 48 WILL BE FREED
```

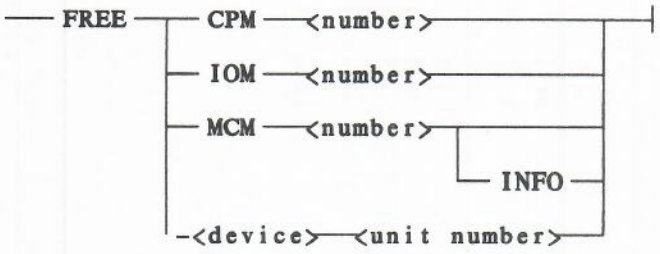
FREE (FREE Resource - B 7000 Series Systems)

The FREE (FREE Resource) command detaches resources from an active group.

Disk packs must first be CLOSEd before being FREEd.

Any change permanently alters a group; that is, the results of alterations are maintained across Halt/Loads but not reconfigurations. The original group definition, whether obtained from the configuration file or through the default configuration, specifies the initial definition of a group. Though a modification alters the current definition of a group, it does not alter the group definition stored in the configuration file.

Syntax:



Semantics:

FREE <device> <unit number>
Detaches the specified device (line printer, magnetic tape drive, or other device) from the former group and makes it available to any group.

FREE CPM <number>
FREE IOM <number>
FREE MCM <number>
Detach the specified Memory Control Module (MCM), Central Processing Module (CPM), or Input/Output Module (IOM) from the former group and make it available to any group.

INFO
If an MCM had been ACQUIREd using the INFO option, the INFO option must also be specified in the FREE command.

Examples:

```
FREE CPM 6

FREE MCM 2 INFO

FREE IOM 1
```

FS (Force Schedule)

The FS (Force Schedule) command causes the indicated scheduled job(s) or task(s) to be unconditionally initiated.

This command may be used to force the initiation of a job residing in a queue, as well as a job or task scheduled by the MCP.

Refer to the HS (Hold Schedule) command described later in this section for a related discussion of operator-initiated scheduling.

Syntax:

Semantics:

<mix number list> FS
Specifies that the job or task indicated by the <mix number list> is to be unconditionally initiated.

Example:

```
7852 FS
```

GC (Group Configuration)

The GC (Group Configuration) command displays the current group configuration or creates a disk file containing card images that can be used as input to create a configuration file matching the current configuration.

Syntax:

Semantics:

GC
Displays information concerning the resources of the system. It also displays information concerning the B 5900/B 6900 I/O subsystem. This includes all DLPs on a base-by-base basis for all bases and DLPs currently configured.

GC TO <file title> (B 5000/B 6000 series systems only)
Creates a disk file named <file title> containing card images that can be used as input to SYSTEM/CONFIGURATOR to create a configuration file matching the current configuration.

Examples:

The following command displays the group configuration for a B 6800 multiprocessor system:

```
GC

        ***** GROUP CONFIGURATION *****

    GROUP ID: BLUE
    PROCESSOR PORTS:  A000   PROC ID. = 1
    PERIPHERALS ALLOWED TO GROUP:
       12-13,32-33,42-43,69-71,81-83,193-194
    GLOBAL MEMORY STATUS:
       PRIVATE MEMORY AVAILABLE: NONE
       PRIVATE MEMORY IN USE:    NONE
       SHARED MEMORY AVAILABLE:  32-33,38-39
       SHARED MEMORY IN USE:     32-33
```

"MEMORY AVAILABLE" shows the GLOBAL Memory that the description in the configuration file designates as belonging to this group. Memory in use shows the memory that the group was actually able to obtain. In-use memory must be on-line but not in use by another group.

The following command displays the group configuration for a B 6000 series monolithic system:

```
          ***** GROUP CONFIGURATION *****

      GROUP ID: DEFAULT
      PERIPHERALS ALLOWED TO GROUP:
         1-255
      GLOBAL MEMORY STATUS:
         PRIVATE MEMORY AVAILABLE:   NONE
         PRIVATE MEMORY IN USE:      0-63
         SHARED MEMORY AVAILABLE:    NONE
         SHARED MEMORY IN USE:       NONE
```

On monolithic systems all memory is private by default.

The following command displays the group configuration for a B 5900 system:

```
          ***** GROUP CONFIGURATION *****

      GROUP ID: BLUE
      PERIPHERALS ALLOWED TO GROUP:
         1-255
      I/O:
         BASE 3/1/0
            HOST 1     %PATH = MLIP PORT 1 LEMPORT 0
               ADDRESS 0 DLPID 1   ODT1
               ADDRESS 2 DLPID 10  CR1
               ADDRESS 3 DLPID 4   TP1
               ADDRESS 5 DLPID 60  HT1
               ADDRESS 7 DLPID 12  MT2;
         BASE 4/1/0
            HOST 1     %PATH = MLIP PORT 0 LEMPORT 0
               ADDRESS 3 DLPID 5   TP2
               ADDRESS 4 DLPID 60  HT1
               ADDRESS 6 DLPID 108 NSP3;
         BASE 2/1/0
            DEPENDENT HOST 1 DLPID 108
               ADDRESS 1 DLPID 112 LSP1
               ADDRESS 2 DLPID 113 LSP1;
```

The following command displays the group configuration for a B 7000 series Tightly-Coupled system:

```
GROUP ID: TCBATCH
GLOBAL:
2 MCM-S 0,2
BOX 2:                          BOX 3:
1 PROCESSOR 5                   1 PROCESSOR 6
1 I/O MODULE 2                  1 I/O MODULE 1
2 MCM'S 4-5                     2 MCM'S 1,6
BOX 4:
1 PROCESSOR 7
1 I/O MODULE 0
2 MCM'S 3,7
UNITS SPECIFIED FOR GROUP
6-7,10,12,14-16,32-37,44-45,60-61,64-67,81-82,96-103,
128-130,132,134-135,145-150,172-173,224,226-229
UNITS SPECIFIED FOR BOXES
BOX 2:
NO UNITS SPECIFIED
BOX 3:
64-65,128-132,228-229
BOX 4:
66-67,134-135,224,226-227
```

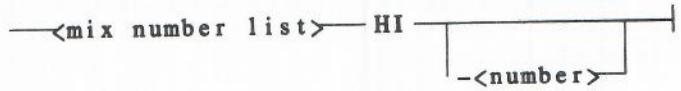
The following command displays the group configuration for a B 7000 series monolithic system:

```
GROUP ID: DEFAULT
2 PROCESSORS 5-6
2 I/O MODULES 1-2
4 MCM-S 0-1,4-5
UNITS SPECIFIED FOR GROUP
6-7,10,12,14-16,32-37,44-45,60-61,64-71,81-85,87,96-103,
113-114,128-129,131-137,145-150,162,172-173,224-229
```

HI (Cause EXCEPTIONEVENT)

The HI (Cause EXCEPTIONEVENT) command causes the EXCEPTIONEVENT of the specified task and, optionally, assigns the indicated number to the VALUE attribute of that task.

Syntax:



Semantics:

<mix number list> HI
Causes the EXCEPTIONEVENT of the tasks specified in <mix number list>.

<number>
Stores this value in the VALUE task attribute of the tasks specified in <mix number list>.

Example:

```
4312 HI
```

HN (Host Name)

The HN (Host Name) command either interrogates the current host name of the system or establishes a new host name at the time of the next Halt/Load.

Each host in a BNA network is identified by a host name. This name identifies the location of a resource (for example, a file) to which access is desired. No two systems in the network may have the same host name at the same time. The host name of a system may be set or modified only at Halt/Load time. Moreover, each host must have a host name assigned before it attempts to establish communication with another host.

Syntax:

Semantics:

HN
Causes the system to display the current host name along with the host names of any BNA hosts that are usable for port file dialogs or Host Services functions.

<name>
Specifies the new host name that is to be established at Halt/Load time. A valid host name contains from 1 to 17 alphanumeric characters and must begin with a letter.

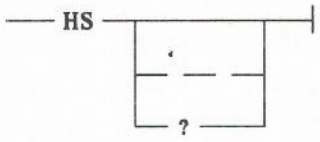
Examples:

```
HN

    HOSTNAME: BLUE

HN HOSTC

    HOSTNAME: HOSTC
```

HS (Hold Schedule)

The HS (Hold Schedule) command stops the initiation of new jobs or tasks. This command can also display the current status of job selection.

Syntax:



Semantics:

HS
Stops the initiation of jobs and tasks. The system responds by displaying the message, "JOB SELECTION STOPPED".

HS-
Resumes the initiation of jobs and tasks. The system responds by displaying the message, "JOB SELECTION RESUMED".

HS?
Displays the current status of job selection. The system responds by displaying one of the following two messages: "SCHEDULE IS HELD" or "SCHEDULE IS NOT HELD".

Examples:

```
HS

    JOB SELECTION STOPPED

HS-

    JOB SELECTION RESUMED

HS?

    SCHEDULE IS HELD
    or
    SCHEDULE IS NOT HELD
```

HU (Host Usercode)

The HU (Host Usercode) command designates a usercode to be used for the following BNA Host Services requests when they are initiated from an ODT to which no terminal usercode has been assigned (see the TERM command):

a. ODT commands sent to a remote host using the "AT <host name>" command.

b. File transfer, initiated using the WFL "COPY" statement.

c. Job transfer, initiated using the WFL "START" or "?AT <host name>" statements. (If the job contains a usercode, it runs at the remote host under that usercode; otherwise, it runs under the local "alias" of the usercode used to transfer it.)

An error occurs at the initiating host if no host usercode has been set by the HU command when any of the preceding BNA Host Services are requested from an ODT without a terminal usercode.

An error occurs at the receiving host if it does not recognize the validity of the usercode associated with the request.

In order for a usercode associated with a BNA Host Services request to be valid at a receiving host that is a B 5000/B 6000/B 7000 system, the USERDATAFILE at the receiving host must contain:

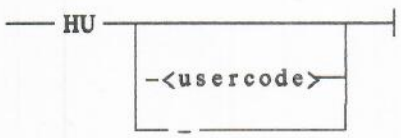
a. An "ALIAS" entry specifying the "local alias" usercode for the initiating user's usercode and host name.

b. A "USER" entry for initiating the user's "local alias" usercode.

CAUTION

If this usercode is marked as a SYSTEMUSER, then it has the same ODT capabilities as the local system ODT operator, including the ability to enter WFL jobs without usercodes.

Syntax:



Semantics:

HU
Displays the current host usercode.

HU <usercode>
Specifies <usercode> as the host usercode.

HU-
Deletes the current host usercode.

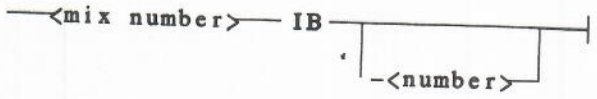
Examples:

```
HU

    HOST USERCODE:  SDSYSTEM

HU LASYSTEM

    HOST USERCODE:  LASYSTEM
```

IB (Instruction Block)

The IB (Instruction Block) command displays the requested instruction block for a job.

Syntax:



Semantics:

<mix number> IB
If no instruction block <number> is specified, the current instruction block associated with the active job is displayed. If the specified job is currently queued, the first instruction block associated with the job is displayed.

<number>
Specifies the instruction block indicated by <number>, which can have a value between one and 63, inclusive.

Examples:

```
2657 IB 1

  INSTRUCTION 01 : PLEASE DS MY JOB IF NO FILE A/B IS PRESENT.

3178 IB

  INSTRUCTION 07 : MOUNT TAPE SYS/TEST AND START AGAIN.
```

ID (Initialize Data Comm)

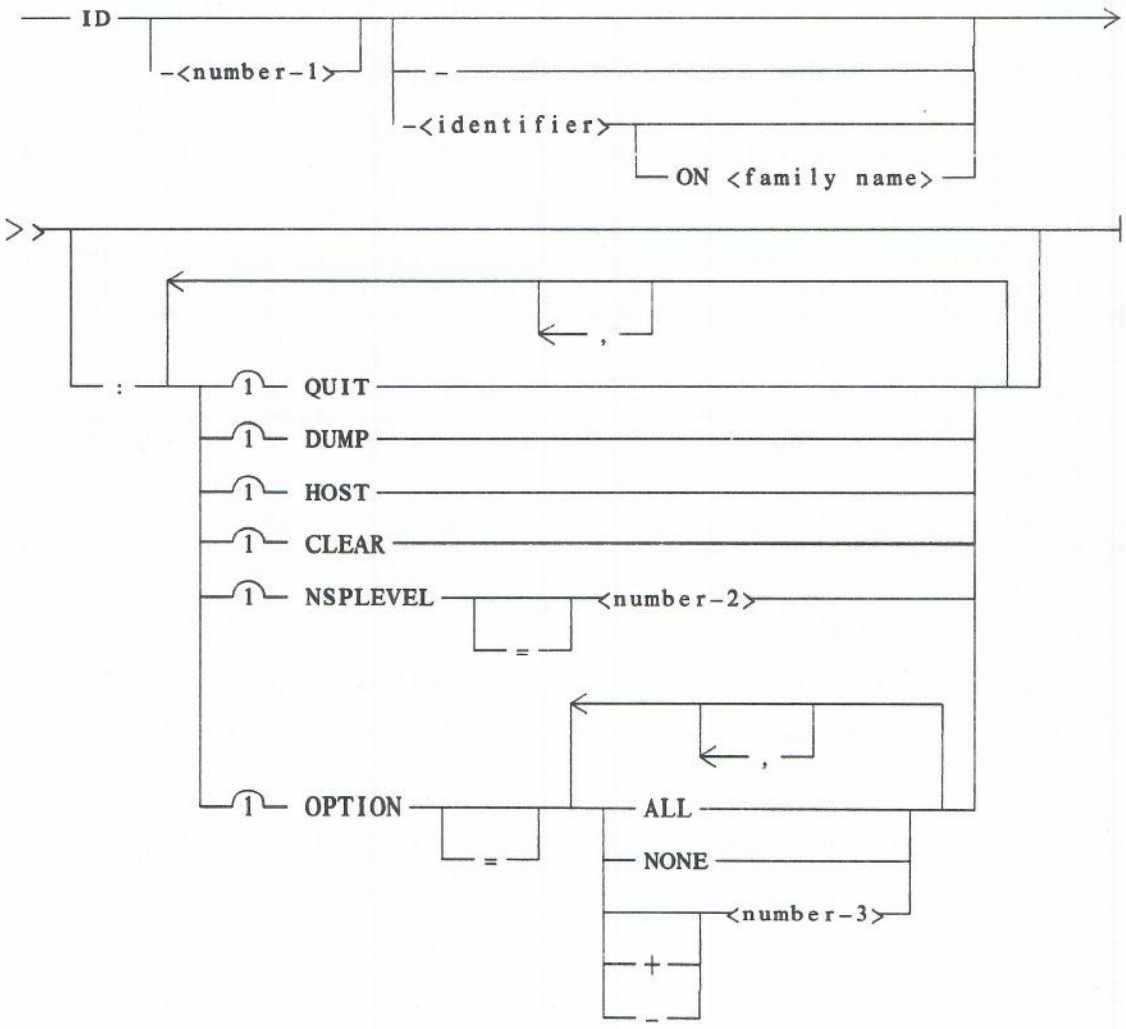
The ID (Initialize Data Comm) command is used:

a. To initialize a Data Communications Processor (DCP) or Network Support Processor (NSP).

b. To initialize, modify, or interrogate various Data Comm-related items such as the prefix for the Network Information File (NIF) and DCPCODE files, the suffix for the NSP firmware file, and miscellaneous options.

c. To direct commands to the DCCONTROL process in control of an NSP.

Syntax:



Semantics:

ID
Displays the current NIF prefix, the next NIF prefix (if any), the NSP firmware level, and any options that are SET.

<number-1>
Specifies a DCP number on multiplexor or IOM systems or an NSP unit number on MLIP systems. When the appropriate <number-1> is specified as part of the ID command, the NSP or DCP is initialized if it is not already running.

<identifier>
Specifies the prefix for the NIF and DCPCODE files to be used by the NSP or DCP.

ON <family name>
Designates the family name on which the specified NIF and DCPCODE files reside.

ID -
Sets the NIF and DCPCODE prefix to SYSTEM, the default value.

QUIT
Shuts down the NSP specified by <number-1>. If <number-1> is not specified, all running NSPs are shut down.

DUMP
Directs the NSP specified by <number-1> to dump the memory of the NSP into a file titled DUMP/NSP/<number-1> on the Halt/ Load disk unit. If <number-1> is not specified, all running NSPs are directed to dump their memories.

HOST
Causes the specified NSP to be initialized as a HOSTNSP, whether or not a physical NSP actually exists on the system and regardless of how it is declared in the current NDL. The NSP hardware is not needed; only the LSPs are required.

If this option is not specified, the NIF determines whether a physical NSP or HOSTNSP is to be initialized.

Multiple copies of the HOSTNSP are allowed, as well as any combination of physical NSPs and HOSTNSPs.

In order to invoke a HOSTNSP, the following requirements must be met:

1. A path must exist from the host to the I/O base containing the LSP DLPs.

2. If the title of the library file is not SYSTEM/HOSTNSPSUPPORT, an SL (System Library) command of the form SL HOSTNSPSUPPORT = <HOSTNSP file title> must be entered to establish the name of the HOSTNSP library file.

NOTE

Running HOSTNSP without the NSP hardware present requires that the host system processor time and memory be used. Therefore, a system with a large Data Comm network and high traffic should use NSP hardware whenever possible.

CLEAR
Causes the system to clear and initialize the NSP, rather than resuming communication with the NSP if it is running.

NSPLEVEL = <number-2>
Uses the number specified by <number-2> as the suffix for the firmware file to initialize a NSP.

OPTION ALL
Sets the option byte to all 1s and sets any following options to 0. The equal sign (=) is optional.

OPTION NONE
Sets the option byte to all 0s and sets any following options to 1. The equal sign (=) is optional.

<number-3>
A value between 0 and 7 specifying audit activity to be written to the Halt/Load disk unit. All values apply to NSP systems only. +<number-3> SETs the option and any following options. -<number-3> RESETs the option and any following options. Values for <number-3> and their meanings are given in the following table.

Value	Meaning
0	Audit all DCINITIAL-initiated I/O activity to the NSP.
1	Audit all DCCONTROL-initiated I/O activity to the NSP.
2	Audit all DCP formatted requests in DCCONTROL.
3	Audit all DCWRITE formatted requests and results in DCCONTROL.
4	When a MEMDUMP is requested within DCCONTROL, audit all internal queue structures before taking the dump.
5	Reserved.
6	Reserved.
7	Audit all NSP error conditions.

The resulting audit trail can then be analyzed by using SYSTEM/DCAUDITOR. Because each audited item requires a write to the audit file, the use of auditing can adversely affect system performance, particularly if all Data Comm messages are audited. In particular, auditing can result in a high use of disk space and cause a significant drain on processor resources.

Examples:

```
ID

    NIF:TIONDL

ID 1

    5435 DCP 1 INITIALIZED

ID 1 SYSTEST

    NIF: SYSTEST
    5430 DCP 1 INITIALIZED

ID-

    NIF: SYSTEST
    NIF TO BE: SYSTEM

ID 110 SYS231: OPTION NONE 0 7

    7432 NSP 110 INITIALIZED

ID 110: DUMP

ID: CLEAR

ID: QUIT
```

IL (Ignore Label)

The IL (Ignore Label) command indicates that the file requested by a program resides on the specified unit, regardless of the unit's label. This command is frequently helpful in response to "NO FILE", "DUP FILE", or "REQ PK" messages.

Syntax:

Semantics:

<mix number list> IL <device> <unit number>
When this command is entered in response to a "NO FILE" message, it specifies that the file requested by the program(s) identified by the <mix number list> is located on the specified <device>. It causes that file to be opened. The file may be either labeled or unlabeled.

If entered in response to a "DUP FILE" message, this command has the same effect. In this case, however, the requested file must be a labeled file.

Family substitution is ignored when using the IL command.

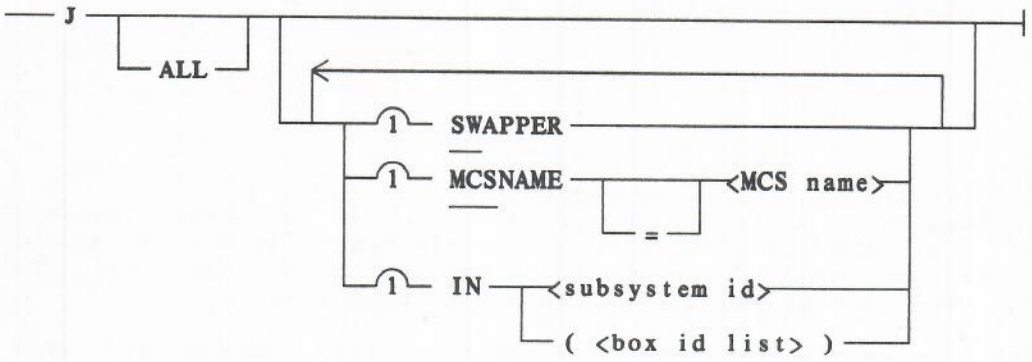
Example:

```
7924 IL MT113
```

J (Job and Task Structure Display)

The J (Job and Task Structure Display) command lists active tasks by job structure.

Syntax:



Semantics:

J
Displays any active jobs or tasks that have not been suppressed by the **SUPPRESS** (SUPPRESS Display) command. J does not display jobs in the job queue; the SQ (Show Queue) command serves that purpose.

ALL
Displays all active jobs or tasks, including any that have been suppressed.

SWAPPER
Displays only jobs running in swapspace.

MCSNAME <MCS name>
MCSNAME=<MCS name>
Display only jobs or tasks originating from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only jobs with stacks running in the specified subsystem or memory subsystem, respectively.

Examples:

On a Tightly-Coupled system, each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL memory task, or a blank for a task whose subsystem location is currently unassigned.

The mix display for a job running three tasks in parallel might look like the following:

```
J

     -----JOB STRUCTURE-----
0230 JOB 55
  . . 0231 55 COBOL TASK/A
  . . 0233 55 COBOL TASK/B
  . . 0234 55 ALGOL TASK/C
```

Each task and job has its own mix number. In the preceding job structure display, the task mix numbers are appropriately nested under the job mix number (0230). The number 55 indicates the priority assigned to the job and its associated tasks. The name of each task is displayed to the right of the priority number.

In the following job structure display, an asterisk (*) preceding a job or task indicates that the job or task is being displayed on the ODT screen for the first time. To the right of the asterisk is a letter flagging a task that is not in a normal state: S for scheduled tasks, W for waiting tasks (RSVP required), and E for compilations that have a syntax error. Completed tasks are not shown in the job structure display.

A job placed in the reader may not appear in the job structure. For example, the job may have finished before a mix display was requested (by a MX or J command). In this case, it appears in the completed table if it is one of the list of most recently completed jobs. Moreover, the job may be in a queue waiting to be initiated. In this case, the SQ (Show Queue) command causes the job to be shown.

Swap jobs are flagged with a pound sign (#) between the priority number and the task name.

```
J

     -----JOB STRUCTURE-----

*3044      JOB 50 COPY & COMPARE SY
*W..  3045     50 LIBRARY/MAINTENANCE
 3072      JOB 60 INTERIMFR26
 E..  3041     50 SYSTEM/REL/ALGOL ON INTERIM26
*E..  3060     50#ALGOL (JONES) CANDE/CODE60
 W..  3080     50 ALGOL (GORD) SYSTEM/PL1
*S..  3097     50 PL/1 (GORD)CANDE/CODE1080
```

LABEL (LABEL ODT)

The LABEL command labels the ODT from which the command is entered with a specified file name.

Syntax:

Semantics:

LABEL <file name>
Labels the ODT from which it is entered with the specified <file name>. An ODT file with the same <file name> is then attached to that ODT when the file is opened. The LABEL command is used anytime an ODT file (such as SYSTEM/DUMPANALYZER) is opened. The label assignment is cleared either when the file is closed or when the ODT is cleared using the CL (CLear) command.

Any input to the attached file must be preceded by the <delta> character. All other input is treated as normal ODT input.

To indicate end-of-file to the attached file, a <delta>?END may be entered.

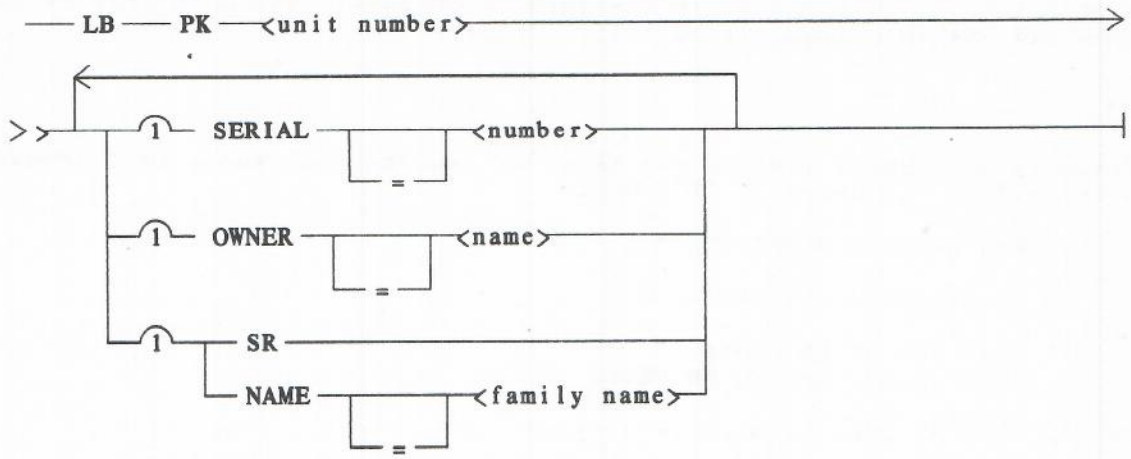
Examples:

```
LABEL ODTOUTPUT

    LABEL ODTOUTPUT

PER SC

    -------SC STATUS-------
    1 S C R A T C H
    3 ODTOUTPUT
```

LB (ReLaBel Pack)

The LB (ReLaBel Pack) command changes a pack's family name, its volume serial number, or the name of its owner without affecting any files on the pack.

Syntax:



Semantics:

LB PK <unit number>
Relabels the pack specified by the <unit number>.

SERIAL <number>
SERIAL=<number>
Specify the volume serial number to be used. <number> must fall within the range 1 to 999999. If the SERIAL option is not specified, the original serial number is assumed by default.

NOTE

Unique serial numbers should be assigned when packs are first initialized (with RC commands) and should never be changed. The volume serial number is intended as a permanent identification of the particular pack medium.

OWNER <name>
OWNER=<name>
Specify the owner identification to be assigned. <name> must be from 1 to 17 characters in length. If <name> is to contain special characters or blanks, it must be enclosed in quotes. If OWNER is not specified, and either the owner field is blank in the old disk pack label or the pack is new, the field is blank-filled. If any attempt is made to RC, LB, or PG a disk pack with a nonblank owner identification, a message is displayed, and the request must be verified by entering a <mix number> OK command. To remove the OWNER attribute, the disk pack is RCed or LBed with the option OWNER=" " specified.

SR
Specifies that the pack is to be labeled as a "system resource" pack. A system resource pack is assigned the name PACK.

NAME <family name>
NAME=<family name>
Assign the <family name> to the pack. <family name> must be a single-level name from 1 to 17 characters in length. TAPE and DISKPACK are illegal values for <family name> and are rejected. If no NAME option is specified, the original <family name> is assigned by default. The NAME=<family name> option and the SR option are mutually exclusive.

Example:

The following LB command assigns the NAME "JD" to the pack whose unit number is 66 and identifies its owner as "JOHNDOE":

```
LB PK66 NAME=JD,OWNER=JOHNDOE

    -----WAITING ENTRIES-----

    2566 JOB 99 LB PK066
    2566 VERIFY REQ TO LB PK066
```

The job may then be OKed or DSed as desired.

Pragmatics:

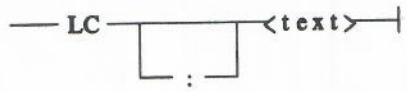
A unit may not be LBed if the indicated disk pack is SaVed or not ready, or if that disk pack has any files open at the time the command is entered.

LC (Log Comment)

The LC (Log Comment) command enters a comment in the system log (SYSTEM/SUMLOG).

Logged comments may be printed by running SYSTEM/LOGANALYZER and specifying the OPERATOR option. Refer to Volume 2, Chapter 6 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a more detailed description of SYSTEM/LOGANALYZER.

Syntax:



Semantics:

LC <text>
LC:<text>
Enter <text> in the SYSTEM/SUMLOG.

Example:

```
LC:BEGIN COMPILER TESTS

    COMMENT LOGGED
```

LD (Load Control Deck)

The LD (Load Control Deck) command allows control-card and data decks to be spooled to or from tape. The system can then process the spooled input as a stream of control cards and data decks at a later time.

Entering the LD command requires an input file titled CONTROLDECK. The last record of the file must be "?END CONTROLDECK".

Syntax:

Semantics:

LD
Causes the input file to be read and the control cards contained in the file to be processed by the WFL compiler.

LD MT
Causes the input file to be read and an output tape entitled CONTROLDECK to be written. The tape contains 14-word card-image records and is identified as a load control tape by the fact that byte 31 (USASI tape type) of the VOL1 label record is a 4. The tape may be used as input to the unmodified LD command.

If syntax errors are encountered while reading the source, a control-card error listing is printed, and that job deck is not transferred to the output tape.

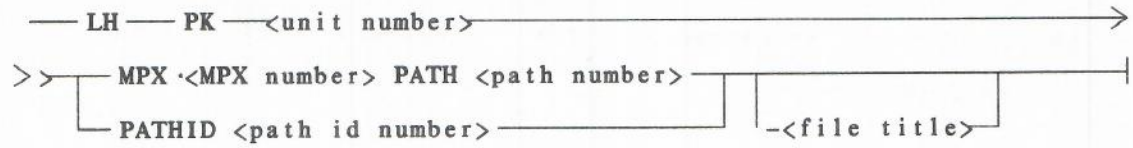
Example:

```
LD

    166 JOB 99 LOADCONTROL
```

LH (Load Host - B 5000/B 6000 Series Systems)

The LH (Load Host) command loads the pack controlware file to the specified disk pack controller.

Syntax:



Semantics:

LH PK <unit number> MPX <MPX number> PATH <path number>
LH PK <unit number> PATHID <path id number>
Load the controlware file to the disk pack controller by way of the specified path.

Either MPX or PATHID specifies a particular path for the B 6700 and B 6800 systems. The PATHID syntax is required for B 5900 and B 6900 systems. Any attempt to use the MPX syntax is rejected with an "INVALID SYNTAX" message. Blanks are required between MPX and <MPX number> and between PATHID and <path number>. The <path id number> can be obtained by entering the OL (Display Label and Paths) command.

The specified path must have been reserved by the UR (Unit Reserve) command before controlware can be loaded to the disk pack controller. If the path cannot be reserved, then the LH function of the SYSTEM/LOADER must be used to load controlware to that path.

<file title>
Specifies the title of the controlware file. The default controlware file title is determined by the type of the I/O subsystem (MLIP or MPX) and the type of the disk pack controller.

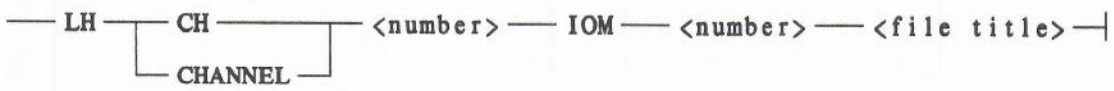
Examples:

```
LH PK 60 MPX 1 PATH 2

LH PK 60 PATHID 6

LH PK 60 PATHID 14 SYSTEM/NEWFIRMWARE
```

LH (Load Host - B 7000 Series Systems)

The LH (Load Host) command loads the pack controlware file to the specified disk pack controller.

Syntax:



Semantics:

LH CH <number> IOM <number> <file title>
LH CHANNEL <number> IOM <number> <file title>
Load the pack controlware file whose title is <file title> to the disk pack controller located on the specified channel and IOM.

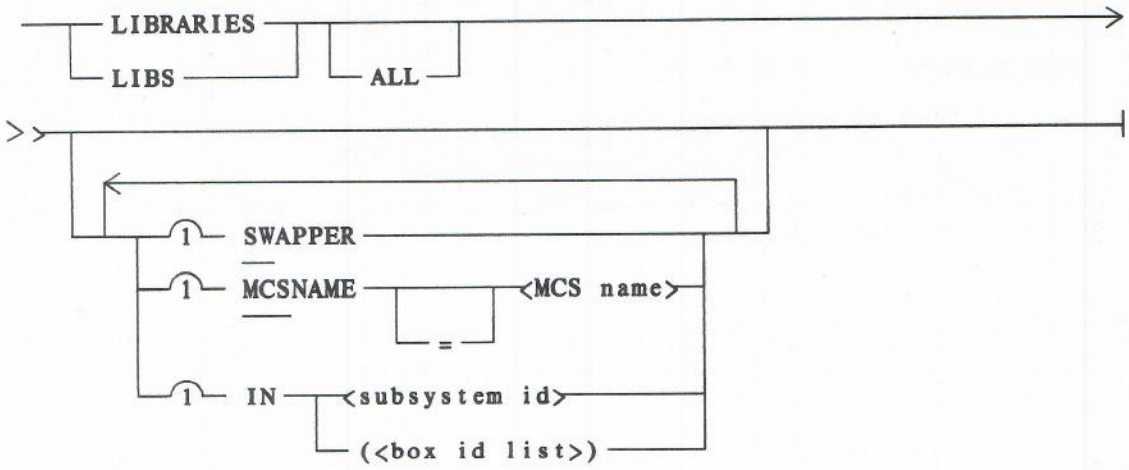
Examples:

```
LH CH 24 IOM 1 CONTROLWARE/PCC/B9387 ON SYSPACK

    CHANNEL 24 WILL BE LOADED
```

LIBS (Library Task Entries)

The LIBS (Library Task Entries) command lists all frozen libraries.

Syntax:



Semantics:

LIBRARIES
LIBS
Display all unsuppressed frozen library stack entries. LIBS is an acceptable synonym for LIBRARIES.

ALL
Displays all frozen library stack entries, including any that have been suppressed.

SWAPPER
Displays only libraries running in swapspace.

MCSNAME = <MCS name>
Displays only libraries initiated from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only jobs with stacks running in the specified subsystem or memory subsystem, respectively.

Examples:

```
LIBS

      ------3 FROZEN LIBRARIES------
      * 760 JOB ( 1) SYSTEM/BASICSUPPORT
      *9996 JOB (11) SYSTEM/GENERALSUPPORT
      *1654 JOB ( 4) (FTRS)OBJECT/TERMLIB ON TIOFTRS

LIBS MCSNAME = SYSTEM/CANDE

      -------1 FROZEN LIBRARY-------
      1654 JOB ( 4) (FTRS)OBJECT/TERMLB ON TIOFTRS
```

In the preceding LIBS display, the number enclosed in parentheses indicates the number of users of that library.

LJ (Log to Job)

The LJ (Log to Job) command enters a comment in the job log for a specific job or task.

The text specified in the LJ command appears in the JOBSUMMARY printout.

Syntax:

Semantics:

<mix number list> LJ <text>
Enters <text> into the job log(s) for the job(s) indicated by the <mix number list>.

Example:

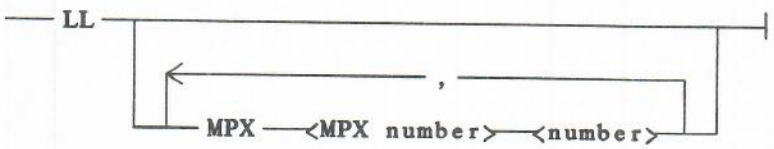
The following command causes the comment "GREAT JOB" to appear on the JOBSUMMARY printout for job 3335:

```
3335 LJ GREAT JOB
```

LL (Load Limit - B 6700 MPX Systems)

The LL (Load Limit) command interrogates or sets the load limit of the specified multiplexor(s).

Syntax:



Semantics:

LL
Displays the load limits for each multiplexor.

LL MPX <MPX number> <number>
Sets the load limit for the specified multiplexor(s). More than one multiplexor can be set by using a comma after each specified multiplexor.

<number> specifies the value to be assigned to the threshold register of the multiplexor associated with the specified <MPX number>.

Examples:

The following command interrogates the load limits for all multiplexors on the system:

```
LL

    MULTIPLEXOR LOAD LIMIT

      MPX          LIMIT  TRAFFIC

       1 (MOD III)  15       3
```

The following command sets the threshold register of the multiplexor MPX1 to 12:

```
LL MPX1 12

    MPX1 LOAD LIMIT SET
```

LOG (Analyze LOG)

The LOG (Analyze LOG) command initiates the utility SYSTEM/LOGANALYZER.

Refer to Volume 2, Chapter 6 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a detailed description of SYSTEM/LOGANALYZER and its associated parameters.

Syntax:

Semantics:

LOG
Performs a complete analysis of the current system log if no <log parameters> are specified (that is, LOG ALL).

LOG <log parameters>
Initiates SYSTEM/LOGANALYZER with the specified parameters.

Examples:

```
LOG 1700 BOT EOT MAINT MSG

LOG MAINT MT 48

LOG JOB 4811
```

LP (Lock Program)

The LP (Lock Program) command prevents DS (DiScontinue) and QT (QuiT) commands from terminating the specified task(s).

Syntax:

Semantics:

<mix number list> LP
Locks the program(s) specified in the <mix number list> and prevents the program(s) from being DSed or QTed.

<mix number list> LP -
Removes the LP restriction.

Examples:

```
4872 LP

    4872 PROGRAM LOCKED.

3298 LP-

    3298 NOT LOCKED.
```

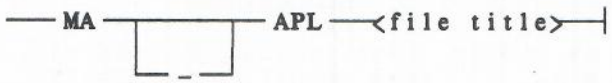
MA (May Access)

The MA (May Access) command performs two functions:

a. It makes a specified file accessible only to APL when the file attribute APL is SET in the file.

b. It can disable access to APL for a specified file.

Syntax:



Semantics:

MA APL <file title>
Makes the specified file accessible to APL only. When <file title> refers to a code file, the effect of the command is to allow any process running from that code file to access data files that also have been restricted using the MA command. As a result, the code file can also create files with the APL attribute SET.

The file attribute APL satisfies APL access restrictions for disk pack files. This attribute may be SET before a new file is created, and is effective only if the code file creating the file already has the attribute SET. APL may be read any time the file is open. Any attempt to open a file with APL SET causes the requestor to be DSed (unless the requestor also has APL SET).

MA - APL <file name>
Denies APL access to the specified file.

Examples:

The following example makes the file MYFILE accessible to APL only:

```
MA APL MYFILE

    MYFILE GIVEN APL ACCESS
```

The following example disables MYFILE's access to APL:

```
MA- APL MYFILE

    MYFILE ACCESS DENIED APL
```

Entering the PD (Print Directory) command shows the attributes of the file specified in an MA command. Refer to the PD (Print Directory) command described later in this section. The resulting display shows whether the file has been granted APL access. In this example, the display shows that APL access has been granted to the file RELEASE33/ODT/MANUAL:

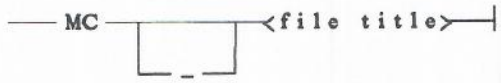
```
MA APL (SOFTDOC)RELEASE33/ODT/MANUAL ON SOFTDOC

   (SOFTDOC)RELEASE33/ODT/MANUAL ON SOFTDOC GIVEN APL ACCESS

PD (SOFTDOC)RELEASE33/ODT/MANUAL ON SOFTDOC

   FILE (SOFTDOC)RELEASE33/ODT/MANUAL ON SOFTDOC (ALGOLSYMBOL)
   DATE AND TIME OF CREATION: MONDAY APR 07, 1982 (82093) AT 10:33:22
                 LAST ACCESS: TUESDAY JUN 22, 1982 (82173) AT 8:11:25
                 LAST  ALTER: MONDAY APR 07, 1982 (82097) AT 10:33:22
   SIZE IN SEGMENTS: 5320
   SECURITY: PUBLIC - USAGE: READ/WRITE
   AN APL APPLICATION
```

MC (Make Compiler)

The MC (Make Compiler) command designates a code file with a title of the form SYSTEM/<file title> as a compiler code file. The MC command can also remove compiler status from a specified code file.

Only a code file that is marked as a compiler can generate other code files.

Syntax:



Semantics:

MC <file title>
Causes the designated code file to be considered a compiler.

MC - <file title>
Removes compiler status from the designated code file.

Examples:

The following examples designate a code file as a compiler:

```
MC ALGOL ON PACK

    SYSTEM/ALGOL ON PACK IS A COMPILER

MC (UC)TESTALGOL ON X

    (UC)SYSTEM/TESTALGOL ON X IS A COMPILER
```

The following example removes compiler status from a code file:

```
MC- ALGOL

    SYSTEM/ALGOL IS NOT A COMPILER
```

MICI (Invoke MICI - B 7000 Series Systems)

The MICI (Invoke MICI) command allows manipulation, control, interrogation, and display of mainframe modules.

Refer to the B 7000 Systems Hardware Operational Guide for complete information about the use of this command.

Syntax:

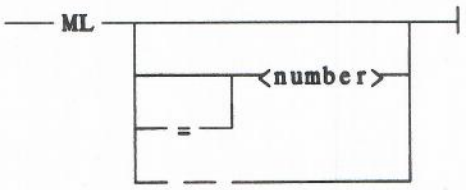
Semantics:

MICI
Causes the MICI (Module Interrogation and Command Interpreter) to be entered in the mix.

ML (Mix Limit)

The ML (Mix Limit) command sets or interrogates the current system-wide mix limit.

Syntax:



Semantics:

ML
Causes the system to display the queue class, the active count (sum of jobs and associated tasks), the mix limit (sum of jobs and associated tasks), and the number of jobs queued for every job queue. If a default queue has been set, the letter "D" appears in the left margin of the display for that queue.

ML <number>
ML = <number>
Set the mix limit used for introducing new jobs in the system to the specified value. The mix limit is the maximum number of jobs (and associated tasks) that may be introduced, regardless of the sum of all mix limits set for all queues. If the mix limit is set equal to zero, no jobs may be run. The limits set on each queue are not changed.

ML-
Removes the mix limit setting.

Examples:

```
ML

        QUEUE       ACTIVE      LIMIT       QUEUED

D       0           2           10          0
        3           0           2           0
        5           4           4           1
        TOTAL       6           NONE
```

MM (Memory Module)

The MM (Memory Module) command lists ready, to-be-saved, and not-used system memory modules.

Syntax:

Semantics:

MM

Lists ready, to-be-saved, and not-used memory modules. The not-used modules are those that could not be verified at the time of the Halt/Load.

For B 7000 series systems, the response to an MM input also includes the Memory Control Module (MCM) type, the lowest and the highest MOD address for each MCM (the lower and upper limits), and the Memory Storage Units (MSUs) in use. In addition, for Tightly-Coupled systems, the <box id> in which a particular MCM is configured is displayed.

Examples:

The following example shows the MM display for a B 6000 series system:

```
MM

  MEMORY STATUS
  16 IN USE 0-15
```

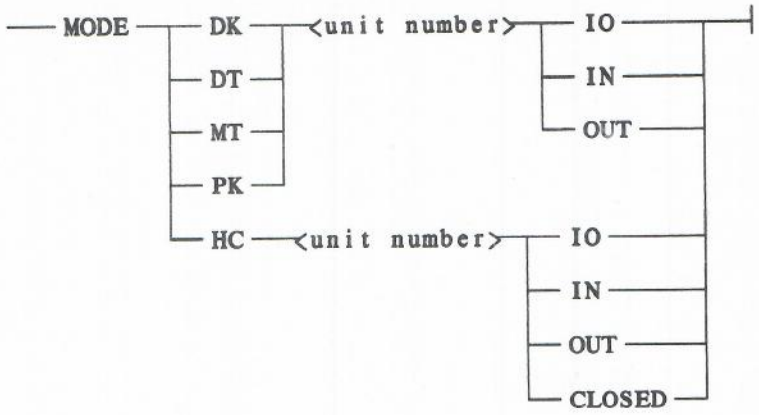
The following example shows the MM display for a B 7000 series system:

```
MM

  GLOBAL:
  2 MCMs 0,2
  MEMORY STATUS:
    32 in use 0-31

  BOX 2:
  2 MCMs 4-5
  MEMORY STATUS:
    32 in use 32-63

  BOX 3:
  2 MCMs 1,6
  MEMORY STATUS:
    32 in use 32-63

  MCM STATUS:
  MCM   TYPE   LOWER   UPPER   MSUS   BOX
   0      2      00      15     1-4     G
   1      2      32      47     1-4     3
   2      2      16      31     1-4     G
   4      2      32      47     1-4     2
   5      2      48      63     1-4     2
   6      2      48      63     1-4     3
```

MODE (Input or Output MODE)

The MODE (Input or Output MODE) command informs the MCP that the WRITE ENABLE status of a unit has been changed.

Syntax:



Semantics:

MODE DK <unit number> IO
MODE DT <unit number> IO
MODE HC <unit number> IO
MODE MT <unit number> IO
MODE PK <unit number> IO
Allow the specified device to revert to normal operation.

MODE DK <unit number> IN
MODE DT <unit number> IN
MODE HC <unit number> IN
MODE MT <unit number> IN
MODE PK <unit number> IN
Prevent new files from being created on the specified unit, but does not prevent writes to that unit. Old files can be updated or removed, or both, even if the IN option is set.

MODE DK <unit number> OUT
MODE DT <unit number> OUT
MODE HC <unit number> OUT
MODE MT <unit number> OUT
MODE PK <unit number> OUT
Allow the specified device to revert to normal operation.

MODE HC <unit number> CLOSED
This option is only valid for Host Control (HC) units.

Example:

```
MODE PK 096 OUT

    PK096 MODE IS OUT
```

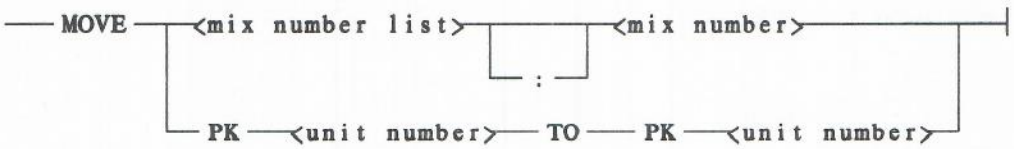
Pragmatics:

When applied to an HC, the MODE command allows an installation to pre-determine the directional usage of a particular HC. Host Control-1 (HC-1) can only be used in a single direction (IN or OUT), while HC-2's can be used bi-directionally (IO). Specification of direction is only allowed when an HC is CLOSED. This is the default state of an HC when it is not being used by BNA. HC-1's are used on B 7000 and B 6800 systems only. HC-2's are used on B 5900 and B 6900 systems only.

MOVE (MOVE Job/Pack)

The MOVE (MOVE Job/Pack) command changes the order of jobs in job queues or moves a pack from one drive to another.

Syntax:



Semantics:

MOVE <mix number list> <mix number>
MOVE <mix number list> : <mix number>
Change the order of the job(s) in the <mix number list> so that they appear in the queue immediately after the job with the specified <mix number>.

The jobs associated with the <mix number list> and the <mix number> must be in the same queue and must have the same priority; otherwise, no action is taken. After a Halt/Load, all jobs are returned to their original sequence.

MOVE PK <unit number> TO PK <unit number>
Moves a native-mode disk pack that is not a critical unit from one drive to another, even if the pack is in use at the time. Units in the Halt/Load family, the OVERLAY family(s), the JOBDESC family, and the family that contains the SYSTEM/SUMLOG are critical and cannot be moved.

This facility can be used advantageously when a drive fails while in use. Another available drive can be chosen, and this form of the MOVE command can be entered. If the command is acceptable, the system responds with the message "MOVE <family name> FROM PK<unit number> TO PK<unit number>". The first drive can then be turned OFF, the pack can be moved to the second drive, and the second drive can be powered up. If the pack is not to be moved, the MOVE job can be DSed and the pack can be put back on the first drive.

Examples:

The following command alters the job queue so that job 7419 is executed after job 7421. A subsequent SQ (Show Queue) command indicates the job's new place in the queue.

```
MOVE 7419 7421

  7419 HAS BEEN MOVED AFTER 7421

SQ7

  QUEUE 7:
    7418 50 ?JOB B;
         QUEUED: 08/21/82 AT 0:01:21    STARTTIME = 0:01:00 ON 08/22/82
    7421 50 ?BEGIN JOB DIRDUMP(BOOLEAN HARDCOPY);
         QUEUED: 08/21/82 AT 0:01:22    STARTTIME = 20:00:00
    7419 50 ?BEGIN JOB DIRDUMP(BOOLEAN HARDCOPY);
         QUEUED: 08/21/82 AT 0:01:25    STARTTIME = 20:00:00
    7423 50 ?BEGIN JOB PRICONSOLIDATOR;
         QUEUED: 08/21/82 AT 0:01:29    STARTTIME = 22:00:00
```

The following command moves jobs 6627, 6629, and 6631 so that they appear in the queue after job 6630. A subsequent SQ (Show Queue) command indicates their new place in the queue. Refer to the SQ (Show Queue) command described later in this section.

```
MOVE 6627, 6629, 6631 : 6630

  6627 HAS BEEN MOVED AFTER 6630
  6629 HAS BEEN MOVED AFTER 6630
  6631 HAS BEEN MOVED AFTER 6630


SQ50

  QUEUE 50:
   6630 50 ?JOB B;
        QUEUED: 08/21/82 AT 0:01:21    STARTTIME = 0:01:00 ON 08/22/82
   6631 50 ?BEGIN JOB GANDOLF;
        QUEUED: 08/21/82 AT 0:01:22    STARTTIME = 20:00:00
   6629 50 ?BEGIN JOB BAGGINS;
        QUEUED: 08/21/82 AT 0:01:25    STARTTIME = 20:00:00
   6627 50 ?BEGIN JOB DUMPTAPETODISK(BOOLEAN HISTORY);
        QUEUED: 08/21/82 AT 0:01:29    STARTTIME = 22:00:00
```

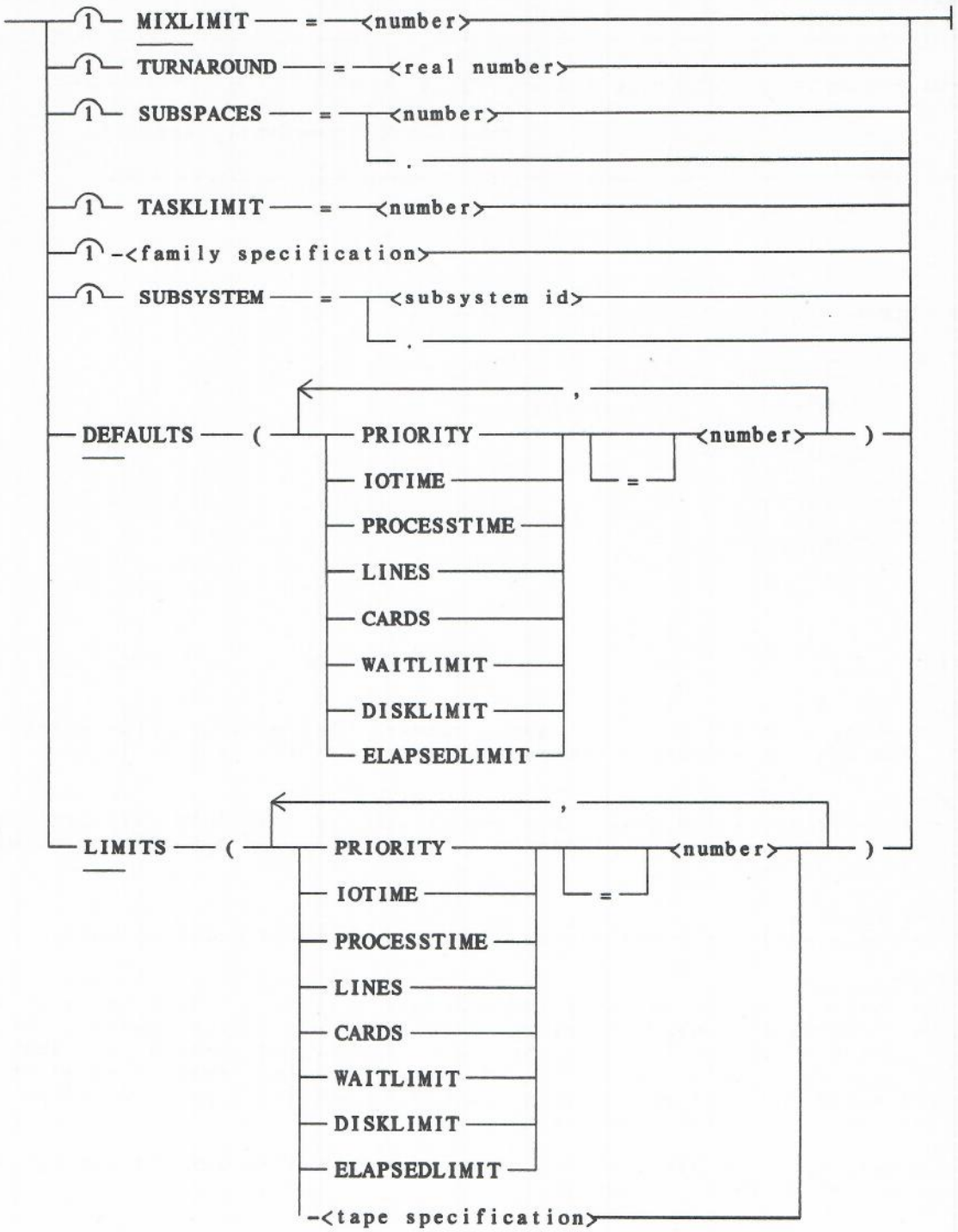
The following command causes the native-mode disk pack mounted on the drive identified by unit number 67 to be moved to the drive identified by unit number 69:

```
MOVE PK67 TO PK69
```

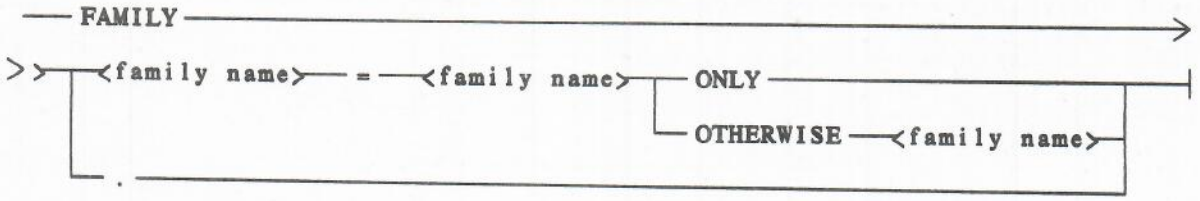
A subsequent MSG (Display Messages) command indicates that the MOVE is being initiated:

```
MSG

    1387 MOVE BKSOFTDOC FROM PK67 TO PK69
```

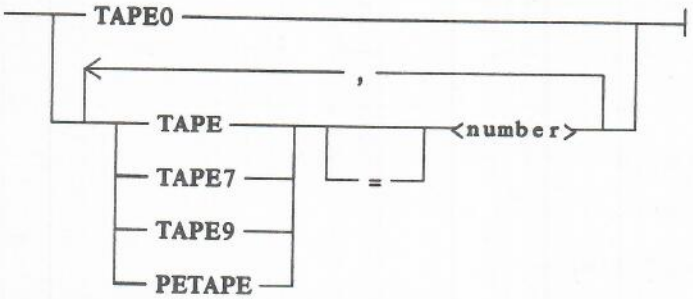
<queue attributes>



<family specification>



<tape specification>



Semantics:

MQ <number>
Makes a queue with the specified queue number. The maximum queue number is 1023. The maximum number of queues that may exist at one time is 10.

MQ- <number>
Eliminates the specified queue from the system. If any jobs are currently in this queue, they are placed in another queue, if possible. Otherwise, they will be Q-DSed.

<queue attributes>
Specifies new values for attributes associated with an existing queue.

MIXLIMIT = <number>
Assigns <number> as the value of the MIXLIMIT attribute. This value is used by the CONTROLLER when selecting jobs from the various queues. If the number of scheduled and running jobs (and associated tasks) in the mix originating from this queue is currently greater than or equal to the MIXLIMIT value for that queue, then the CONTROLLER does not introduce any more jobs in the mix from the queue.

After a Halt/Load the MIXLIMIT for all queues is set to zero if the run-time MCP option AUTORECOVERY is RESET.

TURNAROUND = <real number>
Assigns <real number> as the value of the TURNAROUND attribute, where <real number> is an unsigned real constant in units of minutes. This value is used by the CONTROLLER when selecting jobs from the various queues. If the actual turnaround time for this queue (the time since the selection of the previous job from this queue) is greater than the value of the TURNAROUND attribute of the queue, then the CONTROLLER favors this queue, unless another queue's TURNAROUND has been exceeded by a greater amount. When no TURNAROUND value is assigned, turnaround is assumed not to be a consideration for this queue, and turnaround time is not computed for this queue.

SUBSPACES = <number>
Assigns <number> as the value of the SUBSPACES attribute, where <number> is an integer in the range 0 through 3. The value of this attribute determines the manner in which the SWAPPER independent runner handles the associated tasks. This attribute causes the SUBSPACES attribute value of every job to be SET. Refer to the task attributes described in Appendix A in the B 5000/B 6000/B 7000 Series Work Flow Language Reference Manual. If no SUBSPACES value is to be specified, a period (.) follows the equal (=) sign.

TASKLIMIT = <number>
Assigns <number> as the value of the TASKLIMIT attribute, where <number> is less than or equal to 30. This attribute limits the number of tasks that a job may initiate. Jobs that exceed this limit are terminated. If TASKLIMIT is not specified, no limit is imposed on the number of tasks that may be initiated from a job.

FAMILY <family name> = <family name> OTHERWISE <family name>
Associates family specifications with a job queue so that default specifications are provided for jobs entered by way of that queue. If a queue specification and a usercode specification or job specification are both applicable, they must be identical; otherwise, the job is rejected.

FAMILY .
Removes family specifications from the specified queue.

SUBSYSTEM = <subsystem id>
Specifies the subsystem in which jobs from that queue are to be located. Any job entered in the queue is assigned the specified subsystem. The SUBSYSTEM specification is used to influence the choice of the subsystem in which to locate a task. If no SUBSYSTEM is to be assigned, a period (.) follows the equal (=) sign.

DEFAULTS
The values associated with the DEFAULTS queue attribute are default system usage limits that are assigned to jobs selected from that queue. These defaults may be overridden by appropriate limit statements placed in the job.

LIMITS
The values associated with the LIMITS queue attribute are the maximum system usage limits that the control statements of a job may specify and still be accepted as an entry in that job queue. Thus, if larger estimates than the LIMITS values for the desired queue are specified, the job is not admitted to that queue and a message is displayed indicating the rejection of the job.

The options described in the following paragraphs specify system usage limits and may be specified for both the DEFAULTS and the LIMITS queue attributes. The sole exception is the <tape specification>, which applies to the LIMITS option only. For each option, specification of the equal sign (=) is optional.

PRIORITY <number>
Assigns <number> as the value of the PRIORITY attribute, where <number> falls in the range 0 through 99. The value of this attribute is the priority to be assigned to a job when it is entered in the mix.

IOTIME <number>
Assigns <number> as the value of the IOTIME attribute, where <number> is in units of seconds. The value of this attribute is the maximum I/O time to be allowed when the job is executed. If this option is not specified, an unlimited amount of job I/O time is allowed by default.

PROCESSTIME <number>
Assigns <number> as the value of the PROCESSTIME attribute, where <number> is in units of seconds. The value of this attribute is the maximum processor time to be allowed when the job is executed. If this option is not specified, an unlimited amount of job processor time is allowed by default.

LINES <number>
Assigns <number> as the value of the LINES attribute. The value of this attribute is the maximum number of lines of printed output that may be generated by the execution of the job. If this option is not specified, an unlimited number of lines are allowed by default.

CARDS <number>
Specifies <number> as the value for the CARDS attribute. The value of this attribute is the maximum number of cards that may be punched by the execution of the job. If this option is not specified, an unlimited number of cards may be punched by default.

WAITLIMIT <number>
Specifies <number> as the value for the WAITLIMIT attribute, where <number> is in units of seconds. This attribute specifies the maximum amount of time that a task may wait for an event.

DISKLIMIT <number>
Specifies <number> as the value for the DISKLIMIT attribute, where <number> is in units of segments and is less than or equal to 2**39 - 1. The value of this attribute is the maximum number of segments that a job may request on a disk-type unit. All types of disk storage acquisitions except overlay, backup-printer, and backup-punch files are charged to the job.

ELAPSEDLIMIT <number>
Specifies <number> as the value for the ELAPSEDLIMIT attribute, where <number> is in units of seconds. The value of this attribute is the maximum time that a job may be active in the system.

<tape specification>
Specifies the tape type (TAPE, TAPE7, TAPE9, or PETAPE) and the maximum number of tape units that a job may have in use at one time. TAPE0 negates the resource limits for tape types.

Examples:

The following example makes a queue with a queue number of 4 and specifies values for the attributes of that queue:

```
MQ 4 MIXLIMIT=3, TURNAROUND=2.5, DEFAULTS(PRIORITY=60,
IOTIME=20,PROCESSTIME=3,LINES=50,CARDS=10),LIMITS
(PRIORITY=80,CARDS=59,IOTIME=60,PROCESSTIME=20,LINES=200,
PETAPE=3,TAPE7=4,TAPE9=4)
```

```
QUEUE 4:
MIXLIMIT          =     3
  TURNAROUND      =  2.50
DEFAULTS:
  PRIORITY        =    60
  PROCESSTIME     =     3
  IOTIME          =    20
  CARDS           =    10
  LINES           =    50
LIMITS:
  PRIORITY        =    80
  PROCESSTIME     =    20
  IOTIME          =    60
  CARDS           =    59
  LINES           =   200
RESOURCE:
  TAPE            =     0
  TAPE7           =     4
  TAPE9           =     4
  PETAPE          =     3
```

The following example makes a queue with a queue number of 37, a MIXLIMIT of 2, a preferred subsystem of REDBLUE, and no DEFAULT or LIMIT system usage specifications:

```
MQ 37 MIXL = 2, SUBSYSTEM = REDBLUE
```

```
QUEUE 37:
MIXLIMIT = 2
SUBSYSTEM = REDBLUE
DEFAULTS:
NONE
LIMITS:
NONE
```

The following example causes all jobs inserted in queue 5 to use STUDENTFILES as the default family for disk files:

```
MQ 5  FAMILY DISK = STUDENTFILES OTHERWISE DISK
```

The following example causes any job entered in queue 0 to be assigned the subsystem BLUE:

```
MQ 0 SUBSYSTEM=BLUE
```

The following example removes the SUBSYSTEM attribute from queue 0:

```
MQ 0 SUBSYSTEM=.
```

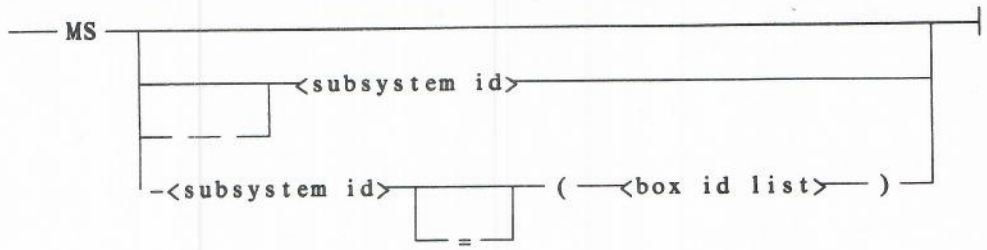
Pragmatics:

All job queues in existence before a Halt/Load continue to exist and maintain attributes through the Halt/Load. Jobs that do not have a class specified and are not affected by a unit queue assignment are inserted in the default queue. If the CONTROLLER compile-time option QFACTMATCHING is SET, jobs that do not have a class specified and are not affected by a unit queue assignment are inserted in the highest-numbered queue that accepts their attributes.

MS (Make Subsystem)

The MS (Make Subsystem) command defines a logical subsystem within a system or displays the subsystems already defined.

Syntax:



Semantics:

MS
Displays all the current subsystem definitions.

MS <subsystem id>
Displays the definition of the specified subsystem.

MS - <subsystem id>
Eliminates the definition of the specified subsystem.

MS <subsystem id> (<box id list>)
MS <subsystem id>=(<box id list>)
Define or redefine a subsystem.

NOTE

Subsystems SYSTEM and GLOBAL are defined by default.

Examples:

```
MS

    MS SYSTEM = (GLOBAL,1,2,3,4), CURRENTLY (GLOBAL)
    MS GLOBAL = (GLOBAL), CURRENTLY (GLOBAL)

MS LOCAL = (2)

    MS LOCAL = (2), CURRENTLY (2)

MS- LOCAL

    LOCAL IS REMOVED

MS LOCAL=(1,2)

    MS LOCAL = (1,2), CURRENTLY EMPTY
```

Pragmatics:

The limit of 12 subsystems that can be defined by the MS command was removed on the 3.2 release. However, defining more than 12 subsystems causes the JOBDESC files to be arranged in a format that is not usable on previous level MCPs. Thus, defining 13 or more subsystems and CMing to a pre-3.2 MCP causes the removal of the JOBDESC file.

MSG (Display Messages)

The MSG (Display Messages) command displays the most recent messages from the system. The system responds to the MSG command by displaying the mix numbers of the tasks that generated messages, followed by the messages associated with those mix numbers.

Syntax:

Semantics:

MSG
Displays messages from the system. Messages preceded by asterisks are entries that have not appeared on this ODT before. If the MSG command is entered again, the asterisks preceding those messages disappear.

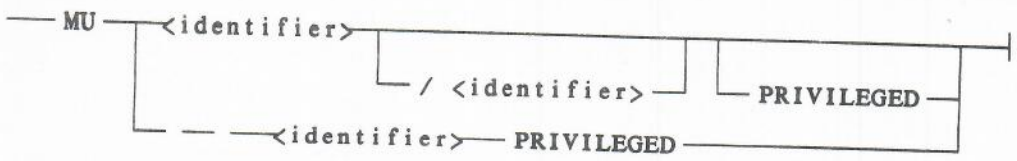
Example:

```
MSG

     -----MESSAGES-----

     *0135 DISPLAY:FILE HEADR.
     *0137 NO FILE FILES
     *0134 INV OPERATOR@005:000F:1*
     *0110 DISPLAY:CHECK OUTPUT.
     *0110 DISPLAY:FTR 113-0224.
      0133 PSUB NOT BOUND@002:0000:3
      0110 DISPLAY:FTR 113-0224.
      0132 CR010 READ CHECK.
      0130 NO FILE SYMBOL/UDSTRUCT
      0107 DISPLAY:DISPLAY-0281.
      0110 DISPLAY:FTR 113-0224.
      0090 ASA/TEMP REMOVED.
      0093 OPERATOR DSED@075:0070:1*
      0120 INV INDEX@053:00D2:1*
      0106 DISPLAY:DISPLAY-0281.*
      0106 DISPLAY:DISPLAY-O281.*
      0106 DISPLAY:DISPLAYADR..
      0109 NO FILE EARLY/BIND*
```

MU (Make User)

The MU (Make User) command creates a new usercode and an associated password.

Syntax:



Semantics:

MU <identifier>
Causes the first specified <identifier> to be entered in the USERDATAFILE as a valid usercode.

/ <identifier>
Designates the <identifier> following the slash (/) as the password associated with the specified usercode.

PRIVILEGED
Specifies that the usercode is to be privileged.

- <identifier> PRIVILEGED
Removes privileged status from the usercode designated by <identifier>.

Examples:

```
MU JOHN PRIVILEGED

    JOHN PRIVILEGED

MU- JOHN PRIVILEGED

    JOHN IS NOT PRIVILEGED

MU JOE/JOE

    JOE/JOE USERCODE CREATED
```

Pragmatics:

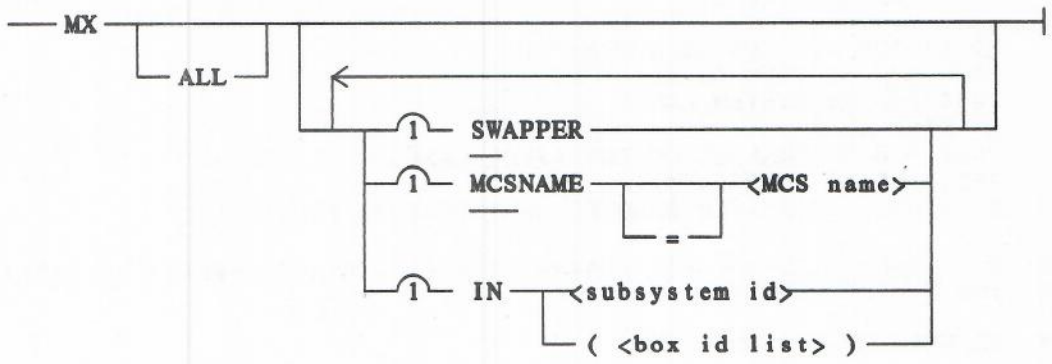
A valid USERDATAFILE must be present or the system responds with a "REQUEST DENIED" message. The MU action is subject to regulation by the "MU model" entry in SYSTEM/USERDATAFILE. This entry may disallow either the entire ODT MU command or the PRIVILEGED option of this command.

Refer to Volume 2, Chapter 9 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for more information concerning SYSTEM/USERDATAFILE.

MX (Mix Entries)

The MX (MiX Entries) command yields the same response as the J (Job and Task Structure Display) command, except that display lines (RSVP and DISPLAY messages) are displayed with each job and task.

Syntax:



Semantics:

MX
Displays RSVP and DISPLAY messages associated with each unsuppressed job or task currently in the mix.

ALL
Displays all active jobs or tasks, including any that have been suppressed.

SWAPPER
Displays only jobs or tasks running in swapspace.

MCSNAME <MCS name>
MCSNAME = <MCS name>
Display only jobs or tasks originating from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only jobs with stacks running in the specified subsystem or memory subsystem, respectively.

Examples:

On a Tightly-Coupled system, each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL memory task, or a blank for a task whose subsystem location is currently unassigned.

```
MX

     -----JOB STRUCTURE-----

     S4087 JOB 50 ?RUN DICKEYIN("SUP
     4070 JOB 50 ?RUN DATABASE/DU
     4053 JOB 70 SYSTEM/CANDE
     D: DISPLAY:#
     3643 JOB 60 DMALGOL ON DMS (JKD) CANDE/CODE1100
     3455 JOB 60 INTERIMFR26
     D: (JHHH) JHHHPATCH REMOVED ON INTERIM26 PK065
```

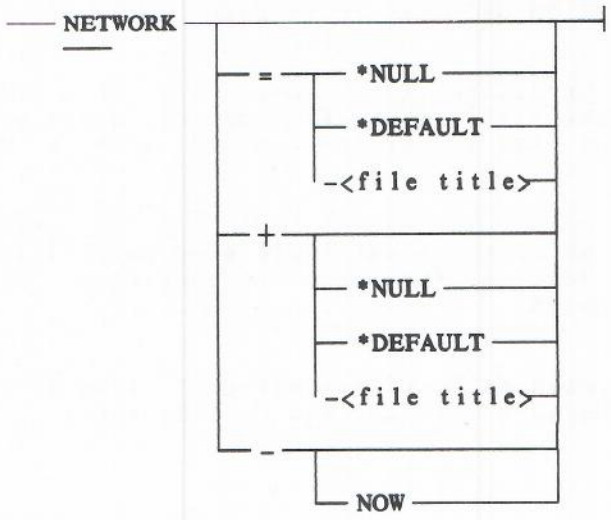
The following command displays all active jobs (including suppressed jobs) that originated from SYSTEM/CANDE:

```
MX ALL MCSNAME=SYSTEM/CANDE

     7185 JOB 50 (FTRS)OBJECT/TERMLIB ON TIOFTRS
     ... 7320 50 OBJECT/TELEX
     ... 7319 50 (DRK) OBJECT/DRK ON SOFTDOC
     ... 7314 50 (SOFTDOC) OBJECT/WORK/LISDOC ON SOFTDOC
     ... 7313 50 (SOFTDOC) OBJECT/WORK/DOCOL ON SOFTDOC
```

NET (NETwork)

The NET (NETwork) command is used to initiate and terminate operation of BNA, to specify the name of the Network Initialization File to be used, and to interrogate the current operational status of BNA and the names of the current and next Network Initialization Files.

Syntax:



Semantics:

NET
Interrogates:

a. The current operational status of BNA (initializing, operating, shutting down, or not in network mode).

b. The name of the current Network Initialization File if BNA is initializing, operating, or shutting down.

c. The name of the Network Initialization File to be used the next time BNA is initialized.

NET=*NULL
Specifies that no Network Initialization File is to be used.

NET=*DEFAULT
Specifies that the default Network Initialization File (SYSTEM/NETINIT ON DISK) is to be used.

NET=<file title>
Specifies the name of the Network Initialization File to be used. The title of the file may not start with an asterisk (*), although it may start with a usercode and end with a family name.

NET +
Starts BNA initialization. If the name of the Network Initialization File has not previously been specified, the default file (SYSTEM/NETINIT ON DISK) is used.

NET+*NULL
Starts BNA initialization and specifies that no Network Initialization File is to be used.

NET+*DEFAULT
Starts BNA initialization and specifies that the default Network Initialization File (SYSTEM/NETINIT ON DISK) is to be used.

NET+<file title>
Starts BNA initialization and specifies the name of the Network Initialization File to be used. The title of the file may not start with an asterisk (*), although it may start with a usercode and end with a family name.

NET-
Initiates a slow shutdown of BNA, which waits until all user port files to remote hosts are closed and Host Services functions are completed. At that point, Network Services are terminated.

NET-NOW
Initiates a fast shutdown, which immediately closes all port files to remote hosts and immediately terminates Network Services and Host Services.

Examples:

The following example shows the response to a NET command when the system is not in network mode:

```
NET

  NOT IN NETWORK MODE
  NEXT INIT FILE = (SAM)RED/INITFILE ON ADMIN
```

The following example shows the response to a NET command when the network is operating. The display shows the mode of Network Services, the initialization file that was used to initialize BNA, and the next initialization file to be used.

```
NET

  NETWORK OPERATING
  INIT FILE = SYSTEM/NETINIT
  NEXT INIT FILE = SYSTEM/NETINIT
```

Pragmatics:

The SL (System Library) command is used to specify the file title of the BNASUPPORT library. Refer to the SL (System Library) command in this section for syntax, semantics, and examples.

NS (Next Screen)

The NS (Next Screen) command displays the next screen, if any, when a previously entered ODT command requires multiple screens to display its output.

Syntax:

Semantics:

NS
Causes the next page of output to be displayed when a previously entered ODT command required multiple screens to display its output. When multiple screens are required, the display of each screen except the last includes an NS command ready for entry, and the display waits until the NS is entered before proceeding to the next screen.

NW (Network Prefix)

The NW (NetWork Prefix) command is used to direct BNA operator input commands to the BNA operations interface.

If BNA is initializing, operating, or shutting down, the command preceded by NW is passed to the BNA operations interface for processing. If NW is entered and the system is not in network mode, the message "NOT IN NETWORK MODE" is displayed.

Syntax:

Semantics:

NW <BNA network operator input command>
Passes the specified BNA operator input command to the BNA operations interface for processing.

Examples:

The following example shows a typical response to an NW command when the system is not in network mode:

```
NW LOC

    NOT IN NETWORK MODE
```

The following example shows a typical response to a NW command when BNA is initializing or operating:

```
NW LOC

    LOCALIDENTITY = GREEN #11
```

OF (Optional File)

The OF (Optional File) command may be entered in response to a "NO FILE" message, provided that the file sought has the file attribute OPTIONAL set equal to TRUE. The program that generated the "NO FILE" message proceeds without this optional file by taking end-of-file action.

A compare error sensed by library Maintenance ("RECOPY REQUIRED") may be OFed, causing the failing file to be omitted and allowing the COPY to proceed.

The OF command is particularly useful in response to a "DUP FILE" message. In this event, the command causes the new file to be discarded and the old file to be retained.

The OF command may also be used in response to a "REQ PK" message. In this case, the program now receives a "NO FILE" message.

Syntax:

Semantics:

<mix number list> OF
Causes the program(s) specified in the <mix number list> to proceed without the optional file.

Example:

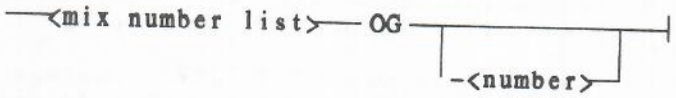
In the following example, the W command indicates a "NO FILE" condition for the program identified by mix number 3968. A subsequent OF command causes the the program to proceed without the optional file XYZ (DK).

```
W

     -----WAITING ENTRIES-----

     3966/3968 50 TEST ON PACK
     NO FILE XYZ (DK)

3968 OF
```

OG (Overlay Goal)

The OG (Overlay Goal) command is a memory management command that sets the overlay goal (OLAYGOAL) for the indicated tasks.

Syntax:



Semantics:

<mix number list> OG
Displays the value of the OLAYGOAL for the specified task(s). The value of OLAYGOAL represents a percentage of the overlayable memory used by a program that is to be removed from memory on a per-minute basis.

<number>
Sets the OLAYGOAL for the specified task(s). The OLAYGOAL for the entire system is set by factor 1 of the SF (Set Factor) command; the <number> specified in OG command sets the OLAYGOAL of the indicated task(s) only. Setting the OLAYGOAL of a task has no effect unless the system OLAYGOAL is greater than zero.

Examples:

```
4869,5269 OG  18

    4869 OVERLAY GOAL=18%
    5269 OVERLAY GOAL=18%

5269 OG

    OVERLAY GOAL=11%

4869 OG 20

    4869 OVERLAY GOAL=20%
```

OK (Reactivate)

The OK (Reactivate) command reactivates the specified tasks if they have been suspended or STed (stopped). Refer to the ST (STop) command described later in this section.

Syntax:

Semantics:

<mix number list> OK
Reactivates the suspended tasks specified in the <mix number list>.

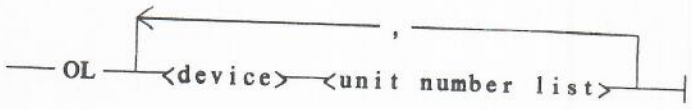
Example:

```
0963 OK
```

OL (Display Label and Paths)

The OL (Display Label and Paths) command displays the label and path information associated with the specified device(s).

Syntax:



Semantics:

OL <device> <unit number list>
Displays the label and path information associated with the indicated <device>(s).

The path display that results from the OL command depends on the system type. Because of the differences in hardware, the path information displayed is different for an MLIP system, a B 6700/B 6800 system, or a B 7000 series system.

On an MLIP system, if the path to the unit is through an outboard host (for example, the NSP DLP), a HOSTDLP column follows the PATHID column. The entries in this column are the physical unit number(s) of the controlling DLP(s).

If no firmware level information exists, the FIRMWARE column is omitted from the display.

Examples:

The following examples show the response to an OL command for a B 6700/B 6800 series system:

```
OL MT 19

   MT 19 9 [000017]#1 1:0 TSYST/FILE000

      PATHID      MPX       PATH      STATUS
        05          2         0       ONLINE
        06          2         1       ONLINE
        07          2         2       ONLINE
        08          2         3       ONLINE

OL DK 32

   DK 32*IC3 (READY: 1-20) [000032]#1 DISK (10)
   CREATED ON 7/23/76 AT 6:50:05
   HL FAMILY

OL PK 192

   PK 192 * B [250265] #1 DATACOM (08) [1,2,3]
   CREATED ON: 04/16/80 AT 00:28:12
   BX385  235
```

```
FIRMWARE = D484

PATHID      MPX       PATH      STATUS
  00         1         0        ONLINE
  01         1         1        ONLINE
  02         1         2        ONLINE
  03         1         3        ONLINE
```

The following example shows a response to the OL command displaying the path information on an MLIP system:

```
OL PK50

PK 50*B [001640] #1 YELLOW (00)
CREATED ON: 02/21/80 AT 07:39:18
235

PATHID    FIRMWARE    PROC    HDPPORT    LEMPORT    DLPNUM    PATHSTATUS
  05        D484       1         2          0          2        ONLINE
```

The following example shows responses to the OL command displaying the path information on a B 7000 series system:

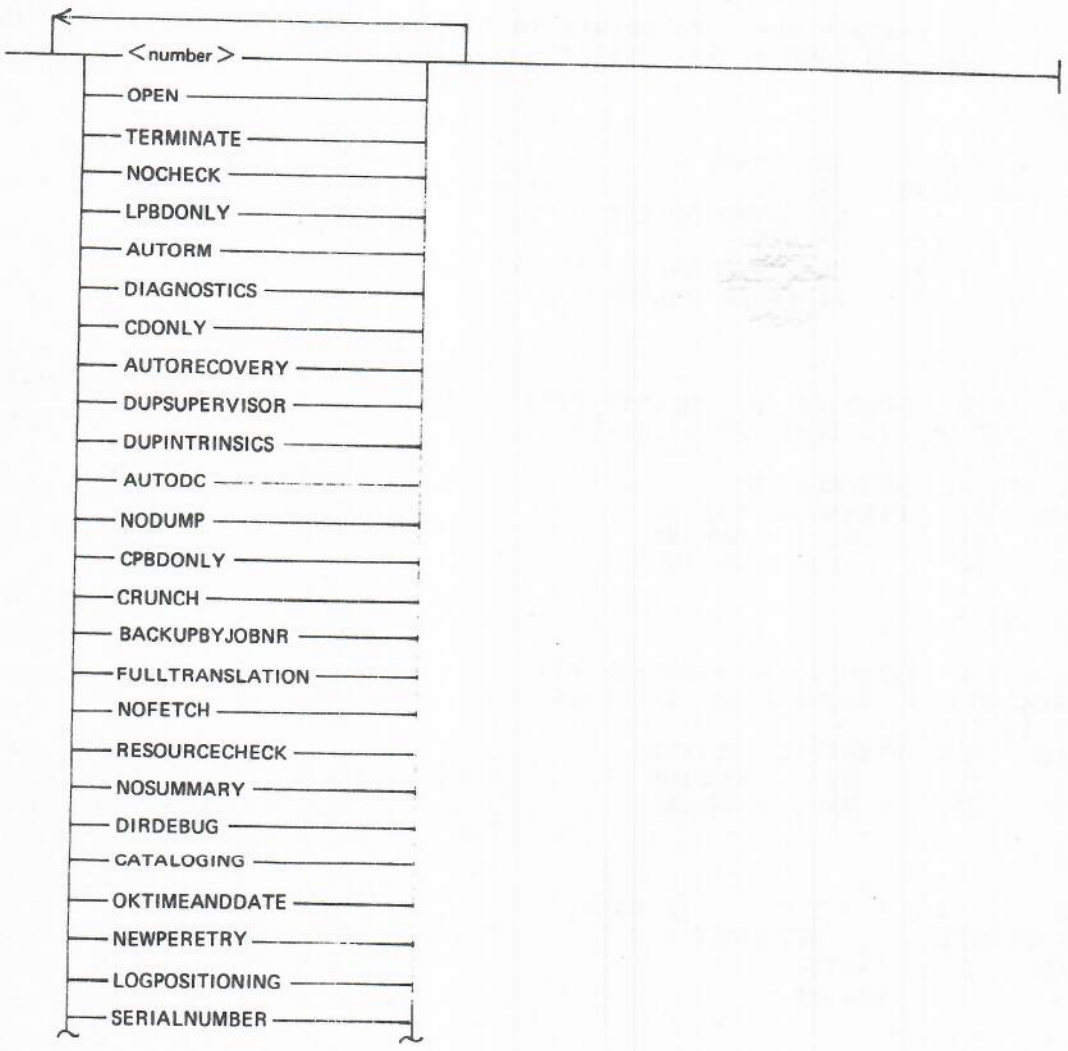
```
OL MT 16

MT 16 P 800      NOT READY
   IOM  CHAN     STATUS
    1     01     RESERVED ONLINE
    1     02     ONLINE
    0     01     RESERVED ONLINE
    0     02     RESERVED ONLINE

OL PK 97

PK  97*B  [000001]  #1  HLUNIT (22)
CREATED ON: 10/28/81 AT 02:47:24
HL FAMILY
B9387/206 (INTERLACED)
IOM  CHAN  FIRMWARE  STATUS
 1    24       Pe    ONLINE
 0    24       Pe    ONLINE

OL PK 160

PK 160*B  [235003] #1 TIOADMIN (7)
CREATED ON:  12/04/81 AT 14:41:26
BX385/235
IOM  CHAN  FIRMWARE  STATUS
 1    27       Me    ONLINE
 0    27       Me    ONLINE

OL HC 1

HC  1   S C R A T C H   [CLOSED]
HUBNUMBER = 1,  HUBINDEX = 03
IOM   CHAN  STATUS
 1     09   ONLINE
```

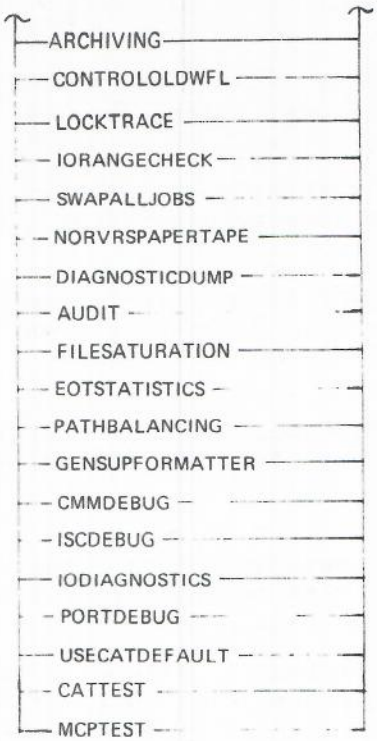
OP (OPtions)

The OP (OPtions) command displays, SETs, or RESETs run-time MCP options concerning various system operations.

Syntax:

<option list>





Semantics:

OP
Displays all options and their respective states.

OP <option list>
Displays the options in the <option list> and their respective states.

OP+
Displays all options that are SET.

OP+ <option list>
SETs all options in the <option list>.

OP-
Displays all options that are RESET.

OP- <option list>
RESETs all options in the <option list>.

<number>
Identifies the option desired. (The run-time MCP options are not to be confused with the option word assigned to each job.) <number> may be between 1 and 47, inclusive; however, some values are not used. The <number> associated with each option is listed along with the following descriptions.

OPEN (option 1)
When this option is SET, a file-open message is displayed for each task whenever it opens a file.

TERMINATE (option 2)
When this option is SET, abnormal task terminations are processed normally. If this option is RESET, abnormal terminations result in a full memory dump.

NOCHECK (option 3)
When this option is SET, memory dumps under FORGETCHECK conditions are inhibited. These dumps are automatic when this option is RESET.

LPBDONLY (option 4)
When this option is SET, all printer output files are assigned to printer backup disk. These files can then be printed by the AUTOBACKUP routine.

AUTORM (option 5)
When this option is SET, the MCP automatically removes the old file when a duplicate-file condition occurs. When this option is RESET, an RM or OF command is required when such a condition occurs.

DIAGNOSTICS (option 6)
When this option is SET, an RSVP message (for example, "RF DEGRADATION") is displayed at the console any time the reliability of a hardware unit is degraded by a set amount.

CDONLY (option 7)
With this option SET, any job opening a card input file that is not internal to the job is DSed. Also, no card reader may be labeled.

AUTORECOVERY (option 8)
When this option is SET, a Halt/Load is attempted following all system fatal memory dumps (except a hung processor). DCPs or NSPs running prior to the Halt/Load are subsequently reinitialized, and the AB number is restored to its value before the halt.

If this option is RESET, the AUTORECOVERY operations do not occur. Furthermore, the mix limit of all queues is set to 0 so that no jobs are automatically restarted.

DUPSUPERVISOR (option 9)
If a code file titled <file title> has been designated as the supervisor program by a CS command and this option is SET, at Halt/Load time the MCP attempts to execute a code file titled <file name>/FMLYINX<nnn>. If this option is RESET, the MCP attempts to execute the designated supervisor program.

DUPINTRINSICS (option 10)
If a file titled <file title> has been designated as the intrinsics file by a SI command and this option is SET, at Halt/Load time the system attempts to use the code file titled <file name>/FMLYINX<nnn> as the intrinsics file. If this option is RESET, the code file <file title> is used as the intrinsics file at Halt/Load time.

AUTODC (option 12)
When this option is SET, Data Comm is automatically initiated after a Halt/Load, a fatal Data Comm error, or whenever an MCS performs a DCWRITE and Data Comm is not running.

NODUMP (option 13)
When this option is SET, the MCP is prevented from attempting to take memory dumps. Potential nonfatal dumps are denoted by a display at the supervisory console and logged. The source of a fatal dump is listed in a system display at Halt/Load time. When this option is RESET, dumps are taken in the normal fashion.

CPBDONLY (option 14)
When this option is SET, all card punch output files are assigned to punch backup disk. These files can be punched by the AUTOBACKUP routine.

CRUNCH (option 16)
When this option is SET, code files and backup disk files are automatically CRUNCHed when they are closed. When this option is RESET, no file can be CRUNCHed, although an explicit CRUNCH may have been requested.

BACKUPBYJOBNR (option 17)
When this option is SET, jobs are printed in order of their job numbers. When this option is RESET, jobs are printed in increasing order of print quantity.

FULLTRANSLATION (option 18)
When this option is SET, every logical file is initialized with the file attribute TRANSLATE set to FULLTRANS. This setting allows software translation whenever translation is required, but does not provide hardware translation.

On MLIP systems, TRANSLATE is always set to FULLTRANS. The setting of FULLTRANSLATION is ignored.

NOFETCH (option 19)
When this option is SET, the operator is not required to OK a WFL job containing a FETCH statement in order for it to begin execution.

RESOURCECHECK (option 20)
When SET, this option causes the MCP to enforce the limits established by the RESOURCE task attribute or WFL queue attribute (refer to the MQ (Make or Modify Queue) command). When RESET, RESOURCE limits are ignored.

NOSUMMARY (option 21)
When this option is SET, the JOBSUMMARY output is suppressed if no backup files are produced. However, the JOBSUMMARY is printed if a task terminates abnormally.

DIRDEBUG (option 22)

CAUTION

This option is intended for use only by the Burroughs Large Systems Plant.

CATALOGING (option 23)
At Halt/Load time, CATALOGING is tested. If this option is SET, CATALOGLEVEL is initialized to CATALOGLEVELSET; if it is RESET, CATALOGLEVEL is set to 0. A CATALOGING MCP is any MCP whose CATALOGLEVEL is greater than 0.

NOTE

A Halt/Load must occur after this option is SET for CATALOGING to take effect.

OKTIMEANDDATE (option 24)
This option is used to force operator verification of the system TIME and DATE values at Halt/Load time.

When OKTIMEANDDATE is SET, after a Halt/Load the current TIME and DATE settings are displayed on the ODT. TIMEOK must be entered to resume normal processing. An incorrect TIME or DATE setting should be corrected using the DR and TR commands before entering TIMEOK.

Verification is required on Tightly-Coupled systems regardless of the option setting, if the clock of any processor varies from that of the leader by more than 60 seconds during the system initialization sequence. (Whenever time-of-day registers disagree as a monolithic multiprocessor system is initialized, they are all synchronized to the maximum time found in any of them.)

NEWPERETRY (option 25)
This option invokes a special method of repositioning the tape after a write error occurs on any PE tape unit. The setting of NEWPERETRY is immaterial to MLIP systems.

NOTE

NEWPERETRY should not be SET unless all PE tape controls have attained the level specified in the following Reliability Improvement Notices (RINs):

CE-L3486-1
CON-5-L2189-6
MECH-R2254-19

LOGPOSITIONING (option 26)
When this option is SET, the MCP logs the positioning actions of tape parity retries as well as the actual retries. This option should be SET by a site that has trouble in retrying tape errors (for example, lost blocks on tape).

SERIALNUMBER (option 27)
When this option is SET, scratch tapes are not assigned to output tapes unless the SERIALNO attribute specified by the file matches the serial number on the tape or the tape is OUed. Refer to the OU (Output Unit) command described later in this section.

ARCHIVING (option 28)
This option enables the MCP archiving function. If this option is SET and the catalog level of the system is greater than 0, an archive log is created in which pertinent information is stored for later processing by the SYSTEM/ARCHIVE utility. The name of the archive log is ARCHIVELOG/<date>/<time>, where <date> and <time> refer to the creation date and creation time of the file, respectively. If the archive log is not successfully set up, the option is automatically RESET by the system.

CONTROLOLDWFL (option 29)
When this option is SET, all WFL input from the ODT is treated as "new" WFL. Refer to the B 5000/B 6000/B 7000 Series Work Flow Language Reference Manual for a description of the differences between "old" and "new" WFL. This option affects only jobs entered through the ODT.

LOCKTRACE (option 30)

CAUTION

This option is intended for use only by the Burroughs Large System Plant.

IORANGECHECK (option 31)
This option verifies that the disk address requested for an I/O is within the range of one of the rows of the file. The MCP compile-time option DIAGNOSTICS must be SET when compiling the MCP for IORANGECHECK to have any effect.

SWAPALLJOBS (option 32)
This option allows all job stacks to be run in swapspace without forcing the SUBSPACES attribute to be inherited by their tasks. Thus, an installation may run all job stacks in swapspace without forcing their associated tasks to run in swapspace also.

NORVRSPAPERTAPE (option 33)
When this option is SET, paper-tape parity retry action is disallowed at installations using the nonreversible FACIT paper tape reader.

DIAGNOSTICDUMP (option 35)
When SET, this option enables specific additional memory dump calls to be made for diagnostic purposes.

AUDIT (option 36)

CAUTION

This option is intended for use only by the Burroughs Large Systems Plant.

FILESATURATION (option 37)
When SET, this option causes the following warning message to be issued whenever the system allocates the last row of a disk file:

WARNING, ALLOCATING LAST ROW OF FILE <file name>

The preceding message is restricted by the following:

a. It applies to "programmer" files, including ordinary data files, printer/punch backup files, and compiler codefiles.

b. It does not apply to internal MCP files such as SYSTEM/SUMLOG or library maintenance files.

c. It does not necessarily mean that the file is almost full. Intervening rows may have been skipped (because the file was written randomly).

For files accessed with the file attribute FLEXIBLE=TRUE, the message is issued only when row 1000 is allocated. Most files are accessed with FLEXIBLE=TRUE (the default value for FLEXIBLE), and very few files need 1000 rows. Consequently, the warning message is very seldom displayed.

EOTSTATISTICS (option 38)
When this option is SET, end-of-task (EOT) statistics for each task are displayed on the ODT in the following format:

<mix number> EOT TIMES: ET=hhh:mm:ss.s PT=hhh:mm:ss.s IO=hhh:mm:ss.s

In this display hhh denotes the hour, mm denotes the minutes, and ss.s denotes the seconds (rounded off to the nearest tenth).

PATHBALANCING (option 39)
When this option is SET on MLIP systems, dynamic path balancing is enabled.

Dynamic path balancing is used in order to distribute pack I/Os more evenly across busy multiple-path disk pack subsystems. For tape units, the order in which data is transferred is crucial; to assure the correct order of the tape records, the static path allocation technique is always used for these devices.

Path busyness calculations and dynamic path balancing do not occur on single path subsystems.

GENSUPFORMATTER (option 40) (B 7000 series systems only)
At Halt/Load time, GENSUPFORMATTER is tested. If this option is SET, ALGOL and FORTRAN programs use the formatting routines in the GENERALSUPPORT library. If this option is RESET, ALGOL and FORTRAN programs use the formatting routines in the INTRINSICS.

This option is SET by default on B 6700, B 6800, and B 6900 systems. It is RESET by default on B 7700 and B 7800 systems. Its setting is ignored on B 5900 systems, which can only use the formatting routines in GENERALSUPPORT.

NOTE

A Halt/Load must occur after this option is changed for the change to take effect.

GMMDEBUG (option 41)
When this option is SET on an MCP compiled with the compile-time option INTERNAL SET (a "diagnostic" MCP), GLOBAL Memory debugging information is displayed when error or exception conditions occur. In particular, when communication with the Global System Control fails, the 48-bit result returned by the SCANIN operator is displayed.

ISCDEBUG (Option 42)

CAUTION

This option is intended for use only by the Burroughs Large Systems Plant.

IODIAGNOSTICS (option 43)

CAUTION

This option is intended for use only by the Burroughs Large System Plant.

PORTDEBUG (option 44)
When this option is SET on an MCP compiled with the compile-time option INTERNAL SET (a "diagnostic" MCP), a printer-backup file is created that contains a trace of all port library activity.

USECATDEFAULT (option 45)
The value of this option only has meaning on an MCP that is running CATALOGING. When this option is SET, the default value of the file attribute USECATALOG is TRUE.

CATTEST (option 46)

CAUTION

This option is intended for use only by the Burroughs Large Systems Plant.

MCPTEST (option 47)

CAUTION

This option is intended for use only by the Burroughs Large Systems Plant.

Examples:

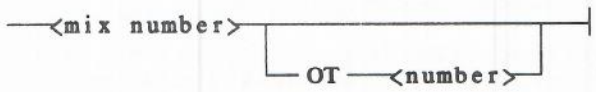
```
OP 1

     1 OPEN RESET

OP+ 3

     3 NOCHECK SET

OP- 3

     3 NOCHECK RESET

OP

     ----- OPTIONS -----
     1 OPEN                2*TERMINATE
     3 NOCHECK             4*LPBDONLY
     5*AUTORM              6 DIAGNOSTICS
     7 CDONLY              8*AUTORECOVERY
     9 DUPSUPERVISOR      10 DUPINTRINSICS
    11* ?? UNKNOWN ??     12 AUTODC
    13 NODUMP             14*CPBDONLY
    15* ?? UNKNOWN ??     16*CRUNCH
    17 BACKUPBYJOBNR      18 FULLTRANSLATION
    19 NOFETCH            20 RESOURCECHECK
    21*NOSUMMARY          22 DIRDEBUG
    23 CATALOGING         24*OKTIMEANDDATE
    25*NEWPERETRY         26 LOGPOSITIONING
    27*SERIALNUMBER       28 ARCHIVING
    29*CONTROLOLDWFL      30 LOCKTRACE
    31 IORANGECHECK       32 SWAPALLJOBS
    33 NORVRSPAPERTAPE    35 DIAGNOSTICDUMP
    36 AUDIT              37 FILESATURATION
    38 EOTSTATISTICS      39 PATHBALANCING
    40*GENSUPFORMATTER    41 GMMDEBUG
    42 ISCDEBUG           43 IODIAGNOSTICS
    44 PORTDEBUG          45 USECATDEFAULT
    46 CATTEST            47 MCPTEST

OP + OPEN

     1 OPEN SET

OP -

     ----- RESET OPTIONS -----
     1 OPEN                3 NOCHECK
     6 DIAGNOSTICS         7 CDONLY
     9 DUPSUPERVISOR      10 DUPINTRINSICS
    13 NODUMP             17 BACKUPBYJOBNR
    22 DIRDEBUG           24 OKTIMEANDDATE
    29 CONTROLOLDWFL      31 IORANGECHECK
    43 IODIAGNOSTICS      46 CATTEST
    47 MCPTEST

OP - OPEN

     1 OPEN RESET
```

OT (Inspect Stack Cell)

The OT (Inspect Stack Cell) command displays the contents of the specified D2 stack cell for the indicated task.

For a compiler task, this command may be used to display the sequence number of the source record being processed and the number of syntax errors detected.

Syntax:



Semantics:

<mix number>
Displays the sequence number of the source record being processed by the compiler, as well as the number of syntax errors detected. <mix number> must designate a compiler task.

<mix number> OT <number>
Displays the contents of the stack cell specified by <number> for the task with the specified <mix number>. <number> must be an integer between 2 and the number of declared variables in the outer block of the program. The program's stack number is displayed in decimal, followed by the contents of the stack cell, including its tag, displayed as a hex number. If the stack cell contains a single-precision integer, its decimal value is also displayed.

Examples:

```
591

    SEQ=00123400, ERRORCOUNT=4

502 OT 2

    00068 STACK CELL 2=5 840002A0B1C5 (HEX)

506 OT 5

    00096 STACK CELL 5=0 00000000000A (HEX) 10 (DECIMAL)
```

OU (Output Unit)

The OU (Output Unit) command indicates that the output file being opened by a task is to be written to a specified output device. This command may be entered in response to an "LP REQD", "CP REQD", "MT REQD", or "FM REQD" message. Files may be output to disk, pack, or tape.

The "REQUIRES" RSVP message is an operator-directed message indicating which kinds of backup media are requested. The format of this message is as follows:

<mix number> REQUIRES <file name> BACKUP

The message identifies which task is waiting, the nature of the RSVP, the name of the file needing a backup medium, and the type of backup medium requested (PK,DK, MT, MT7, MT9, PEMT, LP, or CP).

When this message is displayed, the operator can:

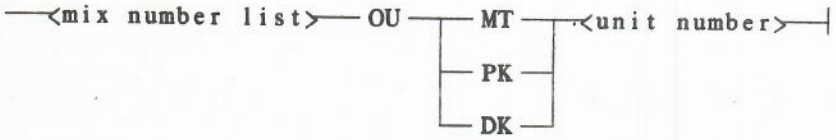
a. OU the file needing a backup medium.

b. Make the specified peripheral type ready. The MCP notes the status change and "wakes up" the program.

c. Use the SB (Substitute Backup) command to equate a backup medium that is present and available. Performing an SB causes the waiting process to search again for an available backup medium. An OU is not subject to SB equation. If <mix number> OU DK is entered and the site has head-per-track disk, the file goes to head-per-track disk regardless of how SB is set.

d. DS the program if desired.

Syntax:



Semantics:

<mix number list> OU MT <unit number>
Allows requests for MT REQD to be sent unconditionally to the designated tape unit. (It overrides locked scratch units.) This form of the command may override programs requesting PE (phase-encoded) drives and assign them to 7- or 9-track units, if none of the requested types designated as scratch tapes are available.

<mix number list> OU PK <unit number>
Places the file(s) on the specified disk pack unit. If a file has a FAMILYNAME specified, the chosen disk pack is the pack with that name. In this case, only a native mode write-enabled base pack with the specified name may be designated. If no FAMILYNAME is specified, the system resource pack, DISK, is assigned by default. If more than one disk pack is a candidate, the disk pack associated with the highest unit number is selected.

<mix number list> OU DK <unit number>
Places the file(s) on the head-per-track disk specified by <unit number>.

Examples:

A typical "REQUIRES RSVP" message is generated when a program has asked for a PRINTER, PRINTER BACKUP DISKPACK, or PRINTER BACKUP TAPE7, and none of these media are available. In this example, no substitute backup medium has been substituted by the SB command. The MCP generates the following message:

1985 REQUIRES <file name> BACKUP (PK, MT7) LP

If the programmer has specified a FAMILYNAME attribute with the file, the following message is displayed:

1985 REQUIRES <file name> BACKUP (PK<PACK050>,MT7) LP

where PACK050 is the FAMILYNAME specified by the programmer.

Pragmatics:

Several types of OU commands are inappropriate because of the nature of the media. A list of possible responses is as follows:

IS DIRECT FILE: CANNOT BACKUP

A direct file asking for a line printer or card punch cannot go to backup under any circumstances. "Direct" implies that the program can look specifically at result descriptors and set error maskout. Direct files must therefore deal with an actual target peripheral.

NEED AN OUTPUT TAPE FOR OUMT

OUMT has failed because no tape is in a proper state.

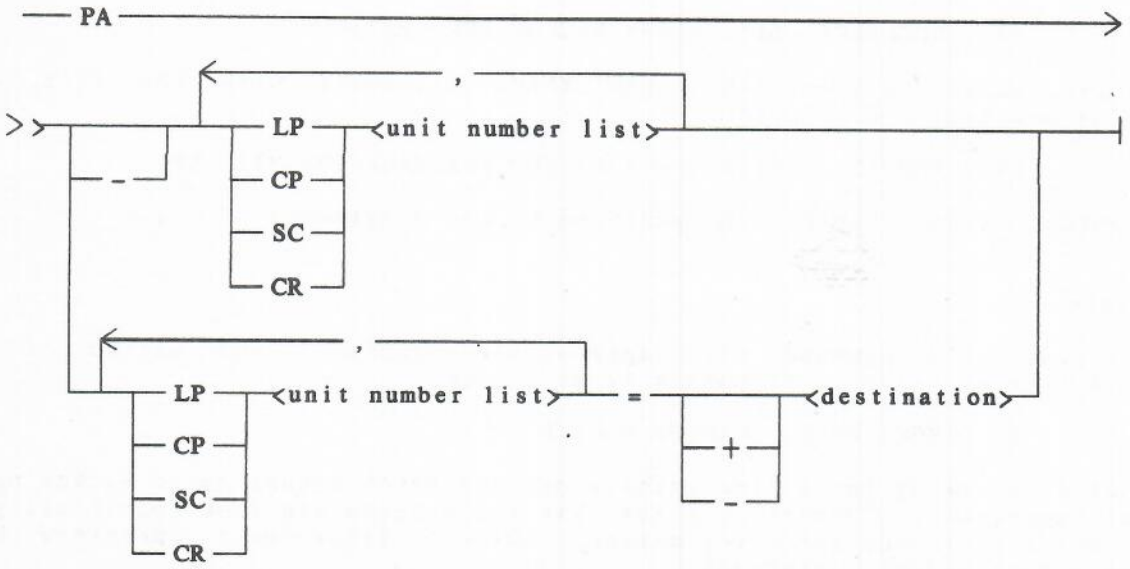
PA (Peripheral Association)

The PA (Peripheral Association) command is used to associate input and output devices: line printer, card punch, ODT, and card reader.

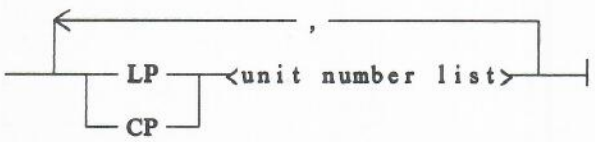
The units must be seen by the system at run time, and the input unit must be seen by the system as the originating unit. If no PA is associated for a certain unit, by default the output (of the job through that unit) goes to any line printer or card punch.

If a given unit has a particular peripheral associated, the job output through that unit can only go to the specified line printer or card punch. If an input unit has been PAed but has no appropriate output devices associated, then backup files for jobs initiated from that unit may accumulate on disk without being printed or punched.

Syntax:



<destination>



Semantics:

PA LP <unit number list>
PA CP <unit number list>
PA SC <unit number list>
PA CR <unit number list>
Assigns peripheral association to the device(s) denoted by the <unit number list>.

PA - LP <unit number list>
PA - CP <unit number list>
PA - SC <unit number list>
PA - CR <unit number list>
Terminates any peripheral association with the device(s) denoted by the <unit number list>.

Examples:

```
PA CR10 = LP12,LP13,CP20

    UNITS ASSOCIATED WITH CR10:
      LP12
      LP13
      CP20

PA CR10 = -LP13

    UNITS ASSOCIATED WITH CR10:
      NONE

PA-CR10

    NO UNITS ASSOCIATED WITH CR10
```

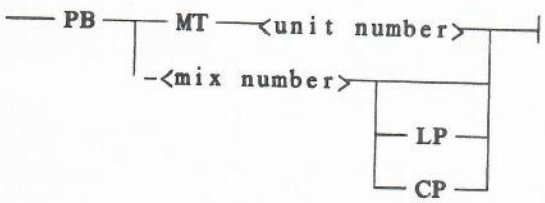
PB (Print Backup)

The PB (Print Backup) command is used to print or punch backup tape or disk files.

The entry of the PB command forces at least one copy of AUTOBACKUP into the mix, regardless of the AB setting or the number of ABed units.

When AUTOPRINT is initiated, it looks for an ABed printer. If none is available, it looks for a scratch printer. If no scratch printer is available, AUTOPRINT hangs in the mix waiting for a printer to become available.

Syntax:



Semantics:

PB MT <unit number>
Causes the tape on the specified drive to be rewound and the backup files on the tape to be printed or punched, depending on whether they are printer backup or punch backup files.

PB <mix number>
Causes all backup disk files generated by the job corresponding to the <mix number> to be printed or punched, or both.

PB <mix number> LP
Only printer backup files from the job corresponding to <mix number> are output; all other files are left on disk.

PB <mix number> CP
Only punch backup files from the job corresponding to <mix number> are output; all other files are left on disk.

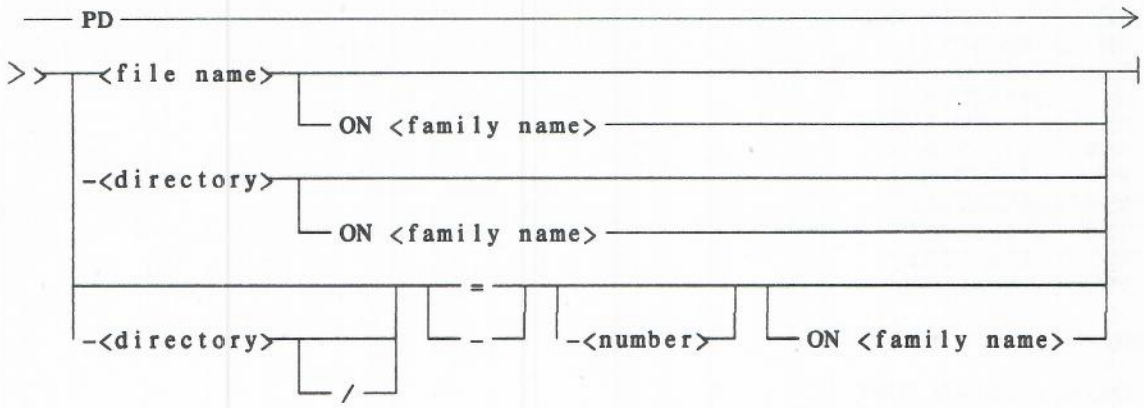
Examples:

```
PB 601 LP

PB MT 65
```

PD (Print Directory)

The PD (Print Directory) command displays the list of files contained in the directory.

Syntax:



Semantics:

PD <file name>
Yields information regarding the presence of that file on the indicated family. The default <family name> is always DISK. If the file is not present, the message "NO FILE" is displayed. If the file is present, various information about the file is displayed.

Cataloged tape file entries may also be queried using the PD request. Information regarding the catalogued tape file is returned only if the system is running with the CATALOGING option (ODT option 23) SET and active; otherwise, the message "NO FAMILY" is displayed. TAPE is the family name for tape files on a cataloging system.

PD <directory>-
PD <directory>=
PD <directory>/=
PD <directory>/-
Display a list of all file names in the disk directory that have the specified directory name as their prefix.

PD <directory>
Displays the specified directory name (if the directory exists) and confirms that it is a directory. No files under that directory are listed. In order to list these files, enter PD <directory>/=.

<number>
A positive integer used after an equal sign (=) or minus sign (-) specifies the maximum number of levels of the file names in that directory to be displayed.

ON <family name>
Specifies the family directory to be searched. The default is always DISK.

```
PD=
PD-
```

List the first level of all names in the disk directory.

Examples:

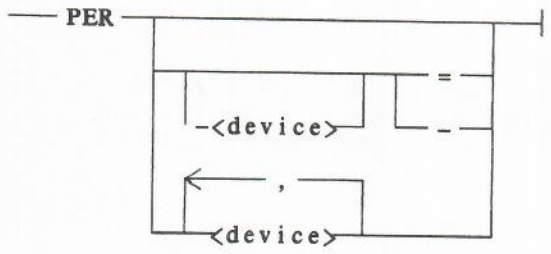
```
PD=

     MV (DIRECTORY)
     SC (DCALGOLSYMBOL)
     SH (DIRECTORY)
     YY (DATA)
     B59 (DIRECTORY)
     ELS (DIRECTORY)
     NEW (DIRECTORY)
     PTD (DIRECTORY)
     RPG (DIRECTORY)
     TPS (DIRECTORY)
     WFL (DIRECTORY)
     YM3 (ALGOLCODE)

PD OBJECT/= ON SOFTDOC

     OBJECT (DIRECTORY)
     . DOCOL (ALGOLCODE) & (DIRECTORY)
     . . PCN (ALGOLCODE)
     . TELEX (DCALGOLCODE)
     . LISDOC (ALGOLCODE)
     . RAILROAD (ALGOLCODE)
     . LISTNOTES (ALGOLCODE)

PD = 4

     MV(DIRECTORY)
     . JOB(DIRECTORY)
     . . COPY(DIRECTORY)
     . . . MV(DIRECTORY)
     . PATCHFOR(DIRECTORY)
     SC(DIRECTORY)
     SH(DIRECTORY)
     . OBJ(DIRECTORY)
     . . SY(DIRECTORY)
     . . . NIF(NDLCODE)
     .
     .
     .

PD MV/JOB/=

     MV (DIRECTORY)
     . JOB (DIRECTORY)
     . . COPY (DIRECTORY)
     . . . MV (DIRECTORY)
     . . . . 330 (DIRECTORY)
     . . . . . FILES (JOBSYMBOL)

PD WFL

     FILE WFL ON DISK(DIRECTORY)
     SECURITY: UNAVAILABLE - USAGE: UNKNOWN
```

```
PD WFL/DOCOL

   FILE WFL/DOCOL ON DISK (JOBSYMBOL)
   DATE AND TIME OF CREATION: THURSDAY APR 15,1982 (82105) AT 13:17:56
                LAST ACCESS: THURSDAY JUL 08,1982 (82189) AT 15:25:34
                LAST  ALTER: THURSDAY APR 15,1982 (82105) AT 13:17:56
   SIZE IN SEGMENTS: 28
   SECURITY: PUBLIC - USAGE: READ ONLY

PD SYSTEM/SUMLOG ON DL1

   FILE SYSTEM/SUMLOG ON DL1 (DATA) IN USE
   DATE AND TIME OF CREATION: MONDAY JUL 01,1982 (81282) AT 8:29:12
                LAST ACCESS: TUESDAY JUL 06,1982 (82187) AT 11:33:00
                LAST  ALTER: THURSDAY JUL 01,1982 (82182) AT 8:29:12
   SIZE IN SEGMENTS: 59000
   SECURITY: PUBLIC - USAGE: READ ONLY
   FAMILY SERIAL NUMBER: 006844
   ENTRY 1 IS RESIDENT NOT CATALOGED (DATA):
           CYCLE: 1 VERSION: 0
   TIMESTAMP:  THURSDAY JUL 01,1982 (82182) AT 8:29:12
```

PER (PERipheral Status)

The PER (PERipheral Status) command displays the status of the specified peripheral unit(s).

Syntax:



Semantics:

PER
Displays the status of all peripheral units.

On a Tightly-Coupled system, the display for each unit is followed by a bracketed list of processor numbers showing which subsystems are connected to the unit. Only those processors that have a path indicating that the unit is physically ready are displayed in the list.

PER <device>
Displays the status of all peripheral units for the specified <device> type.

PER -
PER =
Display the status of all peripheral units, including unlabeled and not-ready devices.

PER <device> -
PER <device> =
Display the status of all peripheral units for the specified <device> type, including unlabeled and not-ready devices.

Examples:

The following examples show typical responses to several PER commands, followed by explanations of the information supplied in the responses.

```
PER MT

     -----MT STATUS-----

     115*P   [000116] 1600 #1 1:0 MASTER/TEST
     116 P   SAVED
     130 9   S C R A T C H
     131*9x  [000065] (2321) 1600 #1 1:3 CAN/FILE000
```

The first column of the PER MT display gives the unit number. An asterisk (*) displayed in the second column means that a write-ring is in the tape. The third column shows whether the tape is 7-track, 9-track NRZ, or 9-track PE (Phase Encoded) tape. A backslash ( ) in the fourth column designates a tape entered in a volume library. (On some ODTs, the character displayed to denote a volumed tape may be an "x".) The succeeding columns give the serial number (in brackets), the tape density, the reel number, the cycle number and version number (separated by a colon), and the title of the tape. If the tape is in use, the task number is also displayed in parentheses following the serial number.

On a Tightly-Coupled system, the display for each unit is followed by a bracketed list of box ids that show which subsystems are connected to the unit.

```
PER PK

     -----PK STATUS-----

     96*B     [000097] (MCP) #1 DAMISDB (1)
     97*B     [000096] #1 TIOMASTER (11)
     98*C     [000098:000097:096] #2 DAMISDB (0)
     99 U     C L O S E D
     100*U    U N I N I T I A L I Z E D
```

Each pack entry in the PER PK display includes the unit number, type of pack, and label information (family name and serial number). The display also indicates whether the pack is currently being used by an MCP procedure (for example, READPACKLBL). The following fields are displayed:

a. The unit number.

b. An asterisk (*) if the WRITE ENABLE switch is on and the MODE is IO or OUT; a blank if the write enable switch is off or the MODE is IN.

c. The pack type. The following codes are displayed:

   B Native-mode base pack.

   I Interchange-mode pack.

   C Native-mode continuation pack.

   CI Native-mode continuation pack that has been designated as an Installation Allocated Disk (IAD) volume.

   U A pack that is unavailable for normal use.

d. A backslash ( ) if the pack is entered in the volume library. (On some ODTs, the character displayed to denote volume library entries is an "x".)

e. The volume serial number in brackets ([]). If the pack is a native-mode continuation pack, the serial number of the base pack follows, separated by a colon (:). If that base pack is on-line, the unit number it is mounted on follows the base pack serial number, which is also separated by a colon (:). If the unit is assigned to an MCP function, the stack number of the independent runner or "MCP" is enclosed in parentheses following the serial number information.

f. The family index number:

   #1 For a native-mode base pack.

   #2 to #255 For native-mode continuation packs.

   The family index is not shown for interchange-mode packs because they do not have family indexes.

g. The family name.

h. The open count in parentheses, following the family name.

PER DK-

```
-----DK STATUS-----

32 * 1C3 (READY: 1-20) [000032] #1 DISK (05)
33 * 1C3 (READY: 1-20) [000033:217345:032] #2 DISK (09)
35 * 1C3 U N L A B E L L E D
37   1C3 C L O S E D
```

The formats of the PER PK and PER DK displays are essentially the same except for the following:

1C3 Refers to a disk hardware model number.

(READY: 1-20)
Indicates status of the hardware lock-out switches.

If a pack on a given unit is in a U status (that is, unavailable for normal use), several possible messages may be displayed. If an "UNLABELLED" message is displayed, no label information in memory exists for the pack. Either the pack has not been RCed, or a CLOSE PKnn command has been keyed in for the unit, or the directory complementor failed while reading the directories on the pack.

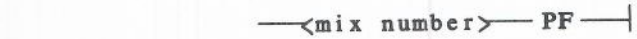
If an "UNINITIALIZED" message is displayed, the pack has not been RCed (ReConfigured).

The following messages may also be displayed: "LABEL ERROR", "SCRATCH", "NOT READY", "SAVED", and "DUP SERIAL".

PF (Print Fetch)

The PF (Print Fetch) command displays the FETCH message of a WFL job while it is in a queue. Jobs containing a FETCH statement are marked with an "F" when they appear in the SQ (Show Queue) display. If a job containing a FETCH statement is selected for execution, and the operator has not acknowledged the FETCH message with a <mix number> OK command, the job is placed in a waiting state and appears as a waiting entry until the OK command is entered. After the OK command has been entered, the job is initiated normally.

Syntax:



Semantics:

<mix number> PF
Displays the FETCH message associated with the specified WFL job in a queue.

Example:

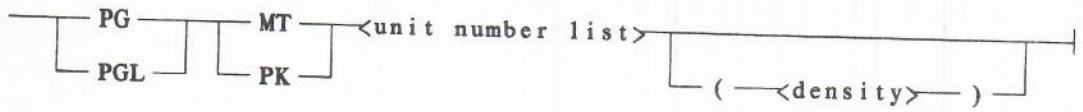
In the following example, the W command indicates that a FETCH is required for the job denoted by the mix number 3738. A subsequent PF command displays the message in the job's FETCH statement.

```
W

     -----WAITING-----

     3738 50 ?JOB X; IN QUEUE 0
     REQUIRES FETCH

3738 PF

     REMOVE TAPE 36451 AND MOUNT ON MT34
     BACKUP TO PK173
     JOB TAKES 37 MINUTES, RELAX
```

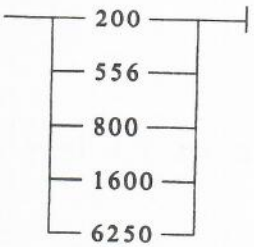
PG (PurGe)

The PG (PurGe) command purges volumes mounted on the specified tape or disk pack units if these units are ready, not in use, and write-enabled.

Syntax:



<density>



Semantics:

PG MT <unit number list>
Purges the volume(s) mounted on the tape units specified in the <unit number list>. The PG command requires that the tape have a serial number; this serial number is not disturbed by the command. If the tapes in question do not have serial numbers, serial numbers must be supplied by way of the SN (Serial Number) command.

(<density>)
Specifies the density of the tape in bits-per-inch. When the density is specified, it applies to all tapes mounted on the unit(s) indicated by the <unit number list>. Only the GCR tape subsystem is capable of system selected density. This subsystem can be used in PE mode (1600) or GCR mode (6250). The density of all other tape subsystems is selected manually at the tape drive.

PGL MT <unit number list>
PGL MT <unit number list> (<density>)
Cause the specified tape unit(s) to be locked after being purged so that no job can automatically pick up the scratch tape(s).

PG PK <unit number list>
Causes the disk pack(s) identified by the <unit number list> to be relabeled with the family name SCRATCH and made available to System Confidence Routine (SCR) programs. This form of the PG command is intended primarily for maintenance and should not be used for disk packs in the normal course of system operations.

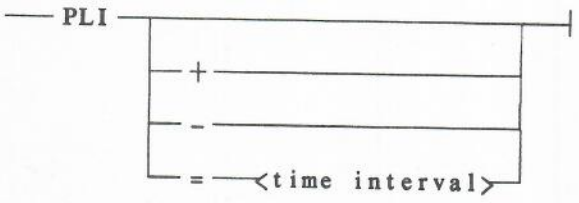
Examples:

```
PG MT 114 (1600)
    MT 114 PURGED
PG MT 66
    MT 66 WILL BE PURGED
```

PLI (Periodic Logging Interval)

The PLI (Periodic Logging Interval) command enables logging of usage information for open files at specified time intervals. The logging is actually performed at the time of the next file access, so that <time interval> is an approximation.

Syntax:



Semantics:

PLI
Displays the current logging parameters.

PLI+
Enables interval logging.

PLI-
Disables interval logging.

PLI = <time interval>
Sets the interval to the specified number of minutes. The default is 60; the range is 1 to 1440.

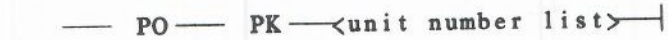
Example:

```
PLI

    LOG INTERVAL = 100 MINUTES
    INTERVAL LOGGING IS DISABLED
```

PO (Power Off)

The PO (Power Off) command is used to request the system to power off the indicated disk pack drive(s).

Syntax:



Semantics:

PO PK <unit number list>
Causes the label information for the disk pack(s) identified by the <unit number list> to be released from memory. If an interchange pack is powered off, the updated available table is written back to the pack. The unit is then automatically turned off.

Example:

```
PO PK 96

    PK 96 WILL BE POWERED OFF
```

Pragmatics:

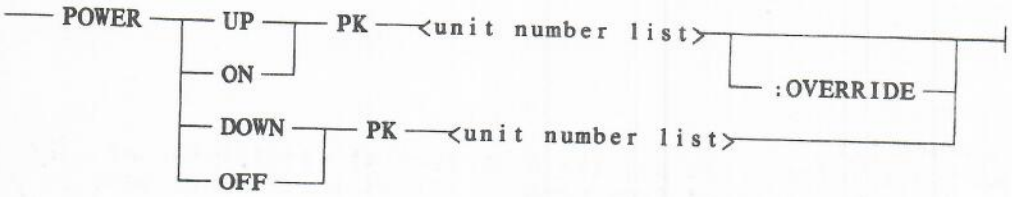
A unit is not powered off if the indicated disk pack is SaVed or not ready, or if that disk pack has any files open at the time the command is entered.

POWER (POWER Up/Down)

The POWER (POWER Up/Down) command causes the indicated disk pack drive(s) to be powered either up or down.

The POWER DOWN form of the POWER command performs the same function as the PO (Power Off) command described earlier in this section.

Syntax:



Semantics:

POWER UP PK <unit number list>
POWER ON PK <unit number list>
Request that the designated drive(s) be powered up. The system disallows requests to power up units that currently appear "ready". If a unit is reserved for maintenance by way of the UR (Unit Reserved) command, the request is rejected unless the ": OVERRIDE" option is specified.

NOTE

It is more dangerous to issue an inappropriate power-up request than an inappropriate power-down request. This condition exists because the MCP verifies that a pack to be powered down is no longer in-use and disallows the power-down request if any files are still open on the pack. However, an erroneously entered power-up request could be hazardous if the specified disk pack is currently undergoing maintenance.

POWER DOWN PK <unit number list>
POWER OFF PK <unit number list>
Request that the indicated drive(s) be powered down. If the drive(s) contain removable media, the media may be removed at the completion of the power down cycle. A drive may be powered down only if no files are open on that unit.

: OVERRIDE
Initiates the power up cycle if a unit is reserved for maintenance by way of the UR (Unit Reserved) command.

Examples:

```
POWER DOWN PK 46

    PK46 WILL BE POWERED DOWN

    PK46 POWERED OFF

POWER UP PK 62-63

    PK62 WILL BE POWERED UP

    PK63 WILL BE POWERED UP

    PK62 HAS NO PATH WITH REMOTE POWER UP

    PK63 PATHID 3 ERROR:CMND=2502 LRD=000000000009

    PK63 MLIP RSLT=5 DLP RD=0001 0000 0000 1214 1234 0000

    PK63 NOT POWERED UP DUE TO ERROR(S)

POWER UP PK 99 : OVERRIDE

    PK99 WILL BE POWERED UP(OVERRIDE)
```

Pragmatics:

The power-up function requires that a Host Transfer Speedup DLP (unit #2346 0256) be installed; it can therefore function only on an MLIP-equipped mainframe (the B 5900 and B 6900, for example).

The power-up function is only valid on disk pack drives that have remote power-up capability. Currently this capability is limited to Model 206 and 207 drives. In addition, the following Engineering Changes are required: for Model 206, ECN #63832; for Model 207, ECN #3666.

In order for the power-up function to operate, the specified unit must have been powered-down using the POWER DOWN or POWER OFF command and not by way of the manual power-down button. In addition, the drive cabinet interlock must be enabled for power-up.

If no syntax error is detected in the command, the CONTROLLER acknowledges the request with the message, "PK n WILL BE POWERED UP".

The MCP then attempts to locate a DLP attached to the specified disk pack unit(s) that can perform the power-up request. If no such DLP can be found, an error message of the following form is displayed:

```
PK n HAS NO PATH WITH REMOTE POWER UP
```

No message is displayed to indicate that the power-up request is completed. The operator is normally informed by the familiar "FAMILY REBUILDING" message, provided that the disk pack unit was not reserved and was labeled, and the volume is not in the volume library (CATALOGING MCP only).

If errors are detected on an issued power-up command, the error is logged as well as displayed to the operator. Each detected error is displayed as two consecutive messages. The format of the first message is as follows:

```
PK n PATHID p ERROR:CMND=c LRD=L
```

This message identifies the specific path to the unit that encountered an error. "PK n" indicates the physical unit number, in decimal form, of the unit in question. "PATHID p" indicates the path, in decimal form, in which the error occurred. (The OL (Display Label and Paths) command displays the valid paths for a given unit along with their corresponding physical hardware references.) "CMND=c" indicates the actual DLP command issued in hexadecimal. "LRD=L" indicates the Logical Result Descriptor returned for the command in hexadecimal.

The message just described is followed by a second message of the following form:

```
PK n MLIP RSLT=m DLP RD=d1 d2 d3 d4 d5 d6
```

Again, "PK n" indicates the physical unit number. "MLIP RSLT=m" indicates the hexadecimal result returned by the MLIP for the operation. "DLP RD=d1 ... d6" indicates the physical DLP result descriptor displayed as six 16-bit hexadecimal values.

After an error is detected, an alternate DLP path to the same unit is selected, if possible, and the operation is reinitiated. If no path can be found that does not encounter an error, a message of the following form is displayed:

```
PK n NOT POWERED UP DUE TO ERROR(S)
```

The operation is then aborted.

If a path is found that does not yield an error, the following message is displayed:

```
PK n IS BEING POWERED UP
```

The operation is then considered complete.

PP (Privileged Program)

The PP (Privileged Program) command designates the specified code file as a "privileged" program.

In order to understand this capability, the concept of "privilege" as applied to code files must be clarified.

Each program has a code file privilege specification and a dynamic run-time privilege. Previously, the code file was marked either privileged or non-privileged. The run-time privilege was determined as follows:

1. If a program ran under a privileged usercode, it was privileged throughout the execution of the program.

2. If a program did not run under a privileged usercode, the privileged status of the program was the privileged status of the environment in which it was running. The status of the environment, in turn, was determined by the PP specifications of the code file containing the code of the environment.

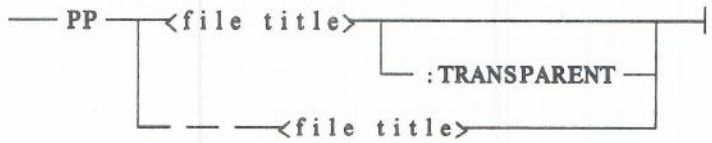
For example, a non-privileged program that called a privileged library was privileged while executing the library procedure. A privileged program that called a non-privileged library procedure was non-privileged while running in the library procedure.

When a non-privileged or privileged transparent program is initiated as a task, the privilege of the program is the privilege of the usercode it is running under. The program does not inherit any privilege from its ancestor.

With the TRANSPARENT option, however, a code file may now be marked privileged transparent. Any code from this type of code file inherits the privilege of the code file that calls it. Calls, in this case, refer only to procedure or subroutine calls and not to task initiation calls such as CALL, PROCESS, or RUN.

This form of inheritance is useful for centralized libraries that are called by both privileged and non-privileged users. For example, a non-privileged program that calls a privileged transparent library is non-privileged in the library code, and a privileged program that calls a privileged transparent library remains privileged in the library code.

Syntax:



Semantics:

PP <file title>
Causes the designated program to have a normal privileged status.

PP <file title>:TRANSPARENT
Causes the program to have a privileged transparent status.

PP - <file title>
Cancels the privileged status of a program (either normal or transparent) and sets the program's status to non-privileged (the default status).

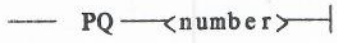
Examples:

```
PP SYSTEM/CANDE

    SYSTEM/CANDE IS A PRIVILEGED PROGRAM

PP- SYSTEM/CANDE

    SYSTEM/CANDE IS A NON PRIVILEGED PROGRAM

PP (USERA)OBJECT/BILL/CC ON ADMIN:TRANSPARENT

    (USERA)OBJECT/BILL/CC ON ADMIN TRANSPARENT PRIV PROGRAM
```

PQ (Purge Queue)

The PQ (Purge Queue) command flushes all jobs from a queue while leaving the queue intact.

Syntax:



Semantics:

PQ <number>
Flushes all jobs from the queue identified by <number>.

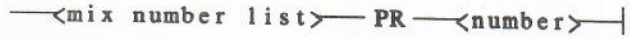
Example:

```
PQ3

    QUEUE 3 PURGED
```

PR (PRiority)

The PR (PRiority) command sets the priority of the indicated jobs or tasks.

Syntax:



Semantics:

<mix number list> PR <number>
Assigns the priority specified by the <number> to the PRIORITY attribute of the indicated job(s) or task(s). The value of the PRIORITY attribute may range from 0 to 99, where 99 is the highest priority.

Examples:

```
4972,4980 PR 90

4975 PR 30
```

PROM (PROM Burner - B 7000 Series Systems)

The PROM (PROM Burner) command enables the field engineer to diagnose and replace PROMs on-site, using the B 7800 Maintenance Console PROM Burner.

Refer to the B 7000 Systems Hardware Operational Guide for complete information about the use of this command.

Syntax:

Semantics:

PROM
Invokes the PROM-burning software.

PV (Print Volume)

The PV (Print Volume) command displays all the information that the volume library contains about the specified volume and volume family.

The PV command is valid only for those installations that are running with CATALOGING active.

Syntax:

Semantics:

PV MT <serial number>
Displays the information for the tape volume identified by the <serial number>. <serial number> may consist of from one to six alphanumeric characters.

PV PK <serial number>
Displays the information for the pack volume identified by the <serial number>.

PV DK <serial number>
Displays the information for the disk volume identified by the <serial number>.

Examples:

```
PV MT 000002

     -----VOLUME LIBRARY ENTRY FOR (MT) [000002]-----

     SERIALNO[000002], #2, TAPE7
     FAMILY NAME: TEST
     FAMILY CREATED ON: 1/29/75
     FAMILY EXPIRATION DATE: 3/1/75
     FAMILY CREATION SITE: 281
     FAMILY STRUCTURE #1-4

          (7MT)    [000001] #1
          (7MT)    [000002] #2
          (9MT)    [000003] #3 DESTROYED
          (PEMT)   [000004]#4
```

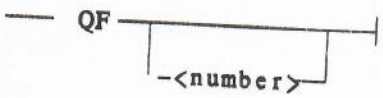
```
PV PK 000096

     -----VOLUME LIBRARY ENTRY FOR (PK) [000096]-----

     SERIALNO 000096, #0001, PACK, BASE
     FAMILY NAME: MASTERPACK
     FAMILY CREATED ON: 01/24/75
     FAMILY CREATION SITE: 277
     ONE MEMBER IN THIS FAMILY
```

QF (Queue Factors)

The QF (Queue Factors) command displays the current value of all attributes associated with the designated job queue.

Refer to the MQ (Modify Queue) command in this section for a detailed explanation of the relevant queue attributes.

Syntax:



Semantics:

QF
Displays the value of all attributes associated with each job queue.

QF <number>
Displays the value of all attributes associated with the job queue identified by <number>.

The active mix count is displayed if it is not equal to 0.

Example:

```
QF

    QUEUE 0:

      DEFAULT QUEUE
      MIXLIMIT = 10
      ACTIVE COUNT = 1
      DEFAULTS:
            PRIORITY = 50
      LIMITS:
            PRIORITY = 50

    QUEUE 5:

      MIXLIMIT = 5
      DEFAULTS:
            PRIORITY = 50
            PROCESSTIME = 900
            IOTIME = 900
            LINES = 1500
      LIMITS:
            NONE
```

```
QUEUE 6:

  MIXLIMIT = 4
  TURNAROUND = 1.00
  DEFAULTS:
        PRIORITY = 60
          .
          .
          .
```

QT (QuiT)

The QT (QuiT) command terminates the printing or punching of a backup file by AUTOBACKUP. The backup file remains in the directory, however, and may be printed later using a PB (Printer Backup) command.

Syntax:

Semantics:

<mix number list> QT
For backup disk files being processed by the AUTOBACKUP task(s) specified in the <mix number list>, the logical group of print or punch files stops printing or punching and is removed from the queue. It is not removed from the directory, however. The "logical group" is the set of all print or punch files written on disk by a job and its associated tasks.

When the QT command is applied to an AUTOBACKUP task processing a backup tape, output for the current file is terminated. AUTOBACKUP then spaces forward to end-of-file and starts to output the next file on the tape, if one exists. Otherwise, the tape is rewound.

Example:

```
6823 QT
```

RB (ReBuild Access)

The RB (ReBuild Access) command causes a pass to be made through the flat directory and a new access structure to be built.

Syntax:

Semantics:

RB ON <family name>
Causes a pass to be made through the flat directory residing on the specified family and a new access structure to be built. New catalog entries are built if the installation is running CATALOGING.

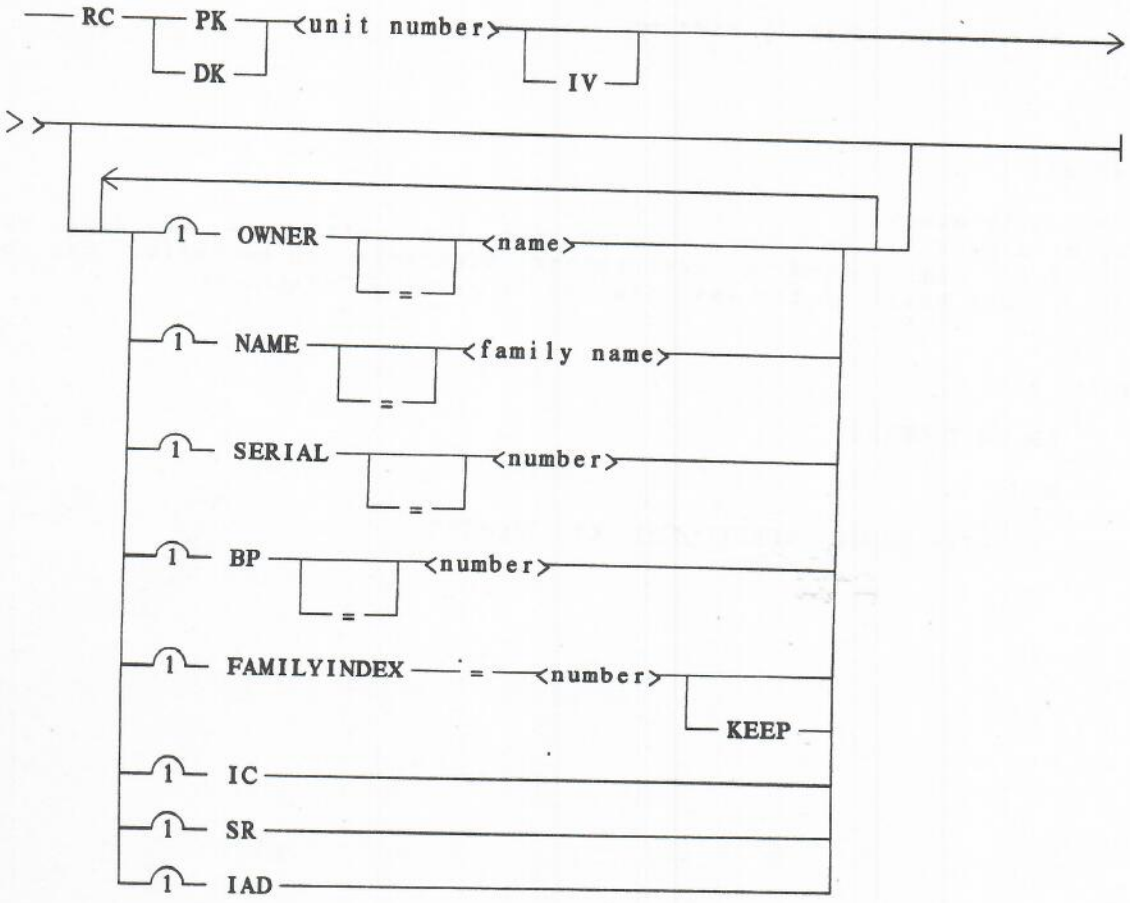
Example:

```
RB ON TIOFTRS

MSG

    4784 FAMILY REBUILDING:PK73 TIOFTRS
```

RC (ReConfigure Disk)

The RC (ReConfigure) command purges all files and creates a new set of volume labels on a specified disk pack or head-per-track disk.

Syntax:



Semantics:

RC PK <unit number>
RC DK <unit number>
Purge the specified disk pack or head-per-track disk of all its files and create a new set of volume labels. If the disk pack is to be a native-mode base pack or interchange pack, a new master directory is also created.

IV (B 5000/B 6000 series systems only)
Formats and analyzes all of the tracks of the specified pack. If an IV command is DSed, the disk pack must be CLOSEd and RYed before further use.

NAME <family name>
NAME=<family name>
Specify the family name to be assigned. TAPE and DISKPACK are illegal <family name> values and are rejected. <family name> must be a single-level name from 1 to 17 characters in length. If no NAME is specified, the old family name is used. The NAME=<family name> option and the SR option are mutually exclusive.

SERIAL <number>
SERIAL=<number>
Specify the volume serial number to be used. <number> must be in the range 1 to 999999. If no serial number is specified, the old serial number is used by default.

NOTE

Unique serial numbers should be assigned when packs are first initialized (with RC commands) and should never be changed. The volume serial number is intended as a permanent identification of the particular pack medium.

OWNER <name>
OWNER=<name>
Specify the owner identification to be assigned. <name> must be from 1 to 17 characters in length. If the <name> contains special characters or blanks, it must be enclosed in quotes. If OWNER is not specified, and either the owner field is blank in the old disk pack label or the pack is new, the field is blank-filled. If any attempt is made to IC, RC, LB, or PG a disk pack with a nonblank owner identification, a message is displayed, and the request must be verified by entering a <mix number> OK command. To remove the OWNER attribute, the disk pack is RCed or LBed with OWNER=" ".

IC
Labels the pack as an interchange-mode pack. If IC is not specified, the pack is labeled as a native-mode pack. This option is mutually exclusive with the BP, IAD, and SR options.

SR
Labels the pack as a "system resource" pack. A system resource pack is given the name PACK.

IAD
Marks the continuation pack as installation-allocated disk. Files can be assigned to an IAD pack with the aid of the program SYSTEM/IADMAPPER or with the DCALGOL WRITEHEADER function. If this option is specified, the BP (Base Pack) option must also be specified.

This option is not implemented on MLIP systems.

FAMILYINDEX = <number>
This option, in combination with the NAME and BP options, can be used to replace a given continuation pack (which may have been destroyed) with another pack. This command causes the new pack to be placed in the family with the family index given by <number> and causes any files with rows on the replaced pack to be removed.

The family directory is examined, and the following steps are taken:

1. Code files and information files that reference the replaced pack are removed.
2. BADDISK files on the replaced pack are removed.
3. If a JOBDESC file resides anywhere on the family, it is removed.
4. If "KEEP" is not specified, all other files that reference the replaced pack are removed. Otherwise, any rows that reference the replaced pack are marked "row locked out."

If FAMILYINDEX is given for a base pack or an interchange-mode pack, or if the family index equals 0 or is greater than 255, the error message "ILLEGAL FAMILYINDEX" is given; otherwise, a temporary label is written on the disk. If the given family index corresponds to a current backup pack (a member with a directory on it), the error message "FAMILYINDEX REQUIRES DD-" is displayed. If the given member is currently on-line, the error message "FAMILYINDEX IS ONLINE" is displayed. If the base pack is the Halt/Load unit, the error message "FAMILYINDEX CANNOT BE USED ON HALTLOAD FAMILY" is issued.

If family rebuilding fails for some reason, the RC terminates with the following message:

ERROR CLEANING UP THE DIRECTORY

KEEP

Prevents files affected by FAMILYINDEX replacement from being removed, but marks all of the affected rows as "DESTROYED."

Examples:

The following RC command reconfigures the pack identified by the unit number 066 and sets the options NAME and OWNER. A subsequent W command displays the system's message asking for verification for the RC. At this point, the job may then be OKed (Reactivated) or DSed (DiScontinued) as desired.

```
RC PK066 NAME=JD, OWNER=JOHNDOE

W

     -----WAITING ENTRIES-----

     2344 JOB 99 RC PK066
     2344 VERIFY REQ TO RC PK066

2344 OK
```

Pragmatics:

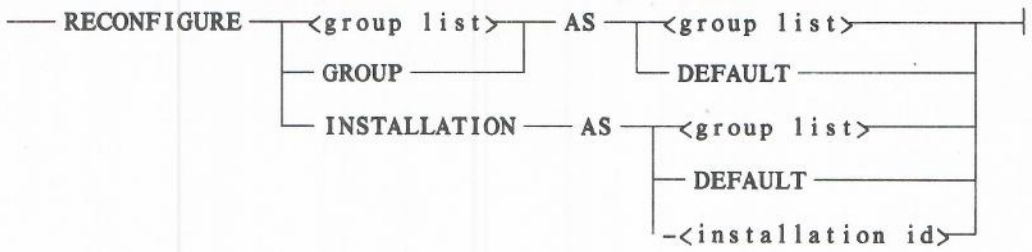
A unit may not be RCed if the indicated disk pack is SaVed or not ready, or if that disk pack has any files open at the time the command is entered.

RECONFIGURE (RECONFIGURE System)

The RECONFIGURE (RECONFIGURE System) command regroups the hardware resources according to either the specified groups or the default specification.

A reconfiguration causes a Halt/Load of existing groups that are being reconfigured to new groups.

Syntax:



Semantics:

RECONFIGURE <group list> AS <group list>
RECONFIGURE <group list> AS DEFAULT
RECONFIGURE GROUP AS <group list>
RECONFIGURE GROUP AS DEFAULT

Reconfigure all resources assigned to the group associated with the ODT at which the command was entered. The new configuration may be specified with the <group list> or with the DEFAULT arrangement. No other groups are affected by the change. On Loosely-Coupled systems resources in use by other groups are not acquired automatically by the group(s) in the new configuration, even if they appear in the group description. On all other systems the operator must be sure that the resources in the group are not in use by any other group. .

RECONFIGURE INSTALLATION AS <group list>
RECONFIGURE INSTALLATION AS DEFAULT
RECONFIGURE INSTALLATION AS <installation id>

Reconfigure all installation resources according to the groups specified in the <group list>, DEFAULT arrangement, or <installation id>. The installation may consist of one or more groups before the reconfiguration; all those groups are affected by the change. The installation variation of this command is valid only on B 5000 and B 6000 series systems.

Example:

```
RECONFIGURE INSTALLATION AS THREEBY

RECONFIGURE INSTALLATION AS SYSA, SYSB, SYSC

RECONFIGURE GROUP AS TWOBY

RECONFIGURE GROUP AS RED
```

Pragmatics:

Any subset of the <group id>s defined in the configuration file may be specified in the new configuration. A group appearing in the <group list> cannot be specified more than once. If the group descriptions of the groups specified in the <group list> overlap (that is, a resource is assigned to more than one group), only one group actually acquires each resource.

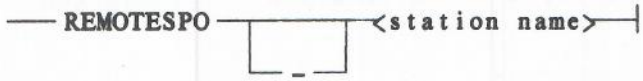
Each group involved in the reconfiguration acknowledges its participation in the reconfiguration with the message "RECONFIGURATION IS DONE". Otherwise, the command has not affected that group.

REMOTESPO (Activate REMOTESPO)

The REMOTESPO (Activate REMOTESPO) command makes the specified Data Comm station an ODT station.

No response to this command is displayed, but a task (REMOTESPO) is initiated or terminated to indicate acceptance of the command.

Syntax:



Semantics:

REMOTESPO <station name>
Makes the designated Data Comm station an ODT station and gives it system supervisory control. All operator commands may then be entered from the designated station.

REMOTESPO - <station name>
Removes the system supervisory control from the station. To return control of the terminal to an MCS, ?END must be typed in at that terminal.

Example:

In the following example, the A (Active Mix Entries) command displays that the Data Comm station identified by M333 has been made an ODT station.

```
REMOTESPO M333

A

     -----ACTIVE ENTRIES-----

     5873 JOB 99 CONTROLLER
          6825 75 REMOTESPO
```

RES (REServe)

The RES (REServe) command allows a specified area to be removed from or returned to the head-per-track or disk pack tables of usable space.

An area to be reserved is placed in the IAD-disk pool or marked as a BADDISK or RESDISK file. Only non-IAD disk areas may be reserved.

Disk areas specified as IAD-disk may be returned to the available disk pool. If an area is not IAD-disk, an appropriate error message is displayed and the area is not returned. If an area specified is not ready or write-lockout, it is not returned.

IAD is not implemented on MLIP systems.

Only one RES request can be active on the system at any given time.

RESERVEDISK, at the end of a pass through the permanent files that intersect the area being reserved, gives information about any files that could not be moved. One of following commands may then be entered:

DS
: Releases all space reserved during this run of RESERVEDISK.

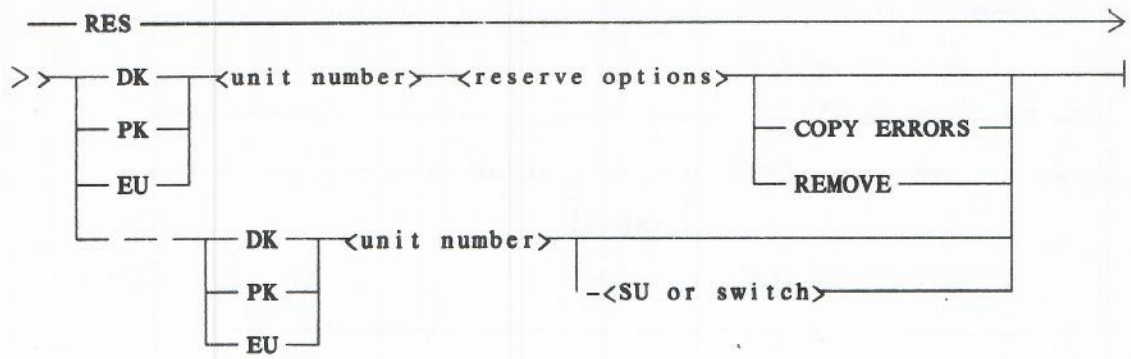
OK
: Causes another pass through the permanent intersecting files. If any file is still blocking the reserve, it is displayed. If no blockage exists, RESERVEDISK then handles temporary files.

QT
: Causes creation of RESDISK files out of areas that would otherwise be released and then sends the reserve to end-of-job. This option may be used to cut off the RESERVEDISK overhead, while preventing the subsequent allocation to areas that later may be required by a reserve. (RESDISK is an XDISK file which is titled in the same way as BADDISK.)

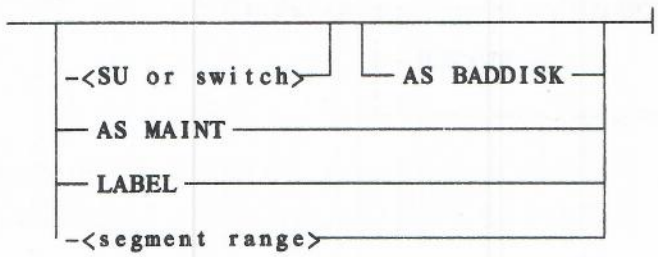
If a RESDISK file is encountered in the course of a subsequent REServe action, it is removed. Any part of the old RESDISK that intersects with the new RESERVEDISK specification is then absorbed in the new set of reserved disk, and the non-intersecting part is released as available for system use.

Old BADDISK files are retained in the directory, even though the rows are released, if a subsequent RESERVEDISK absorbs them. The ROWSIZE is set to zero, identifying the situation on a PD (Print Directory) command.

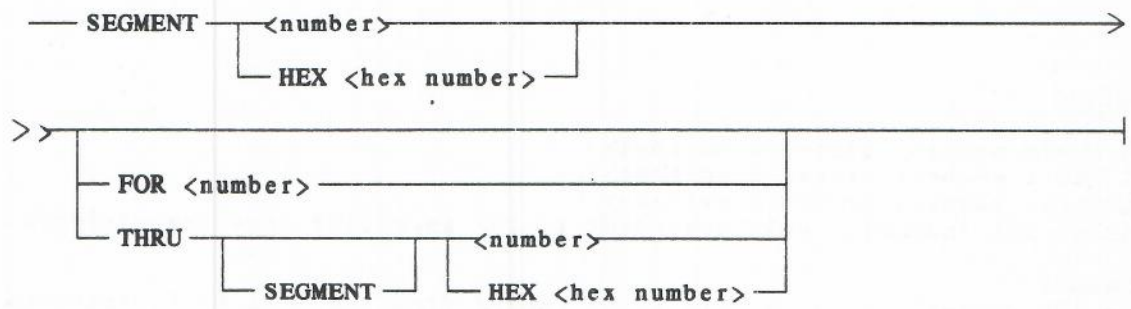
Syntax:



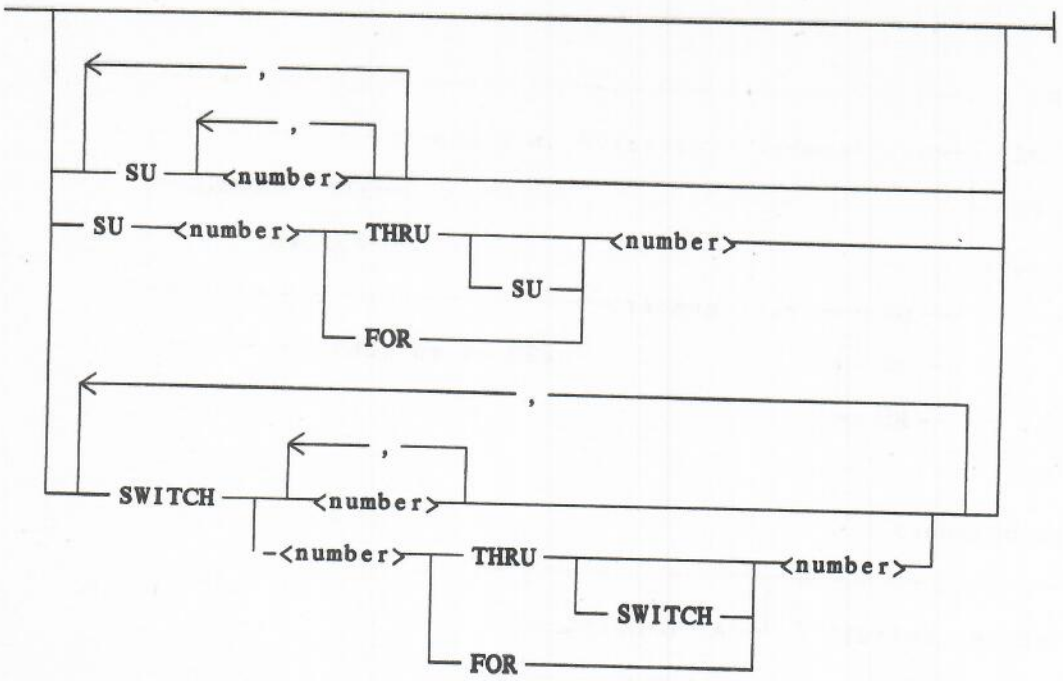
<reserve options>


-<SU or switch>
AS BADDISK
AS MAINT
LABEL
-<segment range>

<segment range>



<su or switch>



<hex number>

Semantics:

RES DK <unit number> <reserve options>
RES PK <unit number> <reserve options>
RES EU <unit number> <reserve options>
Reserve the indicated unit according to the specified <reserve options>.

COPY ERRORS
If a RES request causes a file to be copied from the area to be reserved and one or more errors occur during this copy action, then the RES request is terminated unless the COPY ERRORS clause is specified. If this clause is specified, copying of data areas continues despite errors. However, code files are removed and Data Comm files (NIF files) result in an abort of the reserve operation. If insufficient target disk area exists when a RES request requiring copying is entered, then a message is displayed, and the RES action may be terminated by the DS input command. A RES request may not be directed to the following areas of disk:

a. Label areas (segments 0-27) on labeled units.

b. IAD-disk areas.

c. Units whose base units are not on line.

If a RES request is directed to any of these areas, the request is terminated.

REMOVE

CAUTION

The REMOVE option should be used with care since it results in the automatic removal of all nonsystem files that occupy any space in the area being reserved. System files such as the MCP code file, JOBDESC, and so forth are moved if encountered.

RES - DK <unit number>
RES - PK <unit number>
RES - EU <unit number>
Return the indicated units to the head-per-track or disk pack tables of usable space.

<reserve options>
If the AS BADDISK clause is omitted or a segment range is not specified in the RES command, the reserved area is added to the IAD-disk area. Such an area remains in the IAD-disk space until removed by an RES- command or until a Cold Start or RC is performed on that unit.

The AS MAINT option is the only option that may be applied to not-ready units. It results in a UR being done on the unit. If the unit is ready, all files are transferred from the unit before the UR is done (or removed if the REMOVE option is specified).

The LABEL option applies only to head-per-track disk continuation units that have not been explicitly RCed. Use of this option results in the unit being physically labeled.

<SU or switch>
Storage unit (SU) and switch numbers (SWITCH) are assumed to originate at 0 for Model II controls (2B disk files) and at one for Model I (1A or 1C disk files), and to have a single value of 1 for disk packs. If the SEGMENT clause is present in the RES command, then only one segment range may be specified, and AS BADDISK is assumed.

Example:

```
RES PK 96 SEGMENT 111111 FOR 25

A

    1281/JOB 99 RESERVEDISK

MSG

    1281    DATA MOVED IN SYSTEM/MCP117
    1281    PK096 BADDISK/FMLYINX1/UNIT96/AD111111 CREATED
```

The following example causes the specified reserved disk area to be returned to the system.

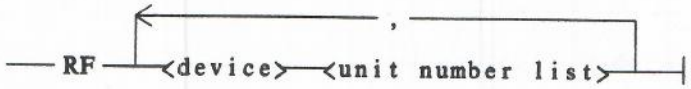
```
RES- DK33 SWITCH 4 FOR 1

A

    3444 JOB 99 RETURNIADISK
```

RF (Reliability Factor - B 5000/B 6000 Series Systems)

The RF (Reliability Factor) command indicates the current reliability factor of the specified unit.

The reliability factor for a unit that has not been used or is not on-line is 100%.

Syntax:



Semantics:

RF <device> <unit number>
Displays the current reliability factor for the <device> identified by the <unit number>.

Example:

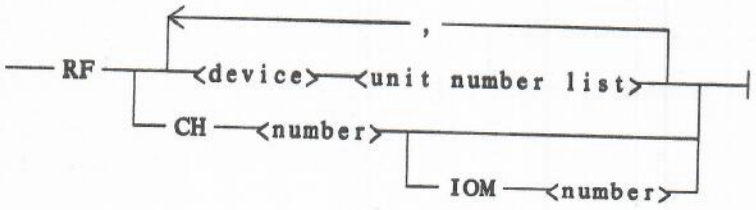
```
RF LP 13

    LP13 RELIABILITY FACTOR = 100%
```

RF (Reliability Factor - B 7000 Series Systems)

The RF (Reliability Factor) command indicates the current reliability factor of the specified unit(s).

The reliability factor for a unit that has not been used or is not on-line is 100%.

Syntax:



Semantics:

RF <device> <unit number list>
Indicates the reliability of the device(s) specified by the <unit number list>.

RF CH <number> IOM <number>
Provides the reliability factors for Model II IOM channels. The channel number must be in the range of 1 to 20 or 24 to 31. The IOM number need not be specified for systems with only one IOM but must be specified on systems with more than one IOM. The IOM number must be in the range 0 through 6.

Example:

```
RF CH 26 IOM 2

    CH 26 ON IOM 2 TOTAL I/O=4720  ERROR=47  PERCENT=1%
```

RM (ReMove)

The RM (ReMove) command is used in response to a DUP LIBRARY message. When the command is entered, the disk file with the title specified in the DUP LIBRARY message is removed and the new file is retained.

Syntax:

Semantics:

<mix number> RM
Removes the duplicate disk file identified by the <mix number> and retains the new one.

Examples:

In the following example, the W command displays a "DUP LIBRARY" message, which indicates that the disk file called AE5/1 is a duplicate. A subsequent RM command causes the original file to be removed and the new one to be retained.

```
W

     -----1 WAITING ENTRY-----

     2577 JOB 99 CONTROLCARD
     AE5/1 DUP LIBRARY ON DISK DK032

2577 RM

     2577 AE5/1 REMOVED ON DISK 032

     2577 AE5/2 CHANGED TO AE5/1 ON DISK DK 032
```

RW (ReWind)

The RW (ReWind) command rewinds, unloads, and locks the specified magnetic tape unit(s).

If a unit is in use, the following message is displayed:

```
UNIT IN USE
```

Syntax:

Semantics:

RW MT <unit number list>
Rewinds, unloads, and locks the magnetic tape unit(s) identified by the <unit number list>.

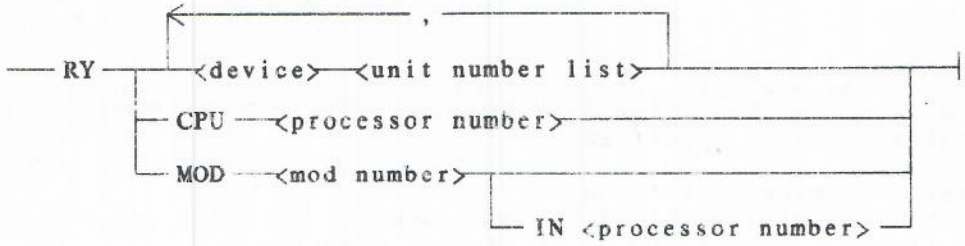
Example:

```
RW MT114

    MT114 REWOUND & LOCKED
```

RY (ReadY - B 5000/B 6000 Series Systems)

The RY (ReadY) command causes the indicated devices to be made ready for use by the system if they are in remote status and have been made previously inaccessible by way of the SV (SaVe), RW (ReWind), SNL (Serial Number), or PGL (Purge) commands.

Syntax:



Semantics:

RY <device> <unit number list>
Readies the indicated device(s) for use by the system.

RY CPU <processor number> (B 6700 systems only)
Readies the indicated Central Processing Unit (CPU).

The procedures for restoring a B 6700 CPU in a multiprocessor configuration using the RY command are as follows:

1. Place the processor in local.
2. Enter RY CPU<nnn>. The system displays the following typical message:

   IC20(ZERO)30(<hex starting value>); IIHF START
3. Set the B register to hexadecimal 20. Everything in the registers must be right-justified.
4. Set the A register to hexadecimal 0.
5. Set AROF and BROF.
6. Perform a WRITE-IC.
7. Perform a UNIT CLEAR.
8. Set the B register to hexadecimal 30.
9. Set the A register to the starting value obtained in Step 2.
10. Set AROF and BROF.
11. Perform a WRITE-IC.

12. Perform a UNIT CLEAR.

13. Set IIHF.

14. Set the processor to REMOTE.

15. SCII, SCC1 and SCC2 should be cycling.

16. Press START.

The RY CPU command cannot be used on B 5900, B 6800 or B 6900 multiprocessor systems because of the architecture and relationship of CPUs to I/O processors.

RY MOD <mod number>
Readies the memory module specified by <mod number>. On Tightly-Coupled systems, <mod number> must specify a module in GLOBAL Memory, or the <processor number> must be specified.

RY MOD <mod number> IN <processor number>
Readies the memory module specified by <mod number> located in the local memory of the processor specified by <processor number>.

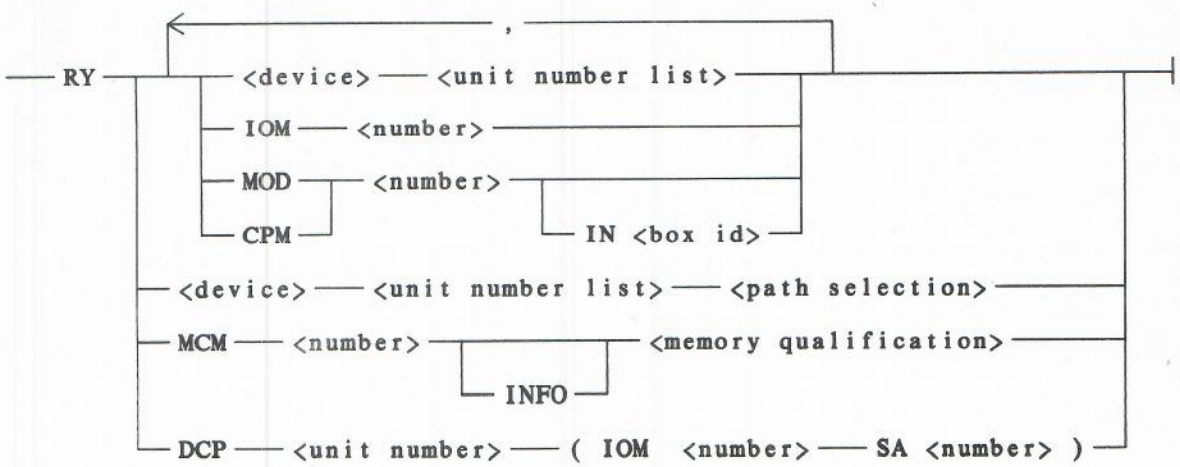
Examples:

```
RY MT 113

    MT 113 READY

RY MOD 1 IN 2

    MOD 1 IN LOCAL 2 WILL BE READY
```

RY (ReadY - B 7000 Series Systems)

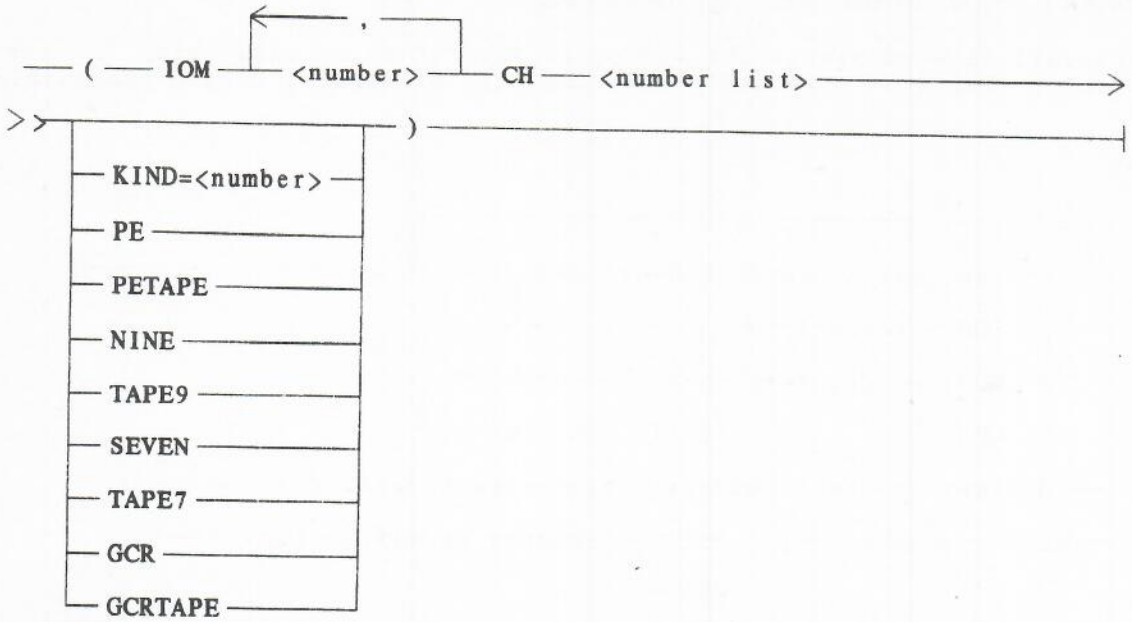
The RY (ReadY) command causes the indicated devices to be made ready for use by the system if they are in remote status and have previously been inaccessible.

Syntax:



<memory qualification>

<path selection>



Semantics:

RY <device> <unit number list>
Readies the device(s) specified by the <unit number list> for use by the system.

RY IOM <number>
RY CPM <number>
Ready the specified IOM and CPM for use by the system.

RY MOD <number>
Readies the specified MOD for use by the system. The IN <box id> option is not required on monolithic systems.

The term MOD refers to 16K logical chunks of memory that may have been previously saved for testing or other purposes. The valid number range is 0 through 63.

RY MOD <number> IN <box id>
Readies the specified MOD for use by the system. The IN <box id> option is required on Tightly-Coupled systems.

RY <device> <unit number list> <path selection>
If the indicated device is not currently known to the system, the <path selection> option must be specified.

<path selection>
The KIND specification is necessary only when the proper kind cannot be determined from the unit type, as in the case of magnetic tapes, or when it is desired to override the default unit kind for a particular unit type.

NOTE:

KIND=25 must be specified if readying 5N disk.

KIND=7 must be specified if readying train printers.

When a new device is added, a Halt/Load must occur before the change takes effect.

RY MCM <number> <memory qualification>
RY MCM <number> INFO <memory qualification>
Ready the specified MCM for use by the system.

RY DCP <unit number> (IOM <number> SA <number>)
Readies the specified Data Comm Processor for use by the system.

Readying a DCP on to the system does not initiate the DCP; this must be done using the ID (Initialize Data Comm) command. Two DCPs may not be readied with the same IOM number and SCAN ADDRESS (SA).

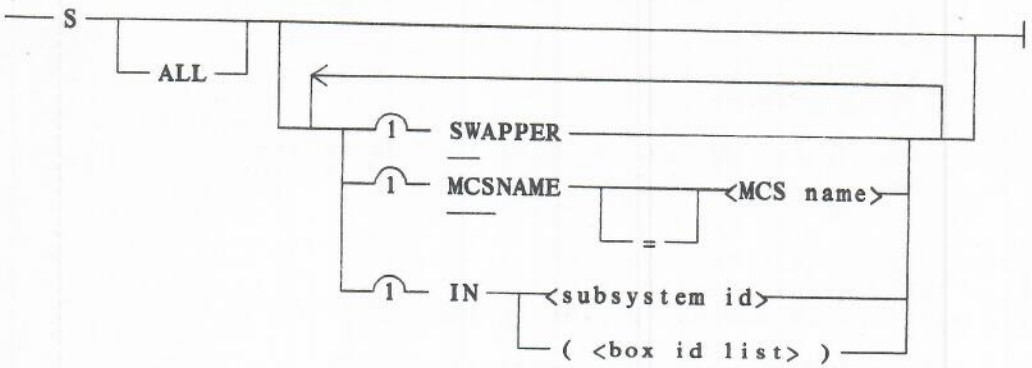
Example:

```
RY LP 13 (IOM 1 CH 3)

RY DCP 0 (IOM 0 SA 0)
```

S (Scheduled Mix Entries)

The S (Scheduled Mix Entries) command causes a display of tasks that are scheduled.

Syntax:



Semantics:

S
Displays any scheduled jobs or tasks that have not been suppressed by the SUPPRESS (SUPPRESS Display) command. S does not display jobs in the job queues; the SQ (Show Queue) command serves that purpose.

ALL
Displays all scheduled jobs or tasks, including any that have been suppressed.

SWAPPER
Displays only jobs or tasks scheduled to run in swapspace.

MCSNAME = <MCS name>
Displays only jobs or tasks originating from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only jobs with stacks scheduled for the specified subsystem or memory subsystem, respectively.

Examples:

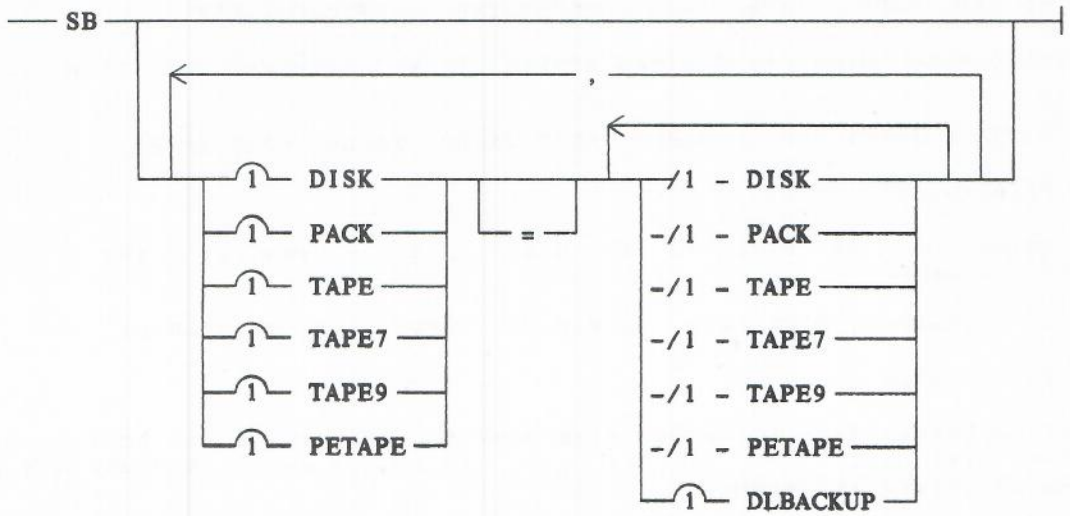
On a Tightly-Coupled system each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL memory task, or a blank for a task whose subsystem location is currently unassigned.

```
S

-----2 SCHEDULED ENTRIES-----

 6950 JOB  70 SYSTEM/CANDE
 6962/6963 55 SYSTEM/DUMPANALYZER
```

SB (Substitute Backup)

The SB (Substitute Backup) command allows substitution of one backup medium for another.

Syntax:



Semantics:

SB
Displays the current backup settings. The following synonyms may be used:

DISK = DK

PACK = PK

TAPE = MT

TAPE7 = MT7

TAPE9 = MT9

PETAPE = MTP

DLBACKUP
Makes the substitute backup medium the family specified as the DLBACKUP family. The DLBACKUP family is set using the DL (Disk Location) command described earlier in this section. Thus, if

SB TAPE = DLBACKUP

and

DL BACKUP=ALLBACKUP

then all backup tape output is diverted to a family named "ALLBACKUP".

All programmer selection of backup disk can be overridden by keying in:

```
SB DISK = PACK
```

This entry sends all backup disk to the family named PACK.

A preference among several substitute backup media may be chosen. If all of the backup tape of any type were to go to a 7-track drive, then:

```
SB TAPE=TAPE7, TAPE7=TAPE7, TAPE9=TAPE7, PETAPE=TAPE7
```

If backup tape output is desired trying first 7-track and then 9-track, then:

```
SB TAPE=TAPE7 TAPE9, TAPE7=TAPE7 TAPE9, TAPE9=TAPE7 TAPE9,
PETAPE=TAPE7 TAPE9
```

Everything can be diverted to disk pack by way of the following specifications:

```
SB TAPE=PACK, DISK=PACK, PACK=PACK, TAPE7=PACK, TAPE9=PACK,
PETAPE=PACK
```

Diverting backup disk to backup disk pack may result in a better balance between disk/disk pack channel use. In such a case, SB DISK=PACK yields increased system throughput.

If duplication of the entries in an SB command occurs, such as

```
SB DISK=PACK TAPE PACK
```

the following error message is displayed:

```
REDUNDANT SUBSTITUTION
```

NOTE

SB is not recursive. Thus, SB DISK=PACK, PACK=DISK diverts backup disk to backup disk pack and diverts backup disk pack to backup disk in a simple crossover. Files declared as backup disk go to disk pack; files declared as backup disk pack go to disk.

Example:

```
SB
```

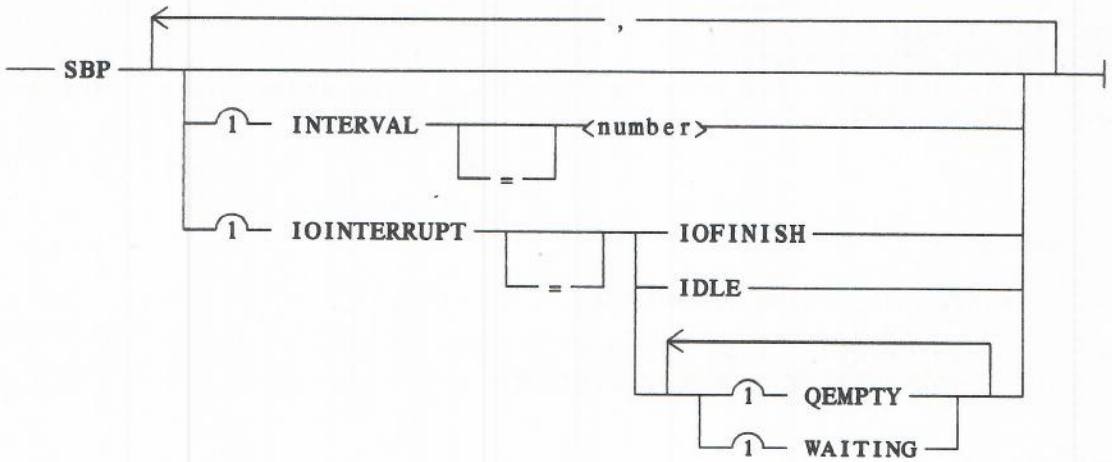
```
SB
DISK   = DISK
PACK   = PACK
TAPE   = TAPE
PETAPE = PETAPE
TAPE9  = TAPE9
TAPE7  = TAPE7
```

SBP (System Balancing Parameters – B 7000 Series Systems)

The SBP (System Balancing Parameters) command sets the time interval used in computing system utilization information and changes the IOINTERRUPT strategy used by the MCP.

Refer to Volume 2, Chapter 19 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for additional information concerning system balancing parameters.

Syntax:



Semantics:

SBP
Displays the current settings of INTERVAL, which is used to change the system utilization time interval, and the current settings of IOINTERRUPT, which is used to change the MCP I/O interrupt schemes.

SBP INTERVAL <number>
SBP INTERVAL=<number>
Set the desired time interval for computing system utilization information. The interval is expressed in terms of seconds.

SBP IOINTERRUPT IOFINISH
SBP IOINTERRUPT=IOFINISH
Specify that IOMs interrupt a CPM when every I/O completion is handled. This causes I/O-bound jobs to run in a shorter elapsed time, but it also requires more CPM time to handle I/O completions.

SBP IOINTERRUPT QEMPTY
SBP IOINTERRUPT=QEMPTY
Specify that the IOMs interrupt a CPM when the last I/O request for any unit is completed and when each I/O is completed if a CPM is idle.

SBP IOINTERRUPT IDLE
SBP IOINTERRUPT=IDLE
Provide for no I/O interrupts except when a CPM is idle. The effect of this IOINTERRUPT strategy is to bias CPM usage toward CPM-bound jobs. This requires the least amount of CPM time for handling I/O completions.

SBP IOINTERRUPT WAITING
SBP IOINTERRUPT=WAITING
Specify that I/O interrupts occur when an I/O operation completes only if a process is waiting for that I/O or a CPM is idle. As long as the progress of no process is dependent on the completion of a particular I/O operation, the IOM generates no interrupt. The effect of this strategy is to use just enough CPM time to keep I/O-bound jobs running.

SBP IOINTERRUPT QEMPTY WAITING
SBP IOINTERRUPT=QEMPTY WAITING
The default strategy when none is specified. The effect is a combination of QEMPTY and WAITING.

Example:

```
SBP

   SYSTEM BALANCING PARAMETERS

      INTERVAL    = 10 SECONDS
      IOINTERRUPT = QEMPTY WAITING
```

Pragmatics:

A small interval provides an immediate picture of system utilization, and a large interval gives a more averaged picture. When a small interval is specified, sudden changes are accurately reflected. When a large interval is specified, changes are "smoothed out." The default interval is 10 seconds, which can be termed a small interval. The user may desire a larger interval for an overall picture, but a smaller one is not recommended because the statistics tend to fluctuate too much.

SC (System Configuration - B 5000/B 6000 Systems)

The SC (System Configuration) command displays the current system configuration.

Syntax:

Semantics:

SC
Displays the current system configuration. Configuration displays vary for different series systems, as the following examples indicate.

Examples:

The following example shows a response to an SC giving the total configuration of a B 6700 system:

```
SC

3 PROCESSORS 1-3
     D0=01200
3 MULTIPLEXORS 1-3
MPX                LIMIT          TRAFFIC
 1 (MOD III)         15               2
 2 (MOD III)         15               0
 3 (MOD III)         13               2
 MEMORY STATUS
     24 IN USE 0-23
 PROGRAMMED HALT/LOADS:  0
 STRINGS PRESENT: 1-3
```

The following example shows a response to an SC command giving the total configuration of a B 6800 multiprocessor system:

```
SC

 PROCESSORS
     PROC ID 3 AT PORT AC00
     PROC ID 2 AT PORT AB00
     PROC ID 1 AT PORT AA00
 GLOBAL SYSTEM NUMBER = 1
     DO = 80100
 MEMORY STATUS
 GLOBAL STATUS
     32 IN USE 32-63
 LOCAL MEMORY 1
     32 IN USE  0-31
 LOCAL MEMORY 2
     32 IN USE  0-31
 LOCAL MEMORY 3
     32 IN USE  0-31
```

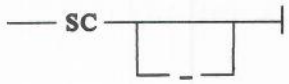
The following example shows a response to an SC command giving the total configuration of a B 6900 system:

```
SC

     1 PROCESSOR 1
     D0=02100
     MEMORY STATUS
          64 IN USE 0-63
```

SC (System Configuration - B 7000 Series Systems)

The SC (System Configuration) command displays the current system configuration.

Syntax:



Semantics:

SC
When the system is configured as a monolithic system, the response contains all requestor ids along with all declared MCMs. When the system is configured as a Tightly-Coupled system, all GLOBAL/local box information is provided.

SC-
Causes the system to display the following additional information: MCM status, DCP status and scan addresses, channel status, and associated units.

Examples:

The following SC and SC- commands display the current configuration of a monolithic system:

```
SC

     2 PROCESSORS 6-7
     2 I/O MODULES 0-1
     4 MCM-S 0-1,4
     MEMORY STATUS:
       64 IN USE 0-63

SC-

     1 PROCESSOR 6
     2 I/O MODULES 0-1
     2 MCM-S 0,2
     MEMORY STATUS:
       48 IN USE 0-47


     MCM STATUS:

       MCM   TYPE   LOWER   UPPER   MSUS
        0      2      00      15     1-4
        2      3      16      47     1-4

     DCP STATUS:

       DCP   IOM   SCAN ADDR
     * 0     0        0
       1     1        0
```

```
IOM 1:

  CHANNEL  1 <RESERVED> MT 16,17,18,(19)
  CHANNEL  2            MT 16,17,18,(19)
  CHANNEL  9            HC 1
  CHANNEL 10            HC 2
  CHANNEL 11 <RESERVED> MT 65,66,67,(68)
  CHANNEL 14            TP 13
  CHANNEL 16            SC 60
  CHANNEL 24 [Pe]       PK 96,97,(98),99,(101),(101),102,103
  CHANNEL 26 [Me]       PK 128,129,130,131
  CHANNEL 27 [Me]       PK 160,161,162,163,164,165

IOM 2:

  CHANNEL  1 <RESERVED> MT 16,17,18,(19)
  CHANNEL  2 <RESERVED> MT 16,17,18,(19)
  CHANNEL  7            MT (145),(146),(147),(148)
  CHANNEL  8            CR 10
  CHANNEL  9            HC 3
  CHANNEL 10            HC 4
  CHANNEL 11            MT 65,66,67,(68)
  CHANNEL 14            TP 12
  CHANNEL 16            SC 44
  CHANNEL 24 [Pe]       PK 96,97,(98),99,(100),(101),102,103
  CHANNEL 26 [Me]       PK 128,129,130,131
  CHANNEL 27 [Me]       PK 160,161,162,162,163,164,165
```

The following SC and SC- commands display the current configuration of a Tightly-Coupled system. Under DCP status, the asterisk to the left of the DCP number indicates that the DCP is active.

SC

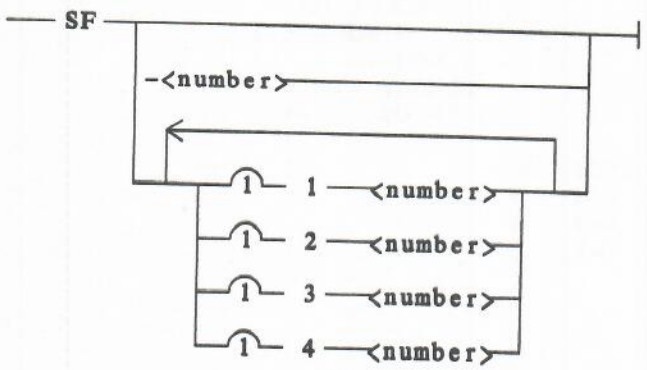
```
GLOBAL:
   1 MCM 4
   MEMORY STATUS:
32 IN USE 0-31
BOX 3:
   1 PROCESSOR 6
   1 I/O MODULE 0
   1 MCM 0
16 IN USE 32-47

BOX 4:
   1 PROCESSOR 7
   1 I/O MODULE 1
   1 MCM 1
16 IN USE 32-47
```

```
SC-

      GLOBAL:
         1 MCM 4
         MEMORY STATUS:
         32 IN USE 0-31
      BOX 3:                                  BOX 4:
         1 PROCESSOR 6                          1 PROCESSOR 7
         1 I/O MODULE 0                         1 I/O MODULE 1
         1 MCM 0                                1 MCM 1
         MEMORY STATUS:                         MEMORY STATUS:
      16 IN USE 32-47                         16 IN USE 32-47
      MCM STATUS:
         MCM  TYPE  LOWER  UPPER  MSUS  BOX
          0     2     32     47   1-4    3
          1     2     32     47   1-4    4
          4     3     00     31   1-8    G

      DCP STATUS:
         DCP  IOM  SCAN ADDR
         *0    0       0
         *4    1       0
   IOM 1:

     CHANNEL  1 <RESERVED> MT 16,17,18,(19)
     CHANNEL  2            MT 16,17,18,(19)
     CHANNEL  9            HC 1
     CHANNEL 10            HC 2
     CHANNEL 11 <RESERVED> MT 65,66,67,(68)
     CHANNEL 14            TP 13
     CHANNEL 16            SC 60
     CHANNEL 24 [PE]       PK 96,97,(98),99,(101),(101),102,103
     CHANNEL 26 [ME]       PK 128,129,130,131
     CHANNEL 27 [ME]       PK 160,161,162,163,164,165

   IOM 2:

     CHANNEL  1 <RESERVED> MT 16,17,18,(19)
     CHANNEL  2 <RESERVED> MT 16,17,18,(19)
     CHANNEL  7            MT (145),(146),(147),(148)
     CHANNEL  8            CR 10
     CHANNEL  9            HC 3
     CHANNEL 10            HC 4
     CHANNEL 11            MT 65,66,67,(68)
     CHANNEL 14            TP 12
     CHANNEL 16            SC 44
     CHANNEL 24 [PE]       PK 96,97,(98),99,(100),(101),102,103
     CHANNEL 26 [ME]       PK 128,129,130,131
     CHANNEL 27 [ME]       PK 160,161,162,162,163,164,165
```

SF (Set Factor)

The SF (Set Factor) command displays or sets the memory management parameters.

Syntax:



Semantics:

SF

Displays the current memory management parameters:

a. OLAYGOAL = <number> % PER MINUTE
b. AVAILMIN = <number> %
c. FACTOR = <number> %
d. MEM PRIORITY FACTOR = <number> % (of 1 second)

This display is identical to the response to the TF (Type Factors) command.

The factors are described in the following paragraphs:

Factor 1: OLAYGOAL

The value of OLAYGOAL is the percentage of overlayable memory in the system that is to be overlayed on a per-minute basis. When the value of OLAYGOAL is greater than 0, an invisible MCP task, WSSHERIFF, is run to perform the overlaying. A value greater than 0 also causes the MCP to use a different algorithm in determining if enough memory is available to initiate a job or task. Refer to Volume 2, Chapter 11 of the B 5000/B 6000/ B 7000 Series System Software Operational Guide for further information.

Factor 2: AVAILMIN

This factor only has an effect when factor 1 is greater than 0. AVAILMIN is expressed as a percentage of total memory. In an effort to reduce thrashing, the lowest priority job in the mix is suspended when the total amount of available memory drops below one-half AVAILMIN. The following programs may never be suspended:

a. Control programs.

b. Programs that are sorting.

Factor 3: FACTOR

This factor is only used for scheduling. A task's core estimate is divided by the FACTOR when determining if enough memory is available for the task to be initiated. For example, if a task's core estimate was 10,000 and FACTOR was set to 200%, the scheduling algorithm would use an effective core estimate of 5,000 (10,000 divided by 2.00) to check if enough memory was available to start the task.

Factor 4: MEM PRIORITY FACTOR

This factor is used to control the memory priority algorithm. When set to 0, memory priority is not used. If nonzero, it represents the percentage of one second per increment of priority that a low-priority job must wait before it can overlay an area owned by a higher priority job.

For example, if MEM PRIORITY FACTOR = 25% and a job of priority 50 makes an area present in memory, that memory area may not be overlayed for use by a job of priority 30 for 5 seconds, ((50-30)*.25).

SF <number>
Sets the value of factor 3., FACTOR, to <number>.

SF 1 <number>
SF 2 <number>
SF 3 <number>
SF 4 <number>
When the numbers in an SF command are preceded by 1, 2, 3, or 4, the value is assigned to the first, second, third, or fourth parameter, respectively. <number> must be in the range of 0 to 999 and represents a percentage.

Examples:

SF

1) OLAYGOAL = 0% PER MINUTE
2) AVAILMIN = 0%
3) FACTOR = 110%
4) MEM PRIORITY FACTOR = 0%

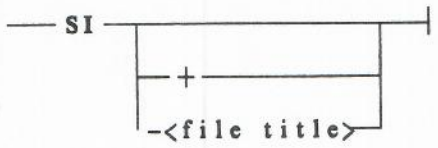
SF 2 10 1 5

1) OLAYGOAL = 5% PER MINUTE
2) AVAILMIN = 10%
3) FACTOR = 110%
4) MEM PRIORITY FACTOR = 0%

SI (System Intrinsics)

The SI (System Intrinsics) command changes the file used for the system intrinsics or displays the current title of that file.

Syntax:



Semantics:

SI
Displays the title of the file containing the current system intrinsics.

SI <file title>
Causes <file title> to become the file used for the system intrinsics.

SI+
Causes the default file, SYSTEM/INTRINSICS, to be used for the system intrinsics.

Examples:

```
SI SYSTEM/X

    6029 JOB 99 INITIALIZEINTRINSICSTUFF

then

    SYSTEM/X (LOADED)

SI+

    6039 JOB 99 INITIALIZEINTRINSICSTUFF

then

    SYSTEM/INTRINSICS (LOADED)

SI

    INTRINSICS:  SYSTEM/INTRINSICS
```

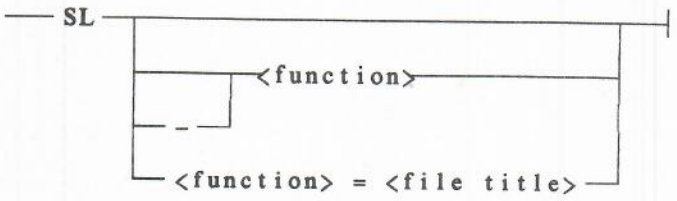
Pragmatics:

If the file used for the system intrinsics is changed, tasks that are currently active continue to use the "old" intrinsics stack; new jobs use the "new" intrinsics stack.

SL (System Library)

The SL (System Library) command maps function names to specific library code files.

Syntax:



Semantics:

SL
Displays the current libraries associated with the various function names.

SL <function>
Displays the current library associated with the specified function name.

SL <function> = <file title>
Initializes the various functions or changes the specification of a given function that is already in use.

If a function specification is changed to a different library, all tasks presently running are not affected. Any new tasks use the new library when they are begun. If a Halt/Load occurs after a function specification is changed, all tasks restart using the new library.

SL-<function>
Removes a function specification from the MCP tables.

When a function specification has been removed, all running tasks continue running with the old library. Any new tasks receive a "FILE NOT FOUND" error.

Examples:

```
SL

    SL GENERALSUPPORT = SYSTEM/GENERALSUPPORT
    SL PLISUPPORT     = SYSTEM/PLISUPPORT
    SL USERFUNCTION   = SYSTEM/USERLIBRARY

SL GENERALSUPPORT

    SL GENERALSUPPORT = SYSTEM/GENERALSUPPORT
```

```
SL USERFUNCTION = SYSTEM/USERLIBRARY

    FUNCTION "USERFUNCTION = SYSTEM/USERLIBRARY" ESTABLISHED

SL - USERFUNCTION

    FUNCTION "USERFUNCTION" IS NO LONGER ESTABLISHED
```

Pragmatics:

Because the MCP maintains the function mapping tables for the library linkage mechanism, a program can reference a library through the appropriate function name. The SL command provides the ability to change to new libraries without affecting any of the running programs or requiring a new library name to be compiled into the calling program. This feature is used to reference the support libraries.

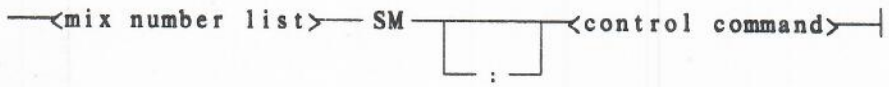
A program can utilize the mapping tables using the attributes LIBACCESS and FUNCTIONNAME currently available in ALGOL and NEWP.

Several function names and associated libraries are provided in the system software. For example, many of the intrinsics reside in the SYSTEM/GENERALSUPPORT library, which has the function name GENERALSUPPORT. All function names suffixed with SUPPORT are reserved for current and future system use. However, the library titles of the support libraries may be altered or function names may be created through the SL command.

SM (Send to MCS)

The SM (Send to MCS) command sends a control command to the specified MCS.

Syntax:



Semantics:

<mix number list> SM <control command>
<mix number list> SM:<control command>
Send a control command to the MCS designated by <mix number list>. The control command portion of the command may be any control command implemented for that MCS. The control command is placed in the primary queue of the MCS to which the SM command is directed.

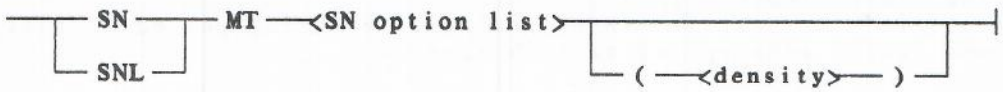
Example:

```
5268 SM : SS ALL HELLO

    5268 DISPLAY: #.
```

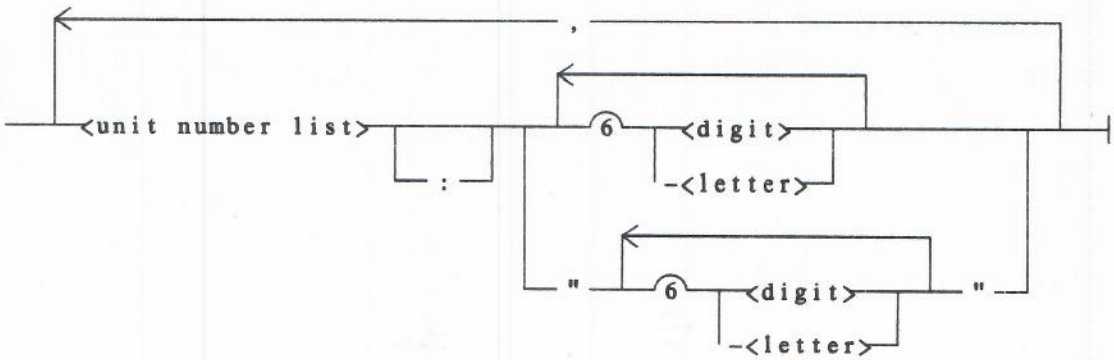
SN (Serial Number)

The SN (Serial Number) command purges and assigns serial numbers to volumes mounted on the specified tape unit if that unit is ready, not in use, and write-enabled.

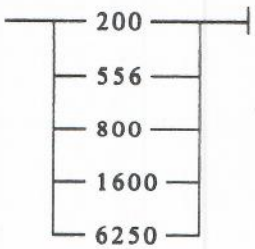
Syntax:



<SN option list>



<density>



Semantics:

SN MT <SN option list>
Purges and assigns a serial number to the tape(s) mounted on the designated tape unit(s). The serial number may consist of up to six alphanumeric characters. If a number is used, it is right-justified with leading zeros added. Any serial number containing alphabetic characters or any quoted alphanumeric string is left-justified with trailing blanks.

An attempt to SN a tape that has been locked causes the "UNIT LOCKED" message to appear.

(<density>)
Specifies the density of the tape in bits-per-inch. When the density is specified, it applies to all tapes mounted on the units indicated by the <unit number list>. Only the GCR tape subsystem is capable of system-selected density. This subsystem can be used in PE mode (1600) or GCR mode (6250). The density of all other tape subsystems is selected manually at the tape drive.

SNL MT <SN option list>
SNL MT <SN option list> (<density>)
Cause the specified tape unit(s) to be locked after being purged so that no job can automatically pick up the scratch tape(s).

Example:

```
SN MT 115 PART1 (1600)

    MT 115 WILL BE SN-ED

P MT

    115*P [PART1] 1600 #1 1:00 SCRATCH
```

SP (Show Print Queue)

The SP (Show Print Queue) command shows which job files are waiting to be printed or punched.

Syntax:

Semantics:

SP
Displays the job files waiting to be printed or punched.

The jobs listed in the SP display are not listed in the order in which they are printed or punched.

Each entry in the print queue also shows the total number of lines to be printed. This number is the same as the totals of end-of-task (EOT) lines printed in the JOBSUMMARY. This number does not take into account any print files that may have been removed or that have already been printed. It also does not reflect the number of print lines in the JOBSUMMARY and WFL output.

If the output is for a job, then the name of the job follows the listing of the number of lines to be printed.

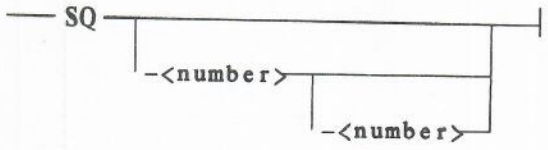
Example:

```
SP

    PRINT QUEUE

        LP      3525    :704 LINES:?BEGIN JOB;
        LP      3422    :5978 LINES:
        LP      7778    :32119 LINES:
```

SQ (Show Queue)

The SQ (Show Queue) command displays information regarding the jobs in one or all of the job queues.

Syntax:



Semantics:

SQ
Displays the queue number, mix number, priority, queue entry time, STARTTIME (if applicable), and the first card image of the job at the head of each queue.

If a "FETCH" specification is associated with a job, the job number is preceded by an "F".

SQ <number>
Displays the mix number, priority, queue entry time, STARTTIME (if applicable), and first card image of all jobs in the queue denoted by <number>.

SQ <number> <number>
Displays all entries in the queue indicated by the first <number> with priority equal to the second <number>.

Examples:

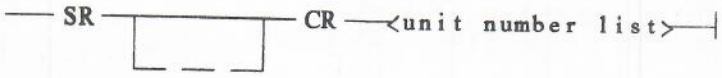
```
SQ

    QUEUE 45 (SINGLE ENTRY):
     9533 50 ?BEGIN JOB;
             QUEUED: 09/13/82 AT 18:37:44
    QUEUE 1:
     NO ENTRIES
    QUEUE 0 (FIRST OF 2 ENTRIES):
     8391 50 ?BEGIN JOB DIRDUMP(BOOLEAN HARDCOPY);
             QUEUED: 09/13/82 AT 0:01:20    STARTTIME = 20:00:00
```

```
SQ50

 QUEUE 50:
  6630 50 ?JOB B;
       QUEUED: 08/21/82 AT 0:01:21    STARTTIME = 0:01:00 ON 08/22/82
  6631 50 ?BEGIN JOB GANDOLF;
       QUEUED: 08/21/82 AT 0:01:22    STARTTIME = 20:00:00
  6629 50 ?BEGIN JOB BAGGINS;
       QUEUED: 08/21/82 AT 0:01:25    STARTTIME = 20:00:00
  6627 50 ?BEGIN JOB DUMPTAPETODISK(BOOLEAN HISTORY);
       QUEUED: 08/21/82 AT 0:01:29    STARTTIME = 22:00:00
```

SR (Secure Reader)

The SR (Secure Reader) command causes the system to reject all card decks entered in the indicated card reader(s) that do not contain a USER statement.

Syntax:



Semantics:

SR CR <unit number list>
Causes the card reader(s) identified by the <unit number list> to reject all card decks that do not contain a USER statement.

If an attempt is made to enter a deck without a USER statement, the system responds with the command:

<mix number> CONTROL CARD ERROR

SR-CR <unit number list>
Removes the security restrictions imposed on the indicated card reader by a prior SR command.

Examples:

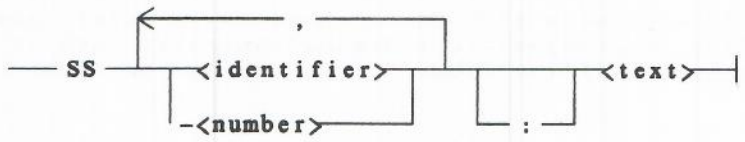
```
SR CR10

    CR10 SECURED

SR- CR10

    CR10 RELEASED
```

SS (Send to Station)

The SS (Send to Station) command allows a message to be sent from the ODT to the Data Comm station(s) identified by the identifier (station name) or LSN (Logical Station Number).

The response is determined by the controlling MCS.

Syntax:



Semantics:

SS <identifier> <text>
SS <identifier>:<text>
SS <number> <text>
SS <number>:<text>
Send a message appearing as <text> to the Data Comm station(s) identified by the <identifier>(s) and <number>(s).

Examples:

```
SS M601: YOU HAVE A STOPPED JOB

SS 42 PLEASE SIGN OFF

SS M333: HELLO
```

STARTTIME (Start Time)

The STARTTIME (Start Time) command may be used to assign a start time to a job that is in a queue. This command may be used whether or not the job already has a start time associated with it. If the job reaches the front of the queue and the current time is not greater than or equal to the specified start time, the job retains its position at the head of the queue but is not initiated. The CONTROLLER selects the first job in the queue whose start time is greater than or equal to the current time or which has no start time and makes this job the next job to be run from that queue.

Jobs that have start times associated with them do not have any special status in the queuing mechanism. They are subject to the same controls, such as mix limits, as other jobs in the queues. If the JOBDESC file is removed, jobs with start times are also removed.

The start time of a job, if any, is displayed in response to the SQ (Show Queue) command, described earlier in this section.

Syntax:

Semantics:

<mix number list> STARTTIME = <time>
Causes the job(s) denoted by the <mix number list> to start at the specified <time>. <time> is the time of day on a 24 hour clock in the form HH:MM. The hours must be less than 24, and the minutes must be less than 60.

ON <date>
Causes the specified jobs to start at the given time on this date. <date> is the date in the form MM/DD/YY.

Example:

```
7132 STARTTIME = 21:12 ON 03/22/82
```

ST (STop)

The ST (STop) command allows the indicated job(s) or task(s) to be temporarily suspended. The job(s) or task(s) may be reactivated by the OK command.

Syntax:

Semantics:

<mix number list> ST
Temporarily suspends the job(s) or task(s) identified by the <mix number list>.

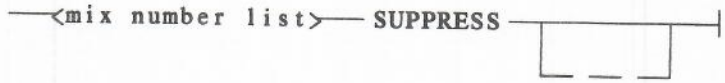
Example:

```
1024 ST

    1024 OPERATOR STOPPED
```

SUPPRESS (SUPPRESS Display)

The SUPPRESS (SUPPRESS Display) command prevents the indicated job(s) or task(s) from appearing in a mix display while they are active. The suppression of job(s) or task(s) may also be lifted.

Syntax:



Semantics:

<mix number list> SUPPRESS
Suppresses the display of the job(s) or task(s) identified by the <mix number list>.

Only mix display commands containing the ALL qualifier, such as the A (Active Mix Entries) command, cause the suppressed job(s) or task(s) to appear in the mix display.

If an active suppressed job or task goes to a waiting state, it is displayed. When it returns to an active state, it is suppressed again.

<mix number list> SUPPRESS -
Lifts the suppression of display for the job(s) or task(s) identified by the <mix number list>.

Example:

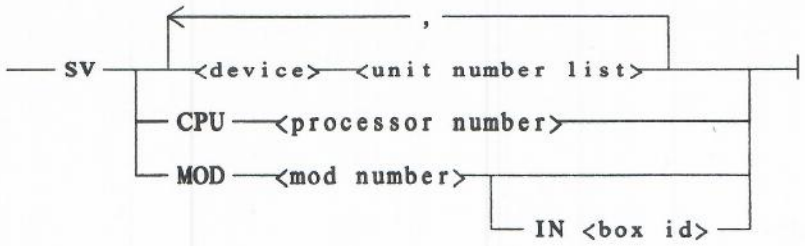
In the following example, the A (Active Mix Entries) command displays the job "SYSTEM/CANDE" identified by the mix number 180. The SUPPRESS command causes this job not to appear in the mix display. A subsequent A command indicates the suppression of this display.

```
A

     -----ACTIVE ENTRIES-----

     180 JOB 70 SYSTEM/CANDE
     ....193 70 STACK2/CANDE
     179 JOB 80 DCP/0

180 SUPPRESS

A

     -----ACTIVE ENTRIES-----

     180/193 70 STACK2/CANDE
     179 JOB 80 DCP/0
```

SV (SaVe - B 5000/B 6000 Series Systems)

The SV (SaVe) command makes the specified unit(s) inaccessible to the system. SaVed units may be returned to the system by using the RY command.

Syntax:



Semantics:

SV <device> <unit number list>
Makes the device(s) identified by the <unit number list> inaccessible to the system until a subsequent RY command is entered.

SV CPU <processor number> (B 6700 systems only)
A B 6700 Central Processing Unit (CPU) may be taken off-line once the CONDITIONAL HALT switch for the desired CPU has been turned on. In order to save one CPU, the other CPUs in a multiprocessor system must be on-line. Use the following procedure to save a CPU on a B 6700 system:

1. Place the CONDITIONAL HALT switch in the up position.
2. Enter SV CPU<nnn>. If the CONDITIONAL HALT switch is up, OFF is displayed on the Maintenance Diagnostics Logic (MDL) panel in the A register. If the switch is not up, the system responds with the following message:

   SET CONDITIONAL HALT SWITCH FOR CPU<nnn>

3. Place the processor in local mode and clear the unit.

NOTE

The processor must remain in local mode; if it is in remote mode, the next Halt/Load picks up the processor.

The SV CPU command cannot be used on B 5900, B 6800, or B 6900 multiprocessor systems because of the architecture and relationship of CPUs to I/O processors.

SV MOD <mod number>
Makes the specified memory module inaccessible to the system. On a Tightly-Coupled system, either <mod number> must specify a module in GLOBAL Memory, or the <processor number> specification must be used.

SV MOD <mod number> IN <box id>
Makes the memory module specified by the <mod number> in the local memory of the processor specified by <box id> inaccessible to the system.

Examples:

```
SV MT 114

    MT 114 SAVED

PER MT

    -----MT STATUS-----

    114*P [000001] SAVED

SV MOD 1 IN 2

    MEMORY MOD 1 IN PROCESSOR 2 SAVED
```

Pragmatics:

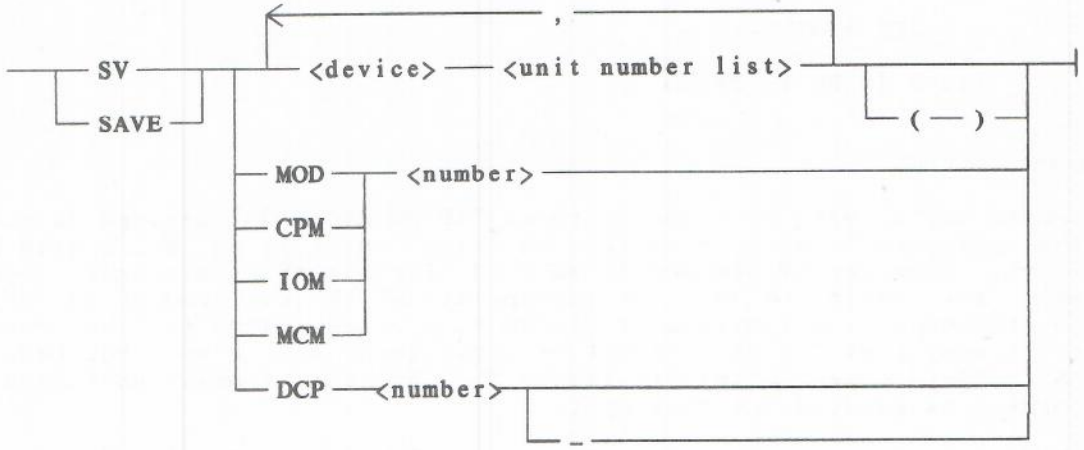
This command may be used in response to an "RF DEGRADATION" message to take the indicated peripheral unit off-line as soon as it is not being used by the current job. When the SV command is entered, further RSVP messages regarding this unit are inhibited until an appropriate RY command is input. In addition, the unit is automatically placed in a "saved" status so that when the current job completes, the unit cannot be reassigned. Once a unit has been saved by the SV command, the reliability factor for that unit remains unchanged until an RY command is entered for that unit.

The SV MOD command may not reference a module that is already saved or off-line, may not reference module #0, and may not reference the numerically highest module that was on-line at the time of the last Halt/Load. An arbitrarily long period of time may expire between the input of the SV command and the time the module becomes completely saved. All in-use areas must be returned to the system before the process is complete. A message is displayed when the module is off-line.

SV (SaVe - B 7000 Series Systems)

The SV (SaVe) command makes the specified unit(s) inaccessible to the system.

Syntax:



Semantics:

SV <device> <unit number list>
Makes the device(s) identified by the <unit number list> inaccessible to the system until a subsequent RY command is entered. A minus sign (-) causes the unit to be deleted from the configuration. Before deleting a unit it must be FREEd.

SV MOD <number>
SV CPM <number>
SV IOM <number>
SV MCM <number>
Makes the specified memory module, Central Processing Module (CPM), I/O Module (IOM), or Memory Control Module (MCM) inaccessible to the system.

SV DCP
Makes the DCP (Data Communication Processor) inaccessible to the system. A running DCP may not be saved. SV DCP 1 is equivalent to SV DCP 1(-).

SV DCP -
Causes the indicated DCP unit to be deleted from the partition.

Example:

```
SV MT 114

    MT 114 SAVED

PER MT

    -----MT STATUS-----

    114*P [000001] SAVED
```

Pragmatics:

This command may be used in response to an "RF DEGRADATION" message to take the indicated peripheral unit off-line as soon as it is not being used by the current job. When the SV command is entered, further RSVP messages regarding this unit are inhibited until an appropriate RY (ReadY) command is input. In addition, the unit is automatically placed in a saved status so that when the current job completes the unit cannot be reassigned. When a unit has been saved by the SV command, the reliability factor for that unit remains unchanged until an RY command is entered for that unit.

The SV MOD command may not reference a module that is already saved or off-line, may not reference module #0, and may not reference the numerically highest module that was on-line at the time of the last Halt/Load. An arbitrarily long period of time may expire between the input of the SV command and the time the module becomes completely saved; all in-use areas must be returned to the system before the process is complete. A message is displayed when the module is off-line.

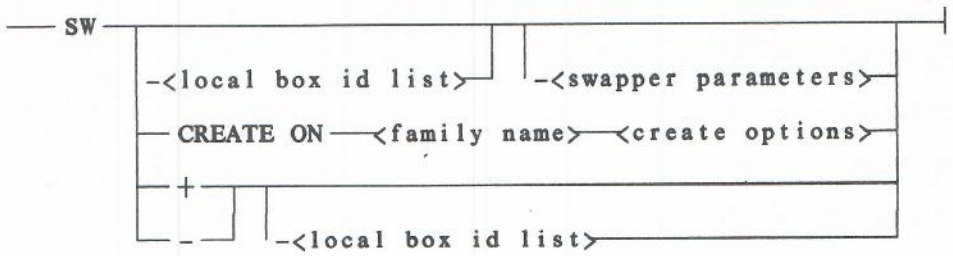
SW (SWapper)

The SW (SWapper) command interrogates, controls, initiates, and terminates the SWAPPER mechanism.

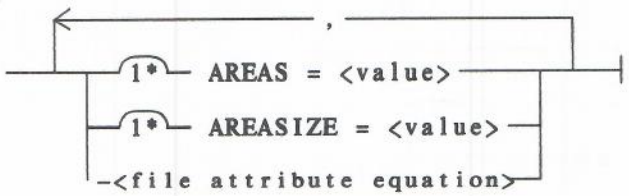
A visible independent runner named SWAPPER is run to perform swapping to and from memory and swap-area disk. In a multiprocessor, Tightly-Coupled system, SWAPPER may be used in each local subsystem.

Refer to Volume 2, Chapter 16 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a detailed description of the SWAPPER mechanism.

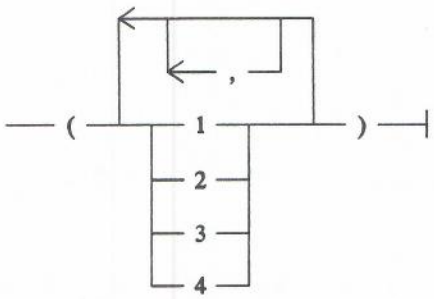
Syntax:



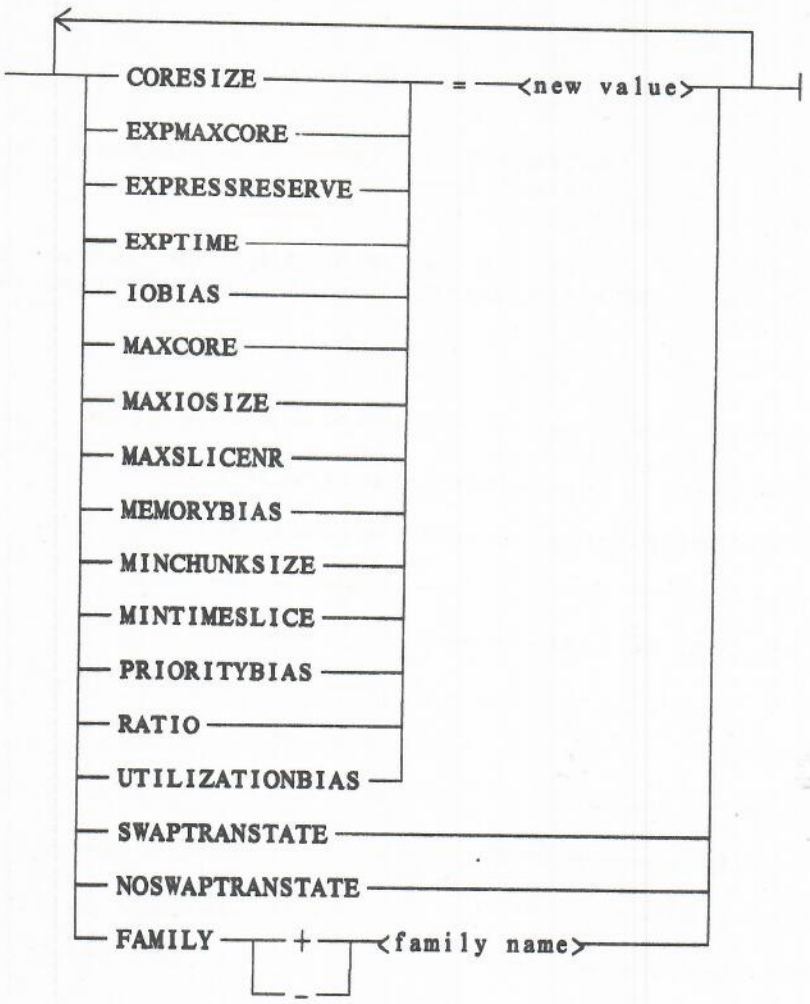
<create options>



<local box id list>



<swapper parameters>



Semantics:

SW
Interrogates the current SWAPPER parameters.

SW <local box id list>
Interrogates the current SWAPPER parameters in the specified memory subsystems on a Tightly-Coupled system.

CREATE ON <family name> <create options>
Creates new SYSTEM/SWAPDISK files on the specified family. The text of the input command is compiled by WFL (using the TASK.FILECARDS format) to produce the attribute equation for the creation of the swapdisk file. Thus, any combination of permissable file attributes can be easily specified. Because the MAXRECSIZE of the swapdisk file is set to 1320 (44 30-word segments), the AREASIZE attribute specifies the number of slots per row.

For example, "SW CREATE ON KSID AREAS= 20, AREASIZE = 100" creates a swapdisk file of 20 rows of 100 slots each on family KSID. "SW CREATE ON KSID AREAS = 20, AREASIZE = 100, FAMILYINDEX = 1" means that this file only resides on the base pack of a multi-member family.

Refer to Volume 2, Chapter 16 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a description of <create options>.

SW+ <local box id list>
The <local box id list> is applicable only on a Tightly-Coupled system. If a <local box id list> is present, the SW+ command applies to each of the named memory subsystems, and SWAPPER runs with the swapspace in that local memory. If the <local box id list> specifies a memory subsystem that is not present on the system, the command is rejected.

SW+
If no <local box id list> is specified on a Tightly-Coupled system, the SW+ command causes SWAPPER to be initiated in all the memory subsystems that have visibility to a swapdisk family.

SW- <local box id list>
Disables SWAPPER in the memory subsystems identified by the <local box id list>.

SW-
If no <local box id list> is specified on a Tightly-Coupled system, SW- disables SWAPPER in all the memory subsystems.

SW <swapper parameters>
<swapper parameters> may be entered to alter the specified parameter values while the SWAPPER is running.

At initialization time, if SWAPPER is unable to obtain the amount of swapspace specified by the CORESIZE parameter, an RSVP message is issued notifying the operator of the situation. The operator has four alternatives:

a. To reply DS to the RSVP, which aborts SWAPPER initialization.

b. To reply OK, which causes SWAPPER to attempt to find the required memory again (this is done periodically).

c. To reply NOTOK, which causes SWAPPER to continue initialization using whatever memory has been obtained by SWAPPER.

d. To enter a new value for the CORESIZE parameter using the SW command. SWAPPER attempts to obtain the new amount of memory.

SWAPPER can use more than one family and more than one SYSTEM/SWAPDISK file on which to swap. The SW CREATE command creates a swapdisk file on the desired family. The SW FAMILY + <family name> and SW FAMILY - <family name> options dynamically add or subtract from the list of packs SWAPPER uses.

Refer to Volume 2, Chapter 16 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a complete description of all the <swapper parameters>.

Examples:

The following example shows a response to an SW command that interrogates the parameters on a monolithic system while SWAPPER is running.

```
SW

SW **RUNNING** CORESIZE=90 SLOTS (89100 WORDS)
SW ACTUALCORESIZE=90 SLOTS (89100 WORDS) MINTIME=3 SECONDS
SW MAXSLICENR=7 RATIO=2 MAXCORE=50 SLOTS (49500 WORDS)
SW MAXIOSIZE=50 SLOTS (49500 WORDS)
SW MINCHUNKSIZE=50 SLOTS (49500 WORDS) EXPRESERVE=0 SLOTS (0 WORDS)
SW EXPMAXCORE=0 SLOTS (0 WORDS) EXPMAXTIME=0.75 SECONDS
SW PRIORITYBIAS=0 UTILIZATIONBIAS=6 IOBIAS=0 MEMORYBIAS=0
SW NOSWAPTRANSTATE ON SWAPPACK ON KSID
```

The initial item "**RUNNING**" is an indicator of the current status of SWAPPER; the other possible values are NOT RUNNING, INITIALIZING, and SHUTTING DOWN.

ACTUALCORESIZE is an indicator of the amount of swapcore actually being used by SWAPPER.

NOSWAPTRANSTATE indicates that the NOSWAPTRANSTATE option is SET; if no reference to this option appears, SWAPTRANSTATE is SET.

ON SWAPPACK ON KSID indicates that SWAPPER is using the SYSTEM/SWAPDISK files on the packs SWAPPACK and KSID.

To interrogate the parameters on a Tightly-Coupled system while SWAPPER is running, the following command is entered:

```
SW(1)

SW(2)
```

The following command is entered to set a MINTIME parameter on a monolithic system:

```
SW MINTIME=4
```

The following command sets the MINTIME parameter on a Tightly-Coupled system:

```
SW(1,2) MINTIME=4
```

The following command stops SWAPPER on a monolithic system:

```
SW-
```

The following command stops SWAPPER on a Tightly-Coupled system:

```
SW-(1,2)
```

The following response is displayed to acknowledge receipt of the previous two commands:

```
<mix number> GOING AWAY
```

Each SWAPPER stack terminates only when it need no longer remain on the system, which is as long as any swap jobs remain on a monolithic system or any swap jobs requiring the specified memory subsystem remain on a Tightly-Coupled system. Meanwhile, no new tasks except offspring of existing swaptasks are initiated as swaptasks in that memory subsystem.

The following command starts SWAPPER on a monolithic system:

```
SW+
```

The following command is entered to start SWAPPER on a monolithic system and specify the amount of memory to devote to swapspace:

```
SW+ CORESIZE=100
```

To start SWAPPER on a Tightly-Coupled system in a specified subsystem, the following command is entered:

```
SW+(1,2)
```

The following command is entered to start SWAPPER on a Tightly-Coupled system and specify the amount of memory to devote to swapspace:

```
SW+(2) CORESIZE=100000
```

The following command causes SWAPPER to find the file SYSTEM/SWAPDISK on KSID. This file is opened and made available to SWAPPER.

```
SW FAMILY + KSID
```

The following command causes SWAPPER to cease using the family KSID. Also, all tasks that are currently swapped out on the family KSID are swapped in (from KSID) and then swapped out again (to a family other than KSID). When no more tasks are resident on KSID, the file SYSTEM/SWAPDISK on KSID is closed and the operator is notified.

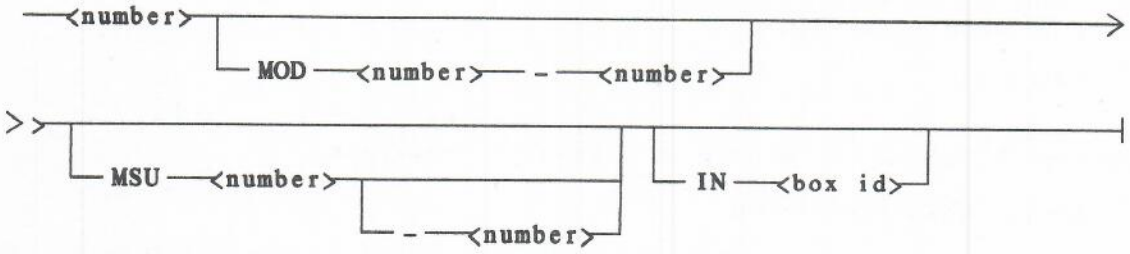
```
SW FAMILY - KSID
```

SWAP (SWAP MCM - B 7000 Series Systems)

The SWAP (SWAP MCM) command allows a Memory Control Module (MCM) to be physically removed from a running system by having the contents of the MCM transferred to another MCM.

Syntax:

<destination specs>



Semantics:

SWAP MCM <number> INTO <destination spec>
Transfers the contents of the specified MCM to another MCM identified by the <destination spec>

The destination MCM must have sufficient MSUs available to hold the contents of the source MCM. If the destination MCM has more memory than the source, the swap may be used to add memory to the system. The memory added must immediately follow the modules to be swapped.

TD (Time and Date)

The TD (Time and Date) command displays the current time and date for the system.

Syntax:

Semantics:

TD
Displays the current day, date, and time for the system. The date is displayed both as a calendar date and a Julian date. (yyddd) is the form used for the Julian date, indicating the year (19yy) and day of the year (ddd). The time is displayed in the form of digits denoting hours, minutes, and seconds, respectively.

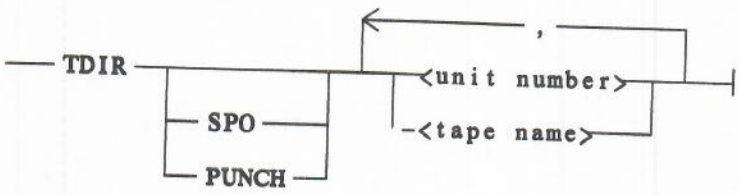
Example:

```
TD

  DATE IS MONDAY MAR 24, 1980 (80084) 08:32:15
```

TDIR (Tape DIRectory)

The TDIR (Tape DIRectory) command initiates the utility SYSTEM/FILEDATA to list the directory of the specified tape.

Syntax:



Semantics:

TDIR <unit number>
TDIR <tape name>
List the directory of the tape that is mounted on the specified unit or has the specified tape name.

As many intermixed tape names or unit numbers as desired may be specified. Each must be separated from the next by commas.

If neither SPO nor PUNCH is specified, the default output is to the printer.

SPO
Outputs the directory of the specified tape to the ODT.

PUNCH
Outputs the directory of the specified tape to the card punch.

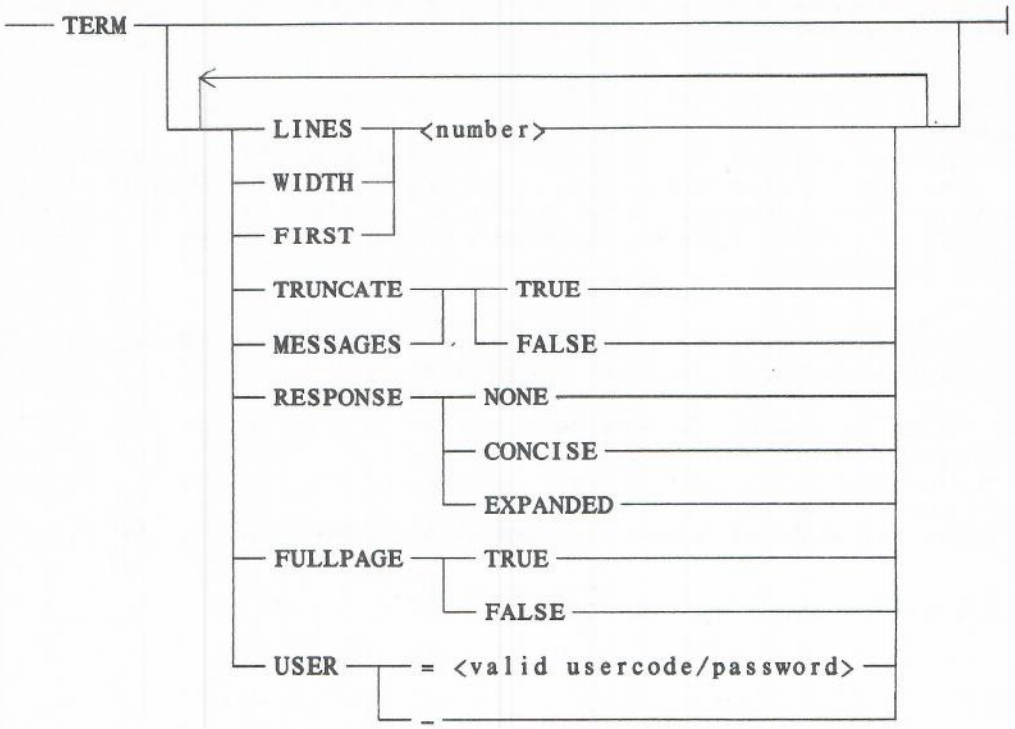
Example:

```
TDIR SPO X

    B6700 SYSTEM 277 REPORT OF 06/09/75 AT 09:48:01.
    VERSION 2.7.380
    TAPE = X/FILE000. ON UNIT    115
    SERIAL#=123456 CREATED 6/09/75
    9-TRACK (PE) 1600 BPI
    *SYSTEM/DUMPALL
                TAPEDIRECTORY INPUT WAS:
    "TPDIR SPO X"
                .
                .
                .
```

TERM (TERMinal)

The TERM (TERMinal) command is provided to allow control of the format of all displays appearing on the ODT at which the command is entered.

Syntax:



Semantics:

TERM
Displays the current terminal settings.

LINES <number>
Specifies the physical number of lines on the ODT device. The default <number> is 24.

WIDTH <number>
Specifies the physical width of the ODT device in characters. The default <number> is 80.

FIRST <number>
Specifies the number of screen lines to skip before beginning the display. The default <number> is 2.

TRUNCATE TRUE
Specifies that messages coming from the system, when they are first displayed (with TERM option MESSAGES set TRUE), are to be truncated on the right if their lengths exceed the value specified in the WIDTH clause.

TRUNCATE FALSE
Specifies that any incoming message that is longer than the value given in the WIDTH is to be continued on subsequent lines. The default setting is TRUE.

MESSAGES TRUE
Specifies that messages coming from the system are to be displayed when they are first received. These messages include "removed" messages, program DSed messages, and RSVPs.

MESSAGES FALSE
Specifies that messages coming from the system are not to be displayed when they are first received.

RESPONSE NONE
RESPONSE CONCISE
RESPONSE EXPANDED
Specify the form of any system response to certain ODT commands. NONE indicates that no system response is to be displayed. CONCISE indicates that the system is to respond only with a display of "OK". EXPANDED indicates that a full system response command is to be displayed. The default value is EXPANDED.

FULLPAGE TRUE
Decreases the time for writing a page of information to a Burroughs TD850 ODT because carriage returns are not displayed.

The default value is FALSE. Unless this option is explicitly set, terminals are not affected.

USER=<valid usercode/password>
Associates that usercode with certain commands input from that ODT.

USER-
Disassociates a usercode from that ODT.

Example:

```
TERM

    TERM LINES 24 WIDTH 80 FIRST 2 TRUNCATE TRUE RESPONSE
    EXPANDED MESSAGES TRUE FULLPAGE FALSE
```

TEST (Confidence TEST - B 7000 Series Systems)

The TEST (Confidence TEST) command is used to initiate on-line confidence test routines.

Refer to Section 12 of the B 7000 Systems Hardware Operational Guide for complete information about the use of this command.

Syntax:

Semantics:

TEST <test parameters>
Initiates on-line confidence test routines according to the parameters given.

TF (Type Factors)

The TF (Type Factors) command displays the current values of the four memory management parameters.

The value of the four parameters may be set by the SF (Set Factor) command, described earlier in this section. Refer to that command for a detailed explanation of these parameters.

Syntax:

Semantics:

TF

Displays the current values for the following four working set parameters:

a. OLAYGOAL = <number> % PER MINUTE

b. AVAILMIN = <number> %

c. FACTOR = <number> %

d. MEM PRIORITY FACTOR = <number> %

Example:

```
TF

    1) OLAY GOAL = 0% PER MINUTE
    2) AVAILMIN = 4%
    3) FACTOR = 150%
    4) MEM PRIORITY FACTOR = 50%
```

THAW (THAW Frozen Library)

The THAW (THAW Frozen Library) command allows an operator to change permanently frozen libraries to temporary libraries.

While a permanently frozen library remains in the mix regardless of whether or not any users are attached to the library, a temporary library stays in the mix only as long as a user is attached to it.

Syntax:

Semantics:

<mix number list> THAW
Changes the specified permanently frozen libraries into temporary libraries.

Example:

```
2340 THAW
```

TI (TImes)

The TI (TImes) command displays the current values of the time accumulators for the specified task(s).

Syntax:

Semantics:

<mix number list> TI
Displays the current values of the time accumulators for the task(s) identified by the <mix number list>.

The information is returned in units of hours, minutes, and seconds.

Example:

```
5285 TI

    TIMES FOR 5285

        PROCESS    = 00:00:37
        IO         = 00:00:01
        READYQ     = 00:00:56
        INITPBIT   = 00:00:06     3217 OPERATIONS
        OTHERPBIT  = 00:00:02     1521 OPERATIONS
        ELAPSED    = 00:11:40
```

TL (Transfer Log)

The TL (Transfer Log) command releases the current system log file and initiates a new one.

Syntax:

Semantics:

TL
Releases the old SUMLOG file and initiates a new one.

The previous log is named:

SUMLOG/<system number>/<mmddyy>/<number>

(where <number> is a log serial number from 1 to 999999). IAD logs specified at Cold Start time do not have a new log file created; instead, the rows of the system log are rotated.

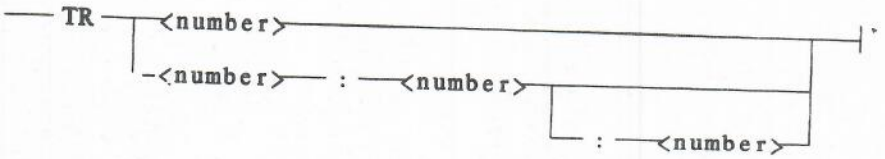
Example:

```
TL

7275 SYSTEM/SUMLOG CHANGED TO SUMLOG/227/053075/000005 ON DISK DK033
```

TR (Time Reset)

The TR (Time Reset) command changes the current time-of-day used by the MCP.

Syntax:



Semantics:

TR <number>
The desired time is specified by the <number>, which must be a 3-digit or 4-digit integer in HHMM form; the last two digits specify the minute (00 to 59), and the remaining digit(s) specify the hour (00 to 23).

TR <number>:<number>
The desired time is specified in HH:MM form with the first <number> denoting the hour (00 to 23) and the second <number> denoting the minute (00 to 59).

TR <number>:<number>:<number>
The desired time is specified in HH:MM:SS form with the first <number> specifying the hour (00 to 23), the second <number> specifying the minute (00 to 59), and the third <number> specifying the second (00 to 59).

Example:

```
TR 1554

    TIME IS 15:54:00
```

U (Utilization - B 7000 Series Systems)

The U (Utilization) command displays the current system utilization statistics.

U is allowed as a B 7000 parameter for time-driven ADM, which is explained in the description of the ADM (Automatic Display Mode) command featured earlier in this section.

Syntax:

Semantics:

U
UTILIZATION
Display the current system utilization statistics, including percentages of CPM, I/O, MCP, and total system usage.

The statistics display is broken down into two parts: processing and Input/Output utilization.

a. Processing Utilization

The processing utilization is sub-divided into four components, each described as a percentage of the last time interval.

1. User time

The time logged directly to user jobs (minus the time spent for handling physical I/O). User time includes all user jobs and "visible" MCP independent runners such as library maintenance.

2. I/O time

The percentage of processing time over the last interval that was spent handling physical I/O functions.

3. MCP time

The percentage of time over the last interval that was spent by the MCP to "manage" the system.

4. Idle time

The percentage of time that the processor(s) was (were) not used for user, I/O, or MCP functions.

b. Input/Output Utilization

The I/O utilization is sub-divided into several components, each described in rates calculated over the last time interval.

1. User I/O

   The average number of user I/O(s) per second and the number of Kbytes of data transferred per second by user I/O(s).

2. MCP I/O

   The average number of MCP I/O(s) per second and the number of Kbytes of data transferred per second by MCP I/O(s). MCP I/O(s) include such functions as overlay and logging SWAPPER I/O.

3. Total I/O

   The total system I/O activity made up of user I/O(s) and MCP I/O(s) (plus or minus 1).

4. I/O interrupts

   The average number of I/O interrupts per second calculated over the time interval.

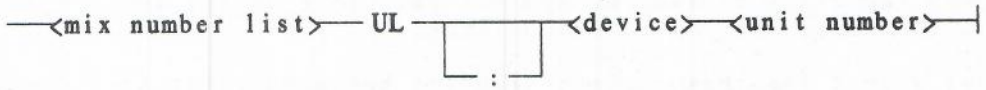
Example:

```
U

-----SYSTEM UTILIZATION-----

CPM: USER = 70%      MCP  = 14%
     I/O  = 12%      IDLE =  5%

I/O: USER = 36 IO/SEC (84 KB/SEC)
     MCP  = 27 IO/SEC (30 KB/SEC)
     TOTAL= 63 IO/SEC (114 KB/SEC)
     64 IO-INTERRUPTS/SEC
```

UL (UnLabeled)

The UL (UnLabeled) command, which is used in response to a "NO FILE" message, assigns an unlabeled file located on the indicated unit to the specified task.

Syntax:



Semantics:

<mix number list> UL <device> <unit number>
<mix number list> UL:<device> <unit number>
Assign the unlabeled file(s) located on the specified device to the task(s) identified by the <mix number list>.

If a labeled file is assigned to the task in this manner, all records of the file, including the label, are read as data.

Example:

```
W

     -----WAITING ENTRIES-----

     4361/4363 50 SYSTEM/DUMPALL
     NO FILE DUMPALLDMPMT

4263 UL : MT113
```

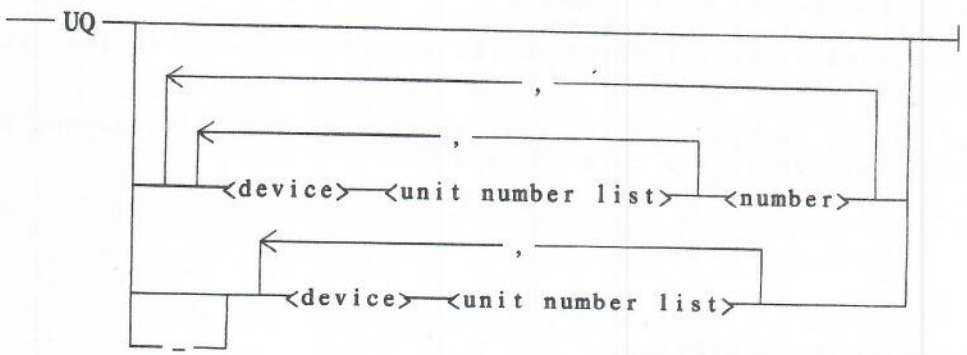
UQ (Unit Queue)

The UQ (Unit Queue) command assigns jobs from the specified input unit to the specified job queue.

All jobs initiated through a unit that has a unit queue assignment pass through that particular queue. If the job has a class assignment in the control card, the system checks the class of the job against the class of the unit. If the classes are not the same, the job is discontinued.

If the queue for a unit that has class assignment has been eliminated using an MQ- command, all jobs subsequently entered through that unit are discontinued. Refer to the MQ (Make or Modify Queue) command described earlier in this section.

Syntax:



Semantics:

UQ
Displays the current unit queue assignments.

UQ <device> <unit number list> <number>
Assigns jobs from the input device(s) identified by the <unit number list> to the job queue specified by <number>.

UQ <device> <unit number list>
Displays the current or default queue assignment(s) for the job(s) from the input device(s) identified by the <unit number list>.

UQ - <device> <unit number list>
Disables the current or default queue assignments for the job(s) from the input device(s) identified by the <mix number list>.

Examples:

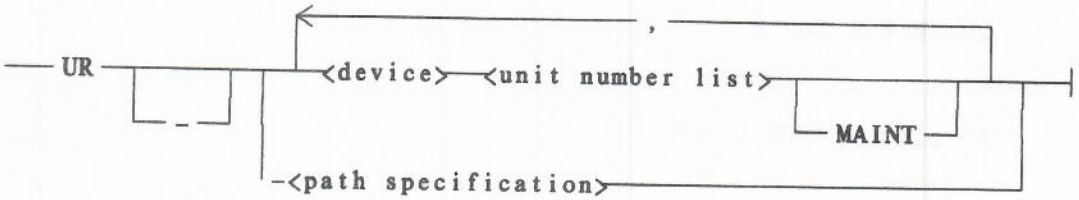
The following examples show possible responses to the UQ command:

```
UQ

    NO UNIT QUEUE ASSIGNMENTS

UQ CR10 7

    QUEUE FOR CR010 IS 7

UQ-CR10

    NO DEFAULT FOR CR010
```

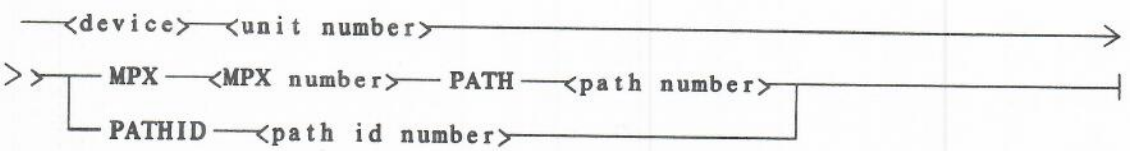
UR (Unit Reserved - B 5000/B 6000 Series Systems)

The UR (Unit Reserved) command reserves a specified unit to allow maintenance to be performed or makes a previously reserved unit available for normal use. Once a unit has been reserved, the unit is no longer available for assignment to user programs.

Syntax:



<path specification>



Semantics:

UR <device> <unit number list>
Reserves the unit(s) identified by <device> and <unit number list>.

UR - <device> <unit number list>
Restores the unit(s) identified by <device> and <unit number list> to the system.

UR <device> <unit number list> MAINT
Disk pack types 206 and 207 may be reserved and placed into maintenance mode by entering UR PK <unit number> MAINT. These disk packs are made available and removed from maintenance mode by entering UR-PK <unit number> MAINT. (If the unit is not already reserved, entering this command removes the unit from maintenance mode.)

<path specification>
When a path is specified, only the path is reserved, not the unit. (For B 6700s, only paths on Model III multiplexors can be reserved.) The path is then no longer available for use. The path may be restored to the system using the UR- command. For B 6700 and B 6800 systems, the path is specified by either MPX PATH or PATHID. Blanks are required between MPX and <MPX number> and between PATH and <path number>. Only PATHID is accepted on MLIP systems, and any attempt to use MPX PATH is rejected with an "INVALID SYNTAX" message.

The last ready path to an in-use or labeled unit may not be reserved.

Examples:

The following command reserves the line printer identified by unit number 13:

```
UR LP13

    LP13 RESERVED
```

The following command restores disk packs 097 and 098 to the system:

```
UR - DK 097,098

    DK097 AVAILABLE
    DK098 AVAILABLE
```

The following command places disk pack 200 into maintenance mode:

```
UR PK200 MAINT

    PK200 PLACED INTO MAINTENANCE MODE
    PK200 RESERVED
```

The following command takes packs 206 through 208 out of maintenance mode:

```
UR - PK 206-208 MAINT

    PK206 TAKEN OUT OF MAINTENANCE MODE
    PK206 AVAILABLE
    PK207 TAKEN OUT OF MAINTENANCE MODE
    PK207 AVAILABLE
    PK208 TAKEN OUT OF MAINTENANCE MODE
    PK208 AVAILABLE
```

The following example is valid only on B 6700 and B 6800 systems:

```
UR DK069 MPX 1 PATH 2

    DK069 MPX 1 PATH 2 RESERVED
```

The following example shows a response to a UR command if the specified unit is already available:

```
UR - PK096

    IS NOT RESERVED
```

The following example shows a response to a UR command when the unit is disk pack type 225 or 235 and is reserved:

```
UR - PK096

    PK096 AVAILABLE
```

The following example shows a response to a UR command if the unit is disk pack type 225 or 235 and is not reserved:

```
UR - PK096

    PK096 IS NOT RESERVED.
```

The following example shows a response to a UR command when the unit is disk pack type 206 or 207 and is reserved:

```
UR - PK206

     TAKEN OUT OF MAINTENANCE MODE
     PK206 AVAILABLE
```

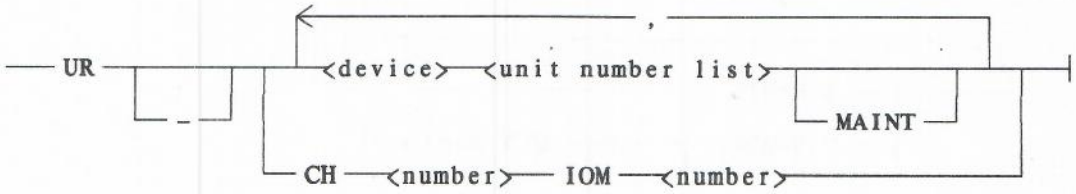
The following example shows a response to a UR command if the unit is disk pack type 206 or 207 and is not reserved:

```
UR - PK207 MAINT

     TAKEN OUT OF MAINTENANCE MODE
```

UR (Unit Reserved - B 7000 Series Systems)

The UR (Unit Reserved) command reserves a specified unit to allow maintenance to be performed or makes a previously reserved unit available for normal use. Once a unit has been reserved, the unit is no longer available for assignment to user programs.

Syntax:



Semantics:

UR <device> <unit number list>
Reserves the unit(s) identified by the <unit number list>.

UR <device> <unit number list> MAINT
Disk pack types 206 and 207 may be reserved and placed into maintenance mode by entering UR PK <unit number> MAINT. Those disk packs are made available and removed from maintenance mode by entering UR-PK <unit number> MAINT. (If the unit is not already reserved, entering this command removes the unit from maintenance mode.)

"MAINT" must be specified when placing the indicated unit in maintenance mode for offline maintenance. "MAINT" should not be used when reserving the unit for on-line maintenance.

UR - <device> <unit number list>
Makes the unit(s) identified by the <unit number list> available to the system and resets the reliability factor of the indicated unit(s) to 100 percent.

UR CH <number> IOM <number>
Reserves the channel specified by the channel number and IOM number.

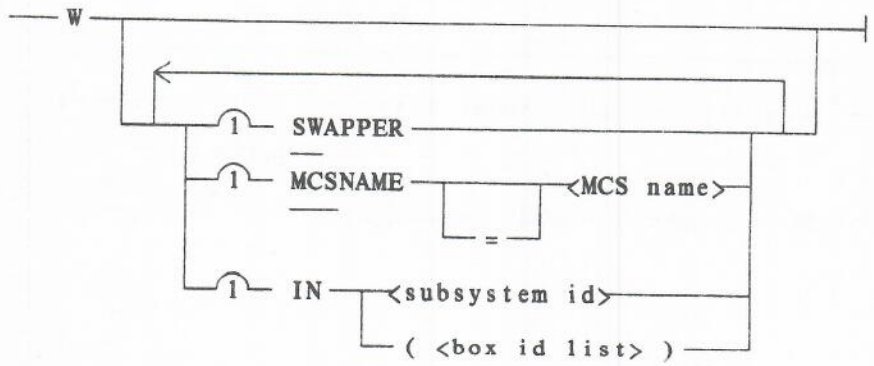
Example:

```
UR PK 160, 161

    PK160 RESERVED
    PK161 RESERVED
```

W (Waiting Mix Entries)

The W (Waiting Mix Entries) command causes a display of tasks that require operator action because they are suspended on an RSVP condition. The reason for suspension is also included in the display.

Syntax:



Semantics:

W
Displays all waiting jobs or tasks.

SWAPPER
Displays only waiting jobs or tasks running in swapspace.

MCSNAME <MCS name>
MCSNAME = <MCS name>
Display only waiting jobs or tasks originating from the specified MCS.

IN <subsystem id>
IN (<box id list>)
Display only waiting jobs with stacks running in the specified subsystem or memory subsystem, respectively.

Examples:

On a Tightly-Coupled system, each displayed task is preceded by a subsystem indicator: a box id for a local memory task, a "G" for a GLOBAL memory task, or a blank for a task whose subsystem location is currently unassigned.

Swap jobs are flagged with a pound sign (#) between the priority number and the file name. The number in the waiting entry heading is the total number of waiting entries.

```
W

     -----1 WAITING ENTRIES-----

     3570/3571 50 LIBRARY MAINTENANCE
     1100  SECT REQ ON MCPMAST PK068*
```

WM (What MCP)

The WM (What MCP) command displays information regarding the current MCP.

Syntax:

Semantics:

WM
Displays information regarding the current MCP. This information includes the title of the MCP code file, the release level, and a list of the compiler options (standard and user options) that were SET when the code file was compiled.

Examples:

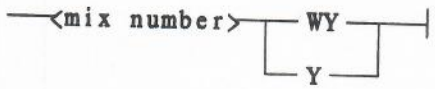
The following command displays information regarding the MCP for a monolithic system:

```
WM

    MCP: SYSTEM/MCP33260 33.260.1872
    H/L UNIT: 60
    COMPILED: 05/21/82 @ 14:29:07 (NEWP 33.260)
       COMPILE TIME OPTIONS ARE:
          LINEINFO

    H/L REASON: MANUAL
    H/L TIME: WEDNESDAY JUN 16, 1982 (82167) 8:05 AM.
    GROUP ID: DEFAULT
    HOSTNAME: B59MVTIO
    SYSTEM SERIAL NO: 3104
    CATALOG LEVEL: 0
    NEXT MCP: NOT SPECIFIED
```

WY (Status Interrogate)

The WY (Status Interrogate) command displays the status of the specified job or task.

Syntax:



Semantics:

<mix number> WY
<mix number> Y

Display the status time, job class, priority, origination, usercode, stack state, program name, DISPLAY messages, RSVP messages, legal replies to RSVP messages, and CHARGECODE and ACCESSCODE attributes that are associated with the task identified by the <mix number>.

If a task is running in swapspace, the swap status (for example, in memory or on disk) is shown.

On a Tightly-Coupled system, an indication of the memory subsystem in which a task is running is displayed: a box id for a local memory task or a "G" for a GLOBAL Memory task. If the memory subsystem is currently unassigned because the task is scheduled or swapped out, an appropriate indication is displayed.

After the line displaying the current stack state, the checkpoint status is given. This status is displayed only when the checkpoint status is not null. The format is as follows:

```
CHECKPOINT STATUS = REQUESTED/RUNNING/RESTARTING
```

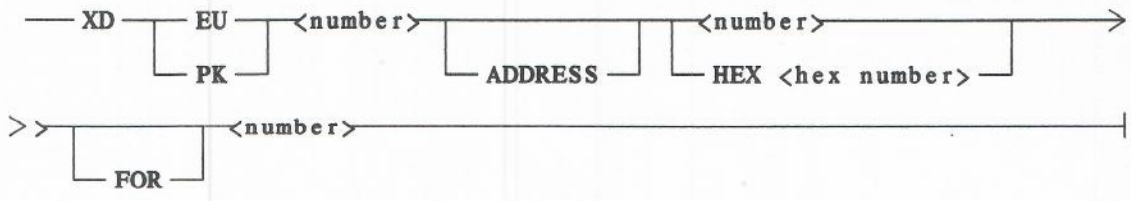
Example:

```
355 WY

    STATUS OF JOB 355 AT 14:40:31
    CLASS=0
    PRIORITY=80
    ORIGINATION: UNIT 0
    USERCODE: USER A
    STACK STATE: WAITING ON AN EVENT
    SWAP STATUS: ON DISK
    PROGRAM NAME: MYTASK
    RSVP: LP014 NOT READY
    REPLY: IL, OK, OU, DS
    DISPLAY: MYTASK INITIALIZED
```

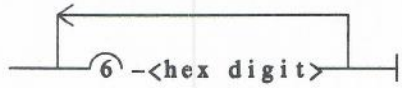
XD (Bad Disk)

The XD (Bad Disk) command eliminates defective segments on disk from the available disk table.

Syntax:



<hex number>



Semantics:

XD EU <unit number> <number> <number>
XD EU <unit number> ADDRESS <number> FOR <number>
XD PK <unit number> <number> <number>
XD PK <unit number> ADDRESS <number> FOR <number>
Eliminate the specified segments from the disk available table. The <number> following EU or PK specifies the unit affected, the <number> following ADDRESS specifies the absolute decimal address of the first segment to be marked, and the <number> following FOR indicates the total number of segments to be affected.

The eliminated area is entered in the disk directory with a name of the form BADDISK/<disk address>, where <disk address> is an address (for disk packs) or a concatenation of EUs and address (for head-per-track disk).

HEX <hex number>
Allows the address to be specified in hexadecimal.

Example:

```
XD EU33 ADDRESS 62345 FOR 20

A

    1704 JOB 99 XDDISK

MSG

    1706 BADDISK/FMLYINX1/UNIT33/AD62345 CREATED ON DISK DK 033
```

Pragmatics:

After an XD operation is performed on a pack serviced by a controller running decimal firmware, the address is always denoted in decimal, indicated by a "D" that follows the disk address in the file title. Similarly, when an XD operation is performed on a pack serviced by a controller running with binary firmware, the system displays all addresses in hexadecimal and appends "H" to the address in the file title.

PRIMITIVE COMMANDS

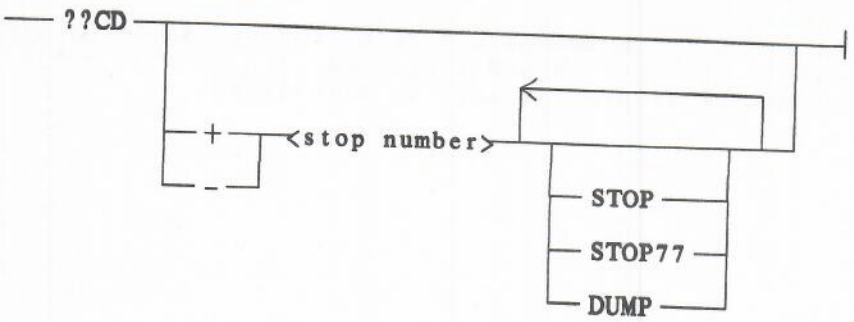
The following commands are called "primitives" because they are processed directly by the MCP, bypassing the ordinary ODT command handler. This mechanism allows them to be entered even when a software failure in the CONTROLLER makes it impossible to enter ordinary ODT commands. All primitive commands must begin with a double question mark (??).

Several of the following primitive commands are described as applying to all ordinary tasks. In this context, an ordinary task is a visible job or task that is not an MCS, a permanent frozen library, or privileged.

??CD (Conditional Dump)

The ??CD (Conditional Dump) command allows the user to arm a CONDITIONALDUMP stop to cause the system to stop, dump, or record a trace entry.

Syntax:



Semantics:

??CD
Displays the state of all of the conditional stop flags. The display is in 16 rows numbered 0 through F. This number corresponds to the first digit of the stop number. Each of these rows has three columns labeled "DUMP", "STOP", and "TRACE". The entry in each of the columns is a mask of the stops for which the various functions are armed.

??CD+
Arms all CONDITIONALDUMP stops to generate trace entries.

??CD + <stop number>
Arms the trace function for CONDITIONALDUMP stop <stop number>.

??CD-
Disarms the trace function for all stops.

??CD - <stop number>
Disarms the trace function for CONDITIONALDUMP stop <stop number>.

STOP
Arming STOP for a CONDITIONALDUMP stop has different effects on B 6000 series and B 7000 series machines. On B 6000 series machines, the system stops only if "CONDITIONAL HALT" is set on the processor that executes the CONDITIONALDUMP stop. On B 7000 series machines, the system stops whether or not "CONDITIONAL HALT" is SET.

STOP77
The keywords "STOP" and "STOP77" are synonymous; both arm the STOP function. The only way the STOP function can be disarmed is through the ODT. Arming the STOP function also arms the TRACE function for a CONDITIONALDUMP stop.

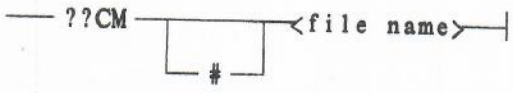
DUMP

If the DUMP function is armed for a CONDITIONALDUMP stop, the next time the stop is executed the system takes a memory dump. The dump reason is "CNDTNL DUMP 000nn", where "nn" is the <stop number>. When the dump is complete, the DUMP function is disarmed for the CONDITIONALDUMP stop. Arming the DUMP function also arms the TRACE function for a CONDITIONALDUMP stop.

??CM (Change MCP)

The ??CM (Change MCP) command immediately changes the MCP to the MCP specified in the command so that a Halt/Load occurs without waiting for a zero mix count.

Syntax:



Semantics:

??CM <file name>
Changes the MCP to the MCP specified by <file name> without waiting for a zero mix count.

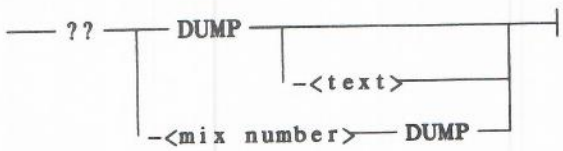
??CM # <file name>
Changes the MCP to a new MCP without changing the disk bootstrap. If a Halt/Load occurs, the previous MCP is loaded because the disk bootstrap still points to the previous MCP.

If the "#" character is omitted, the disk bootstrap is changed and the CM is permanent (until the next CM).

??DUMP (DUMP Memory)

The ??DUMP (DUMP Memory) command invokes a non-fatal memory dump.

Syntax:



Semantics:

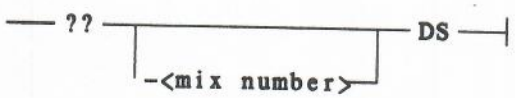
??DUMP
Invokes a non-fatal memory dump.

??<mix number> DUMP
Invokes a program dump of the task identified by the <mix number>.

??DS (DiScontinue)

The ??DS (DiScontinue) command discontinues the task identified by the given mix number. If ??DS is entered without specifying the mix number, all ordinary tasks are DSed.

Syntax:



Semantics:

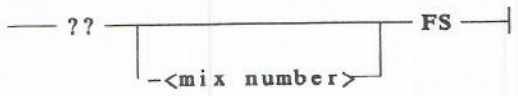
??DS
Discontinues all ordinary tasks.

?? <mix number> DS
Discontinues the task identified by the <mix number>.

??FS (Force Schedule)

The ??FS (Force Schedule) command causes the initiation of the indicated scheduled job. If ??FS is entered without specifying the mix number, all scheduled jobs and tasks are initiated.

Syntax:



Semantics:

??FS
Causes the execution of all scheduled jobs and tasks.

??<mix number> FS
Causes the execution of the scheduled job or task identified by the <mix number>.

??HS (Hold Schedule)

The ??HS (Hold Schedule) command suspends or resumes the initiation of new jobs and tasks.

Syntax:

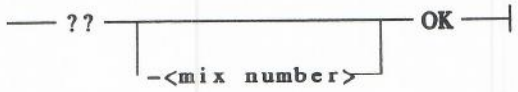
Semantics:

??HS
Changes the state of job selection to the opposite state. For example, the ??HS command may be used to inhibit task initiation immediately following a Halt/Load. A second ??HS restarts task initiation.

??OK (Reactivate)

The ??OK (Reactivate) command results in the reactivation of the suspended task identified by the mix number. If the ??OK command is entered with no mix number specified, all suspended tasks are reactivated.

Syntax:



Semantics:

??OK
Reactivates all waiting tasks.

?? <mix number> OK
Reactivates the waiting task identified by the mix number.

??RJ (Remove JOBDESC File)

The ??RJ (Remove JOBDESC File) command marks the JOBDESC file as "to be reinitialized" at the next Halt/Load. The file is not reinitialized immediately; the Halt/Load is required.

Syntax:

Semantics:

??RJ
Changes the FILEKIND attribute of the JOBDESC file to that of a removable file and changes the name of the file to OLDJOBDESC.

??RUN (RUN Code File)

The ??RUN (RUN Code File) command initiates the code file specified by the file title without creating a job file.

Syntax:

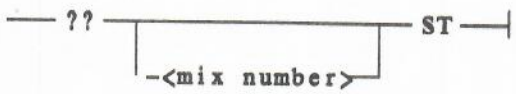
Semantics:

??RUN <file title>
Initiates the specified code file without creating a job file.

??ST (STop)

The ??ST (STop) command allows the indicated task to be suspended. If ??ST is entered without specifying a <mix number>, all ordinary tasks are temporarily suspended.

Syntax:



Semantics:

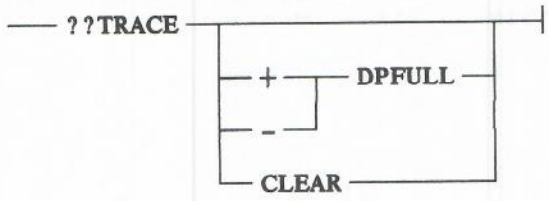
??ST
Suspends all ordinary tasks.

??<mix number> ST
Suspends the task identified by the <mix number>.

??TRACE (Trace Table)

The ??TRACE (Trace Table) command allows a user to clear the trace table or to initiate a mode in which a system dump is performed each time the trace table is full.

Syntax:



Semantics:

??TRACE
Interrogates the current trace setting.

DPFULL
Causes the system to generate a memory dump after the last entry has been placed in the trace table. If this option is SET, a series of memory dumps are taken, one each time the table is full. If it is RESET, the dumps are not taken. In either case, when the table becomes full the pointer for the next entry is reset to the beginning of the table, and trace table entries continue to be made.

This option is SET using the plus sign (+) or RESET using the minus sign (-).

CLEAR
Causes the next CONDITIONALDUMP stop that has the trace function armed to fill all trace entries with 0's, place the pointer for the next entry to the beginning of the table, and RESET the CLEAR option.

This option is SET using the plus sign (+) or RESET using the minus sign (-).

PRIMITIVE COMMANDS (B 7000 SERIES SYSTEMS ONLY)

The following primitive system input commands are unique to the B 7000 series systems.

??CLMDP (CLear MDP)

The ??CLMDP (CLear MDP) command allows the release of the Maintenance Display Processor (MDP) bus if it remains in a captured state indefinitely.

Syntax:

Semantics:

??CLMDP
Releases the MDP bus.

??DDT (Dump Disk to Tape)

The ??DDT (Dump Disk to Tape) command initiates a routine that produces a memory dump tape from the contents of the disk dump file. Refer to the DN (Dump Name) command described earlier in this section for related information.

Syntax:

Semantics:

??DDT
Produces a memory dump tape from the contents of the disk dump file.

??PHL (Programmatic Halt/Load)

The ??PHL (Programmatic Halt/Load) command causes a programmatic Halt/Load.

Syntax:

Semantics:

??PHL
Causes a programmatic Halt/Load.

??SFL (Set Fault Limit)

The ??SFL (Set Fault Limit) command sets the failure threshold, which is the maximum number of transient errors that failure analysis permits on a mainframe module. When the intermittent error count for a module reaches the fault limit, that module is considered to have failed, and the appropriate recovery strategy is invoked. Allowable values for the fault limit are 1 through 255; the default value after a cold start is 20.

Syntax:

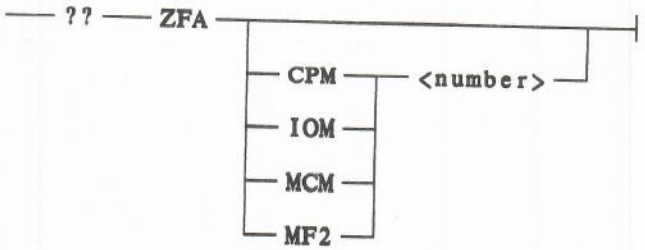
Semantics:

??SFL <number>
Sets the threshold of allowable errors to <number>.

??ZFA (Zero Failure Analysis)

The ??ZFA (Zero Failure Analysis) command is used to reset the error counters kept by Failure Analysis and displayed in response to a FAS (Failure Analysis Summary) command input. Refer to the FAS (Failure Analysis Summary) command described in this section.

Syntax:



Semantics:

??ZFA
Clears all error counts for all modules.

??ZFA CPM <number>
??ZFA IOM <number>
??ZFA MCM <number>
Specify a mainframe module and zero only the FA (Failure Analysis) involving that Central Processing Module (CPM), Input/Output Module (IOM), or Memory Control Module (MCM), respectively.

??ZFA MF2 <number>
Clears the 1-bit error count for MCM. <number> and reinstates logging of 1-bit errors for that MCM until the count reaches the current limit of 25.

APPENDIX A. FUNCTIONAL COMMAND GROUPINGS

This appendix provides groupings of ODT commands for functional reference purposes. Commands are organized alphabetically within each command grouping.

Table A-1. Automatic Display Mode and ODT Control Commands

Command	Name
A	Active Mix Entries
ADM	Automatic Display Mode
C	Completed Mix Entries
CQ	Clear Queue
CU	Core Usage
DBS	Database Stack Entries
J	Job Structure Display
LABEL	LABEL ODT
ML	Mix Limit
MSG	Display Messages
MX	Mix Entries
NS	Next Screen
PER	PERipheral Status
S	Scheduled Mix Entries
SUPPRESS	SUPPRESS Display
TERM	TERMinal
U	Utilization (B 7000 Series Systems)
W	Waiting Mix Entries

Table A-2. Program Communication Commands

Command	Name
AX	Accept
BR	Breakout
DS	DiScontinue
DUMP	DUMP Memory
FA	File Attribute
FM	Form Message
FR	Final Reel
FS	Force Schedule
HI	Cause EXCEPTIONEVENT
IB	Instruction Block
IL	Ignore Label
LJ	Log Job
LP	Lock Program
OF	Optional File
OG	Overlay Goal
OK	Reactivate
OT	Inspect Stack Cell
OU	Output Unit
PR	PRiority
QT	QuiT
RM	ReMove
ST	STop
THAW	THAW Frozen Library
TI	TImes
UL	UnLabeled
WY	Status Interrogate

Table A-3. Directory and Disk File Management Commands

Command	Name
AD	Access Duplicate
AR	Archive Release
DD	Directory Duplicate
DIR	DIRectory
DL	Disk Location
DN	Dump Name (B 7000 Series Systems)
DU	Disk Utilization
PD	Print Directory
PV	Print Volume
RB	ReBuild Access
RC	ReConfigure Disk
RES	REServe
RM	ReMove
TL	Transfer Log
XD	Bad Disk

Table A-4. Peripheral Commands

Command	Name
CL	CLear
IL	Ignore Label
LL	Load Limit (B 5000/B 6000 Series)
OL	Display Label and Paths
OU	Output Unit
PA	Peripheral Association
PER	PERipheral Status
RF	Reliability Factor (B 5000/B 6000 Series Systems)
RF	Reliability Factor (B 7000 Series Series Systems)
RY	ReadY (B 5000/B 6000 Series Systems)
RY	ReadY (B 7000 Series Systems)
SB	Substitute Backup
SV	SaVe (B 5000/B 6000 Series Systems)
SV	SaVe (B 7000 Series Systems)
UQ	Unit Queue
UR	Unit Reserve (B 5000/B 6000 Series Systems)
UR	Unit Reserve (B 7000 Series Systems)

Table A-5. Disk-Pack Commands

Command	Name
CLOSE	CLOSE Pack
LB	ReLaBel Pack
LH	Load Host (B 5000/B 6000 Series Systems)
LH	Load Host (B 7000 Series Systems)
MODE	Input or Output MODE
MOVE	MOVE Job/Pack
PG	PurGe
PO	Power Off
POWER	POWER Up/Down
RC	ReConfigure Disk
RES	REServe
XD	Bad Disk

Table A-6. Line Printer and Card Punch Commands

Command	Name
AB	Auto Backup
AX	Accept
EP	Eliminate Print Queue
FM	Form Message
FORM	Assign FORM ID
OU	Output Unit
PA	Peripheral Association
PB	Print Backup
QT	QuiT
SB	Substitute Backup
SP	Show Print Queue

Table A-7. Tape Commands

Command	Name
FR	Final Reel
MODE	Input or Output MODE
OF	Optional File
OU	Output Unit
PG	PurGe
RW	ReWind
SN	Serial Number
TDIR	Tape DIRectory

Table A-8. Data Communication Commands

Command	Name
ID	Initialize Data Comm
REMOTESPO	Activate REMOTESPO
SM	Send to MCS
SS	Send to Station

Table A-9. System Security Commands

Command	Name
DL	Disk Location
HU	Host Usercode
MU	Make User
PP	Privileged Program
SR	Secure Reader

Table A-10. MCP Commands

Command	Name
BOOTUNIT	Specify Halt/Load Unit (B 5900 and and B 6900 Series Systems)
CM	Change MCP
CP	Control Program
CS	Change Supervisor
DA	Dump Analyzer
DL	Disk Location
DN	Dump Name (B 7000 Series Systems)
DR	Date Reset
DUMP	DUMP Memory
HS	Hold Schedule
LP	Lock Program
MA	May Access
MC	Make Compiler
ML	Mix Limit
MS	Make Subsystem
OP	OPtions
PLI	Periodic Logging Interval
PP	Privileged Program
SBP	System Balancing Parameters (B 7000 Series Systems)
SI	System Intrinsics
SL	System Library
SW	SWapper
TD	Time and Date
TR	Time Reset
WM	What MCP

Table A-11. Memory Management Commands

Command	Name
CU	Core Usage
DL	Disk Location
HS	Hold Schedule
ML	Mix Limit
MM	Memory Module
MS	Make Subsystem
OG	Overlay Goal
SF	Set Factor
ST	STop
SW	SWapper
TF	Type Factors

Table A-12. Log Commands

Command	Name
DL	Disk Location
LC	Log Comment
LJ	Log to Job
LOG	Analyze LOG
PLI	Periodic Log Interval
TL	Transfer Log

Table A-13. Maintenance Commands

Command	Name
DO	Diagnostic Options (B 7000 Series Systems)
FAS	Failure Analysis Summary (B 7000 Series Systems)
MICI	Invoke MICI (B 7000 Series Systems)
PG	PurGe
PROM	PROM Burner (B 7000 Series Systems)
RC	ReConfigure Disk
RES	REServe
RF	Reliability Factor (B 5000/B 6000 Series Systems)
RF	Reliability Factor (B 7000 Series Systems)
RY	ReadY (B 5000/B 6000 Series Systems)
RY	ReadY (B 7000 Series Systems)
SWAP	SWAP MCM (B 7000 Series Systems)
SV	SaVe (B 5000/B 6000 Series)
SV	SaVe (B 7000 Series Systems)
TEST	Confidence TEST (B 7000 Systems)
UR	Unit Reserved (B 5000/B 6000 Series Systems)
UR	Unit Reserved (B 7000 Series Systems)
XD	Bad Disk

Table A-14. Job Queue Commands

Command	Name
DL	Disk Location
DQ	Default Queue
DS	DiScontinue
FS	Force Schedule
HS	Hold Schedule
IB	Instruction Block
LD	Load Control Decks
ML	Mix Limit
MOVE	MOVE Job/Pack
MQ	Make or Modify Queue
OK	Reactivate
PF	Print Fetch
PQ	Purge Queue
PR	Priority
QF	Queue Factors
SQ	Show Queue
SR	Secure Reader
STARTTIME	Start Time
UQ	Unit Queue
WY	Status Interrogate

Table A-15. BNA Commands

Command	Name
AT	AT Remote Host
CA	Candidate
HN	Host Name
HU	Host Usercode
NET	NETwork
NW	Network Prefix

Table A-16. System Configuration Commands

Command	Name
ACQUIRE	ACQUIRE Resource (B 5000/B 6000 Series Systems)
ACQUIRE	ACQUIRE Resource (B 7000 Series Systems)
BOOTUNIT	Specify Halt/Load Unit (B 5900 and B 6900 Series Systems)
CF	Configuration File
FREE	FREE Resource (B 5000/B 6000 Series Systems)
FREE	FREE Resource (B 7000 Series Systems)
GC	Group Configuration
MM	Memory Module
OL	Display Label and Paths
PER	PERipheral Status
RECONFIGURE	RECONFIGURE System
RY	ReadY (B 5000/B 6000 Series Systems)
RY	ReadY (B 7000 Series Systems)
SC	System Configuration (B 5000/B 6000 Series Systems)
SC	System Configuration (B 7000 Series Systems)
SV	SaVe (B 5000/B 6000 Series Systems)
SV	SaVe (B 7000 Series Systems)
SWAP	SWAP MCM (B 7000 Series Systems)
UR	Unit Reserve (B 5000/B 6000 Series Systems)
UR	Unit Reserve (B 7000 Series Systems)

ACRONYM LIST

The following list contains the acronyms used in this manual.

Acronym	Meaning
BNA	Burroughs Network Architecture
BOJ	beginning-of-job
BOT	beginning-of-task
BPI	bits-per-inch
CANDE	Command And Edit Language
CPM	Central Processing Module
CPS	cycles-per-second
CPU	Central Processing Unit
DBS	Database Stack
DCP	Data Communications Processor
DLP	Data Link Processor
DMSII	Data Management System II
EBCDIC	Extended Binary Coded Decimal Interchange Code
EOJ	end-of-job
EOT	end-of-task / end-of-tape
EU	Electronics Unit
GCR	group-coded recording
IAD	Installation Allocated Disk
IOM	Input/Output Module
LSN	Logical Station Number
LSP	Line Support Processor
MAR	Memory Address Register
MCM	Memory Control Module
MCP	Master Control Program
MCS	Message Control System

Acronym	Meaning
MDL	Maintenance Diagnostics Logic
MDP	Maintenance Display Processor
MLIP	Message-Level Interface Processor
MPX	Multiplexor
MSU	Memory Storage Unit
NDL	Network Definition Language
NIF	Network Information File
NRZ	non-return-to-zero
NSP	Network Support Processor
ODT	Operator Display Terminal
PC	peripheral control
PE	phase-encoded
PROM	Programmable Read-Only Memory
RJE	Remote Job Entry
SIB	Structure Information Block
SIBs	Structure Information Blocks
TCI	Test Case Index
TCM	Test Control Module
WFL	Work Flow Language
WFM	Work Flow Management

GLOSSARY

This glossary defines terms used in this manual.

base
A hardware unit in the Universal I/O subsystem (applicable to B 5900 and B 6900 systems) that contains the components necessary for handling the routing of messages between the Data Link Processors (DLPs) and the Message-Level Interface Processor (MLIP) from the host processor. The base itself contains at least one DLP.

box
A memory subsystem whose addresses are unique to that memory subsystem and whose contents are all visible to the same set of processors. A box's identification is assigned based on the processor(s) that can access that memory subsystem.

catalog
The catalog system can be divided into two sections, the volume library and the catalog. The volume library is an inventory of the use of volumes. The catalog is a file directory that keeps track of:

a. The available versions of a file, particularly the most current version.

b. The backup copies of a file's available versions.

The volume library and the catalog are used in conjunction with each other. The user cannot use one facility without the other.

code file
A file produced by a compiler when a program is compiled that contains, at a minimum, a segment dictionary and object code segments. All code files have as the first record of the file a fixed format segment, SEG 0, which contains information common to all code files, regardless of their source language.

controlware
Firmware that resides within a peripheral controller and controls its operation (see "firmware").

crunch
The process that causes the unused portion of the last row of disk space (beyond the end-of-file indicator) to be returned to the system. In order to be crunched, the file must be a disk file. After crunching, the file can no longer be expanded. However, the file can be written to any address within the end-of-file limit (last block boundary).

file attribute
A characteristic of a file. Some file attributes may be accessed or changed, some may only be accessed, and some may be accessed or changed depending on the status of the file. Examples of file attributes are TITLE, CREATIONDATE, and LASTRECORD. For further information, refer to the B 5000/B 6000/B 7000 I/O Subsystems Manual.

firmware
Microcode stored in a given device that is used to control its operation.

flat directory
A directory maintained by the MCP that contains disk file header records made up of the physical attributes and the physical address of each row of each disk file. Each family has its own flat directory of all files residing on that family.

GLOBAL Memory
The portion of memory that is accessible by all processors in the configuration. The addresses contained in this memory subsystem are unique.

independent runner
An MCP task that functions in a separate task stack and runs asynchronously with all other tasks in the system. An independent runner may be either visible or invisible. If it is visible, its status can be interrogated. If it is invisible, it does not appear in mix displays.

interchange mode pack
A disk pack that is initialized to a multisector format that allows disk pack compatibility among Burroughs systems. Interchange mode packs are maintained using a special (restricted) format that allows them to be used on B 1000 series systems, B 2000/ B 3000/B 4000 series systems, and B 5000/B 6000/B 7000 series systems interchangeably.

job
A group of one or more tasks, usually processed from, and under the control of, a single WFL program. This WFL program itself is generally referred to as the job and the tasks it initiates as its offspring. The job controls the flow and execution of the task(s) it initiates.

library
A program containing a set of procedural "entry points" that can be called by other programs. A call on a procedure from a library is analogous to a call on a procedure in the user's program.

local memory
The portion of memory that is accessible by a subset of the processors in the configuration. The addresses contained in this subsystem are unique for the processors that access it, but not necessarily unique from addresses contained in other local memory subsystems.

Loosely-Coupled
A term that describes a multiprocessing environment in which independent MCPs operate asynchronously within their memory subsystems. A Loosely-Coupled environment may have any monolithic or Tightly-Coupled system as one (or more) of the independent subsystems.

MPX (Multiplexor)
A device that controls the operation of all of the peripheral subsystems except data communication processors (DCPs) and the bus interface control. (These two subsystems operate separately and are controlled directly from the processor.)

monolithic
A term that describes configurations in which all memory is accessible from all processors. Such a machine may consist of either a single processor or multiple processors. Only one MCP is in operation.

native mode pack
A disk pack that uses a format unique to B 5000/B 6000/B 7000 systems, but which allows full advantage to be taken of these systems' software capabilities.

peripheral
An input or output device such as a line printer, magnetic tape drive, or ODT.

segment
The minimum addressable area on a disk pack or head-per-track disk unit. A segment contains 180 bytes (30 words) of data.

SUMLOG
A comprehensive event-log file created and maintained by the system that contains information such as resource usage, hardware errors, security violations, system messages and RSVPs, opens and closes of files, BOJs and EOJs, and BOTs and EOTs. Refer to Volume 2, Chapter 15 of the B 5000/B 6000/B 7000 Series System Software Operational Guide for a more detailed description of this facility.

Tightly-Coupled
A multiprocessing system that has individual local memory subsystems. Not all of these subsystems are visible to all processors. Only one MCP is running, and the system is controlled from the memory subsystem (GLOBAL Memory) that is visible to all processors.

usercode
An identification code used to:

1. Establish user identity.
2. Control security.
3. Provide for segregation of files.

Usercodes may be applied to every task, job, session, and file on the system.

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