



**NOS VERSION 1
SYSTEMS
PROGRAMMER'S
INSTANT**

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

REVISION RECORD

REV	DESCRIPTION
A (07-18-75)	Manual released. Reflects NOS 1.0 at PSR level 404.
B (03-02-76)	Revised to update manual to NOS 1.1 at PSR level 419 and to make typographical and technical corrections. New features, as well as changes, deletions, and additions to information in this manual are indicated by bars in the margin or by a dot near the page number if the entire page is affected. This edition obsoletes all previous editions.
C (01-10-77)	Revised to update manual to NOS 1.2 at PSR level 439 and to make typographical and technical corrections. Sections 5 (Instructions) and 6 (External Function Codes) have been removed. The information previously in these sections is available in the following manuals: CYBER 170 Computer System Codes (pub. no. 60420010); 6000/CYBER 70 Series Codes Manual (pub. no. 60149100); and 3000 Series Peripheral Equipment Codes Manual (pub. no. 60113400). This edition obsoletes all previous editions.

Publication No.
60449200

Revision letters I, O, Q, S, X and Z are not used.

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REVISION RECORD (CONTD)

REV	DESCRIPTION
<p style="text-align: center;">D (08-07-78)</p>	<p>Revised to update manual to NOS 1.3 at PSR level 472 and to make typographical and technical corrections. New features include use access to ECS, 580 PFC support, ATS/block ID support, enhanced preserved file recovery, on-line reconfiguration of RMS, 844 full tracking, Interactive Facility support, PF utility RAM improvements, CDC CYBER Interactive Debug support, user file privacy, control use of password, CCL support, and network products support. This edition obsoletes all previous editions.</p>
<p style="text-align: center;">E (07-13-79)</p>	<p>Revised to update manual to NOS 1.4 at PSR level 498 and to make typographical and technical corrections. New features include on-line ECS diagnostic support; expanded ECS status information; 7155/885 disk drive support; deadstart from mass storage; CDC CYBER 170 Series, Model 176 support; and 16-word PFC support. This revision obsoletes all previous editions.</p>
<p style="text-align: center;">F (03-31-80)</p>	<p>Revised to update manual to the first corrective code release following NOS 1.4 and to include Mass Storage Subsystem support and to make typographical and technical corrections. This revision obsoletes all previous editions.</p>
<p style="text-align: center;">G (11-20-81)</p>	<p>Revised to update manual to NOS 1.4 at PSR level 552 and to make typographical and technical corrections. New features include Remote Host Facility, PRU interface, and RMS multimaiframe operation. This revision obsoletes all previous editions.</p>



LIST OF EFFECTIVE PAGES

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

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PREFACE

The Network Operating System (NOS) Version 1.4 provides network capabilities for time-sharing and transaction processing, in addition to local and remote batch processing on CDC® CYBER 170 Computer System Models 171, 172, 173, 174, 175, 176, 720, 730, 740, 750, 760; CDC CYBER 70 Computer System Models 71, 72, 73, and 74; and CDC 6000 Computer System.

AUDIENCE

This manual provides condensed descriptions of console commands; systems oriented control statements; central memory tables; and function requests for analysts, programmers, and operators. The user of this manual should have a thorough knowledge of NOS.

CONVENTIONS

Extended memory for the CDC CYBER 170 Models 171, 172, 173, 174, 175, 720, 750, and 760 is extended core storage (ECS). Extended memory for CDC CYBER 170 Model 176 is large central memory (LCM) or large central memory extended (LCME). ECS and LCM/LCME are functionally equivalent, except as follows:

- LCM/LCME cannot link mainframes and does not have a distributive data path (DDP) capability.
- LCM/LCME transfer errors initiate an error exit, not a half exit. Refer to the COMPASS Reference Manual for complete information.

Model 176 supports direct LCM/LCME transfer COMPASS instructions (octal codes 014 and 015). Refer to the COMPASS Reference Manual for complete information.

In this manual, the acronym ECS refers to all forms of extended memory on the CDC CYBER 170 Computer System. However, in the context of a multimainframe environment or DDP access, model 176 is excluded.

RELATED PUBLICATIONS

Descriptions of NOS control statements and character sets are contained in the NOS Version 1 Applications Programmer's Instant, publication number 60436000.

The following manuals provide more detailed descriptions of these subjects.

<u>Control Data Publication</u>	<u>Publication Number</u>
COMPASS Version 3 Instant	60492800
COMPASS Version 3 Reference Manual	60492600
CYBER 70/Model 71 Computer System Hardware Reference Manual	60453300
CYBER 70 Model 72 Computer System Reference Manual	60347000
CYBER 70 Model 73 Computer System Reference Manual	60347200
CYBER 70 Model 74 Computer System Reference Manual	60347400
CYBER 170 Computer System Codes	60420010
CYBER 170 Computer Systems Models 720, 730, 750, 760, and 176 (Level B/C) Hardware Reference Manual	60456100
CYBER 170 Computer Systems Models 171 through 175 (Levels A, B, C) and Model 176 (Level A) Hardware Reference Manual	60420000
CYBER 70 Computer System 7030 Extended Core Storage Reference Manual	60347100
Manual Abstracts Guide to NOS Software Manuals	84000420
NOS Version 1 Installation Handbook	60435700
NOS Version 1 Operator's Guide	60435600
NOS Version 1 Reference Manual Volume 1	60435400
NOS Version 1 Reference Manual Volume 2	60445300
NOS Version 1 System Maintenance Reference Manual	60455380

<u>Control Data Publication</u>	<u>Publication Number</u>
3000 Series Computer Systems Peripheral Equipment Codes Manual	60113400
6000 Series CYBER 70 Series Models 71, 72, 73, 74 Computer Systems Codes Manual	60141900
6000 Series Computer Systems Hardware Reference Manual	60100000

DISCLAIMER

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



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SYSTEM DISPLAY (DSD) COMMANDS

DSD DESCRIPTION

DSD is an interpretive display driver; when a console operator is typing a command, DSD completes the command as soon as it recognizes enough characters to establish the uniqueness of the command. Moreover, DSD does not accept or display illegal characters. A description of the display selection and commands follows.

DISPLAY SELECTION

The system displays are selected by the console command

xy. (CR)

where x and y represent the letter designations of the displays; x appears on the left screen and y appears on the right screen. If x and y are identical, both screens display the same information.

<u>Letter Designation</u>	<u>Display</u>	<u>Description</u>
A	Dayfile	Chronological history of operation; includes the system (A,.) display, the account (A,ACCOUNT FILE.) display, and the error log (A,ERROR LOG.) display.
B	Job status	Current status of all jobs assigned to control points.
C,D	Central memory	Portions of the contents of central memory in five groups of four octal digits and their display code equivalents.
E	Equipment status	Status of peripheral devices; includes the equipment status table (E,. or E,A.) display, the mass storage configuration (E,C.) display, the mass storage table

<u>Letter Designation</u>	<u>Display</u>	<u>Description</u>
		(E,M.) display, the resource mounting preview (E,P.) display, and the tape status (E,T.) display.
F,G	Central memory	Portions of the contents of central memory in four groups of five octal digits and the display code equivalents.
H	File name table (FNT)	Lists, by type, [†] all files in the system: <ul style="list-style-type: none"> CM Common file. FA Fast-attach file. IN Input file. LI Library file (read-only common file). LO Local file. PM Direct access permanent file. PR Print file. PT Primary terminal file. PH Punch file. RO Rollout file. SY System file. S1 Remote host queue file. S2 Special file type 2. S3 Special file type 3. TE Timed/event rollout file.
I	BATCHIO status	Status of central site unit record devices.
J	Control point status	Displays the status of a specified control point.
K,L	CPU program-mable	Dynamic operator/CPU program communication.
M	ECS display	Contents of ECS.
N	File display	Contents of any file in FNT.

[†] If an asterisk follows the file type mnemonic, the file is locked.

<u>Letter Designation</u>	<u>Display</u>	<u>Description</u>
O	Transaction status	Status of transaction subsystem; includes the task library directories (O, TA.) display, the transaction terminal status (O, TR.) display, and the subcontrol point status (O, SU.) display.
P	PP communications area	Current contents of PPU registers.
Q	Queue status	Status of input/output/rollout queues.
R	Export/Import status	Status of Export/Import subsystem operations.
S	System control information	Parameters used to control job flow.
T	Time-sharing status	Status of time-sharing job processing.
Y	Monitor functions	Lists all monitor mnemonics and codes.
Z	Directory	List of the letter designations and descriptions of all DSD displays.

SPECIAL FIRST CHARACTER ENTRIES

- * Alternates display control between DSD and another console program each time * key is pressed.
- = Alternates left screen display between its absolute and relative setting for memory displays C, D, F, G, or M. Alternates control point display and system display for A, J, K, and L displays.
- + Advances left screen display as follows:
 - Memory Advances display (C,D,F, address by 40g. G, or M)
 - E Advances to next page of equipment status display.
 - H Advances to next page of FNT display.

- N Advances file displayed by one-half sector.
- P Advances to next page of P display.
- R,T Advances to next page of R or T display.
- A,J,K,L Advances control point number of control point oriented display.

Changes left screen display as follows:

Memory Decrements display (C,D,F address by 40g. G, or M)

E Advances equipment status display by one page.

H Advances FNT display by one page.

N Backspaces file displayed by one-half sector.

P Decrements one page of P display.

R,T Decrements one page of R or T display.

A,J,K,L Decrements control point number of control point oriented display.

right blank
(display)

Advances left screen display sequence established by SET command.

/

Advances left screen memory display by the value in the lower 18 bits of the first word displayed.

(

Advances right screen as described for + key.

)

Changes right screen as described for - key.

CR
(carriage
return)

Sets repeat entry flag. The subsequent entry is processed but not erased after completion. Flag is cleared by pressing the left blank (erase) key.

CONTROL CHARACTERS

left blank (erase)	Clears current keyboard entry and any resultant error messages.
BKSP (clear)	Deletes last character typed and clears error messages.
CR (carriage return)	Initiates processing of command entered.

SYSTEM DISPLAY COMMANDS

DISPLAY,xxx.	Displays file with FNT ordinal xxx on the left screen N display.																		
H,x.	Specifies the type of files to appear on the H display: x = <table><tr><td>A</td><td>All files.</td></tr><tr><td>C</td><td>Common files.</td></tr><tr><td>I</td><td>Input files.</td></tr><tr><td>L</td><td>Local files.</td></tr><tr><td>O</td><td>Output files.</td></tr><tr><td>P</td><td>Punch files.</td></tr><tr><td>R</td><td>Rollout files.</td></tr><tr><td>S</td><td>Remote host queue file.</td></tr><tr><td>T</td><td>Timed/event rollout files.</td></tr></table>	A	All files.	C	Common files.	I	Input files.	L	Local files.	O	Output files.	P	Punch files.	R	Rollout files.	S	Remote host queue file.	T	Timed/event rollout files.
A	All files.																		
C	Common files.																		
I	Input files.																		
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O	Output files.																		
P	Punch files.																		
R	Rollout files.																		
S	Remote host queue file.																		
T	Timed/event rollout files.																		
m,n.	Sets control point oriented display m (A,C,D,F,G,J,K, or L) to display only control point n information. n Control point number.																		
xz,aaaaaa.	x Letter designation of a storage display (C,D,F,G, or M). z Type of display modification: z=0-3 Changes the specified group to display the eight words beginning at location aaaaaa. z=4 Changes the entire display to display the memory contents beginning at location aaaaaa.																		

	z=5	Increments the display by aaaaaa locations.
	z=6	Decrements the display by aaaaaa locations.
	aaaaaa	Location parameter (as previously explained).
SET, ssss.		Preselects left screen display sequence.
	sss	Letter designating any four DSD displays. Pressing the right blank key after SET is entered causes each display to appear on the left console screen in the sequence specified by ssss.

DAYFILE COMMANDS

A.	Resets the A display to the beginning of the system dayfile buffer.
A,.	Resets the A display to the system dayfile when the error log dayfile, account dayfile, or one of the control point dayfiles is currently being displayed.
A,n.	Displays the dayfile buffer for control point n.
A,ACCOUNT FILE.	Displays the account dayfile buffer on the left console screen.
A,ERROR LOG.	Displays the error log dayfile buffer on the left console screen.
ACCOUNT, xx.†	Requests that account dayfile be dumped to equipment xx. If xx is omitted, the dayfile is dumped to the print queue.
DAYFILE, xx.†	Requests that the system dayfile be dumped to equipment xx. If xx is omitted, the dayfile is dumped to the print queue.

† Equipment identifier xx applies only to tapes and disks. It is not supported for unit record equipment.

ERRLOG,xx.† Requests that error log dayfile be dumped to equipment xx. If xx is omitted, the dayfile is dumped to the print queue.

JOB PROCESSING CONTROL COMMANDS

n.CKP. Requests checkpoint of job at control point n.

CPxx,yy. Assigns a numeric identifier yy to card punch xx.

CRxx,yy. Assigns a numeric identifier yy to card reader xx.

DELAY,t₁
xxxx,...,
t_nxxxx. Changes system delay parameters:

<u>t_i</u>	<u>Delay</u>
JSxxxx	Job scheduler delay interval in seconds.
CRxxxx	CPU recall period in milliseconds.
ARxxxx	PP auto recall interval in milliseconds.
CSxxxx	CPU job switch interval in milliseconds.

JS, CR, AR, and CS may not be set to zero.

n.DROP. Drops the job currently assigned to control point n.

ENID,yy,fmt. Enters identifier; assigns a numeric identifier yy (0-67₈) to the batch or system origin print or punch type file specified by FNT ordinal fmt.

n.ENPR,xx. Enters CPU priority xx (1-70₈) for job currently assigned to control point n.

n.ENQP,pppp. Enters queue priority of pppp (MNPS to MXPS) for the job currently assigned to control point n.

ENPR,xxxx,yyy. Enters a priority of xxxx for a file specified by FNT ordinal yyy.

† Equipment identifier xx applies only to tapes and disks. It is not supported for unit record equipment.

ENQP,xxxx,
yyy. Enters a queue priority of xxxx for a queue type file specified by FNT ordinal yyy.

n.ENTL,xxxxx. Enters time limit of xxxxx for job currently assigned to control point n.

FORMxx,fc. Assigns forms code fc to the line printer or card punch identified by equipment number xx. Forms code consists of two alphanumeric characters or null entry.

n.KILL. Drops the job currently assigned to control point n with no exit processing.

LOAD,xx,yy. Requests that a job be loaded from equipment xx. Job is assigned identifier yy (0-67₈).

LPxx,yy. or
LRxx,yy. or
LSxx,yy. or
LTxx,yy. Assigns identifier yy (0-67₈) to the line printer identified by equipment number xx.

MSAL,t=ord₁,
...,ord_n. Provides mass storage allocation to control which files go to each non-removable mass storage device (limit of one file type per entry with multiple device ordinals permitted).

<u>t</u>	<u>File Type</u>
B	LGO.
D	Dayfile.
I	Input.
L	Local.
O	Output.
P	Primary.
R	Rollout.
S	Secondary rollout.
T	Temporary.

ord₁ = EST ordinal of a nonremovable mass storage device. If a file type is specified without assigning a device ordinal, the system assigns the file type to an existing temporary device with a t=T attribute.

n.OVERRIDE. Drops jobs performing operations unaffected by n.DROP, n.KILL, or n.STOP. The console keyboard must be unlocked.

PURGE,xxx. Purges queue type file identified by FNT ordinal xxx from the system.

PURGEALL,t. Purges all files of queue type t from the system:

<u>t</u>	<u>File Type</u>
I	Input.
O	Output.
P	Punch.
R	Rollout.
S	Remote host.
T	Timed/event rollout.

QUEUE,ot, qt,qP₁xxxx, ...,qP_nxxxx. Alters the queue priorities associated with the input, rollout, and output queues.

<u>ot</u>	<u>Job Origin Type</u>
SY	System.
BC	Local batch.
TX	Time-sharing.
EI	Remote batch.
MT	Multiterminal.

<u>ot</u>	<u>Job Class Type</u>
NS	Network supervisor.

<u>qt</u>	<u>Job Queue Type</u>
IN	Input.
RO	Rollout.
OT	Output.

qp Queue Priority

LPxxxx	Lowest priority at which a job can enter the queue and still be aged (MNPS<xxxx<MXPS).
OPxxxx	Original (entry) priority; the entry associated with the job when it initially enters the specified queue.
UPxxxx	Highest priority a job can reach in the specified queue; aging stops when this priority is reached.
INxxxx	Number of scheduler cycles before incrementing the job priority by one.
n.RERUN, xxxx.	Terminates the job currently assigned to control point n, then reruns the job from the beginning with a queue priority of xxxx (MNPS<xxxx<MXPS). Job is not rerun if NORERUN control is set.
ROLLIN,xxx.	Allows job identified by FNT ordinal xxx to be scheduled to an available control point by assigning it maximum queue priority (MXPS).
n.ROLLOUT.	Removes job currently assigned to control point n and places it in the rollout queue; job is not scheduled back to a control point automatically.
n.ROLLOUT, xxxx.	Removes job currently assigned to control point n and places it in the rollout queue for xxxx job scheduler delay intervals; job is automatically scheduled back to a control point at this time.
SERVICE,ot, p ₁ xxxx,..., p _n xxxx.	Alters the service limits associated with each job origin and class type.

ot Job Origin Type

SY System.
BC Local batch.
TX Time-sharing.
EI Remote batch.
MT Multiterminal.

ot Job Class Type

NS Network supervisor.

Pi Service Limits

PRxx CPU priority (1-77₈).
CPxxxx† CPU time slice (milli-seconds * 100₈).
CMxxxx† Central memory time slice in seconds.
NJxxxx† Maximum number of active jobs of the time-sharing origin type.
FLxxxx† Maximum field length/100₈ for any job of the specified job origin type.
AMxxxx† Maximum field length/100₈ for all jobs of the specified job origin type.
ECxxxx† Maximum ECS/1000₈ for any job of the specified job origin type.
EMxxxx† Maximum ECS/1000₈ for all jobs of the specified job origin type.

†Only the last four digits entered are used.

P₁

Service Limits

FCx

Number of permanent files
allowed:

<u>x</u>	<u>Limit Value</u> †
0	Unlimited
1	10
2	20
3	30
4	40
5	50
6	100
7	Unlimited

CSx

Cumulative size in PRUs
allowed for all indirect
access permanent files:

<u>x</u>	<u>Limit Value</u> †
0	Unlimited
1	1000
2	2000
3	5000
4	10000
5	50000
6	100000
7	Unlimited

FSx

Size in PRUs allowed for
individual indirect
access permanent files:

<u>x</u>	<u>Limit Value</u> †
0	Unlimited
1	10
2	20
3	30
4	40
5	50
6	60
7	Unlimited

†All values are in octal.

<u>P_i</u>	<u>Service Limits</u>
DSx	Size in PRUs allowed for individual direct access permanent files:
	<u>x</u> <u>Limit Value</u> [†]
	0 Unlimited
	1 1000
	2 2000
	3 5000
	4 10000
	5 50000
	6 100000
	7 Unlimited

The following job control commands are used to respond to a job currently assigned to a control point.

- n.CFO.ccc Allows the operator to send message ccc...ccc (36 characters maximum) to the program currently assigned to control point n.
- n.COMMENT.
ccc...ccc.
or
n. *ccc...ccc. Enters comment ccc...ccc (50 characters maximum) in the dayfile for control point n.
- n.GO. Clears the pause bit at control point n.
- n.OFFSWx. Turns off sense switch (1<x<6) at control point n.
- n.ONSWx. Turns on sense switch (1<x<6) at control point n.

The following job control commands apply only to time-sharing origin jobs.

- DIAL,nnnn,
ccc...ccc. Sends message ccc...ccc (48 characters maximum) to terminal currently using line number nnnn.
- MESSAGE,
ccc...ccc. Changes current header message that is output to terminal when user logs in to ccc...ccc (48 characters maximum).^{††}
- WARN. Clears message entered by the WARN, ccc...ccc. command.
- WARN,
ccc...ccc. Sends message ccc...ccc (48 characters maximum) to all terminals currently logged into the system.

[†]All values are in octal.

^{††}For IAF, the message is displayed only at the IAF control point.

PERIPHERAL EQUIPMENT CONTROL COMMANDS

- n.ASSIGN,xx. Assigns equipment xx to job at control point n.
- FORMAT,xx. Toggles format pending status for device xx. If this status bit is set, the command sets the full initialize status bit. If the format pending status bit is being cleared, the full initialize status bit is not changed. The console must be unlocked before entry of this command is permitted.
- DOWN,CHxx.
or
DOWN,CHxx,
EQyy. Discontinues use of channel xx for all tape and mass storage I/O operations. If channel xx is the only channel available to a mass storage device, its use will not be discontinued for that device. If EQyy is specified, as in the second form of the command, channel xx is discontinued only for mass storage equipment yy.
- INITIALIZE,
xx,op. Toggles initialize option op for mass storage device xx. The operator enters the INITIALIZE command for each device to be initialized and then assigns the K display. If the user decides not to initialize the device specified, initialize status can be cleared by entering K.CLEAR. This command is not valid if local unload status is set for device xx.

Device characteristics are:†

<u>Device Definition Option</u>	<u>Description</u>
FM=	A one- to seven-character family name; if TY=X, one- to seven-character pack name.
UN=	A one- to seven-character user number (to clear user number, use UN=NULL).

† Device characteristics may be changed only if OP=AL.

Device Definition <u>Option</u>	<u>Description</u>																						
TY=F	Initialized device is a family device.																						
TY=X	Initialized device is an auxiliary device.																						
OP=	Initialization option:																						
	<table border="1"> <thead> <tr> <th><u>Option</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>AL</td> <td>All pre-served files.</td> </tr> <tr> <td>FT</td> <td>Full track device.</td> </tr> <tr> <td>HT</td> <td>Half track device.</td> </tr> <tr> <td>PF</td> <td>Permanent files.</td> </tr> <tr> <td>QF</td> <td>Inactive queued files.</td> </tr> <tr> <td>DF</td> <td>Inactive day-file.</td> </tr> <tr> <td>AF</td> <td>Inactive account file.</td> </tr> <tr> <td>EF</td> <td>Inactive error log.</td> </tr> <tr> <td>MF</td> <td>Inactive binary maintenance log.</td> </tr> <tr> <td>FP</td> <td>Format pack (initialization does not occur until format pending is cleared).</td> </tr> </tbody> </table>	<u>Option</u>	<u>Description</u>	AL	All pre-served files.	FT	Full track device.	HT	Half track device.	PF	Permanent files.	QF	Inactive queued files.	DF	Inactive day-file.	AF	Inactive account file.	EF	Inactive error log.	MF	Inactive binary maintenance log.	FP	Format pack (initialization does not occur until format pending is cleared).
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EF	Inactive error log.																						
MF	Inactive binary maintenance log.																						
FP	Format pack (initialization does not occur until format pending is cleared).																						
DM=	A three-digit device mask (0 to 377 ₈).																						
SM=	A three-digit secondary mask (0 to 377 ₈).																						
NC=	Octal number of catalog tracks (power of 2).																						
EQ=	EST ordinal of device to be initialized.																						
NP=	Number of physical units to be included in a multispindle device; default is 1.																						

Device
Definition

<u>Option</u>	<u>Description</u>
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DN=	A two-digit octal device number (1 to 77) that uniquely identifies the device in its permanent file family.
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Track
Flawing

<u>Option</u>	<u>Description</u>
---------------	--------------------

RTK	Converts input physical address to a logical address and sets TRT to indicate that track is a reserved, flawed track.
TTK	Input is the same as for RTK, but track reservation is toggled.
STK	Performs the same function as RTK except that input address is a logical address.

After all necessary parameters have been entered for a specific device, the K.GO. command is entered to begin initialization.

MOUNT,xx.
or
MOUNT,xx,P.

Clears local and global unload status for mass storage device xx and reactivates the device. P, if specified, causes the system to preset the specified device if it is shared in a non-ECS multimainframe environment.

OFFxx.

Logically turns off device xx.

ONxx.

Logically turns on device xx.

REDEFINE,xx

Requests reconfiguration of mass storage device xx. The operator enters the REDEFINE command for each device to be reconfigured and then assigns the K display. If the user decides not to reconfigure the device specified, reconfiguration status can be cleared by entering K.CLEAR.

Reconfiguration
Parameter

Description

CH	One or two channel numbers to be used under new device definition.
EQ=	EST ordinal to which following parameters apply.
UL=	Unit list for new configuration (unit numbers are separated by commas); UL= deletes current configuration.
UR=	EST ordinal of device to be recabled.

After all necessary parameters have been entered for a specific device, the K.GO. command is entered to begin reconfiguration.

SCRATCH,xx.

Indicates that magnetic tape unit xx should be used to satisfy a request for a scratch VSN tape. The VSN is displayed as SCRATCH although the original VSN is used when the tape is assigned. If the tape is written, the original VSN is retained and not made scratch.

TEMP,xx₁,xx₂,
...,xx_n.

Reverses current set or clear conditions of temporary file status for mass storage devices xx_i.

TRAINxx,y.

Assigns or changes print train identification of line printer defined by EST ordinal xx. y field represents print train number.

<u>y</u>	<u>Print Train</u>
1	596-1.
2,3	Reserved for future use (default to 596-1).
4,5	596-5.
6,7	596-6.

UNLOAD,xx.	Physically unloads a magnetic tape unit xx or logically removes a removable mass storage device xx from the operating environment while the operator dismounts a tape or disk pack. This command is illegal if entered from a machine with initialize pending for the specified mass storage device.
UP,CHxx. or UP,CHxx, EQyy.	Reverses effect of DOWN command for channel xx and resumes normal use of the channel for all tape and mass storage I/O operations. If EQyy is specified, channel xx is made available only to mass storage equipment yy.
VALIDATE,xx.	Causes validation of mass storage tables associated with device xx. The device must be available mass storage and the MS VALIDATION option must have been selected at deadstart.
VSN,xx.	Clears current VSN for tape unit xx and checks if a VSN is specified on that tape; valid only if the unit is not currently assigned.
VSN,xx, vsn.	Assigns one- to six-character VSN vsn to magnetic tape unit xx.
VSN,xx,.	Assigns a scratch VSN to magnetic tape unit xx. The VSN is displayed as SCRATCH, and if the tape is written, the VSN in the VOL1 label is written as a scratch VSN destroying any previous VSN.

BATCHIO EQUIPMENT CONTROL COMMANDS

BKSPxx.	Backspaces print file on BATCHIO equipment xx, one logical record.
BKSPxx,yy.	Backspaces print file on BATCHIO equipment xx, yy logical records.
BKSPFxx.	Backspaces print file on BATCHIO equipment xx, one file.
BKSPFxx,yy	Backspaces print file on BATCHIO equipment xx, yy files.

BKSPRUxx,yy.	Backspaces print file on BATCHIO equipment xx, yy sectors.
CONTINUExx.	Resumes printing on BATCHIO equipment xx.
ENDxx.	Terminates current operation on BATCHIO equipment xx.
ENDxx,yy.	Terminates current operation on BATCHIO equipment xx; yy is subtracted from the repeat count specified for that equipment. If yy is greater than the current repeat count, the repeat count is cleared.
REPEATxx.	Repeats the current operation on BATCHIO equipment xx one time.
REPEATxx,yy.	Repeats the current operation on BATCHIO equipment xx the number of times specified by yy (maximum is 77 _g).
RERUNxx.	Terminates current operation on BATCHIO equipment xx and reenters the job in the correct queue at a default queue priority.
RERUNxx,yy.	Terminates current operation on BATCHIO equipment xx and reenters the job in the correct queue with queue priority yy00.
SKIPxx.	Skips forward one logical record on print file on BATCHIO equipment xx.
SKIPxx,yy.	Skips forward yy logical records on print file on BATCHIO equipment xx.
SKIPFxx.	Skips forward to next file mark on print file on BATCHIO equipment xx.
SKIPFxx,yy.	Skips forward xx files on print file on BATCHIO equipment xx.
SKIPRUxx,yy.	Skips forward yy sectors on print file on BATCHIO equipment xx. yy is limited to 10 _g sectors (current buffer size) plus number of sectors remaining in buffer (that is, if buffer is full, yy \leq 20 _g).

STOPxx. Stops printing on BATCHIO equipment xx.

SUPPRESSxx. Suppresses automatic printer carriage control on BATCHIO equipment xx (must be line printer).

SUBSYSTEM CONTROL COMMANDS

n.CDCffff.† Calls the CDC CYBER Database Control System (CDCS) to control point n.

n.EXPffff. Calls Export/Import to control point n; punch files disposed are as follows:

<u>Entry</u>	<u>Response</u>
n.ONSW1.	Sends all punch files to local batch card punch.
n.ONSW2.	Purges all punch files.

IAFffff.† or TELEX. Calls the time-sharing subsystem to control point 1; control options are as follows:

<u>Entry</u>	<u>Response</u>
1.ONSW1.	When time-sharing subsystem is terminated (with a 1.STOP command), enters users into recover state and inhibits restarting operations.
1.ONSW2.	Enables time-sharing subsystem to use the delay queue feature.
1.ONSW3.	Aborts time-sharing subsystem on all abnormal conditions.

† Characters ffff are optional; if required, installations must supply the one to four alphanumeric characters to be used.

	<u>Entry</u>	<u>Response</u>
	1.ONSW4.	Enables dump on normal termination.
	1.ONSW5.	Calls DMD, which dumps information to OUTPUT and releases OUTPUT after time-sharing subsystem is dropped or aborted (default).
	1.ONSW6.	Releases OUTPUT file containing dump information written after time-sharing subsystem is dropped or aborted.
n.IDLE.		Idles subsystem currently assigned to control point n. This command can also be entered to drop any job with a queue priority greater than MXPS+1.

n.IO. Calls BATCHIO to control point n; control option is:

	<u>Entry</u>	<u>Response</u>
	n.ONSW1.	Lines producing printer print errors are not flagged or retried.
n.MAGNET.		Calls the magnetic tape subsystem to control point n.
n.MSSffff†		Calls the mass storage subsystem to control point n.
n.NAMffff.†		Calls the Network Access Method (NAM) to control point n.
n.RBFffff.†		Calls the Remote Batch Facility (RBF) to control point n. NAM must be active at a control point to use RBF.

†Characters ffff are optional; if required, installations must supply the one to four alphanumeric characters to be used.

n.RHFffff.†

Calls the Remote Host Facility (RHF) to control point n; control options are as follows:

<u>Entry</u>	<u>Response</u>
n.ONSW2.	Enables the semi-dedicated mode path manager option.
n.ONSW3.	Disables the logging of NAD detect status errors into the system dayfile.

STIMULATOR.
or
STMffff.†

Calls stimulator subsystem to last control point.

n.STOP.

Drops (terminates) subsystem currently assigned to control point n. This command can also be entered to drop any job with a queue priority greater than MXPS+1 (console keyboard must be unlocked).

TAFffff.†

Calls the transaction subsystem to control point 2; control options are as follows:

<u>Entry</u>	<u>Response</u>
2.ONSW4.	Attempts recovery after the transaction subsystem is dropped or aborted.
2.ONSW5.	Dumps entire field length and releases OUTPUT after transaction subsystem is dropped or aborted.
2.ONSW6.	Prints job dayfile upon termination.

TELEX.

Refer to IAF. command.

†Characters ffff are optional; if required, installations must supply the one to four alphanumeric characters to be used.

SYSTEM CONTROL COMMANDS

AUTO. Calls all currently enabled subsystems to control points and initiates automatic job processing.

BLITZ. Drops all jobs but subsystems (console keyboard must be unlocked).

CHECK POINT SYSTEM. Rolls out all jobs and transfers contents of central memory tables to mass storage.

DATE. Changes current system date (console keyboard must be unlocked):

yy	Year (0-99).
mm	Month (1-12).
dd	Day (1 through number of days in month).

DEBUG. Toggles the current set or clear condition of debug mode; debug mode provides system origin privilege to validated users and allows modifications to be made to the running system for non-system origin jobs (console keyboard must be unlocked).

n.DIS. Calls DIS to control point n.

ENABLE,op.
or
DISABLE,op.

Enables or disables one of the following options.

<u>op</u>	<u>Result</u>
ACCOUNT	Enables or disables processing of VAL= entry point programs (USER, CHARGE, FAMILY). If ACCOUNT is disabled, the control statement is sent to the dayfile and processing continues at the next control statement.
AUTOROLL	Enables or disables automatic rollout of jobs.
BATCHIO	Enables or disables BATCHIO subsystem.

<u>op</u>	<u>Result</u>
CDCS	Enables or disables system control point version of CDCS.
E1200	Enables or disables Export/Import.
FILE STAGING	Enables or disables staging of MSS resident permanent files to disk.
IAF	Enables or disables Interactive Facility.
MAGNET	Enables or disables magnetic tape subsystem.
MCS	Enables or disables MCS.
MS VALIDATION	Enables or disables automatic verification of mass storage tables.
MSS	Enables or disables MSS.
MSS MASTER	Enables or disables master MSSEXEC.
NAM	Enables or disables NAM.
PF VALIDATION	Enables or disables verification of BOI/EOI on preserved files.
PRIORITY AGING	Enables or disables priority aging.
RBF	Enables or disables RBF.
REMOVABLE PACKS	Enables or disables automatic label checking for mass storage devices defined as removable.
RHFAM	Enables or disables Remote Host Facility Access Method (RHFAM).

<u>op</u>	<u>Result</u>
SECOND- ARY USER CARDS	Enables or disables use of more than one user statement in a job stream (console keyboard must be unlocked).
TAF	Enables or disables Transaction Facility.
TELEX	Enables or disables time-sharing subsystem.
USER ECS	Enables or disables the scheduling of jobs that access the user area of ECS (console must be unlocked).
VALIDA- TION	Enables or disables the running of jobs without USER control statement (console keyboard must be unlocked). If validation is disabled, USER statement, if present, will be processed as defined in the x=ACCOUNT feature. Jobs will run if no USER statement exists. (Access to magnetic tapes, permanent files, and removable packs is not allowed.)
ENGR.	Toggles the current set or clear condition of ENGINEERING mode. ENGINEERING mode allows PPU/hardware diagnostics and FORMAT/FDP to run (the console keyboard must be unlocked).
IDLE.	Disables automatic job processing.
IDLEFAMILY,xx.	If the family is active, all new jobs and USER statements for the family on the equipment specified by EST ordinal xx are rejected. If the family is inactive, jobs are allowed to access the family on the equipment specified by EST ordinal xx.

<p>K.ccc...ccc. or L.ccc...ccc.</p>	<p>Allows entry of data ccc...ccc in CPU buffer for control point to which the K or L display is assigned.</p>
<p>LOCK.</p>	<p>Locks the console keyboard.</p>
<p>MAINTENANCE.</p>	<p>Performs the same function as the AUTO command but also assigns several maintenance routines at available control points and runs them with minimum queue and CPU priorities.</p>
<p>STEP.</p>	<p>Sets monitor in step mode; stops all central memory I/O operations and prevents the system from processing PPU requests when the next monitor function is encountered.</p>
<p>STEP,xx. or STEP,xx,b,v.</p>	<p>Sets step mode for monitor function xx; stops all central memory I/O operations and prevents the system from processing PPU requests when function xx is encountered. If b is present, step mode is set for monitor function xx with byte b equal to value v.</p>
<p>n.STEP. or n.STEP,xx. or n.STEP,xx,b,v.</p>	<p>Sets monitor in step mode for control point n. If xx is present, step mode is set for monitor function xx. If b is present, step mode is set for monitor function xx with byte b equal to value v.</p>
<p>TIME.hh. mm.ss.</p>	<p>Changes current system time (console must be unlocked):</p>
	<p>hh Hour (00-23).</p>
	<p>mm Minute (00-59).</p>
	<p>ss Second (00-59).</p>

UNLOCK.

Unlocks the console keyboard; keyboard must be unlocked for the following commands.

- All channel control commands.
- All memory entry commands.
- BLITZ.
- DATE.yy/mm/dd.
- DEBUG.
- DISABLE, SECONDARY USER CARDS.
- DISABLE, VALIDATION.
- ENABLE, SECONDARY USER CARDS.
- ENABLE, VALIDATION.
- ENGR.
- FORMAT,xx.
- n.OVERRIDE.
- n.STEP.
- n.STEP,xx.
- n.STEP,xx,b,v.
- n.STOP.
- STEP.
- STEP,xx.
- STEP,xx,b,v.
- TIME.hh.mm.ss.
- UNLOAD,xx.
- UNSTEP.

UNSTEP.

Clears step mode (console must be unlocked).

- X.name.
or
X.name
(ccc...ccc)
or
X.name,xxxxx.
- 99.
- Calls a system program or utility specified by name to an available control point. Second form is used if parameters are to be passed. Third form is used if a field length, xxxxx, different from the default is required.
- Disables or enables syntax overlay processing.

MEMORY ENTRY COMMANDS

- loc, val.
or
loc ± val.
- n.loc, val.
or
n.loc ± val.
- loc, b, val.
or
loc ± b, val.
- n.loc, b, val.
or
n.loc ± b, val.
- loc, D chrs.
or
loc ± D chrs.
- Changes contents of absolute central memory location loc to val (20 digits).†
- Changes contents of central memory location loc to val (20 digits). Location loc is relative to reference address (RA) for control point n.†
- Changes contents of byte b at absolute central memory location loc to val.† ††
- Changes contents of byte b at central memory location loc to val. Location loc is relative to the RA for control point n.† ††
- Changes contents of absolute central memory location loc to display code characters chrs (left-justified, zero-filled).†

† The second form of the command is used when it is necessary to change successive memory locations. ± increments or decrements loc by 1.

†† Each memory location consists of five 12-bit bytes, numbered 0 through 4 from left.

n.loc, D chrs. or n.loc <u>±</u> D chrs.	Changes contents of central memory location loc to display code characters chrs (left-justified, zero-filled). Location loc is relative to RA for control point n.†
Eloc, val. or Eloc <u>±</u> val.	Changes contents of absolute extended core storage (ECS) location loc to val (20 digits).†
n.Eloc, val. or n.Eloc <u>±</u> val.	Changes contents of ECS location loc to val (20 digits). Location loc is relative to ECS reference address (RAE) for control point n.†
Eloc, b, val. or Eloc <u>±</u> b, val.	Changes contents of byte b at absolute ECS location loc to val.††
n.Eloc, b, val. or n.Eloc <u>±</u> b, val.	Changes contents of byte b at ECS location loc to val. Location loc is relative to the RAE for control point n.††
Eloc, D chrs. or Eloc <u>±</u> D chrs.	Changes contents of absolute ECS location loc to display code characters chrs (left-justified, zero-filled).†
n.Eloc, D chrs. or n.Eloc <u>±</u> D chrs.	Changes contents of ECS location loc to display code characters chrs (left-justified, zero-filled). Location loc is relative to RAE for control point n.†

†The second form of the command is used when it is necessary to change successive memory locations. ± increments or decrements loc by 1.

††Each memory location consists of five 12-bit bytes, numbered 0 through 4 from left.

CHANNEL CONTROL COMMANDS

ACNcc.	Activates channel cc.
DCHcc.	Drops channel cc.
DCNcc.	Deactivates channel cc.
FCNcc.	Outputs a zero function code (no activity) to channel cc.
FNCcc,xxxx.	Outputs function code xxxx to channel cc.
IANcc.	Inputs to pseudo A register from channel cc.
LDC,nnnn.	Loads pseudo A register with nnnn (normally a peripheral equipment function code).
MCHcc.	Master clears and removes all 3000-series peripheral equipment selections on channel cc (6681 function code 1700 _g is issued).
OANcc.	Outputs contents of pseudo A register to channel cc.

KEYBOARD MESSAGES

ILLEGAL ENTRY.	Command is not accepted by DSD. Operator must either correct or reenter the command.
DISK BUSY.	DSD is waiting for an overlay to be loaded from a mass storage device.
PPU BUSY.†	DSD is waiting for a PP to be assigned so that it can process a command.
MTR BUSY.†	DSD is waiting for a response from the system.

† If preceded by LOG - , the command has been executed but not logged in the system dayfile and/or error log.

JOB DISPLAY (DIS) COMMANDS

DIS DESCRIPTION

Unlike DSD, DIS is not interpretive. The operator must complete every entry manually and signal DIS to act upon the message by pressing the carriage return key.

DIS is brought to a control point by any of the following methods.

- Control statement in the form DIS.
- Operator call to DIS by typing n.DIS. for the job active at control point n.
- Operator call to DIS by typing X.DIS,f1. (f1 is field length desired) or X.DIS.

DISPLAY SELECTION

xy. (CR) Brings the x and y displays to the left and right screens, respectively.

The right screen display must be B, C, D, N, T, or U.

<u>Letter Designation</u>	<u>Display</u>	<u>Description</u>
A	Dayfile	Dayfile messages and files attached to control point.
B	Control point status	Job status, control statements, and exchange package.
C,D	Data storage	Five groups of four octal digits per group with display code translation.
F	Data storage	Four groups of five octal digits with display code translation.
G	Program storage	Four groups of five octal digits per group with COMPASS mnemonic translation.
H	Job files	File name table entries for this control point.

<u>Letter Designation</u>	<u>Display</u>	<u>Description</u>
M	ECS memory	Five groups of four octal digits per group with display code translation.
N	Blank screen	Blank screen.
T,U	Text display	Displays text from central memory in coded lines. Display is terminated after 256 words have been displayed.
V	Central memory buffer	Displays 512 words directly from central memory.
Y	Monitor functions	Displays mnemonics and values of all monitor functions.
Z	Directory	Lists DIS directory.

OTHER SYSTEM DISPLAY COMMANDS

- m,xxxx. If m is one of the letters C, D, F, or G, xxxx is the bias address for the managed table display.
- SET,ssss...s. Sets the left screen display sequence; ssss...s consists of one to eight display identifiers. The sequence is toggled by the right blank key.

SPECIAL FIRST CHARACTER ENTRIES

- * If DSD has relinquished the main display console to DIS, * acts as a quick hold, and DIS drops the display channel so that DSD can use it.
- = Toggles memory references between absolute and relative.
- + Advances memory displays (C,D,F, G,M,T, and U) and L display by 40g.
- Decrements memory displays (C,D, F,G,M,T, and U) by 40g. Advances L display by 40g.

right blank	Advances left screen display sequence established by SET command.
/	Advances left screen memory display address by the values in the lower 18 bits of the first word displayed.
(Breakpoint program to (P+1).
)	Breakpoint program to (P-1).
8	Advances left screen managed table pointer.
9	Decrements left screen managed table pointer.
CR (carriage return)	Sets repeat entry flag. The subsequent entry is processed but not erased after completion.
	Reads control statement buffer automatically and executes until completion or an error is detected (same as RCS command).

CONTROL CHARACTERS

left blank (erase)	Clears entry line and error message (if one exists).
BKSP (backspace key)	Deletes last character entered and clears error message (if one exists).
CR (carriage return)	Initiates processing of command.

KEYBOARD ENTRIES

BEGIN,pname,pfile.	Sets AUTO mode and calls CCL procedure pname on file pfile.
BKP,xxxxxx.	Breakpoints to address xxxxxx. Central processor execution begins at current value of P and stops when P=xxxxxx and DIS is the only PP active at user's control point.
BKPA,xxxxxx.	Breakpoints to address xxxxxx. Central processor execution begins at current value of P and stops when P=xxxxxx.

CALL,xxx.	Sets AUTO mode and calls KCL procedure xxx.
DCP.	Drops the central processor and displays the exchange package on the B display.
DIS.	Reloads main DIS overlay.
DROP.	Drops DIS; does not drop the job if there are control statements remaining in the buffer (unless the error flag is set).
ELS. ccc...ccc.	Enters control statement ccc... ccc in the control statement buffer after the last control statement, if there is space.
ENAi,xxxxxx.	Sets register Ai=xxxxxx in the exchange package area.
ENBi,xxxxxx.	Sets register Bi=xxxxxx in the exchange package area.
ENEM,m.	Sets CPU program exit mode to m ($0 < m < 7$).
ENFL,xxxxxx.	Sets FL=xxxxxx. xxxxxx ≥ 10000 if user ECS is assigned.
ENFLE,xxxx.	Sets ECS field length (FLE) to xxxxx000. If xxxxx > 0 , (set by ENFL) must be ≥ 10000 .
ENP,xxxxxx.	Sets P=xxxxxx.
ENPR,xx.	Sets job CPU priority to xx ($1 < xx < 70g$).
ENS. ccc...ccc.	Allows entry of control statement ccc...ccc as the next unprocessed statement in the control statement buffer; ENS clears control statement buffer of previous statements. ENS should not be used while executing a CCL procedure file as this produces unpredictable results.
ENTER./cccccc./ ddddd./	Allows entry of control statements ccccccc and ddddd from the keyboard and sets AUTO mode.
ENTL,xxxxx.	Sets the job time limit to xxxxx. 7777g is infinite.

ENXi,xxxxx xxxxx xxxxx xxxxx.	Sets register Xi=xxxxx xxxxx xxxxx xxxxx in the exchange pack- age area.
ENXi, Lzzz ...zzz.	Sets register Xi to zzz...zzz, left-justified.
ENXi,Dccc ...ccc.	Sets register Xi to ccc...ccc display code characters.
ENXi,b,zzzz.	Sets byte b of register Xi to zzzz.
ERR.	Sets error flag, terminates exe- cution, and clears AUTO mode if set.
GO.	Restarts a program which has paused.
HOLD.	DIS relinquishes the display console, but the job is held at the present status.
M.ccc...ccc.	Enters ccc...ccc as a program command. Data is stored at RA+ CCDR.
N.	Sets DIRECT CPU INPUT mode. Characters entered from the key- board are passed one character at a time, right-justified, directly into central memory at RA+CCDR. The operator termi- nates this mode by pressing the left blank key twice.
OFFSWx.	Turns off sense switch x for the job ($1 \leq x \leq 6$).
ONSWx.	Turns on sense switch x for the job ($1 \leq x \leq 6$).
026.	Calls 026 to the control point.
RCP.	Requests central processor. De- pending on job priority, execu- tion begins at the address spe- cified by the P register.
RCS.	Sets AUTO mode and initiates automatic control statement proc- essing.
RNS.	Reads and processes the next control statement in the DIS control statement buffer.

ROLLOUT.	Places job in the rollout queue until the job scheduler rolls it in.
ROLLOUT,xxxx.	Places job in rollout queue for xxxx job scheduler delay intervals; job is automatically rolled back in after this period of time.
RSS.	Reads the next control statement and stops prior to CPU execution.
RSS,ccc...ccc.	Reads statement ccc...ccc and stops before execution.
SCS.	Clears AUTO mode and stops automatic control statement processing.
T,xxxxxx.	Changes the T display to start at address xxxxxx.
U,xxxxxx.	Changes the U display to start at address xxxxxx.
UCC=c.	Sets the uppercase character to c.
V,xxxxxx.	Changes the V display to start at address xxxxxx.
X.ccc...ccc.	Processes ccc...ccc as the next control statement.
* xxx.	If an asterisk is followed by a blank and xxx is encountered during automatic control statement processing, xxx is interpreted both as a direct DIS command and as a control statement.
xxxx.	xxxx is processed as a control statement if it is not a recognizable DIS command.
xz,aaaaaa.	Refer to description under DSD System Display Commands.

MEMORY ENTRY COMMANDS

loc, val. or loc + val.	Changes contents of central memory word at loc (relative to its RA) to val. Leading zeros may be dropped.† ††
loc, b, val. or loc + b, val.	Changes contents of byte b at central memory location loc to val. Each location consists of five 12-bit bytes, numbered 0 through 4 from the left.† ††
loc, D chrs. or loc + D chrs.	Changes contents of central memory location loc to display code characters chrs (left-justified, zero-filled).† ††
loc, Lval. or loc + Lval.	Changes contents of central memory location loc, left-justified, to val.† ††
loc, In, val. or loc + In, val.	Changes contents of instruction n (0-3 from left) at central memory location loc to val; val may be 15- or 30-bit instruction.† ††
Eloc, val. or Eloc + val.	Changes contents of the ECS word at loc (relative to its RAE) to val. Leading zeros may be dropped.† †††
Eloc, b, val. or Eloc + b, val.	Changes contents of byte b at ECS location loc to val. Each location consists of five 12-bit bytes, numbered 0 through 4 from the left.† †††
Eloc, D chrs. or Eloc + D chrs.	Changes contents of ECS location loc to display code characters val (left-justified, zero-filled).† †††

† The second form of the command performs the same function but leaves the address at loc + 1, allowing immediate entry for the next memory location.

†† If in absolute mode, the entry is at CM location loc.

††† If in absolute mode, the entry is at ECS location loc.

PP CALL COMMANDS

<u>Keyboard Entry</u>	<u>Description</u>	<u>Format of PP Call Initiated</u>
nam.	Calls PP program nam to control point n.	18/3Lnam,6/n,36/0
nam,xxx.	xxx is a parameter required by the PP program nam. n is control point.	18/3Lnam,6/n,18/0,18/xxx
nam,xxx,yyy.	xxx and yyy are parameters required by the PP program nam. n is control point.	18/3Lnam, 6/n,18,xxx, 18/yyy

KEYBOARD MESSAGES

ILLEGAL ENTRY.	Command cannot be processed.
REPEAT ENTRY.	Command in control statement buffer is repeated each time carriage return is pressed; cleared by left blank key.
OUT OF RANGE.	Memory entry address is greater than the field length.
SYSTEM BUSY - DISK.	DIS is waiting for an overlay to be loaded from a mass storage device.
SYSTEM BUSY - PPU.	DIS is waiting for a PP to be assigned in order to process the keyboard entry.
JOB ACTIVE.	Previous request not completed.
AUTO MODE.	Control statement buffer is read automatically. Automatic control statement processing is selected by the RCS command or by pressing the . key.
DIRECT CPU INPUT.	N. command has been entered, and all data entered from the keyboard is passed directly to central memory.

FILE EDITOR (026) COMMANDS

026 DESCRIPTION

026 enables the user to create or edit a file from the console. A central memory buffer is used to store and edit the display code lines before writing the file. Like DSD, 026 is interpretive.

SPECIAL FIRST CHARACTER ENTRIES

0	Sets insert at 1st line.
1	Sets insert at 4th line on screen.
2	Sets insert at 8th line on screen.
3	Sets insert at 12th line on screen.
4	Sets insert at 16th line on screen.
5	Sets insert at 20th line on screen.
6	Sets insert at 24th line on screen.
7	Sets insert at 32nd line on screen.
8	Sets insert 8 at insert line.
9	Sets insert 9 at insert line.
+	Displays next page.
-	Backs up 18 lines or to start of buffer.

*	Holds display and returns control to DSD. When * is entered under DSD, control returns to 026.
/	Starts or stops roll.
(Advances insert by one line.
)	Decrements insert by one line.
=	Clears insert flag.
,	Finds insert line and starts display at insert marker.
.	Deletes the line following the insert line.
CR (carriage return)	Sets REPEAT ENTRY flag.
space	Sets the characters P. into buffer.

MESSAGES

BLOCK TOO LARGE.	Block to be moved or copied does not fit into the remaining field length or is larger than 7777 ₈ CM words. Use the ENFL command to increase scratch space.
DISK BUSY.	Waiting for 026 overlay.
FILE NOT ON MASS STORAGE.	File not validated for random processing.
FORMAT ERROR.	Format error has been detected during translation of the entry.
ILLEGAL CONTROL CARD.	Illegal user access detected.
INDEX NOT FOUND.	File directory (random index) was not found.
INSERT 8 OR 9 NOT SET.	Command entered requires that both the insert 8 marker and the insert 9 marker be set.

INVALID FL REQUEST.	Requested field length was greater than 131K,† or less than 10K if ECS is assigned.
LINE NOT FOUND	Line containing the string speci- fied was not found.
LINE OVERFLOW.	Replace command increased line length to greater than maximum buffer size of 90 characters.
LIST.	026 is generating a list of the directory for the file.
NO RANDOM ACCESS.	File is not random access.
NOT IN LINE.	Character string not found by the replace character commands.
OUT OF RANGE.	Edit line number not in buffer.
PP BUSY.	Request ignored by system.
PRU SIZE MODIFIED.	Rewrite in place cannot be per- formed because of the reason indi- cated.
RECORD NOT FOUND.	Requested record not found on the file. For sequential record search, the record was not found after the current file position.
RECORD TOO LONG.	Record read did not fit into buffer.
REPEAT ENTRY.	Entry will not be cleared after execution.
SEARCH / CCCCCC.	026 is searching sequential rec- ord CCCCCC.
SEARCH.	026 is searching a random record.
STORAGE NOT AVAIL- ABLE.	Requested field length is cur- rently unavailable.
WAITING FOR STORAGE.	026 is waiting for the request- ed field length to be assigned.
WRITE ON READ- ONLY FILE	Write is not allowed on the edit file.

†The letter K equals 1024 and M equals 1024K.

SYSTEM COMMANDS

DIS.	Writes the buffer, rewinds the file, and transfers control back to DIS.
DROP.	Writes the buffer, rewinds the file, and drops the display unit.
ERR.	Sets error flag at control point.
GO.	Clears pause flag.
HOLD.	Releases display to DSD. File being edited should be written to disk if edit changes are to be saved.
XDIS.	Transfers control back to DIS. Buffer is not written and file is not rewound.
XDROP.	Drops display unit; does not write file.

FILE COMMANDS †

BKSP.lfn.	Backspaces file lfn one logical record. If lfn is missing, previously specified file is used.
BKSPRU,x.	Backspaces current file x physical records.
BKSPRU.lfn.	Backspaces file lfn one PRU. If lfn is missing, previously specified file is used.
FILE.lfn.	Changes name of current file to lfn.
RC.lfn.	Reads compile file. Rewinds, reads, and rewinds file lfn. If lfn is missing, set file name to COMPILE. Set scan tab to 6.

†For these commands, if no file was previously specified, INPUT is used.

READ.lfn. Clears buffer and rewinds, reads, and rewinds lfn. If lfn is missing, previously specified file is used.

READI.lfn. Skips to end-of-information, backspaces twice, and reads last logical record of information on lfn. If lfn is missing, previously specified file is used.

READN.lfn. Reads file lfn with no rewind. If lfn is missing, previously specified file is used; stops read on buffer full or end-of-record encountered.

READNS.lfn. Reads file lfn nonstop with no rewind. If lfn is missing, previously specified file is used; stops read on buffer full or end-of-file encountered.

RETURN.lfn. Returns file lfn. If lfn is missing, previously specified file is returned to system.

REWIND.lfn. Rewinds file lfn. If lfn is missing, previously specified file is used.

RFR.lfn. Clears buffer and rewinds and reads file lfn. If lfn is missing, previously specified file is used.

RI.lfn. Rewinds, reads, and rewinds file lfn. If lfn is missing, file INPUT is read.

RLR.lfn. Clears buffer and reads last record on file lfn. If lfn is missing, previously specified file is used.

RNR.lfn. Clears buffer and reads next record on file lfn. If lfn is missing, previously specified file is used.

RO.lfn. Clears buffer and rewinds, reads, and rewinds file lfn. If lfn is missing, file OUTPUT is used. Sets word scan to words 4, 8, and 12.

RPR.lfn. Reads previous record from file lfn (that is, backspaces twice and reads).

RWRITE. Rewrites current record in place; valid only if last operation was a read.

- SKIPEL.lfn. Skips to end-of-information on lfn. If lfn is missing, previously specified file is used.
- UNLOAD.lfn. Unloads tape specified by lfn. If lfn is missing, previously specified tape is unloaded.
- WRITE.lfn. Writes buffer on file lfn. If lfn is missing, previously specified file is used.
- WRITEF.lfn. Writes buffer on file lfn and places an EOF mark after the data written. If lfn is missing, previously specified file is used.
- WRITEW.lfn. Writes data from start of buffer up to insert line on file lfn. If lfn is missing, previously specified file is used.

LINE ENTRY AND DATA MOVE

Commands that read a subsequent line for character merging (A., L., M., and N.) save that line in the DUP buffer. This line can be referenced at a later time with the D. command.

- A.ccc...ccc Merges specified characters with the line following insert marker except for tabbed or spaced-over area up to carriage return.
- C.ccc...ccc Enters specified characters into buffer; ccc...ccc may consist of up to 90 characters.
- COPY. Copies data block starting at insert 8 and ending at insert 9 into block at insert marker.
- DEL. Deletes all lines after insert marker. If insert is not set, deletes all lines.
- D,*. Deletes block from insert 8 through insert 9.
- D.ccc...ccc Merges line from DUP buffer with characters ccc...ccc of keyboard buffer. Tab rules for A. command apply.

- E.ccc...ccc Merges characters ccc...ccc with remainder of characters in DUP buffer except for tabbed or spaced-over area.
- L.ccc...ccc Merges characters ccc...ccc with remainder of following line except for tabbed or spaced-over area.
- M.ccc...ccc Merges characters ccc...ccc with remainder of following line.
- MOVE. Moves data starting at insert 8 and ending at insert 9 into block starting at insert marker.
- N.ccc...ccc Merges characters ccc...ccc with following line except for tabbed area.
- P.ccc...ccc Enters characters ccc...ccc into buffer (up to 90 characters). User can set data entry mode by typing P. or by typing a space.

DISPLAY, TAB, SCAN CONTROL COMMANDS

- DFL. Displays first line.
- DLL. Displays last part of file.
- DS,. Displays first line.
- TAB,x,y,
...,z Sets tabs x,y,...,z. If x equals 0, the command clears all tabs. Default is TAB, 11, 18, 30, 73.
- SCAN,x,y,
...,z Sets word scan to x,y,...,z. If x equals 0, the command clears scan.

LINE, RECORD SEARCH COMMANDS

- F.ccc...ccc Searches for matching field in line. Search is end-around.
- GET,lfname. Searches file lfname for record rname. If lfname is missing, previously specified file is used.
- GET.rname. Clears buffer and searches current file for record rname.
- GETR,lfname. Reads random file lfname for TEXT record rname. If lfname is missing, previously specified file is used.

GETR,rname. Gets random record rname from current file. If a record of that name and type TEXT exists, reads that record.

GTR,lfn.
rname. Reads random file lfn for record rname. If lfn is missing, previously specified file is used.

GTR,rname. Gets random record rname from current file. If a record of that name and type TEXT exists, reads that record; otherwise, reads record rname of any type.

LIST. Lists directory of current file.

LIST,lfn. Lists directory of file lfn. If lfn is missing, previously specified file is used.

S.ccc...ccc Starting with the first line displayed, searches for a line beginning with the characters ccc...ccc. Search is end-around.

REPLACE COMMANDS

RC,x,c. Replaces character position x of line following insert marker with character c (extend line if necessary).

RM/
aaa...aaa/
bbb...bbb/ Replaces multiple; works the same way as RS command, but if a replacement took place and REPEAT ENTRY is set, this command does not advance to next line.

RS/
aaa...aaa/
bbb...bbb/ Replaces character string aaa...aaa from the following line with character string bbb...bbb. The / can be any delimiting character.

R,x./
aaa...aaa/
bbb...bbb/ Replaces character string aaa...aaa from the following line starting with character position x with character string bbb...bbb. The / can be any delimiting character.

MISCELLANEOUS COMMANDS

- ENFL. Sets field length to buffer size plus 1000g.
- ENFL,xxxxx. Sets field length to xxxxxg.
- IGNORE. Ignore record too long condition. Record may now be written, but will be truncated.
- OUT. Transfers output files to output queue. NOS processes the output files without waiting for 026 to terminate.
- UCC=c. Sets uppercase control character to c. If c is missing, clears the uppercase control character. To enter a character which has been previously specified as the uppercase control character, enter that character twice.

To enter:		Enter uppercase control character and:	Display code value (octal):
ASCII	CDC		
\$	\$	S	53
#	≡	0	60
[[1	61
]	2	62
%†	%†	3	63
"	≠	4	64
_	→	5	65
!	√	6	66
&	^	7	67
,	↑	Q	70
?	↓	W	71
<	<	E	72
>	>	R	73
@	≤	T	74
\	≥	Y	75
~	>	U	76
;	;	I	77
"	≠	=	64
&	^	A	67
<	<	(72
>	>)	73
@	≤	+	74
\	≥	-	75
;	;	,	77
:††	:††	Z	00

†Percent sign (%) in the 64-character set; colon (:) in the 63-character set.

††Colon (:) in the 64-character set; invalid in the 63-character set.

ACPDACPD ($p_1, p_2,$
 \dots, p_n)

Analyzes collected performance data (part of TRACER). ACPD reads the data file (multifile) produced by CPD and generates a summary of the data for further analysis. The data file must be attached before ACPD is called. If ICPD is called with $M=A$ or $M=M$, the data file can be accessed while CPD is still active.

<u>P_i</u>	<u>Description</u>
FN=1fn ₁	Data file name. Default is SAMPLE.
L=1fn ₂	Output file name. Default is OUTPUT.
S=1fn ₃	Summary file name. Default is SUMMARY.
IN=nnn	Summary interval time in minutes. Default is 2 minutes.
LO=Z	List data items having a value of zero. Default is not to list zero data items.
N=nnnn	Number of files within data file to process. Default is one file. If $N=0$ or N is specified, all files to EOI are processed.

ASDEBUGASDEBUG($p_1, p_2,$
 \dots, p_n)

Resolves inconsistencies reported by the ASVAL utility by updating appropriate entries in the CSU maps and/or MSF catalogs; and copies data from selected MSF files or cartridges to disk.

<u>P_i</u>	<u>Description</u>
I=1fn	File containing directives to ASDEBUG.
I	Same as I=COMPILE.

<u>Pi</u>	<u>Description</u>
I omitted	Same as I=INPUT.
L=lfm	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
Z	Directives are contained on ASDEBUG control statement. The I parameter is ignored.
Z omitted	Directives are contained on the file specified by the I parameter.

Directive statements must be specified on separate lines in a directive file. Directive statements are of the following form:

OP=directive,p₁,p₂,...,p_n.

When the Z parameter is used each directive statement must be preceded by a separator (/) and terminated by a period as follows:

ASDEBUG(Z)/directive statement₁./directive statement₂.

<u>Directive</u>	<u>Description</u>
OP=RS	Reads selected streams of a cartridge in a specified drawer or identified by its VSN or X,Y coordinates. The CS parameter specifies the CSU where the cartridge resides. The range of streams to be read is specified by the SL and SU parameters. The streams are written to the file specified by the PF parameter.
OP=RF	Reads the file for which the alternate storage address is specified by the FO, ST, and CS parameters. The file is written to the file specified by the PF parameter.
OP=RP	Clears flags in the MSF catalog and releases MSF space for the chain with alternate storage address specified by the FO, ST, and CS parameters.

<u>Directive</u>	<u>Description</u>
OP=RC	Removes a CSU map entry selected by XI, YI, and CS parameters that does not have a corresponding FCT entry.
OP=RL	Removes an MSF catalog entry selected by FO and CS parameters that is not linked properly to the CSU map.

The ASDEBUG directive parameters follow:

<u>P_i</u>	<u>Description</u>
CS=id	CSU identifier of the CSU to be used; i is a letter from A to M.
CS	Same as CS=A.
CS omitted	Same as CS=A.
D=d	Input drawer slot to be used; $0 \leq d \leq 7$. Not valid if V=vsn or XI=n is specified.
D	First available input drawer slot is to be used.
D omitted	V=vsn or XI=n and YI=m must be specified.
FM=family	Family to be processed.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
FO=ord	MSF catalog ordinal indicating the file to be read or the chain whose space is to be released.
FO omitted	FO=ord must be specified for OP=RF, OP=RP, and OP=RL.
PF=pfm	File to which the MSF image (streams or file) is to be copied. Each stream copied is separated by an end of record. This file is defined under the user's current family and user index.
PF	Same as PF=ZZZZBUG.
PF omitted	Same as PF=ZZZZBUG.
SB=sub	Subfamily to be used; $0 \leq \text{sub} \leq 7$.

<u>P_i</u>	<u>Description</u>
SB	Same as SB=0.
SB omitted	Same as SB=0.
SL=i	Stream with which OP=RS begins its copying; $0 \leq i \leq 15$; $i < j$ (refer to SU=j).
SL	Same as SL=0.
SL omitted	Same as SL=0.
ST=s	Stream with which OP=RF begins its reading or OP=RP begins its releasing.
ST omitted	ST=s must be specified for OP=RF and OP=RP.
SU=j	Stream with which OP=RS ends its copying; $0 \leq j \leq 15$; $i < j$ (refer to SL=i).
SU	Same as SU=15.
SU omitted	Same as SU=15.
V=vsn	Volume serial number of the cartridge to be used; not valid if D=d, D, XI=n, or YI=m is specified.
V omitted	D=d or D, or XI=n and YI=m must be specified.
XI=n	XI coordinate of the cubicle where the cartridge to be read resides; $0 \leq n \leq 57$ and $n \neq 30$. YI=m must also be specified. D=d, D, or V=vsn must not be specified.
XI omitted	D=d, D, or V=vsn must be specified.
YI=m	YI coordinate of the cubicle where the cartridge to be read resides; $0 \leq m \leq 36$ and $m \neq 18$. XI=n must also be specified. D=d, D, or V=vsn must not be specified.
YI omitted	D=d, D, or V=vsn must be specified. XI, YI must be specified for OP=RC.

NOTE

- MSSEXEC must be running when ASDEBUG is run.
- Only one copy of ASDEBUG can be run at one time.
- ASDEBUG, ASVAL, and ASLABEL cannot be run at the same time.

ASDEF

ASDEF(p_1, p_2) Creates system files for MSS processing.

<u>P_i</u>	<u>Description</u>
CS=id	CSU identifier of the CSU for which a CSU map is to be created (id=A,B,...,M).
CS	Same as CS=A.
CS omitted	No CSU map is to be created. FM=family or FM must be specified.
FM=family	Family for which MSF catalogs are to be created, one catalog for each subfamily.
FM	Same as FM=system default family.
FM omitted	No MSF catalogs are to be created. CS=id or CS must be specified.

ASLABEL

ASLABEL(p_1, p_2, \dots, p_n) Manages cartridge assignment and cubicle allocation in a CSU.

<u>P_i</u>	<u>Description</u>
I=lfm	File containing directives to ASLABEL.
I	Same as I=COMPILE.
I omitted	Same as I=INPUT.
L=lfm	File on which listable output is to be written.
L	Same as L=OUTPUT.

<u>P_i</u>	<u>Description</u>
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
Z	Directives are contained on the ASLABEL control statement. The I parameter is ignored.
Z omitted	Directives are contained on the file specified by the I parameter.

Directive statements must be specified on separate lines in a directive file. Directive statements are of the following form:

OP=directive,p₁,p₂,...,p_n.

When the Z parameter is used, each directive statement must be preceded by a separator (/) and terminated by a period as follows:

ASLABEL(Z)/directive statement₁./directive statement₂.

<u>Directive</u>	<u>Description</u>
OP=AC	Adds a CSU to a subfamily.
OP=RC	Removes a CSU from a subfamily.
OP=AB	Adds a cubicle to a subfamily, the pool, or the reserved area.
OP=RB	Removes a cubicle from a subfamily, the pool, or the reserved area.
OP=AM	Adds a cartridge to a subfamily or pool.
OP=RM	Transfers a cartridge from a subfamily to a pool or output drawer; or transfers a cartridge from a pool to the output drawer.
OP=RS	Restores a cartridge to its cubicle.
OP=FX	Writes a scratch label on a cartridge and adds the cartridge to the pool.
OP=IB	Sets or clears the inhibit allocation flag in the MSF catalog entry for the specified cartridge.

The ASLABEL directive parameters follow:

<u>Pi</u>	<u>Description</u>
CS=id	CSU identifier of the CSU to be used by ASLABEL (id=A,B,...,M).
CS	Same as CS=A.
CS omitted	Same as CS=A.
D=d	Input drawer slot from which ASLABEL picks the cartridge; valid only with OP=AM, OP=RS, or OP=FX.
D	First not-empty input drawer slot is to be used; valid only with OP=AM, OP=RS, or OP=FX.
D omitted	Same as D.
FM=family	Family to/from which ASLABEL adds/removes a cartridge or CSU. With OP=FX this parameter specifies the family to which the cartridge is assigned.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
LT	CSU map and MSF catalog entries are to be updated, even though the cartridge is lost and its label cannot be updated; valid only with OP=RM.
LT omitted	If LT is omitted, the cartridge is lost, and OP=RM is specified, an error message is issued and ASLABEL aborts.
N=n	Number of cartridges or cubicles to be added, removed, or repaired; $1 \leq n \leq 2000$; not valid if PT=R is specified. If V=vsn is specified, n must be 1.
N	Same as N=1.

<u>Pi</u>	<u>Description</u>
N omitted	Same as N=1.
OF	Inhibit allocation flag in the MSF catalog is to be cleared; valid only with OP=IB.
ON	Inhibit allocation flag in the MSF catalog is to be set; valid only with OP=IB.
PK=pkloc	Location from which the cartridge or cubicle is to be picked; not valid if V=vsu is specified.

<u>pkloc</u>	<u>Description</u>
D	Cartridge is to be picked from the specified input drawer slot (D=d). PK=D is valid only with OP=AM, OP=RS, or OP=FX.
F	Cartridge or cubicle is to be picked from the specified family (FM=family) and subfamily (SB=sub). PK=F is valid only with OP=RM or OP=RB.
P	Cartridge or cubicle is to be picked from the pool. PK=P is valid only with OP=AM, OP=RM, or OP=RB. PK=P is not valid if PT=P is specified.
R	Cubicle is to be picked from the reserved area of the CSU. PK=R is valid only with OP=RB.
PK	Same as PK=P.
PK omitted	Same as PK=P.

PiDescription

PT=ptloc

Location into which the cartridge or cubicle is to be put.

ptlocDescription

- D Cartridge is to be put into the first available output drawer slot. PT=D is valid only with OP=RM.
- F Cartridge or cubicle is to be put into the specified family (FM=family) and subfamily (SB=sub). PT=F is valid only with OP=AM or OP=AB.
- P Cartridge or cubicle is to be put into the pool. PT=P is valid only with OP=AM, OP=RM, or OP=AB. PT=P is not valid if PK=P is specified.
- R Cubicle is to be put into the reserved area of the CSU. PT=R is valid only with OP=AB.

PT Same as PT=P.

PT omitted Same as PT=P.

SB=sub Subfamily to/from which ASLABEL adds/removes a cartridge or CSU; $0 \leq \text{sub} \leq 7$. With OP=FX this parameter specifies the subfamily to which the cartridge was assigned.

SB Same as SB=0.

SB omitted Same as SB=0.

V=vsn Volume serial number of the cartridge to be added, removed, or repaired; not valid if PK=x is specified. If V=vsn is specified, N must be 1.

V Volume serial number of the cartridge is not specified.

<u>P_i</u>	<u>Description</u>
V omitted	Same as V.
XI=x ₁	Column of the CSU to be added or removed; $0 < x_1 < 57$ and $x_1 \neq 30$; valid only with OP=AB or OP=RB.
YI=y ₁	Row of the CSU to be added or removed; $0 < y_1 < 36$ and $y_1 \neq 18$; valid only with OP=AB or OP=RB.
XI=x ₁ , YI=y ₁	X and Y coordinates of the cubicle to be added or removed; valid only with OP=AB or OP=RB.
XI=x ₁ , YI=y ₁ , XF=x ₂ , YF=y ₂	Rectangle of cubicles to be added or removed; cubicles with X coordinates between x ₁ and x ₂ and Y coordinates between y ₁ and y ₂ are included; valid only with OP=AB or OP=RB. At most, 100 cubicles can be included in the rectangle. $x_1, x_2 \leq 57$; $y_1, y_2 \leq 36$; $x_1 < x_2$; $y_1 < y_2$. XF and YF must both be specified, if either is specified. XF and YF cannot be specified unless both XI and YI are specified.
XI and YI omitted	With OP=AB the next available cubicle closest to top (for assignment to a family) or the bottom (for assignment to the pool) is to be selected. With OP=RB the first empty assigned cubicle is to be selected.

ASMOVE

ASMOVE(p₁, p₂, ..., p_n)
 Determines which files should be resident on disk, on MSF, or on both.

<u>P_i</u>	<u>Description</u>
FM=family	Family to be used by ASMOVE.
FM	Same as FM=system default family.
FM omitted	Same as FM=system default family.
L=lfm	File on which listable output is to be written.
L	Same as L=OUTPUT.

<u>Pi</u>	<u>Description</u>
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
RD=yymmdd	Last access date. All files not accessed after day yymmdd are to be released from disk.
RD omitted	No files are to be released.
RO	Report only. ASMOVE does not release files from disk and does not send requests to MSSEXEC to destage or destage/release files.
RO omitted	Disk space is to be released and requests are to be sent to MSSEXEC, if appropriate.
RT=h:mm:ss	Last access time. All files not accessed after time h:mm:ss of the day specified by the RD parameter are to be released.
RT	Same as RT=000000 (midnight).
RT omitted	Same as RT=000000 (midnight).
TM=mode	Deselects or selects test mode.

<u>mode</u>	<u>Description</u>
N	Deselect test mode. The pseudo release flag is cleared and disk images for all files from the selected family which were previously pseudo released are really released from disk.
	Normal release processing is performed for all files selected for release by this ASMOVE run.
Y	Select test mode. Pseudo release is performed for all files selected for release by this ASMOVE run.

<u>Pi</u>	<u>Description</u>
TM omitted	Normal release processing is to be performed for files that do not have the pseudo release flag set. Files with the pseudo release flag set are treated as if they have been released.

The following options for ASMOVE redefine the values of the weight factors (installation parameters) used in the algorithms that select files to be destaged or released. Unless otherwise stated, for each of these options the installation-defined value is multiplied by the integer value n , $n < 0$.

<u>Option</u>	<u>Description</u>
DB=n	n times the installation-defined DB weight factor is to be used as the preferred residence value for destage decisions for files with a PR=M attribute.†
DB	Same as DB=1.
DB omitted	Same as DB=1.
DC=n	n times the installation-defined weight factor is to be used as the preferred residence value for destage decisions for files with a PR=N attribute.†
DC	Same as DC=1.
DC omitted	Same as DC=1.

†The file owner specifies the preferred residence attribute via the PR parameter and the backup requirement via the BR parameter on the DEFINE or CHANGE statement (refer to volume 1 of the NOS Reference Manual).

<u>Option</u>	<u>Description</u>
DL=n	n times the installation-defined length weight factor is to be used as the length weight factor for destage decisions.
DL	Same as DL=1.
DL omitted	Same as DL=1.
DT=n	n times the installation-defined time weight factor is to be used as the time weight factor for destage decisions.
DT	Same as DT=1.
DT omitted	Same as DT=1.
DV=n	n times the installation-defined destage control value is to be used as the destage control value.
DV	Same as DV=1.
DV omitted	Same as DV=1.
MN=n	n times the installation-defined minimum length threshold is to be used as the minimum allowable size in disk PRUs (64 words) for MSF files.
MN	Same as MN=1.
MN omitted	Same as MN=1.
MX=n	n times the installation-defined maximum length threshold is to be used as the maximum allowable size in disk PRUs for MSF files.
MX	Same as MX=1.
MX omitted	Same as MX=1.

ASUSE

ASUSE generates the following reports:

<u>Report</u>	<u>Contents</u>
Basic usage report	Lists general information about the use of each CSU in a sub-family.
Optional report A	Identifies cartridges with a specified number of streams available for assignment.†
Optional report B	Identifies cartridges with flags set in the MSF catalog.
Optional report C	Lists the contents of a CSU as described in the CSU map.
Optional report D	Lists detailed cartridge status information on each entry in the MSF catalog.
Optional report E	Lists detailed cartridge and stream status information on each entry in the MSF catalog.

ASUSE(p_1, p_2, \dots, p_n)

Produces reports on the availability of space on MSF cartridges and the allocation of cubicle space within a CSU.

<u>p_i</u>	<u>Description</u>
CS=id	CSU identifier of the CSU to be used. Up to 13 CSUs can be selected by the letters A through M. For example, CS=ACJG selects CSU A, C, G, and J.
CS	Same as CS=ABCDEFGHJKLM.
CS omitted	Same as CS=ABCDEFGHJKLM.
FM=family	Family to be reported on.
FM	Same as FM=system default family.

† A cartridge that has the lost cartridge flag, inhibit allocation flag, or excessive write parity errors flag set is considered as having zero streams available for allocation regardless of the number of unallocated streams on the cartridge.

<u>Pi</u>	<u>Description</u>
FM omitted	Same as FM=system default family.
L=lfn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
OP=op†	Type of report to be produced.

<u>op</u>	<u>Description</u>
A	Optional report A and basic usage report.
B	Optional report B and basic usage report.
C	Optional report C and basic usage report.
D	Optional report D and basic usage report.
E	Optional report E and basic usage report.
OP	Basic usage report only is to be produced.
OP omitted	Same as OP.
SB=sub	Subfamily to be reported on. Up to eight subfamilies can be selected by the numbers 0 through 7. For example, SB=0273 selects subfamilies 0, 2, 3, and 7.
SB	Same as SB=01234567.
SB omitted	Same as SB=01234567.
SL=n	Minimum number of streams available for assignment; valid only with optional report A. Cartridges with n or more streams available are reported. $0 < n \leq 16$, $n < m$ (refer to SU=m).

†Multiple options can be specified (for example, OP=AB).

<u>P_i</u>	<u>Description</u>
SL	Same as SL=0.
SL omitted	Same as SL=0.
SU=m	Maximum number of streams available for assignment; valid only with optional report A. Cartridges with m or less streams available are reported. $0 \leq m \leq 16$, $n \leq m$ (refer to SL=n).
SU	Same as SU=16.
SU omitted	Same as SU=16.

ASVAL

ASVAL(P₁,P₂,
...,P_n)

Performs release processing and reports problems with the current MSS system files.

<u>P_i</u>	<u>Description</u>
AM	The CSU map for the CSU specified by the CS parameter is to be analyzed in addition to the MSF catalogs; not valid if RF=1fn or RF is specified.
AM=	Same as AM.
AM omitted	CSU maps are not to be analyzed.
CS=id	CSU identifier of the CSU to be used. Up to 13 CSUs can be selected by the letters A through M. For example, CS=ACJG selects CSU A, C, G, and J.
CS	Same as CS=ABCDEFGH.IJKLM.
CS omitted	Same as CS=ABCDEFGH.IJKLM.
FM=family	Family to be analyzed; not valid if the RF option is specified.
FM	Same as FM=system default family; not valid if the RF option is specified.
FM omitted	Same as FM=system default family, if the RF option is not specified. The family on the Release Data File is used, if the RF option is specified.

<u>Pi</u>	<u>Description</u>
FX=n	Error threshold. If the total error count is greater than n, neither release processing nor problem fixing is performed.
FX	Same as FX=0.
FX omitted	Same as FX=0.
L=1fn	File on which listable output is to be written.
L	Same as L=OUTPUT.
L=0	No output file is to be generated.
L omitted	Same as L=OUTPUT.
RF=1fn	File which contains the release data file.
RF	Same as RF=ZZZZRDF.
RF omitted	Current versions of the MSF catalogs are to be analyzed.
RL	Release processing is to be performed; valid only if the RF option is specified.
RL omitted	No release processing is to be performed.
SB=subs	Subfamilies to be processed. Up to eight subfamilies can be selected by the numbers 0 through 7. For example, SB=723 selects subfamilies 2, 3, and 7.
SB	Same as SB=01234567.
SB omitted	Same as SB=01234567.
ST=n	Scattered file criterion. Files are indicated as scattered if they are contained on at least n more cartridges than the minimum number needed to contain them. The minimum number of cartridges is the quotient of (number of streams + 15)/16; the remainder is ignored.

<u>P_i</u>	<u>Description</u>
ST	Same as ST=0. That is, files are scattered if they are contained on more than the minimum number of cartridges needed to contain them.
ST omitted	Same as ST=0.

DFLIST

DFLIST. Catalogs all dayfiles which have been made permanent by the DFTERM utility.

DFTERM

DFTERM(p₁,p₂,
...,p_n) Terminates an active or inactive dayfile and retains it as a direct access permanent file.

<u>P_i</u>	<u>Description</u>
DN=device number or FM=family name	Device or family of devices on which the inactive dayfile resides, or on which the new dayfile resides if the active dayfile is terminated. Default is the device on which the current dayfile resides. A two-digit logical device number (1 to 77g), or one- to seven-character family name.

FT=file type Type of dayfile to be terminated by DFTERM:

<u>file type</u>	<u>Description</u>
ACCOUNT	Account dayfile.
DAYFILE	System dayfile.
ERRLOG	Error log dayfile.

This entry also causes the RM and DN options to be updated to reflect the current family and device number of the dayfile specified by FT. If omitted, DAYFILE is assumed.

<u>P_i</u>	<u>Description</u>
L=listfile	Name of file (one to seven characters) to receive output. If omitted, OUTPUT is assumed.
NM=name	A one- to five-character name of direct access file on which the terminated dayfile is written. DFTERM adds a two-character prefix indicating the type of dayfile being terminated (DF, AC, ER). If omitted, DFTERM supplies the name.
OP=option	Specifies whether active or inactive dayfiles are to be terminated (default is OP=A).

<u>option</u>	<u>Description</u>
A	Active dayfiles.
I	Inactive dayfiles.

The following specifications alter DFTERM processing (appear only on the control statement).

<u>P_i</u>	<u>Description</u>
I=lf _n	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

DLFP

DLFP(P₁,P₂, ...,P_n) Calls the debug log file processor.

<u>P_i</u>	<u>Description</u>
I=lf _{n1}	Read directives from file lf _{n1} . If I is omitted, INPUT is assumed.
I=0	No directives are to be input.
L=lf _{n2}	List output is written on file lf _{n2} . If L is omitted, OUTPUT is assumed.

<u>Pi</u>	<u>Description</u>
B=lf _n ₃	Read debug log file from file lf _n ₃ . If B is omitted, ZZZZDN is assumed.
D	Stop processing current directive record if it contains errors and skip to next record. If D is omitted, the job aborts when a directive record error is detected.

<u>Directive</u>	<u>Description</u>
BD=yymmdd	Only messages logged on or after the specified date (yymmdd) are to be output.
BT=hmmss	Only messages logged on or after the specified time (hmmss) are to be output.
C	Only messages with the CANCEL flag set in the application block header are to be output.
CN=n	Only synchronous and asynchronous supervisory messages and data blocks relating to connection number n are to be output. $1 \leq n < 255$.
DN=	For system use only.
E	Only messages with the error bit set in the supervisory message are to be output.
ED=yymmdd	Messages logged on or after the specified date (yymmdd) are not to be output.
ET=hmmss	Messages logged on or after the specified time (hmmss) are not to be output. If the debug log file contains more than one day's messages, searching terminates after the first occurrence of the specified time.

<u>Directive</u>	<u>Description</u>
F	Only messages with the No Format Effector flag set in the application block header are to be output.
LE=n	Specifies the maximum length in CM words of each message to be output. $1 \leq n \leq 410$. Default is 10.
NM=n	Specifies a maximum of n messages are to be output. $0 \leq n \leq 1000000$.
P	Only messages with the Parity Error flag set or Auto Input Mode flag set in the application block header are to be output.
PF=hh	Only supervisory messages with PFC equal to hh are to be output. hh is two hexadecimal numbers ($00 \leq hh \leq FF$).
PS=hhxx	Only supervisory messages with PFC/SFC equal to hhxx are to be output. hhxx is four hexadecimal numbers ($0000 \leq hhxx \leq FFFF$).
R	Only messages with the response bit set in the supervisory message are to be output.
SM=n	No messages are to be output until after the n^{th} message is found which satisfies all the other directive options. $0 \leq n \leq 1000000$.
U	Only messages with the Input Block Undeliverable flag set in the application block header are to be output.
X	Only messages with the Transparent Data flag set in the application block header are to be output.

DMPNAD

DMPNAD (p₁, p₂, ..., p_n) Calls the NAD dump utility.

<u>P_i</u>	<u>Description</u>
C=cc	Channel of the local NAD.
I=lf _n ₁	File to which list output is to be written. Default is OUTPUT.
ND=nn	Remote NAD number (hexadecimal).
AC=aaaa	Access code (hexadecimal).
NA=ff	First word address (hexadecimal).
NL=dd	Last word address (hexadecimal).
LT=te	Local trunk enable mask (octal):

<u>Value</u>	<u>Mask</u>
1	TCU3
2	TCU2
4	TCU1
10	TCU0

DSDI

DSDI (p₁, p₂, ..., p_n) Calls the deadstart dump interpreter.

<u>P_i</u>	<u>Description</u>
I=lf _n ₁	Read directives from file lf _n ₁ . If I is omitted, INPUT is assumed.
F=lf _n ₂	Read express dump from file lf _n ₂ . If F is omitted, DUMP is assumed.
L=lf _n ₃	List output is written on file lf _n ₃ . If L is omitted, OUTPUT is assumed.
D	Create random dump file. If D is omitted, no random dump file is created.
PD=n	Print density is n lines per inch, where n may be 3, 4, 6, or 8. If omitted, n=6. If n is omitted, n=8 is assumed.
Z	The DSDI control statement contains input directives.

<u>Pi</u>	<u>Description</u>
P	Use low central memory pointers from running system. If omitted, use low central memory pointers from express deadstart dump (EDD) file.

NR EDD file is not rewound before processing.

<u>File Control Directives</u>	<u>Description</u>
DISPOSE,un.	Dispose alternate output.
OUTPUT,lfm.	Begin alternate output.
READ,lfm,rec.	Read alternate input.
REWIND,lfm.	Rewind file lfm.

<u>File Print Directives</u>	<u>Description</u>
EJ,nn.	Eject if not nn lines.
EJOFF.	Turn off auto eject.
EJON.	Turn on auto eject.
PD,n.	Preset print density.
*.ccc...ccc	Enter subtitle comment.

<u>Hardware Register Dump Directives</u>	<u>Description</u>
SC.	CDC CYBER 170 status/control register.
XP.	Execute exchange package.

<u>Memory Dump Directives</u>	<u>Description</u>
CM.	Specifies central memory dump.
EC.	Specifies extended core storage dump.
C,fwa,lwa+1.	Dumps memory in instruction parcel format (four groups of five octal digits formatted for terminals).†

† Produces output suitable for listing at an interactive terminal.

Memory Dump
Directives

Description

D,fwa,lwa+l.	Dumps memory in byte format (five groups of four octal digits formatted for terminals).†
E,fwa,lwa+l.	Dumps memory in word format (four words per line).
AP,n ₁ ,n ₂ , ...,n _n .	Analyzes PP number n ₁ .
P,n ₁ ,n ₂ , ...,n _n .	Dumps PP n ₁ in block format.
Q,n ₁ ,n ₂ , ...,n _n .	Dumps PP n ₁ in line format.
Q,n,fwa,lwa+l.	Dumps PP n in line format for terminals.†
PF,n ₁ ,n ₂ , ...,n _n .	Dumps first level PP n ₁ in block format.
QF,n ₁ ,n ₂ , ...,n _n .	Dumps first level PP n ₁ in line format.
RA,addr.	Specifies that subsequent C, D, and E directives will dump memory locations relative to reference address addr.
RAC,n.	Specifies that subsequent C, D, and E directives will dump memory locations relative to reference address of control point n.
MPP.	Dumps correct logical PP if the logical position of PPO has been changed prior to full dump to tape.
MPP,n.	Dumps correct logical PP if the logical position of PPO was moved to PPn via a deadstart panel program.
PMS.	Reads S/C register dump to determine the current value of PP memory select switches and correct logical PP to be dumped if PPO position has been changed prior to full dump to tape.

† Produces output suitable for listing at an interactive terminal.

CMR Dump
Directives

Description

LC. Dumps contents of low central memory.

CP, n_1 /ops $_1$,
 n_2 /ops $_2$,
..., n_n /
ops $_n$. Causes control point area n_i to be dumped (formatted for terminals).†

<u>ops$_i$</u>	<u>Description</u>
X	Exchange package and parameter summary (default).
T	Detailed dump (default).
A	Job dayfile buffer (default).
F	Attached files (default).
C	Field length in C format.
D	Field length in D format.
E	Field length in E format.
G	Control point area in C format.
H	Control point area in D format.
I	Control point area in E format.
P	Attached PPs.
Omitted	Selects options A, F, T, and X.

† Produces output suitable for listing at an interactive terminal.

CMR Dump
Directives

Description

CPO,ops.	Selects new default list options for CP directive as specified by ops.
PP.	Dumps PP communication areas (formatted for terminals).
DP.	Dumps dayfile buffer pointers.
EST.	Dumps equipment status table.
FNT.	Dumps FNT interlock table and file name table.
LIDT.	Dumps logical ID (LID) table.
MST.	Dumps mass storage tables.
MST,eq ₁ , eq ₂ ,..., eq _n .	Dumps mass storage tables on equipment eq _i .
JC.	Dumps job control parameters.
ACCOUNT.	Dumps ACCOUNT dayfile buffer.
DAYFILE.	Dumps MASTER dayfile buffer.
ERRLOG.	Dumps ERRLOG dayfile buffer.
MAINLOG.	Dumps BML dayfile buffer.
DDB.	Dumps dayfile dump buffer.
EPB.	Dumps ECS/PP buffer.
MTR.	Dumps CPUMTR.
RPL.	Dumps resident peripheral library.
RCL.	Dumps resident central library.
PLD.	Dumps peripheral library directory.
CLD.	Dumps central library directory.
PROBE.	Dumps PROBE data tables.

Subsystem
Dump
Directives

Description

MAGNET,ops.

Dumps areas of memory most frequently analyzed when a malfunction within MAGNET occurs specified by ops (default is all options).

<u>ops</u>	<u>Description</u>
P	IMT.
Q	Queue table.
U	Unit descriptor tables (UDT).

EI200,ops.

Dumps areas of memory most frequently analyzed when a malfunction within EI200 occurs specified by ops (default is all options).

<u>ops</u>	<u>Description</u>
L	Low core pointer words.
T	Terminal tables.
P	LED, ILS, and XSP.
O	PP overlays.

BATCHIO,ops.

Dumps areas of memory most frequently analyzed when a malfunction within BATCHIO occurs specified by ops (default is all options).

<u>ops</u>	<u>Description</u>
B	Buffer points.
P	LCD, IIO, QAP, QAC, and DSP.

Subsystem
Dump
Directives

Description

IAF,ops.
or
TELEX,ops.

Dumps areas of memory most frequently analyzed when a malfunction occurs within the Interactive Facility (IAF) or the Time-Sharing Module (TELEX) as specified by ops (default is all options).

<u>ops</u>	<u>Description</u>
C	Command table.
E	Reentry table.
P	IAF- or TELEX-related PPs.
T	Terminal tables.

RHFAM,ops.

Dumps areas of memory most frequently analyzed when a malfunction occurs within the RHF. The areas of memory to be dumped are specified in ops (default is all options).

<u>ops</u>	<u>Description</u>
X	Exchange package and parameter summary.
T	Detailed dump of control point area.
A	Job dayfile buffer.
F	FNT/FST, EST and mass storage track chain for all files attached to the control point.
C	Control point field length.
P	All active PPs.

ENDCPD

ENDCPD.

Terminates all active copies of CPD.

FAMILY

FAMILY(family name)

Changes the family name associated with the job.

familyname is a one- to seven-character name of a family of permanent file devices. If omitted, the default family name is assumed. An alternate family introduced into the system without a VALIDUS file can be specified with 0 (zero) for familyname. For SYOT jobs only.

FNTLIST

FNTLIST(p₁, p₂, ..., p_n)

Lists detailed information about active queued I/O files.

<u>P_i</u>	<u>Description</u>
DF=fm	Family name of the destination remote batch site of the files to be listed.
UN=un	User number logged on at the remote site specified by the DF parameter whose remote batch files are to be listed.
FM=fm	Family of devices on which the files reside.
DN=dn	Device number on which the files reside; dn is a two-digit octal number.
DS=dv-ex or DS=dv	Destination device type and characteristic.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.

Description

<u>dv</u>	<u>Description</u>
P8	Punch 80 column binary.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

† Not supported. Provided for NOS/BE compatibility.

<u>Pi</u>	<u>Description</u>								
FC=forms code	Forms code of the files.								
	<table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>forms code</u></th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>fc₁ fc₁/fc₂ fc₁/fc₂/ fc₃</td> <td>One to three specific forms codes (two alphanumeric characters each).</td> </tr> <tr> <td>**</td> <td>Null forms code.</td> </tr> <tr> <td>fc₁-fc₂</td> <td>Range of forms codes; fc₁<fc₂;** is lowest possible value.</td> </tr> </tbody> </table>	<u>forms code</u>	<u>Description</u>	fc ₁ fc ₁ /fc ₂ fc ₁ /fc ₂ / fc ₃	One to three specific forms codes (two alphanumeric characters each).	**	Null forms code.	fc ₁ -fc ₂	Range of forms codes; fc ₁ <fc ₂ ;** is lowest possible value.
<u>forms code</u>	<u>Description</u>								
fc ₁ fc ₁ /fc ₂ fc ₁ /fc ₂ / fc ₃	One to three specific forms codes (two alphanumeric characters each).								
**	Null forms code.								
fc ₁ -fc ₂	Range of forms codes; fc ₁ <fc ₂ ;** is lowest possible value.								
ID=id ₁ or ID=id ₁ -id ₂	A two-digit octal identifier or range of identifiers of the files.								
JN=jn	A seven-character job name or four-character banner name of the file(s).								
JC=job statement name	A one- to seven-character name on job statement that, with the JN specification, uniquely identifies the job to be listed.								
ot=ft	The job origin type (ot) and corresponding file type (ft) to be listed.								

<u>ot</u>	<u>Description</u>
BC	Local batch and system.
EI	Remote batch.

<u>ft</u>	<u>Description</u>
IN	Input.
PR	Print.

<u>Pi</u>	<u>Description</u>								
	<table border="0"> <thead> <tr> <th><u>ft</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>PH</td> <td>Punch.</td> </tr> <tr> <td>ALL</td> <td>All file types for specified origin.</td> </tr> <tr> <td>NONE</td> <td>No files for specified origin.</td> </tr> </tbody> </table>	<u>ft</u>	<u>Description</u>	PH	Punch.	ALL	All file types for specified origin.	NONE	No files for specified origin.
<u>ft</u>	<u>Description</u>								
PH	Punch.								
ALL	All file types for specified origin.								
NONE	No files for specified origin.								
L=lfm	A one- to seven-character name of the output file; default is OUTPUT.								
LD=lid	A three-character logical ID for selection of remote queue files.								
LO=lop	The type of listing wanted.								
	<table border="0"> <thead> <tr> <th><u>lop</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>F</td> <td>Full listing.</td> </tr> <tr> <td>S</td> <td>Condensed listing.</td> </tr> </tbody> </table>	<u>lop</u>	<u>Description</u>	F	Full listing.	S	Condensed listing.		
<u>lop</u>	<u>Description</u>								
F	Full listing.								
S	Condensed listing.								

The following specifications alter FNTLIST processing (entered only from a control statement).

<u>Pi</u>	<u>Description</u>
I=lfm	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

ICPD

ICPD (p₁, p₂,...p_n)
 Initializes collection of performance data (part of TRACER). ICPD defines a data file for CPD and activates CPD.

<u>Pi</u>	<u>Description</u>
FL=nnnn	Fast loop time in milliseconds. Default is 5 milliseconds.
ML=nnnn	Medium loop time in milliseconds. Default is 100 milliseconds.

<u>Pi</u>	<u>Description</u>
SL=nnnn	Slow loop time in milliseconds. Default is 1000 milliseconds.
FW=nnnn	Data block sample time in seconds. Default is 5 seconds.
FN=lfm	Data file name. Default is SAMPLE.
M=xxx	Permanent file access mode for data file. Default is M=WRITE. If the data file is attached in write mode, it cannot be accessed by ACPD until ENDCPD has been run. If the sample data file is attached in append or modify mode by ICPD, the file can then be attached in read/allow modify (RM) mode for ACPD. The advantage of attaching the file in write mode is that there is less system overhead involved in interlocking and writing the data file than if the file is attached in modify or append modes.

<u>Value</u>	<u>Description</u>
WRITE	Data file attached in write mode.
APPEND	Data file attached in append mode.
MODIFY	Data file attached in modify mode.

INSTALL

INSTALL(lfn,
EQxx)

Installs running system or user specified deadstart file from mass storage onto RMS deadstart device.

lfn	Name of file (assigned to control point) to be installed as system deadstart file. Default file name is SYSTEM. File name lfn cannot be SDF. Calling job must be system origin or validated for system origin privileges.
xx	EST ordinal of RMS device on which lfn is to be installed.

LDLIST

LDLIST($P_1, P_2,$
 \dots, P_n)

Lists all queue files present on a QDUMP dump tape.

<u>P_i</u>	<u>Description</u>										
FC=forms code	Forms code of files to be listed. Default is ALL.										
	<table><thead><tr><th><u>forms code</u></th><th><u>Description</u></th></tr></thead><tbody><tr><td>fc</td><td>Two alphabetic characters, AA through AF.</td></tr><tr><td>*</td><td>All forms codes from AG to 99.</td></tr><tr><td>NULL</td><td>The null forms code.</td></tr><tr><td>ALL</td><td>All forms codes.</td></tr></tbody></table>	<u>forms code</u>	<u>Description</u>	fc	Two alphabetic characters, AA through AF.	*	All forms codes from AG to 99.	NULL	The null forms code.	ALL	All forms codes.
<u>forms code</u>	<u>Description</u>										
fc	Two alphabetic characters, AA through AF.										
*	All forms codes from AG to 99.										
NULL	The null forms code.										
ALL	All forms codes.										
FN=file name	File name of dump or load file. If not specified, default is FN=QFILES.										
L=listfile	Name of file (one to seven characters) to receive output. If omitted, OUTPUT is assumed.										
ME=type	Device to load from or dump to: <table><thead><tr><th><u>type</u></th><th><u>Description</u></th></tr></thead><tbody><tr><td>MT</td><td>Seven-track tape.</td></tr><tr><td>NT</td><td>Nine-track tape.</td></tr><tr><td>MS</td><td>Mass storage device.</td></tr></tbody></table> <p>If MT or NT and a tape is not pre-assigned, the installation default density is used.</p>	<u>type</u>	<u>Description</u>	MT	Seven-track tape.	NT	Nine-track tape.	MS	Mass storage device.		
<u>type</u>	<u>Description</u>										
MT	Seven-track tape.										
NT	Nine-track tape.										
MS	Mass storage device.										
NF=number	Decimal number of media files to skip. Default value is 0.										
SC=number	Decimal number of queue files to skip during LDDLST before beginning the list operation. If not specified, no files are skipped.										
TID=identifier	The destination terminal identifier for remote batch origin files.										

<u>P_i</u>	<u>Description</u>
VSN=number	Volume serial number of the tape to list from (valid only if ME=MT or ME=NT has been specified).
I=lfn	Name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after processing the control statement parameters and can only be entered from the control statement.

LOADBC

LOADBC(p₁,p₂, ...,p_n) Requests system controlware be loaded into controller.

<u>P_i</u>	<u>Description</u>
C=xx	Specifies channel on which system controlware is to be loaded.
ND=bb	Remote NAD number (hexadecimal).
TY=ccc	Type of controlware to be loaded:

<u>Value</u>	<u>Description</u>
NAD	CYBER 170.
IBM	IBM.
MIN	Common minicomputer.

LT=dd	Local trunk enable mask.
AC=eeee	Access code (hexadecimal).
MS=ff	Memory size (16, 32, 49, or 65).

MODVAL

MODVAL(p₁,p₂, ...,p_n) Creates, modifies, or queries VALIDUs.

<u>P_i</u>	<u>Description</u>
I=lfn ₁	File containing input data (default INPUT).
P=lfn ₂	Specifies old validation file that is to be updated (default VALIDUs).

<u>P_i</u>	<u>Description</u>
N=1fn ₃	Specifies interim file that becomes newly created validation file (default NEWVAL).
S=1fn ₄	Source data for each user number is written to file 1fn ₄ (default SOURCE).
U=1fn ₅	File containing the available user indices for the current VALIDUs file (default VALINDs).
L=1fn ₆	File to receive list output (default OUTPUT).
CV	Specifies convert VALIDUs option.
SI	Source input for create.
RP	Passwords not specified on create run.
D	No abort on directive errors.
FA	Forces attach of VALIDUs and VALINDs (SYOT only).
FM=name	Indicates family name user wishes MODVAL to access (SYOT only).
SP	Suppresses generation of application (AP) directives from bits 47 through 24 of the access word.
OP=C	Specifies create option.
OP=U	Specifies update option.
OP=Z	Statement update option.
OP=I	Specifies inquire option.
OP=R	Reformats the validation file by purging all files of each deleted user.
OP=S	Specifies a source run that returns the validation file specified by the P identifier on the file specified by the S keyword.
OP=K	K display option.

<u>P_i</u>	<u>Description</u>
OP=L	Reads the validation file, sorts the copy by user number, and writes it to the output file.
LO=E	List errors; used with OP=C, OP=U, or OP=Z.
LO=A	Sorts by user number; used with OP=L.
LO=N	Sorts by user index; used with OP=L.
LO=L	Catalog file lfn ₂ instead of VALIDUS; used with OP=L.
LO	E and N options.
LO=AL	A and L options.
LO=NL	N and L options.
LO=EN	E and N options.

/usernum, ident₁=
 data₁, ident₂=
 data₂, ..., ident_n=
 data_n Specifies MODVAL input directives.

<u>Identifier</u>	<u>Description</u>
PW=password	A one- to seven-character password; minimum length of password is specified by the installation (default is four).
UI=nnnnnn	User index.
SC=nn	Security count.
AB=ansback	A 1- to 10-character answerback code (TELEX only).
MT=nn	Number of magnetic tapes allowed.
RP=nn	Number of removable packs allowed.
TL=nn	Index to maximum CPU time.
DF=nn	Index to maximum number of MESSAGE requests.
CC=nn	Index to maximum number of batch control statements.
OF=nn	Index to maximum number of print and punch files.

<u>Identifier</u>	<u>Description</u>
CP=nn	Index to number of punched cards allowed.
LP=nn	Index to number of printed lines allowed.
EC=nn	Index to maximum ECS memory.
SL=nn	Index to SRU limit.
CM=nn	Index to maximum CM.
NF=n	Index to maximum number concurrent files.
MS=nn	Index to maximum number mass storage PRUs.
DB=n	Index to maximum number deferred batch jobs.
AW=xxxx	Permission bits in access word (each bit has a meaning).
AP=yyyy	Application bits in access word (each bit has a meaning).
CAB=oldab, newab	New answerback code (TELEX only).
PN=projnum	A 1- to 20-alphanumeric character project number.
CN=chrnum	A 1- to 10-alphanumeric character charge number.

The following identifiers can be used only in update and K-display options.

<u>Identifier</u>	<u>Description</u>
DAC=usemum	Deletes user number from VALIDUS file.
FUI=nnnnnr	Changes or inserts user index.

The following identifiers control permanent file access for the individual user.

<u>Identifier</u>	<u>Description</u>
FC=n	Maximum number of indirect access permanent files.
CS=n	Cumulative size of all indirect access permanent files.

<u>Identifier</u>	<u>Description</u>
FS=n	Maximum size allowed for a single indirect access permanent file.
DS=n	Size allowed for single direct access file.

The following identifiers manipulate fields describing the user's terminal.

<u>Identifier</u>	<u>Description</u>
PX=tran	Transmission mode (TELEX only).
RO=nn	Rubout count (TELEX only).
PA=prty	Terminal parity (TELEX only).
TT=term	Terminal type (TELEX only).
TC=chset	Terminal character set.
IS=subsy	Initial subsystem.

MLTF

MLTF. Periodically polls all NADs defined in common deck COMSRHF and enters the error log of each NAD into the binary maintenance log.

NDA

NDA(p_1, p_2, \dots, p_n) Analyzes and lists network processor unit (NPU) dumps.

<u>P_i</u>	<u>Description</u>
DN=dn	Decimal number (1 to 540) assigned by the Network Supervisor to a dump to be analyzed.
NPU=npuname	A one- to seven-character name of the network processing unit whose dumps are to be analyzed.

<u>Pi</u>	<u>Description</u>								
LO=lop	One or more listing options as follows:								
	<table border="0"> <thead> <tr> <th><u>lop</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>0 (or blank)</td> <td>Suppress listing.</td> </tr> <tr> <td>R</td> <td>List registers.</td> </tr> <tr> <td>M</td> <td>List macro memory.</td> </tr> </tbody> </table>	<u>lop</u>	<u>Description</u>	0 (or blank)	Suppress listing.	R	List registers.	M	List macro memory.
<u>lop</u>	<u>Description</u>								
0 (or blank)	Suppress listing.								
R	List registers.								
M	List macro memory.								
	If parameter is omitted, LO=RM is assumed.								
B=bbbbbb	A one- to six-digit hexadecimal address within the NPU macro memory at which to begin the dump report. Default is the actual beginning of the dump.								
E=eeeeee	A one- to six-digit hexadecimal address within the NPU macro memory at which to end the dump report. Default is the actual end of the dump.								
NR	No release of the dump file after NDA processing. If omitted, the dump file is purged.								

PFATC

PFATC(P ₁ ,P ₂ , ...,P _n)	Catalogs permanent file archive file(s).														
	<table border="0"> <thead> <tr> <th><u>Pi</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>T=t</td> <td>A one- to seven-character name of the file from which PFATC reads archive files. Default name is TAPE.</td> </tr> <tr> <td>LO=lop</td> <td>Specifies the type of output records desired. Default is no output.</td> </tr> <tr> <td></td> <td> <table border="0"> <thead> <tr> <th><u>lop</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Lists all files processed.</td> </tr> <tr> <td>E</td> <td>Lists errors.</td> </tr> </tbody> </table> </td> </tr> </tbody> </table>	<u>Pi</u>	<u>Description</u>	T=t	A one- to seven-character name of the file from which PFATC reads archive files. Default name is TAPE.	LO=lop	Specifies the type of output records desired. Default is no output.		<table border="0"> <thead> <tr> <th><u>lop</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>T</td> <td>Lists all files processed.</td> </tr> <tr> <td>E</td> <td>Lists errors.</td> </tr> </tbody> </table>	<u>lop</u>	<u>Description</u>	T	Lists all files processed.	E	Lists errors.
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<u>lop</u>	<u>Description</u>						
S	Lists cumulative statistics for catalog.						
C	Lists all files in catalog for system.						
L=lfm	Name of file on which reports are to be written. Default is OUTPUT.						
OP=op	Specifies the options which control the processing of files.						

<u>op</u>	<u>Description</u>
C	Makes selection according to time of creation.
A	Makes selection according to time of last access.
M	Makes selection according to time of last modification.
B	Denotes that the time specified on the TM and DT parameters is time before which all files meeting the criteria of the C, A, or M option are processed.
I	Selects indirect access files only.
D	Selects direct access files only.

NT	Specifies a nine-track archive tape. Default value is seven-track (MT). If MT or NT and a tape is not reassigned, the installation default density is used.
NR	Cancels all rewinds for the operation in which it is specified. Default is to rewind before and after processing.
SF=sf	A one- to two-digit number which specifies the number of archive files to skip before processing begins. Default is 0.

<u>Pi</u>	<u>Description</u>
N=n	A one- to two-digit number which specifies the number of archive files on an archive tape to process. If set to 0, one file will be processed. Default is 0.
DT=yymmdd	Specifies the date to be used with C, A, M, or B option. Default is current date if OP=A, C, or M is specified; otherwise, it is 0. DT=yymmdd cannot be used if AD, AT, BD, or BT parameter has been specified.
TM=hhmmss	Specifies the time to be used with C, A, M, or B option. Default is 0. TM=hhmmss cannot be used if AD, AT, BD, or BT parameter has been specified.
AD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are after the specified date. Default is current date. AD=yymmdd cannot be used if DT, TM, OP=B parameter has been specified.
AT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are after the specified time. Default is midnight. AT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
BD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified; otherwise, it is 0 (no before date). BD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
BT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified; otherwise, it is no before time. BT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.

<u>P_i</u>	<u>Description</u>
UI=ui	Limits processing to files located under this user index. Default is 0 (no user index limiting).
PF=pfm	A one- to seven-character name which specifies the permanent file name for which processing is desired. Default is no name.
UN=un	Specifies the one- to seven-character user number. Default is no name.

PFCAT

PFCAT(p₁,p₂,
...,p_n)

Produces a cataloged directory of file information derived from catalog tracks on a permanent file device.

<u>P_i</u>	<u>Description</u>
FM=fm	A one- to seven-character name of the family of permanent file devices to be cataloged. Default is normal system family name.
PN=pn	A one- to seven-character name of the auxiliary device to be cataloged. Default is no name.
DN=dn	A one- or two-digit octal number which identifies one specific device within a family that is to be cataloged.
LO=lop	Specifies the type of output records desired. Default is no output.

<u>lop</u>	<u>Description</u>
T	Lists all files processed.
E	Lists errors.
S	Lists cumulative statistics for catalog.
C	Lists all files in catalog for system.

P_iDescription

L=lfm

Name of file on which reports are to be written. Default is OUTPUT.

OP=op

Specifies the options which control the processing of files.

opDescription

- C Makes selection according to time of creation.
- A Makes selection according to time of last access.
- M Makes selection according to time of last modification.
- B Denotes that the time specified on the TM and DT parameters is a dividing time before which all files meeting the criteria of the C, A, or M option are processed.
- I Selects indirect access files only.
- D Selects direct access files only.

DT=yymmdd

Specifies the date to be used with C, A, M, or B option. Default is current date if OP=A, C, or M is specified; otherwise, it is 0. DT=yymmdd cannot be used if AD, AT, BD, or BT parameter has been specified.

TM=hmmss

Specifies the time to be used with C, A, M, or B option. Default is 0. TM=hmmss cannot be used if AD, AT, BD, or BT parameter has been specified.

AD=yymmdd

Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are after the specified date. Default is current date. AD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.

<u>P_i</u>	<u>Description</u>
AT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are after the specified time. Default is midnight. AT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
BD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified; otherwise, it is 0 (no before date). BD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
BT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified; otherwise, it is no before time. BT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
UI=ui	Limits processing to files located under this user index. Default is 0 (no user index limiting).
PF=pf _n	A one- to seven-character name which specifies the permanent file name for which processing is desired. Default is no name.
UN=un	Specifies the one- to seven-character user number which is associated with the PN parameter. Default is no name.

PFCOPY

PFCOPY(p₁, p₂, ..., p_n)
 Extracts files from an archive file and copies them to one or more files at a control point.

<u>P_i</u>	<u>Description</u>
T=t	A one- to seven-character name of the file used to read archive files. Default name is TAPE.

PiDescription

LO=lop

Specifies the type of output records desired. Default is LO=E.

<u>lop</u>	<u>Description</u>
------------	--------------------

T	Lists all files processed.
---	----------------------------

E	Lists errors.
---	---------------

S	Lists cumulative statistics for catalog.
---	--

C	Lists all files in catalog for system.
---	--

L=lfm

Name of file on which reports are to be written. Default is OUTPUT.

OP=op

Specifies the options which control the processing of files.

<u>op</u>	<u>Description</u>
-----------	--------------------

C	Makes selection according to time of creation.
---	--

A	Makes selection according to time of last access.
---	---

M	Makes selection according to time of last modification.
---	---

B	Denotes that the time specified on the TM and DT parameters is time before which all files meeting the criteria of the C, A, or M option are processed.
---	---

I	Selects indirect access files only.
---	-------------------------------------

D	Selects direct access files only.
---	-----------------------------------

Q	Files are copied with a record containing the catalog entry (108 words) and any permit information (may be empty) preceding the data for the file.
---	--

<u>Pi</u>	<u>Description</u>
NT	Specifies a nine-track archive tape. Default value is seven-track (MT). If MT or NT and a tape is not preassigned, the installation default density is used.
NR	Cancels all rewinds for the operation in which it is specified. Default is to rewind before and after processing.
SF=sf	A one- or two-digit number which specifies the number of archive files to skip before processing begins. Default is 0.
N=n	A one- or two-digit number which specifies the number of active files on an archive tape to process. If set to zero, one file will be processed. Default is 0.
DT=yymmdd	Specifies the date to be used with C, A, M, or B option. Default is current date if OP=A, C, or M is specified; otherwise, it is 0. DT=yymmdd cannot be used if AD, AT, BD, or BT parameter has been specified.
TM=hhmmss	Specifies the time to be used with C, A, M, or B option. Default is 0. TM=hhmmss cannot be used if AD, AT, BD, or BT parameter has been specified.
AD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are after the specified date. Default is current date. AD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
AT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are after the specified time. Default is midnight. AT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.

PiDescription

BD=yymmdd

Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hmmss is specified; otherwise, it is 0 (no before date). BD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.

BT=hmmss

Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified; otherwise, it is no before time. BT=hmmss cannot be used if DT, TM, or OP=B parameter has been specified.

UI=ui

Limits processing to files located under this user index. Default is 0 (no user index limiting).

PF=pfn

A one- to seven-character name which specifies the permanent file name for which processing is desired. Default is no name.

MF=mf

Specifies that all the files extracted from the archive tape are to be copied to the local file specified by the master file name (one to seven characters). Default is no name.

UN=un

Specifies the one- to seven-character user number. Default is no name.

PFDUMP

PFDUMP(p₁,p₂,
...,P_n)

Copies permanent files to backup storage (an archive file).

P₁

Description

FM=fm

Family name to be dumped. Default is normal system family name.

PN=pn

Pack name to be dumped. Default is no name.

DN=dn

Device number identifying a device within a family. If the device is a master device, all files cataloged on the device (regardless of what device they reside on) are dumped. If the device is not a master device, all files residing on the device are dumped. If the DN parameter is omitted, DN=0 is assumed, and all permanent files in the family are dumped.

TD=tdn

Device number identifying a device within a family. All files residing on the device are dumped. All files cataloged on the device but residing on another device are also dumped. If the TD parameter is omitted, TD=0 is assumed, and all permanent files in the family are dumped.

T=t

A one- to seven-character name of the file used to store archive files. Default name is TAPE.

LO=lop

Specifies the type of output records desired. Default is no output.

lop

Description

T Lists all files processed.

E Lists errors.

S Lists cumulative statistics for catalog.

C Lists all files in catalog for system.

<u>Pi</u>	<u>Description</u>
L=lfm	Name of file on which reports are to be written. Default is OUTPUT.
OP=op	Specifies the options which control the processing of files.

<u>op</u>	<u>Description</u>
C	Makes selection according to time of creation.
A	Makes selection according to time of last access.
M	Makes selection according to time of last modification.
B	Denotes that the time specified on TM and DT parameters is time before which all files meeting the criteria of the C, A, or M option are processed.
I	Selects indirect access files only.
D	Selects direct access files only.
P	Purges after dump (SYOT only).
EO	Purges if mass storage errors found.
S	Suppress staging of MSF resident files to disk for dump.

NT	Specifies a nine-track archive tape. Default value is seven-track (MT). If MT or NT and a tape is not preassigned, the installation default density is used.
NR	Cancel all rewinds for the operation in which it is specified. Default is to rewind before processing.
SF=sf	A one- or two-digit number which specifies the number of archive files to skip before processing begins. Default is 0.

<u>Pi</u>	<u>Description</u>
NU	No unload option. Archive file is not returned following dump. This option is selected for any tape files that PFDUMP requests.
DT=yymmdd	Specifies the date to be used with C, A, M, or B option. Default is current date if OP=A, C, or M is specified; otherwise, it is 0. DT=yymmdd cannot be used if AD, AT, BD, or BT parameter has been specified.
TM=hhmmss	Specifies the time to be used with C, A, M, or B option. Default is 0. TM=hhmmss cannot be used if AD, AT, BD, or BT parameter has been specified.
AD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are after the specified date. Default is current date. AD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
AT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are after the specified time. Default is midnight. AT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
BD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified; otherwise, it is 0 (no before date). BD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
BT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified; otherwise, it is no before time. BT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.

<u>Pi</u>	<u>Description</u>
UI=ui	Limits processing to files located under this user index. Default is 0 (no user index limiting).
PF=pfm	A one- to seven-character name which specifies the permanent file name for which processing is desired. Default is no name.
VF=vf	A one- to seven-character name which indicates the name of a file on which PFDUMP stores a duplicate of the archive file it creates. Default name is PFVER.
v	Produces a verification file that is a duplicate of the archive file it creates. Default is no verify file written.
UN=un	Specifies the one- to seven-character user number which is associated with the packname parameter. Default is no name.
SD	Set date option. Sets the date and time of the dump in a special sector on the device being dumped. This allows the release of disk space associated with files which are dumped, if copies of the files also exist on the MSF.
RD=rdf	One- to seven-character name of the release data file (RDF) to be created by PFDUMP. RDF is used as input to the ASVAL utility. Default is no file written.

PFLOAD

PFLOAD(p₁, p₂, ..., p_n)

Archive files produced by the PFDUMP utility can be loaded back onto the permanent file system with this utility.

<u>Pi</u>	<u>Description</u>
FM=fm	Family name to be loaded. Default is normal system family name.
PN=pn	Pack name to be loaded. Default is no name.

<u>Pi</u>	<u>Description</u>
DN=dn	Device number identifying a device within a family. If the device is a master device, all files cataloged on the device (regardless of what device they reside on) are loaded. If the device is not a master device, all files residing on the device are loaded. If the DN parameter is omitted, DN=0 is assumed, and all permanent files in the family are loaded.
TD=tdn	Device number identifying a device within a family. All files residing on the device are loaded. All files cataloged on the device but residing on another device are also loaded. If the TD parameter is omitted, TD=0 is assumed, and all permanent files in the family are loaded.
T=t	A one- to seven-character name of the file used to read archive files. Default name is TAPE.
LO=lop	Specifies the type of output records desired. Default is no output.

<u>lop</u>	<u>Description</u>
T	Lists all files processed.
E	Lists errors.
S	Lists cumulative statistics for catalog.
C	Lists all files in catalog for system.

L=lfm Name of file on which reports are to be written. Default is OUTPUT.

Pi

Description

OP=op

Specifies the options which control the processing of files.

<u>op</u>	<u>Description</u>
C	Makes selection according to time of creation.
A	Makes selection according to time of last access.
M	Makes selection according to time of last modification.
B	Denotes that the time specified on the TM and DT parameters is time before which all files meeting the criteria of the C, A, or M option are processed.
I	Selects indirect access files only.
D	Selects direct access files only.
R	Selects replace option. Files being loaded from an archive tape replace files in the permanent file system for which there is a matching file name (SYOT only).
N	Noninitial load.
E	Extracts catalog image record (CIR) only.
O	Omits CIR processing. PFLOAD skips the CIR for the specified archive file and performs a normal load (nonincremental).
EO	Purges if mass storage errors found.
Z	Clears the alternate storage address of the file being loaded. Normally used when loading individual files from backup.

<u>Pi</u>	<u>Description</u>
NT	Specifies a nine-track archive tape. Default value is seven-track (MT). If MT or NT and a tape is not preassigned, the installation default density is used.
NR	Cancels all rewinds for the operation in which it is specified. Default is to rewind before and after processing.
SF=sf	A one- or two-digit number which specifies the number of archive files to skip before processing begins. Default is 0.
N=n	A one- or two-digit number which specifies the number of archive files on an archive tape to process. If set to 0, one file will be processed. Default is 0.
UD	Sets the utility control date and time for the file being loaded. This ensures the file will be included in the next incremental dump. Normally used when loading individual files from backup.
DT=yymmdd	Specifies the date to be used with C, A, M, or B option. Default is current date if OP=A, C, or M is specified; otherwise, it is 0. DT=yymmdd cannot be used if AD, AT, BD, or BT parameter has been specified.
TM=hhmmss	Specifies the time to be used with C, A, M, or B option. Default is 0. TM=hhmmss cannot be used if AD, AT, BD, or BT parameter has been specified.
AD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are after the specified date. Default is current date. AD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.

<u>P1</u>	<u>Description</u>
AT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are after the specified time. Default is midnight. AT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
BD=yymmdd	Specifies the date to be used with C, A, or M option. Selects files whose corresponding dates are before the specified date. Default is current date if BT=hhmmss is specified; otherwise, it is 0 (no before date). BD=yymmdd cannot be used if DT, TM, or OP=B parameter has been specified.
BT=hhmmss	Specifies the time to be used with C, A, or M option. Selects files whose corresponding times are before the specified time. Default is midnight if BD=yymmdd is specified; otherwise, it is no before time. BT=hhmmss cannot be used if DT, TM, or OP=B parameter has been specified.
UI=ui	Limits processing to files located under this user index. Default is 0 (no user index limiting).
PF=pfm	A one- to seven-character name which specifies the permanent file name for which processing is desired. Default is no name.
DI=di	All files being processed by PFLOAD are loaded to this user index. Default is 0 (no destination index).
DD=dd	Specifies the device number where files are to be loaded when their original device is no longer defined in the system. Default is 0.
UN=un	Specifies the one- to seven-character user number which is associated with the PN parameter.

PROBE

PROBE($p_1, p_2,$
 \dots, p_n)

Analyzes data from either system tables or from a previous PROBE run and generates a report. PROBE must be enabled with an IPRDECK entry for performance statistics to be accumulated by the system.

<u>P_i</u>	<u>Description</u>
$P=1fn_1$	Binary file to be written. Default is STATS.
$P=0$	No binary file is to be written.
$L=1fn_2$	Report file. Default is OUTPUT.
$L=0$	No report is to be generated.
$B=1fn_3$	Binary file to be read.
R	Rewind binary files before and after operation. Default is no rewind.
OP=p	Processing option.

<u>p</u>	<u>Description</u>
C	Perform R processing option and clear system tables after they are read.
P	Generate report from binary files specified by the B parameter (default value).
R	Read system tables. Write binary file and report file as specified.

<u>P_i</u>	<u>Description</u>
LO=x	Sort option for PP program load information.

<u>x</u>	<u>Description</u>
F	Sort data by frequency of loads (default value).
R	Sort data by location and frequency of loads.
A	Sort data in alphabetical order.

NOTE

The file names must be unique; if the OP parameter is R or C, the P parameter cannot be zero.

PROFILE

PROFILE(p₁,p₂, ...,p_n) Creates, updates, and inquires about a project profile file.

<u>P_i</u>	<u>Description</u>
I=lf _{n1}	File lf _{n1} contains input data (default is INPUT).
L=lf _{n2}	File lf _{n2} receives output (default is OUTPUT).
P=lf _{n3}	File lf _{n3} is project profile file (default is PROFILA).
S=lf _{n4}	File lf _{n4} receives PROFILE source data for OP=S (default is SOURCE).

<u>Pi</u>	<u>Description</u>
FM=name	Indicates the family name the user wishes PROFILE to access.
CN=cnum	Charge number inquire (OP=I).
PN=pnum	Project number inquire (OP=I).
CV	Convert option.
OP=C	Create option.
OP=K	K-display option.
OP=R	Restructure run.
OP=S	Source run.
OP=L	List option (used with LO).
OP=U	Updates project profile file.
OP=T	Time-sharing update.
OP=I	Inquire option.
LO=F	Specifies all PROFILA file data.
LO=C	Specifies all PROFILA file charge numbers.
LO=P	Specifies all PROFILA file and project numbers.
LO=FM	PROFILA file data accessible by master user.
LO=CM	Lists charge numbers accessible by master user.
LO=PM	Lists project numbers accessible by master user.

Directives used in the following format add or update information on each charge number.

/chargenum,dir₁, dir₂,...,dir_n Specifies PROFILE directives dir_i for charge number chargenum.

<u>dir_i</u>	<u>Description</u>
ACN=cn	Adds or activates charge number.
AD=n	SRU constant.
APN=pn	Adds or activates project number.
ARn=x	Current number of resource units the project has used for each installation accumulator n ($1 \leq n \leq 8$).
AUN=un	Adds user number.
CEX=yyymmdd.	Charge number expiration date.
CN=cn	Charge number (same as /chargenum).
DCN=cn	Deactivates charge number.
DPN=pn	Deactivates project number.
DUN=un	Deletes user number.
IRn=x	Index for default value of installation limit register n ($1 \leq n \leq 8$).
ISL=x	Index for default value of the SRU installation limit register.
ISV=x	Index for SRU validation limit.
LRn=x	Maximum number of resource units the project can use for each installation limit register n ($1 \leq n \leq 8$).
MU=mun	Master user number.
M1=n	Index to SRU multiplier to weight calculated system resources.
M2=n	Index to SRU multiplier to weight input/output usage.
M3=n	Index to SRU multiplier to weight central memory field length usage.
M4=n	Index to SRU multiplier to weight extended core field length usage.

<u>dir_i</u>	<u>Description</u>
PCL=pcl	Project count limit.
PEX=yymmdd.	Project number expiration date.
PN=pn	Project number.
SIA=sia	SRU installation accumulator.
SIL=sil	SRU installation limit register.
SMA=sma	SRU master user accumulator.
SML=sml	SRU master user limit register.
TI=ti	Time of day before which user cannot use project number.
TO=to	Time of day after which user cannot use project number.

QALTER

QALTER(p_1, p_2, \dots, p_n) Alters routing of active queued output files; purges active queued I/O files.

The first group of parameters listed specifies the selection criteria for the files to be altered; the second group specifies the changes to be made and the output desired.

<u>P_i</u>	<u>Description</u>
DF=fm	Family name of the destination remote batch site to which the files are destined.
UN=un	User number logged on at the remote site specified by the DF parameter.
FM=fm	Family of devices containing the files.
DN=dn	Device containing the files; dn is a two-digit octal number.

PiDescription

DS=dv-ex
or
DS=dv

Destination device type and characteristic.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.
P8	Punch 80 column binary.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.

† Not supported. Provided for NOS/BE compatibility.

Description

<u>ex</u>	<u>Description</u>
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

FC=forms code Forms code of the files.

<u>forms code</u>	<u>Description</u>
fc ₁ fc ₁ /fc ₂ fc ₁ /fc ₂ / fc ₃	One to three specific forms codes (two alphanumeric characters each).
**	Null forms code.
fc ₁ -fc ₂	Range of forms codes; fc ₁ ≤ fc ₂ ; ** is lowest possible value.

ID=id₁
or
ID=id₁-id₂ A two-digit octal identifier or range of identifiers of the files.

JN=jn A seven-character job name or four-character banner name of the files.

JC=job statement name A one- to seven-character name on job statement that, with the JN specification, uniquely identifies the job to be altered.

ot=ft The job origin type (ot) and corresponding file type (ft) to be altered.

<u>ot</u>	<u>Description</u>
BC	Local batch and system.
EI	Remote batch.

<u>Pi</u>	<u>Description</u>	
	<u>ft</u>	<u>Description</u>
	IN	Input.
	PR	Print.
	PH	Punch.
	ALL	All file types for specified origin.
	NONE	No files for specified origin.

The following parameters specify the changes to be made and the output desired.

<u>Pi</u>	<u>Description</u>	
L=lfm	A one- to seven-character name of the output file; default is OUTPUT.	
LO=lop	The type of listing wanted.	
	<u>lop</u>	<u>Description</u>
	F	Full listing.
	S	Condensed listing.
NDF=new destination family	New destination family name associated with selected remote batch output files.	
NFC=new forms code	Alters forms code of print or punch file. New forms code can be two alphanumeric characters or ** (the null forms code).	
NID=new file id	Alters file identifier of system or local batch origin files. The new id must be between 0 and 678.	
NPR=new queue priority	Alters file priority; new priority is a one- to four-digit octal number.	
NRC=c	Alters file repeat count; new repeat count is a one- to two-digit number (0 through 378).	
NUN=new user number	New destination user number associated with selected remote batch output files.	

<u>P_i</u>	<u>Description</u>
OP=option	Alters the origin type or purges the selected queue files.

<u>option</u>	<u>Description</u>
BC	Change to local batch.
EI	Change to remote batch.
NC	No change.
PR	Purge files.

If omitted, OP=NC assumed.

The following specifications alter utility processing (entered only from the control statement).

<u>P_i</u>	<u>Description</u>
I=lfm	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QDUMP

QDUMP(P ₁ ,P ₂ , ...,P _n)	Dumps selected I/O queue files from a single device, a family of devices, or all devices on the system.
--	---

<u>P_i</u>	<u>Description</u>
DA=date	Processing date, in the form yymmdd or ALL. If omitted, queue files created 5 days prior to the current date are processed.
DN=device number	A two-digit logical device number (1 to 77 ₈). FM option must be entered and must precede the DN option. Default is all devices.

<u>P_i</u>	<u>Description</u>								
FM=family name	Processing is restricted to queue files in specified family. If omitted, queue files on all devices in all families are processed.								
FN=file name	File name of dump or load file. Default is QFILES.								
FS=file size	File size range in PRUs/10g.								
FU=family name	Family name under which the queue files to be processed were created. If omitted, queue files created by users in all families are processed.								
ID=identifier	A two-digit octal identifier (0 to 77 ₈) indicating that only I/O queue files assigned that identifier are processed. If omitted, queue files having any identifier are processed.								
JN=jobname	Job name of I/O queue files. Job name may be entered in either a seven-character job name or a four-character banner name (first four characters of jobname).								
L=listfile	Name of file (one to seven characters) to receive output. If omitted, this information is written to file OUTPUT.								
ME=type	Device to load from or dump to:								
	<table border="0"> <thead> <tr> <th style="text-align: left;"><u>type</u></th> <th style="text-align: left;"><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>MT</td> <td>Seven-track tape.</td> </tr> <tr> <td>NT</td> <td>Nine-track tape.</td> </tr> <tr> <td>MS</td> <td>Mass storage device.</td> </tr> </tbody> </table>	<u>type</u>	<u>Description</u>	MT	Seven-track tape.	NT	Nine-track tape.	MS	Mass storage device.
<u>type</u>	<u>Description</u>								
MT	Seven-track tape.								
NT	Nine-track tape.								
MS	Mass storage device.								
	If MT or NT and a tape is not pre-assigned, the installation default density is used.								
MI=machine id	A one- or two-character machine id indicating the mainframe under which the queue files to be processed were created. Default is current machine id.								

<u>Pi</u>	<u>Description</u>														
NF=number	Decimal number of media files to skip. Default is 0.														
ot=ft	Selects job origin type (ot) and corresponding file type (ft) to be processed.														
	<table> <thead> <tr> <th><u>ot</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>BC</td> <td>Batch.</td> </tr> <tr> <td>EI</td> <td>Remote batch.</td> </tr> <tr> <td>SY</td> <td>System.</td> </tr> </tbody> </table>	<u>ot</u>	<u>Description</u>	BC	Batch.	EI	Remote batch.	SY	System.						
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EI	Remote batch.														
SY	System.														
	<table> <thead> <tr> <th><u>ft</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>IN</td> <td>Input.</td> </tr> <tr> <td>PR</td> <td>Print.</td> </tr> <tr> <td>PH</td> <td>Punch.</td> </tr> <tr> <td>SF</td> <td>Installation defined special file types.</td> </tr> <tr> <td>ALL</td> <td>All file types selected for specified origin.</td> </tr> <tr> <td>NONE</td> <td>No file types selected for specified origin.</td> </tr> </tbody> </table>	<u>ft</u>	<u>Description</u>	IN	Input.	PR	Print.	PH	Punch.	SF	Installation defined special file types.	ALL	All file types selected for specified origin.	NONE	No file types selected for specified origin.
<u>ft</u>	<u>Description</u>														
IN	Input.														
PR	Print.														
PH	Punch.														
SF	Installation defined special file types.														
ALL	All file types selected for specified origin.														
NONE	No file types selected for specified origin.														
TID=identifier	The destination terminal identifier for remote batch origin files.														
TP=type	Indicates type of files to dump. Default is ALL.														

<u>type</u>	<u>Description</u>
A	Active files.
I	Inactive files.
ALL	Both active and inactive files.

<u>Pi</u>	<u>Description</u>
UI=user index	User index under which I/O queue files were created. If omitted, queue files having any user index are processed.
VSN=number	Volume serial number of tape from which to dump. This entry is valid only if ME=MT or ME=NT has been specified.
DS=dv-ex or DS=dv	Device selection criteria for output files. Device codes include the following.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.
P8	Punch 80 column.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.

† Not supported. Provided for NOS/BE compatibility.

Pi

Description

<u>ex</u>	<u>Description</u>
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
O26	Punch O26.
O29	Punch O29.
ASCII	Punch ASCII.

FC=forms code Forms code for printed or punched output. Default is ALL.

<u>forms code</u>	<u>Description</u>
fc	Two alphabetic characters, AA through AF.
*	All forms codes from AG to 99.
NULL	No forms code selected.
ALL	All forms codes selected.

The following specifications alter QDUMP processing (entered only from the control statement).

Pi

Description

I=lfm	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QLIST

QLIST(P₁,P₂,
...,P_n)

Lists inactive I/O queue files.

<u>P_i</u>	<u>Description</u>
DA=date	Processing date, in form yymmdd or ALL. If omitted, all inactive queue files are listed.
DN=device number	A two-digit logical device number (1 to 77 ₈). FM option must be entered and must precede the DN option. Default is all devices.
FM=family name	Processing is restricted to queue files in specified family. If omitted, queue files on all devices in all families are processed.
FS=file size	File size range in PRUs/10 ₈ .
FU=family name	Family name under which the queue files to be processed were created. If omitted, queue files created by users in all families are processed.
ID=identifier	A two-digit octal identifier (0 to 77 ₈) indicating that only I/O queue files assigned that identifier are processed. If omitted, queue files having any identifier are processed.
JN=jobname	Job name of I/O queue files. Jobname may be entered in either a seven-character job name or a four-character banner name (first four characters of jobname).
L=listfile	Name of file to receive output. Default is OUTPUT.
MI=machine id	A one- or two-character machine id indicating the mainframe under which the queue files to be processed were created. Default is current machine id.

PiDescription

ot=ft

Selects job origin type (ot) and corresponding file type (ft) to be processed.

otDescription

BC Batch.
 EI Remote batch.
 SY System.

ftDescription

IN Input.
 PR Print.
 PH Punch.
 SF Installation defined special file types.
 ALL All file types selected for specified origin.
 NONE No file types selected for specified origin.

TID=identifier

The destination terminal identifier for remote batch origin files.

UI=user index

User index under which I/O queue files were created. If omitted, queue files having any user index are processed.

P_iDescription

DS=dv-ex
or
DS=dv

Device selection criteria for output files. Device codes include the following.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.
P8	Punch 80 column.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.

† Not supported. Provided for NOS/BE compatibility.

Pi

Description

<u>ex</u>	<u>Description</u>
A9	ASCII graphic 95-character-set print train.
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

FC=forms code Forms code for printed or punched output. Default is ALL.

<u>forms code</u>	<u>Description</u>
fc	Two alphabetic characters, AA through AF.
*	All forms codes from AG to 99.
NULL	No forms code selected.
ALL	All forms codes selected.

The following specifications alter QLIST processing (entered only from the control statement).

Pi

Description

I=lfm	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QLOAD

QLOAD($p_1, p_2,$
 \dots, p_n)

Processes dump files generated by QDUMP or other utilities using same format.

<u>P_i</u>	<u>Description</u>
DA=date	Processing date, in form yymmdd or ALL. If omitted, queue files created 5 days prior to current date are processed.
DD=dd	Specifies device to which to load queues. DF parameter must be specified before entering DD parameter.
DF=family	Specifies which family of devices to load.
FN=file name	File name of dump or load file. Default is QFILES.
FS=file size	File size range in PRUs/10 ₈ .
FU=family name	Family name under which the queue files to be processed were created. If omitted, queue files created by users in all families are processed.
ID=identifier	A two-digit octal identifier (0 to 77 ₈) indicating that only I/O queue files assigned that identifier are processed. If omitted, queue files having any identifier are processed.
JN=jobname	Job name of I/O queue files. Jobname may be entered in either a seven-character job name or a four-character banner name (first four characters of jobname).
L=listfile	Name of file to receive output. Default is OUTPUT.

P_i

Description

ME=type Device to load from or dump to:

<u>type</u>	<u>Description</u>
MT	Seven-track tape.
NT	Nine-track tape.
MS	Mass storage device.

If MT or NT and a tape is not pre-assigned, the installation default density is used.

MI=machine id A one- or two-character machine id indicating the mainframe under which the queue files were created. If not specified, the default is current machine id.

NF=number Decimal number of media files to skip. Default is 0.

OP=option Specifies whether the loaded queues are to be active or inactive. Default is OP=A.

<u>option</u>	<u>Description</u>
A	Active queues are specified.
I	Inactive queues are specified.

ot=ft Selects job origin type (ot) and corresponding file type (ft) to be processed.

<u>ot</u>	<u>Description</u>
BC	Batch.
EI	Remote batch.
SY	System.

Description

<u>ft</u>	<u>Description</u>
IN	Input.
PR	Print.
PH	Punch.
SF	Installation defined special file types.
ALL	All file types selected for specified origin.
NONE	No file types selected for specified origin.
SC=number	Decimal number of queue files to skip before beginning the queue selection.
TID=identifier	The destination terminal identifier for remote batch origin files.
UI=user index	User index under which I/O queue files were created. If omitted, queue files having any user index are processed.
VSN=number	Volume serial number of tape from which to load.
DS=dv-ex or DS=dv	Device selection criteria for output files. Device codes include the following.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.

Description

<u>dv</u>	<u>Description</u>
SB	Punch system binary.
P8	Punch 80 column.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

† Not supported. Provided for NOS/BE compatibility.

<u>Pi</u>	<u>Description</u>
FC=forms code	Forms code for printed or punched output. Default is ALL.

<u>forms code</u>	<u>Description</u>
fc	Two alphabetic characters, AA through AF.
*	All forms codes from AG to 99.
NULL	No forms code selected.
ALL	All forms codes selected.

The following specifications alter QLOAD processing (entered only from the control statement).

<u>Pi</u>	<u>Description</u>
I=lfm	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QMOVE

QMOVE(p₁,p₂, ...,p_n)
 Moves I/O queues from one mass storage device to another.

<u>Pi</u>	<u>Description</u>
DA=date	Processing date, in form yymmdd or ALL. If omitted, queue files created 5 days prior to current date are processed.
DD=dd	Specifies the device to which the queues are moved.
DF=family	Specifies family to which queues are moved (must be specified).

<u>Pi</u>	<u>Description</u>
DN=device number	A two-digit logical device number (1 to 778). FM option must be entered and must precede the DN option. Default is all devices.
FM=family name	Processing is restricted to queue files in specified family. If omitted, queue files on all devices in all families are processed.
FS=file size	File size range in PRUs/10 ₈ .
FJ=family name	Family name under which the queue files were created. If omitted, queue files created by users in all families are processed.
ID=identifier	A two-digit octal identifier (0 to 778) indicating that only I/O queue files assigned that identifier are processed. If omitted, queue files having any identifier are processed.
JN=jobname	Job name of I/O queue files. Jobname may be entered in either a seven-character job name or a four-character banner name (first four characters of jobname).
L=listfile	Name of file to receive output. Default is OUTPUT.
MI=machine id	A one- or two-character machine id indicating the mainframe under which queue files were created. If not specified, the default is current machine id.
OP=option	Specifies whether the loaded queues are to be active or inactive. Default is OP=A.

<u>option</u>	<u>Description</u>
A	Active queues are specified.
I	Inactive queues are specified.

PiDescription

ot=ft

Selects job origin type (ot) and corresponding file type (ft) to be processed.

<u>ot</u>	<u>Description</u>
-----------	--------------------

BC	Batch.
----	--------

EI	Remote batch.
----	---------------

SY	System.
----	---------

<u>ft</u>	<u>Description</u>
-----------	--------------------

IN	Input.
----	--------

PR	Print.
----	--------

PH	Punch.
----	--------

SF	Installation defined special file types.
----	--

ALL	All file types selected for specified origin.
-----	---

NONE	No files types selected for specified origin.
------	---

TID=identifier The destination terminal identifier for remote batch origin files.

TP=type Type of files to move. Default is ALL.

<u>type</u>	<u>Description</u>
-------------	--------------------

A	Active files.
---	---------------

I	Inactive files.
---	-----------------

ALL	Both active and inactive files.
-----	---------------------------------

UI=user index User index under which I/O queue files were created. If omitted, queue files having any user index are processed.

Pi

DS=dv-ex
 or
 DS=dv

Description

Device selection criteria for output files. Device codes include the following.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.
P8	Punch 80 column.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4 †	ASCII graphic 48-character-set print train.
B4 †	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.

† Not supported. Provided for NOS/BE compatibility.

PiDescription

<u>ex</u>	<u>Description</u>
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

FC=forms code Forms code for printed or punched output. Default is ALL.

<u>forms code</u>	<u>Description</u>
fc	Two alphabetic characters, AA through AF.
*	All forms codes from AG to 99.
NULL	No forms code selected.
ALL	All forms codes selected.

The following specifications alter QMOVE processing (entered only from the control statement).

PiDescription

I=ifn	Specifies name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QREC

QREC($p_1, p_2,$
 \dots, p_n)

Deactivates or activates selected I/O queue files; purges inactive queue files.

<u>P_i</u>	<u>Description</u>
DA=date	Processing date, in form yymmdd or ALL. If omitted, queue files created 5 days prior to current date are processed.
DN=device number	A two-digit logical device number (1 to 778). FM option must be entered and must precede the DN option. Default is all devices.
FM=family name	Processing is restricted to queue files in specified family. If omitted, queue files on all devices in all families are processed .
FS=file size	File size range in PRUs/10 ₈ .
FU=family name	Family name under which the queue files were created. If omitted, queue files created by users in all families are processed.
ID=identifier	A two-digit octal identifier (0 to 778) indicating that only I/O queue files assigned that identifier are processed. If omitted, queue files having any identifier are processed.
JN=jobname	Job name of I/O queue files. Jobname may be entered in either a seven-character job name or a four-character banner name (first four characters of jobname).
L=listfile	Name of file to receive output. Default is OUTPUT.
MI=machine id	A one- or two-character machine id indicating the mainframe under which queue files were created. If not specified, the default is current machine id.

PiDescription

OP=option

Processing option. Default is
OP=RI.

<u>option</u>	<u>Description</u>
RI	Activates (requeues) selected inactive I/O queue files and ignores remaining inactive queue files.
RP	Activates (requeues) selected inactive I/O queue files and purges remaining inactive queue files.
PI	Purges selected inactive I/O queue files and ignores remaining inactive queue files.
DI	Indicates that the selected active I/O queue files are made inactive (entries are removed from the FNT and added to the IQFT file) and remaining active queue files are ignored.

ot=ft

Selects job origin type (ot) and corresponding file type (ft) to be processed.

<u>ot</u>	<u>Description</u>
BC	Batch.
EI	Remote batch.
SY	System.

Description

<u>ft</u>	<u>Description</u>
IN	Input.
PR	Print.
PH	Punch.
SF	Installation defined special file types.
ALL	All file types selected for specified origin.
NONE	No files types selected for specified origin.

UI=user index User index under which I/O queue files were created. If omitted, queue files having any user index are processed.

DS=dv-ex
or
DS=dv Device selection criteria for output files. Device codes include the following.

<u>dv</u>	<u>Description</u>
NONE	No device code specified.
PR	Any print file.
LR	580-12 printer.
LS	580-16 printer.
LT	580-20 printer.
SB	Punch system binary.
P8	Punch 80 column.
PB	Punch binary.
PU	Punch coded.
PL	Plotter.

Description

External characteristics codes include the following.

<u>ex</u>	<u>Description</u>
A4†	ASCII graphic 48-character-set print train.
B4†	BCD 48-character-set print train.
B6	CDC graphic 63/64-character-set print train.
A6	ASCII graphic 63/64-character-set print train.
A9	ASCII graphic 95-character-set print train.
PU	Punch coded.
SB	Punch system binary.
80COL	Punch 80 column binary.
026	Punch 026.
029	Punch 029.
ASCII	Punch ASCII.

FC=forms code Forms code for printed or punched output. Default is ALL.

<u>forms code</u>	<u>Description</u>
*	All forms codes from AG to 99.
NULL	No forms code selected.
ALL	All forms codes selected.

TID=identifier Destination terminal identifier for remote batch origin files.

†Not supported. Provided for NOS/BE compatibility.

The following specifications alter QREC processing (entered only from the control statement).

<u>P_i</u>	<u>Description</u>
I=ifn	Name of alternate input file containing K-display utility commands and/or option parameters. Its directives are processed after the control statement parameters.
NK	Suppresses K display.

QTF

QTF. Transfers queue files to a remote mainframe for processing.

<u>Command</u>	<u>Description</u>
AC=x.	Change the number of connections allowed to x.
IDLE.	Idle after all transfers are complete.
STOP.	Drop immediately.
ON.	Enable file transfers for all file types.
OFF.	Disable file transfers for all file types.
ON=xx. OFF=xx.	Enable/disable file transfers for the specified file type:

<u>xx</u>	<u>File Type</u>
IN	Input.
PR	Printer.
PU	Punch.
SP	Special.

RESET. Update internal tables to reflect the current state of logical IDs. Also clear all internally disabled logical IDs.

RHFOU

RHFOU. Provides the operator interface to the RHF subsystem using the DSD K-display.

DISPLAY SELECTION COMMANDS

<u>Command</u>	<u>Display</u>
K.NADT	Network address table.
K.APPL	RHF applications.
K.LIDT	Logical ID table.

The following command is used when the network address table (NADT) display is active. This command changes the values of the NADT entry for NADT ordinal ord.

NAT,ord,EQ=ee,ND=nn,AC=aaaa,DD=d,RT=rr,LT=lt,ST=s.

<u>Parameter</u>	<u>Description</u>
ord	NADT ordinal whose values are to be changed.
ee	EST ordinal of local NAD.
nn	Destination NAD address.
aaaa	Access code.
d	Device address of destination NAD.
rr	Remote trunk control unit enables.
lt	Local trunk control unit enables.
s	Enabled or disabled state indicator (E or D).

The following commands are used when the RHF applications (APPL) display is active.

<u>Command</u>	<u>Description</u>
ENABLE,xx.	Enables the application that has ordinal xx in the APPL display.
DISABLE,xx.	Disables the application that has ordinal xx in the APPL display.

The following command is used when the logical ID table (LIDT) display is active. This command changes the attribute for mainframe lid.

SA,lid,x.

<u>Parameter</u>	<u>Description</u>
lid	Three-character logical ID.
x	New attribute to be assigned:
	<u>x</u> <u>Attribute</u>
	L Linked logical ID.
	H Host logical ID.
	D Disable logical ID.
	E Enable logical ID.

SYSEDIT

SYSEDIT(p_1, p_2, \dots, p_n) Performs modifications to the system library.

<u>p_i</u>	<u>Description</u>
I=lf n_1	Directive input is on file lf n_1 . Default is INPUT.
B=lf n_2	Replacement records are on file lf n_2 . Default is LGO.
L=lf n_3	List output is on file lf n_3 . Default is OUTPUT.
R	Restores to initial deadstart system.
R=n	Restores to copy n of the system.
R=0	No system file restoration.
C	Checkpoints the system following SYSEDIT.
Z	SYSEDIT control statement contains input directives.

<u>Directive</u>	<u>Description</u>
*AD,nn,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Specifies alternate device to be used instead of the system device(s) for storing ABS, OVL, and PP type routines; nn is either EST ordinal or device type.
*CM,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Defines record rec _i of type ty _i as being central memory resident.
*MS,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Defines record rec _i of type ty _i as being mass storage resident.
*DELETE,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Deletes record rec _i of type ty _i from system library. Type ty _i =ULIB is ignored; user libraries cannot be deleted. *DELETE can be shortened to *D.
*FILE,lfn,NR	Defines file lfn as a file containing system changes. If NR is not present, lfn is rewound before processing.
*FL,ty ₁ / rec ₁ -fl ₁ , ty ₂ /rec ₂ -fl ₂ ,..., ty _n /rec _n -fl _n	Load rec _i of type ty _i with field length of fl _i where fl _i is FL/100g.
*IGNORE,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Do not process record rec _i of type ty _i when it appears on the system change file.
*PROC,rec ₁ , rec ₂ ,..., rec _n	Defines record rec _i of type TEXT or PROC as procedure file.
*PPSYN,nam/ nam ₁ ,nam ₂ , ...,nam _n	Adds entries to system library to provide synonym nam _i for PPU program nam.
*SC,ty ₁ / rec ₁ ,ty ₂ / rec ₂ ,..., ty _n /rec _n	Defines record rec _i of type ty _i as product set format control statements.

VALNET

VALNET(p₁,p₂,
p₃)

Validates syntax and logic of a terminal network description file.

P_i

Description

P=lf_{n1}

Terminal network description file name. If the file name is omitted, COMPILE is diagnosed. If the P parameter is omitted, NETWid is diagnosed.

L=lf_{n2}

Output file for diagnostics specified by a file name or one of the following.

lf_{n2}

Description

(blank) Diagnostics put on LIST.

0 No listing produced.

The default output file is OUTPUT.

NR

No rewind of the network description file before processing.



CENTRAL MEMORY RESIDENT

CENTRAL MEMORY LAYOUT

000 : 077	system pointers and control words
100 : 111	channel status table
112 : 122	status control registers
123 : 127	miscellaneous pointers and data
130 : 137	statistical data
140 : 145	channel controlware and status table
146 : 162	reserved
163 : 177	DSD-1DS communication area
200	control point areas
$(n+1)*200$	system control point
$(n+2)*200$	PP communication area (pointer in word 002, byte 4)

dayfile buffer pointers (pointer in word 003, byte 0)
equipment status table (EST) (pointer in word 005, byte 0)
file name/file status table (pointer in word 004, byte 0)
FNT interlock table (pointer in word 004, byte 1)
CDC CYBER 176 exchange package area
mass storage allocation area
mass storage tables (MST)
logical ID table (LIDT)
job control area
dayfile buffers
dayfile dump buffer
ECS/PP buffer
CPUMTR
resident peripheral library (RPL)
resident central library (RCL)
peripheral library directory (PLD)
central library directory (CLD)
system user library directory (LBD)
PROBE data tables

POINTERS AND CONSTANTS

	59	47	35	29	23	17	11	5	0	
000	zeros									
001	fwa resident PP library		number of PPU's		†1		memory size/100		RPLP, PPUL, CPUL, MFLI	
002	fwa PP library directory				number of ctrl pts		PP comm area adr		PLDP, NCPL, PPCP	
003	dayfile pnr fwa	fwa dayfile dump buffer					reserved	dump buffer interlock	DFPP	
004	fwa FNT	lwa+l FNT					fwa job control area		FNTR, JBPC	
005	fwa EST	lwa+l EST		lwa+l ms equipment		fwa ECS/PP buffer			ESTP	
006	fwa mass storage allocation		fwa user library directory			ECS size /1000			MEFL, LBDP, MSAP	
007	fwa CPU library directory					reserved		†2	CLDP	
010	installation area									INOL, INSL
:										:
017										IN7L
020				RA/100 for CPO			CMR size /100		CMRL	
021	system name						†3		JNML	
022				job sequence number counter					JSNL	
023			avail ECS 1000B blocks			available mem/100B			ACML, AECL	
024	job scheduler	CPU recall	PP/auto recall	job activity	job switch				MSSL	
025			ECS first user track	user 1000B word ECS blk	ECSRA/1000B for CPO	ECS FL/1000B for CPO		ECRL		
026	STSW for control point zero									STSW
027				julian date (yyddd)					JDAL	
030				packed date (yr-1970, mo, da, hr, mn, sc)					PDTL	
031	time of day (Δhh. mm. ss.)									TIML
032	date (Δyy/mm/dd.)									DTEL
033										SYTL
:										:
036	system title line									
037										SVNL
040	system version name									
041								scheduler cy. intvl.		JSCL
042	†4					reserved		ISP recall time		RETL

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	23-20	Unused.
	19-18	CDC CYBER 176 CPU type: 0 = Not a CDC CYBER 176. 1 = CDC CYBER 176 Model A. 2 = CDC CYBER 176 Model B. 3 = CDC CYBER 176 Model C.
	17	Set if 2x PPs are selected.
	16	Set if machine type is CDC CYBER 170.
	15	Set if CMU is present.
	14	Set if CEJ/MEJ option is available.
	13	Set if CPU0 has an instruction stack.
	12	Set if CPU1 is present.
†2	5-0	ACCFAM FL/100.
	5-3 2-0	LIBDECK number. Recovery mode.
†4	59	Scheduler active flag.

	59	47	41	35	23	17	11	0	
043	↑1								I PRL
044	↑2								S STL
045	TELEX/IAF	EXPORT/IMPORT	BATCHIO	MAGNET	TAF				S SCL
046	STIMULATOR	NETWORK INPUT PROC	RBF	CDCS	MCS				
047	MASS STORAGE CONTROL	MSSexec	RHFAM	reserved					
050	LIDT address	reserved							L IDP
051	reserved						IR addr next PPU		P PAL
052	idle time for CPO								C PTW
053	load code for MS error processors								M SEL
054									
055									
056	↑x	reserved					message link		B MLL
057	ctrl point for move	internal to MTR							C MCL
060	↑3	CPO ctrl pt assig		CPO exchange address					A CPL
061	↑4	CPI ctrl pt assig		CPI exchange address					
062	reserved			address of PPO exchange package					P XPP
063	first word of PP exchange package								
064	reserved								
065									
066	zeros								Z ERL
067									
:									
:									
075	reserved								
076	reserved					CPUMTR exchange address for MTR			M TRL
077	EQ	CPSL	PS		O			C PSL	
100	CH0	CH1	CH2	CH3	CH4			C TIL ↑5	
101	CH5	CH6	CH7	CH10	CH11				
102	CH12	CH13	CH14	CH15	CH16				
103	CH17 (unused)	CH20	CH21	CH22	CH23				
104	CH24	CH25	CH26	CH27	CH30				
105	CH31	CH32	CH33	CH34 (unused)	CH35 (unused)				
106	seconds			milliseconds					R TCL
107	reserved								
110	↑6								P FNL
111	↑7		reserved						R DSL
112	↑8								S CRL

↑x 59 Deadstart flag

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59-54	Index for CPU1 multiplier.
	53-48	Index for CPU0 multiplier.
	47-36	Secondary rollout sector threshold.
	35	Keypunch mode (0=026, 1=029).
	34-25	Unused.
	24	System character set mode (0=63, 1=64 character set).
	23-12	Assumed conversion mode (2=ASCII/ USASI, 3=EBCDIC).
	11-6	Assumed nine-track tape density (3=800, 4=1600, 5=6250).
	5	Assumed tape type (seven-track=0, nine-track=1).
	4-0	Assumed seven-track density (1=200, 2=556, 3=800).
	†2	59-56
55		Disable MSS master mode.
54		Disable file staging.
53		Disable user ECS.
52		Disable PF validation.
51-50		Disable MS validation.
49		Ignore USER statement.
48		Disable account verification.
47		Disable BATCHIO.
46		Disable TELEX.
45		Disable EI200.
44		Disable MAGNET.
43		Reserved.
42		Disable removable device checking.
41		Disable queue protect.
40		Disable secondary user statements.
39		Disable SCP facility.
38		Disable TAF.
37		Disable NAM.
36		Disable RBF.
35		Disable subcontrol points.
34		Disable MCS.
33		Disable CDCS.
32		Disable MSS executive.
31		Disable IAF.
30		Disable PROBE.
29		Disable RHFAM.
28-16	Reserved for CDC use.	
15	Set if CYBER 70 SCR simulation disabled.	
14	ENGINEERING switch.	
13	Console initial lock status.	
12	DEBUG switch.	
11-0	Reserved for installation use (local).	

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>										
†3	59	Set if CPU0 is off.										
†4	59	Set if CPU1 is off.										
†5	--	Channel status table; one byte per channel, each with the following bit descriptions.										
		<table border="1"> <thead> <tr> <th><u>Bit</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>11</td> <td>Set if channel requested.</td> </tr> <tr> <td>10-7</td> <td>PP number of requesting PP.</td> </tr> <tr> <td>6</td> <td>Set if channel not available.</td> </tr> <tr> <td>5-0</td> <td>PP assigned.</td> </tr> </tbody> </table>	<u>Bit</u>	<u>Description</u>	11	Set if channel requested.	10-7	PP number of requesting PP.	6	Set if channel not available.	5-0	PP assigned.
<u>Bit</u>	<u>Description</u>											
11	Set if channel requested.											
10-7	PP number of requesting PP.											
6	Set if channel not available.											
5-0	PP assigned.											
†6	59-56	Reserved.										
	55	Total PF system interlock.										
	54	Request total PF system interlock.										
	53-48	PF activity count.										
	47-18	Reserved.										
	17-12	Default family equipment number.										
	11-6	Alternate family count.										
	5-1	Reserved.										
	0	Word interlock.										
†7	59-48	Seconds left until label check.										
	47-36	Seconds left until devices check-pointed.										
†8	59	Set to inhibit MTR from calling 1 MB for hardware error processing.										
	58	Set if error processing ignored at deadstart.										
	57	Set to allow MTR to accept DSRM function for emergency step from 1 MB, and to prevent DSD from allowing UNSTEP command to be entered.										
	56	Set to indicate MTR has set step mode on request from 1MB (emergency step).										
	55-54	Unused.										
	53-36	FWA of SECDED ID table.										
	35-24	ICK IR address when called by 1MB.										
	23-12	CM single bit SECDED error count.										
	11-0	LCME single bit SECDED error count.										

	59	51	47	41	35	23	11	0	
113	reserved	PP speed	CM size			reserved	options installed		SABL, MABL
114	Pointer to processor A entry		Pointer to processor B entry			reserved	reserved		
115	Pointer to memory A entry		Pointer to memory B entry			reserved	reserved		
116	Pointer to I/O subsystem A entry		Pointer to I/O system B entry			reserved	reserved		
117	Pointer to UEM entry		reserved						
120	ECM base/1000	ECM FL/1000	reserved			†1		OABL, ECML	
121	reserved								
122	reserved								
123	MID		†2					MMFL	
124	reserved								
125	reserved								
126	reserved					flag register			EFRL
127	†3								INWL
130	reserved			worst case MXN time	worst case MTR cycle time	current MTR cycle time			SDOL, SDAL
131	count of ECS moves			count of CM moves					SDIL
132	rollout count			count of sectors rolled					SD2L
133	reserved	time slice due to user limits			count of time slices				SD3L
134	reserved			jobs in recall due to PP priority exchanges					SD4L
135	†4	length of PROBE table area			fwa of PROBE table area				SD5L
136	reserved								SD6L
137	reserved								SD7L
140	CH0	CH1	CH2	CH3	CH4				CCTL 15
141	CH5	CH6	CH7	CH10	CH11				
142	CH12	CH13	CH14	CH15	CH16				
143	CH17	CH20	CH21	CH22	CH23				
144	CH24	CH25	CH26	CH27	CH30				
145	CH31	CH32	CH33	CH34	CH35				
146	reserved								
162	reserved								
163	DSD - 1DS communication area								DSDL
177	DSD - 1DS communication area								

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	1	ECM present.
	0	Extended purging is selected.†
†2	47	Set only if shared RMS is running. If bit 47 is not set, the remainder of the word has the following format:
	46-42	Reserved.
	41-36	Equipment number of link device.
	35	Set if this machine has DATI recovery interlock.
	34-30	Unused.
	29-24	Count of devices with initialize pending that have not been checkpointed.
	23-20	Machines active.
	19-16	Machines down.
	15-12	Machine mask.

If bit 47 is set (shared RMS), the remainder of the word has the following format:

46-30	Reserved.
29-24	Count of devices with initialize pending that have not been checkpointed.
23-0	Reserved.

† Refer to the MODE macro in NOS Reference Manual, volume 2.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†3	59-15	Unused.
	14	Disable priority evaluation.
	13	Disable job scheduler.
	12	Disable autoroll.
	11-3	Unused.
	2	CPD drop flag.
	1	Fatal mainframe error flag.
	0	System control point (SCP) subsystem abort interlock.

†4	59	PROBE table interlock.
----	----	------------------------

†5	--	Channel controlware and status table; one byte per channel, each with the following bit descriptions:
----	----	---

<u>Bit</u>	<u>Description</u>
11-4	Reserved.
3-0	Value for controlware type.

<u>Value</u>	<u>Definition</u>
4	NAD (380-170).
3	FMD (7155).
2	FT (7154/7152).
1	HT (7054/7154/7152).
0	No controlware on channel.

CONTROL POINT AREA

	59	47	41	35	29	23	17	11	5	0	
000	exchange package area										
017											
020	reserved			RA/100B			FL/100B				FLSW
021	job name					job orgn	operator equipment				JNMW, OAEW
022	CPU priority	queue priority		↑1		CPUs allowable				JCIW	
023	CM residence timelimit			↑2		CPU time slice limit				TSCW	
024	time entered X status										CPCW
025	↑3		reserved		ECS RA/1000B			ECS FL/1000B		ECSW, CPIW	
026	↑4		error flags	activity count		reserved				STSW	
027	PP recall register										RLPW
030	↑5							sense swchs			SNSW
031											MS1W
	message 1 area										
035											
036											MS2W
	message 2 area										
040											
041											INOW
050											IN7W
051	↑6			SRU accumulator (micro units *10)							ACTW, SRUW
052	CP accumulator										CPTW
053	MS accumulator			MT accumulator			PF accumulator				IOAW
054	M13=M1*M3			M14=M1*M4			adder accumulator				MP1W, ADAW
055	M1*1000			M12=M1*M2			reserved				ACTWE, MP2W
056	↑7 CPM (SRU=SRU + CPM*CP)					IOM (SRU=SRU + IOM*IO)					MP3W
057	SRU account block limit			computed SRU job step limit							STLW
060	reserved		SRU job step limit			SRU at beginning of job step					SRJW
061	reserved		CP time job step limit			CP time at beginning of job step					CPJW

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59	CPU W status.
	58	CPU X status.
	57	CPU auto recall (I status).
	56	CPU subcontrol point active status.
	55-54	Unused.
	53	Job advancement flag.
	52-48	Number of PPs assigned to job.
†2	35-33	CPU status for rollout.
	32-25	Unused.
	24	Set if rollout is requested.
†3	35	Set if CPU time slice is active.
	34-30	Queue control (0=input, 1=roll-out).
†4	59-51	Job control flags (reserved).
	50	Return private user files.
	49	Set privacy ID on new files.
	48	Preserve ECS over job steps.
	47	FNT interlock.
†5	59	Reserved.
	58	O26/O29 punch mode.
	57	Set if OVERRIDE required to drop job.
	56-36	Unused.
	35-24	Reserved for installation use.
	23-15	Reserved.
	14	Subsystem idledown flag.
	13	NOGO flag.
	12	PPU pause flag.
	†6	
59		Time validation limit.
58		Time limit.
57		SRU validation limit.
56		SRU limit.
55		Control statement limit.
54		Message limit.
53-48		Reserved.
		Accumulator overflow flags:
47		MS accumulator.
46		MT accumulator.
45		PF accumulator.
44		AD accumulator.
43-42		Reserved.
†7		59

	59	53	47	35	29	23	17	11	0		
062	↑1								FPFW		
063	↑2				rollin FL		FL increase request		FLCW		
064	↑3				rollin ECS FL		ESC FL increase req		ELCW		
065	TXOT	list of files address		TTY interrupt address ↑4		output pointer				TXSW, TIOW, TIAW, LOFW	
066	auxiliary pack name							↑5		PFCW	
067	user number						↑8		↑6 user index	UIDW	
070	↑7			↑10 terminal input pointer		error exit ↑9 return address				EECW, TINW	
071	input FST	primary FST	event descriptor		rollout time					TFSW, TERW	
072	↑11		control statement count		next statement index		limit index			CSPW	
073	↑12	eq num	first track	current track	current sector	half sector flag				CSSW	
074	job sequence number			control statement address (TCS)		demand file random index				RFCW	
075	reserved		↑13							ALMW	
076	reserved	dayfile msg count	control stmt count	↑14		mass storage PRU count				ACLW	
077	account access control word										AACW
100	buffer 0 length	buffer 0 address		buffer 1 length	buffer 1 address					ICAW	
101	special entry point word ↑15									SEPW	
102	system processor call word ↑16									SPCW	
103	EFG	R1G		CCL data		reserved				JCOW	
104	EF	R3		R2		R1				JCRW	
105	↑17	input buffer address		right screen buffer address		left screen buffer address				DBAW	
106	loader control words ↑18										LB1W
107											LB2W
110											LB3W
111	↑19						FWA of dump				PPDW, EOCW
112	reserved							120			SSOW
113	↑21										SSCW
114	computed CP job step limit										CPLW
115	reserved										
116	origin logical ID		destination logical ID			reserved					MORW
117	reserved										
127	control statement buffer										CSBW
130											
.											
177											

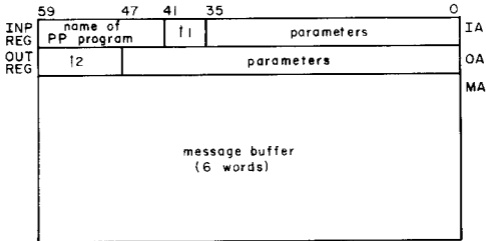
<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59	Set when first charge processed.
	58	Set if second entry in level -3 block.
	57	Set if application accounting in process.
	56	Set if validated for application accounting.
	55-48	Reserved.
	47-36	SRU validation limit.
	35-24	FNT ordinal of PROFILE file.
†2	23-12	Track of level -3 block.
	11-0	Sector of level -3 block.
	59-48	Maximum field length (MFL) for current job step.
	47-36	Initial running field length; always less than or equal to MFL (value of zero indicates system field length control).
†3	35-24	Maximum field length for entire job; MAX FL is upper bound on MFL.
	59-48	Maximum ECS field length (MFL) for current job step.
	47-36	Initial running ECS field length; always less than or equal to MFL (value of zero indicates system ECS field length control).
†4	35-24	Maximum ECS field length for entire job; MAX FL is upper bound on MFL.
	59-48	Rollout indicators (one bit per subsystem) indicating the user job is a candidate for normal rollout. Connection indicators (four bits per subsystem) representing particular subsystem the user job is communicating with.
†4	47-0	Connection indicators (four bits per subsystem) representing particular subsystem the user job is communicating with.
	59-48	Rollout indicators (one bit per subsystem) indicating the user job is a candidate for normal rollout. Connection indicators (four bits per subsystem) representing particular subsystem the user job is communicating with.
†5	35-17	Previous error flag value if bit 58 set in word EECW indicating extended RPV mode.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
† 6	17-12	Family EST ordinal.
	11-0	Indexes into tables of limits:
	11-9	Limit for size of direct access files.
	8-6	Limit for number of permanent files.
	5-3	Limit for cumulative size of indirect access files.
	2-0	Limit for size of indirect access files.
† 7	17	Set if charge statement is required.
† 8	59	No exit flag.
	58	Extended RPV mode.
	57	Interrupt handler in progress flag (extended RPV mode only).
	56	Set if one-time error previously entered (extended RPV mode only).
	55-48	Unused.
	47	For nonextended RPV mode, set if bits 46-36 are error flag instead of reprieve error option.
	46-36	Error flag or reprieve error option for nonextended RPV mode.
47-36	Mask bits for extended RPV mode.	
† 9	17	Job reprieved.
† 10	16-0	RPV parameter block address (extended RPV mode only).
† 11	30	Valid event descriptor present.
† 12	59-54	Job class.
	53-48	Reserved.
	47	Set if EOR is on control statement file.
† 13	59	Set if information is for INPUT file.
	58	Skip to EXIT flag.
	57-54	Unused.
† 14	47-45	Maximum magnetic tapes allowed.
	44-42	Maximum removable packs allowed.
	41-39	Maximum deferred batch jobs allowed.
	38-36	Maximum local files allowed.
	35-30	Maximum time limit allowed.
	29-24	Maximum SRU limit allowed.
	23-18	Maximum field length allowed.
	17-12	Maximum ECS field length allowed.
	11-6	Maximum lines printed allowed.
5-0	Maximum cards punched allowed.	

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†15	23-18	Disposed output count.
†16	59	Set indicates presence of entry points.
	58-55	Reserved.
	54	Set if FIP= entry point present.
	53	Set if ARG= entry point present.
	52	Set if DMP= entry point present.
	51	Set if SDM= entry point present.
	50	Set if SSJ= entry point present.
	49	Set if VAL= entry point present.
	48	Set if SSM= entry point present.
	47-36	Reserved.
	35	Restart flag.
	34	Reserved.
	33	Suppress DMP= if control statement call.
	32	Create DM* file only flag.
	31	Dump FNTs with control point area.
	30	Leave DM* file unlocked.
29-18	DMP=FL/100 (if field is 0, dump entire FL).	
17-0	SSJ= parameter block address.	
†17		For input:
	59-42	Entry point if RA+1 request, 770000g if control statement call.
	41	Special program request active (IAJ only).
	40	Clear RA+1 upon completion.
	39	If set, parameter list is in bits 35-0; if clear, address of parameter list is in bits 17-0.
	38	Does not start CPU at completion of control statement call (IAJ only).
	37	DMP= initiation in progress.
	36	DMP= and SSJ= job called by SSJ= flag.
	35-0	Refer to description of bit 39.
		For output:
	59-36	Unused.
	35-24	Status return.
23-0	Unused.	
†18	59	Disable dumps.
	58	K-display status return flag.
	57-56	Unused.
	55	ECS common memory manager flag.
	54	CM common memory manager flag.

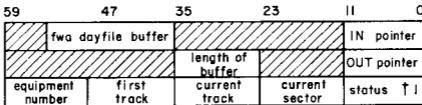
<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>	
†19		LB1W:	
	59	Use default map options if not set.	
	58	Reserved.	
	57	Local map option X.	
	56	Local map option E.	
	55	Local map option B.	
	54	Local map option S.	
	53	Reduce flag.	
	52-36	Reserved.	
	35-24	CDC CYBER Interactive Debug control byte.	
	23-0	Global library set indicators (6-bit fields):	
		00	End of library set.
		01-76	LBD ordinal of system library.
		77	User library; logical file name of first user library in LB3W; logical file name of second user library in LB2W.
		LB2W, LB3W:	
	59-0	Either logical file name of second (LB2W) or first (LB3W) user library, or a collection of 6-bit global library set indicators.	
†20	59-48	FST address of last file executed.	
	47-36	ECS FL of program making DMP= call.	
	35-24	Field length of program making DMP= call.	
	23-18	Dump word count.	
†21	12	Swap out (SF.SWPO) in progress.	
	11-0	Subsystem outstanding connection count.	

PP COMMUNICATION AREA



<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	41 40-36	Set if called with auto recall. Control point assignment.
†2	59 58 57 56 55-54 53-48	Reissue monitor function. Reserved. DSD/MTR interlock. Storage move allowed. Reserved. Function code.

DAYFILE BUFFER POINTERS



<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	11-6	Index for system dayfiles. Values are as follows:
		Value Description
		00 Not a system dayfile.
		01 System dayfile (COMSIOQ symbol SDAY).
		02 Account dayfile (COMSIOQ symbol ACCF).
		03 Error log (COMSIOQ symbol ERLF).
		04 Binary maintenance log (COMSIOQ symbol BMLF).
	5-2	Zero.
	1	Interlock (0 = interlocked).
	0	Busy (0 = busy).

CENTRAL MEMORY TABLES

Equipment Status Table (EST) Formats

Mass Storage Device

59	47	41	35	23	11	0
†1	†2	†3	†4	†5	dev type	address/I/O of MST

Nonmass Storage Device

59	52	47	41	35	23	11	0
†6	cp1 assg	chB	chA	†7	†5	dev type	†8

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59	Set to indicate mass storage device.
	58	Set if device has copy of system.
	57	Set if shared device.
	56	Set if removable device.
	55	Set if 844/885 disk type equipment.
	54	Set if device is not currently available for access.
	53	Set if equipment is down.
	52-48	Reserved.
†2	47	Channel down bit.
	46-42	Alternate channel.
†3	41	Channel down bit.
	40-36	Primary channel.
†4	35-24	For 844/885 disk type equipment: Zero.
		For other equipment types:
	35-33	Physical equipment number.
	32-30	Zero.
	29-27	Device selection for connect code.
	26-24	First physical unit for device.
†5	23	ON/OFF flag (set if access not allowed).

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†6	59	Zero to indicate nonmass storage device.
	58	Allocatable device.
	57-56	Unused.
	55	Set if 580 PFC printer.
	54	Set if V carriage control processed.
	53	Set if equipment is down.
†7	35-24	For unit record equipment: Forms code.
	35-24	For 2550 NPU equipment: Node number.
	35-30	For other equipment: Channel D.
	29-24	Channel C.
	11-9	For magnetic tape equipment: Equipment number.
	8-4	Flags: 01 GCR (1600/6250) tape unit. 02 Disable block-ID (66x only). 04 Reserved. 10 67x tape unit. 20 66x tape unit.
†8	3-0	Unit number.
	11-9	For 2550 NPU equipment: Equipment number.
	8-6	Unused.
	5-0	PIP number.
	11-9	For 380-170 NAD equipment: Equipment number.
	8-4	Unused.
	3-0	Local TCU enables.
	11-9	For other equipment types: Controller number.
	8-6	Print train (if applicable).
	5-0	Unit number.
	5-0	For unit record equipment: ID number.

Equipment Codes

<u>Code</u>	<u>Description</u>
CP	Card punch (3446/3644-415).
CR	Card reader (3447/3649-405).
CS	MSS cartridge selector.
CT	MSS cartridge transport.
DE	Extended core storage.†
DI-n	Half-track disk storage subsystem (7x54-844-21).
DJ-n	Half-track disk storage subsystem (7x5x-844-4x/44).
DK-n	Full-track disk storage subsystem (7154-844-21).
DL-n	Full-track disk storage subsystem (715x-844-4x).
DM-n	Half-track disk storage subsystem (7155-885).
DP	Distributive data path to ECS.
DQ-n	Full-track disk storage subsystem (7155-885).
DS	Display console.
LP	Line printer.
LR	Line printer (580-12).
LS	Line printer (580-16).
LT	Line printer (580-20).
MS	Mass storage device.
MT	Magnetic tape drive (seven-track).
NC	380-170 network access device (NAD).
NE	Null equipment.
NP	255x Host Communications Processor.

† ECS subequipment values exist in associated MST. The values are in word DILL (byte 3) and further define the type of ECS equipment.

<u>Code</u>	<u>Description</u>
NQ	NPS stimulator entry.
NT	Magnetic tape drive (nine-track).
ST	Remote batch multiplexer (6676 or 2550-100).
TS	NSTIM/ASTIM multiplexer (6676).
TT	Time-sharing multiplexer (6676, 6671, or 2550-100).

File Name/File Status Table (FNT/FST) Entry

File in Input Queue

59	53	47	35	23	17	11	5	0
job name					job org	type INFT	↑1	
id code	eq no	first track	binary card sequence no	field length		queue priority		

File in Print Queue

59	53	47	35		17	11	5	0
job name					job org	type PRFT	↑1	
↑2	eq no	first track	↑3		queue priority			

File in Punch Queue

59	53	47	35		17	11	5	0
job name					job org	type PHFT	↑1	
↑2	eq no	first track	↑3		queue priority			

File in Rollout Queue

59	53	47	35	23	17	11	5	0
job name					job org	type ROFT	↑4	
id code	eq no	first track	ECS FL/1000B	field length		queue priority		

File in Timed/Event Rollout Queue

59	53	47	35	23	17	11	5	0
job name					job org	type TEFT	↑4	
event des	eq no	first track	event descriptor	field length		rollout time pd		

File in Remote Host Queue

59	53	47	35	29	17	11	5	0
job name					job org	type SIFT	↑1	
	eq no	first track	file type	logical ID		queue priority		

Mass Storage Files
 Not in Input, Print, Punch, or Rollout Queue

59	53	47	35	23	17	11	5	0
file name						†5	file type	cp †1
id code	eq no	first track	current track	current sector		†16		

Magnetic Tape Files

59	53	47	35	29	17	11	5	0
file name						†7	file type	0 cp
id code	eq no	UDT assig	addr tp	†8	VSN random	entry address	†19	†6

Fast Attach Permanent Files

59	53	47	35	23	17	11	5	0
file name						†10	type FAPT	cp
†11	eq no	first track	user ct READMD	us ct RDAP	us ct READ	†12		

Ref.	Bit No.	Description
†1	5	Set if system sector contains control information.
	4-0	Zero when the file is in queue; otherwise, contains control point assignment.
†2	59-57	Device selection field.
	56-54	External characteristics.
†3	35-33	Forms code.
	32-12	Terminal identification (TID).
†4	5	Set if user job has subsystem connection (either long term connection or wait response).
	4-0	Zero when the file is in queue; otherwise, contains control point assignment.
†5	17	Unused.
	16	Set if extend-only file.
	15	Set if alter-only file.
	14	Set if execute-only file.
	13	Unused.
	12	Write lockout.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†6	10	Unused.
	9	Indicates the track interlock status of LIFT files (mass storage only).
	8	Set if file is opened.
	7	Set if file is written since last open.
	6	Set if file is written on.
	5-4	Unused.
	3-2	Read status (0 = incomplete read, 1 = EOR, 2 = EOF, 3 = EOI).
	1	Set if last operation write.
	0	Clear if busy status.
	†7	17
16-14		Unused.
13		Set if opened.
12		Write lockout.
†8	35-32	Data format:
	0	I
	1	SI
	2	F
	3	S
4	L	
	31-30	Reserved.
†9	11	Set if labeled tape.
†10	17	Unused.
	16	Set if modify.
	15	Set if append.
	14	Set if execute.
	13	Set if write.
	12	Set if read.
†11	59-54	Fast attach entry index in ECS (if globally fast attach), 0 if local fast attach file.
†12	11-9	Write attach mode (7 = write, 3 = modify, 1 = append).
	8	Set if attached in nonrollable mode.
	7-1	Unused.
	0	Clear if busy status.

File Types

Files in Queues

<u>Type</u>	<u>Value</u>	<u>Description</u>
INFT	0	Input.
ROFT	1	Rollout.
PRFT	2	Print.
PHFT	3	Punch.
TEFT	4	Timed/event rollout.

Special Queue Files

<u>Type</u>	<u>Value</u>	<u>Description</u>
S1FT	5	Remote host file type.
S2FT	6	Special file type 2.
S3FT	7	Special file type 3.

Other Files

<u>Type</u>	<u>Value</u>	<u>Description</u>
LIFT	10	Library.
PTFT	11	Primary terminal.
PMFT	12	Direct access permanent file.
FAFT	13	Fast attach file.
SYFT	14	System.
LOFT	15	Local.

Job Origin Codes

<u>Type</u>	<u>Value</u>	<u>Description</u>
SYOT	0	System.
BCOT	1	Local batch.
EIOT	2	Remote batch.
TXOT	3	Time-sharing.
MTOT	4	Multiterminal.

Mass Storage Allocation (MSA) Area

	59	47	0
000	last temp eq		temporary devices†
001	last input eq		input file devices†
002	last output eq		output file devices†
003	last rollout eq		rollout file devices†
004	last dayfile eq		user dayfile devices†
005	last primary eq		primary file devices†
006	last localeq		local file devices†
007	last LGO eq		LGO file devices†
008	last secondary rollout eq		secondary rollout file devices†

†Bit 47-eq is set for each equipment with the allocation type selected.

Mass Storage Table (MST)

	59	51	47	40	35	23	17	11	5	0		
000	Reserved											
001	Reserved											
002	Reserved											
003	label level	EQ type		Reserved								
004	Reserved											
005	Reserved											
006	Reserved											
007	Reserved											
010	†1			TRT length	†2		no. avail. tracks				TDGL	
011	†3	user ECS first track		file count	IQFT track		†4				ACGL	
012	†a			†b				†c				SDGL
013	1st track IAF	label level		permits track	no. catalog tracks		†d				ALGL	
014	family or pack name					DN				†5	PFGL	
015	user number for private pack					†6						PUGL
016	†7			driver name		0		sector limit			MDGL	
017												R1GL
020	Installation area (global)											ISGL
021												I2GL
022	activity count	unit interlocks		current position	MTR internal		ECS error #				DALL	
023	†8											DILL
024						system table track		†9				DULL
025	†10					user count		†11				STLL
026	†12											DDLL
027	Installation area											ISLL
030	†e						†f		MID(1)		DRG2	
031	†e						†f		MID(2)			
032	†e						†f		MID(3)			
033	†e						†f		MID(4)			
034	†e						†f		MID(5)			
035	†e						†f		MID(6)			
036	†e						†f		MID(7)			
037	†e						†f		MID(8)			

Ref. Bit No.

Description

- †1 59-48 Number of tracks on device.
- †2 23 NOS format MST.
22-12 First available track word pointer.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
† 3	59	CTI present.
	58	System deadstart file present.
	57	Catalog track overflow (0).
	56	Shared RMS present.
	55-52	Reserved.
	51-48	Global interlock (machine mask).
† 4	11	Redefinition requested flag.
	10-7	Redefinition reply bits (machine masks).
	6	Set if sector of local areas is present.
	5	Unload (all machines).
	4	Device error idle status: 0 No error. 1 Error detected on device.
	3-0	Permanent file utility active (machine mask).

If shared RMS is present, the SDGL word has the following format:

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
† a	59	Program mode/monitor mode CPUMTR interlock.
	58-56	Reserved.
	55	Total PF system interlock.
	54	Request total PF system interlock.
	53-48	PFM activity count.
	47-36	MID of machine with PF utility interlock.
† b	35-12	MST/TRT update counter.
	11-6	Count of outstanding software device reserves.
† c	5-0	Count of consecutive device requests.

If shared RMS is not present, the SDGL word has the following format:

† a	59-36	ECS address of MST/TRT.
† b	35-6	ECS MST/TRT update count.
† c	5-4	Reserved.
	3-0	Interlock (machine mask).

If shared RMS is present:

† d	11-0	MID of the machine with software device reserve.
-----	------	--

If shared RMS is not present:

† d	11-0	DAT track.
-----	------	------------

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>	
† 5	5-3	Relative unit in multiunit device.	
	2-0	Number of units in multiunit device.	
† 6	17	Catalog track contiguous with label track.	
	16	Reserved.	
	15-8	Secondary device mask.	
	7-0	Device mask.	
† 7	59	Removable (R).	
	58	Auxiliary permanent file device (X).	
	57	Sixteen-word PFC device.	
	56	Device last checkpointed on MMF system (in label section only).	
	55-48	DAT entry index.	
	47	Half track status (1=half, 0=full).	
	46	Release reservation when channel released.	
	45	Reserved.	
	44-36	Single-unit sector limit.	
	† 8	59-48	Mass storage allocation flags.
47		715x controller present on second channel.	
46-42		Second channel in CMRDECK in definition of EQ.	
41		715x controller present on first channel.	
40-36		First channel in CMRDECK in definition of EQ.	
35-24		Machine index for shared RMS MMF.	
23-22		Reserved.	
21		Maintenance mode set (ECS).	
20-18		Memory type:	
		0	No CPU.
		1	ECS I.
		2	ECS II.
		3	LCME.
4-7		Reserved.	
		17-15	CPU type:
		0	No CPU path.
		1	ECS.
2	LCME.		
	3-7	Reserved.	
	14-12	PP path type:	
0	No DDP.		
1	DC145 parity enhanced DDP.		
2	DC135 DDP.		
3-7	Reserved.		
11-6	Unused.		
5-0	Algorithm index for 844/885 disk monitor function.		

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†9	11	Family idle down status.
	10-0	Family activity count.
†10	59	Format pack (844/885 disk equipment).
	58	Initialize AL (all).
	57	Initialize HT (half-track).
	56	Initialize FT (full-track).
	55	Initialize PF (permanent files).
	54	Initialize QF (inactive queue files).
	53	Initialize request pending.
	52	Unused.
	51	Unload requested.
	50	Checkpoint requested.
	49	Device unloaded.
	48	Alternate system device.
	47	Initialize DF (inactive dayfile).
	46	Initialize AF (inactive account file).
	45	Initialize EF (inactive error log).
	44	Initialize MF (inactive maintenance log).
	43	If set, indicates shared RMS preset requested by LDS).
	42	Reserved.
	41-36	Error status.
	35-24	A two-character machine identification.
†11	11-6	Multiple equipment link.
	5-3	Original number of units.
	2	Device in use.
	1	Local utility interlock.
	0	Local area interlock.
†12	59	Redefinition in progress (drive reserved).
	58	Null equipment indicator.
	57-54	Reserved.
	53-48	Number of units minus 1.
	47-0	Unit list, ordered right to left, six bits per unit.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†e	59	Format pack request.
	58	Initialize all.
	57	Initialize half-track device.
	56	Initialize full-track device.
	55	Initialize permanent files.
	54	Initialize inactive queue files.
	53	Initialize request pending.
	52	Unused.
	51	Unload requested.
	50	Checkpoint request.
	49	Device unloaded.
	48	Shared system device.
	47	Initialize inactive dayfile.
	46	Initialize inactive account file.
	45	Initialize inactive error log.
44	Initialize inactive maintenance log.	
†f	17	Set implies redefinition requested.
	16	Set implies redefinition request from initiator machine.
	15	Redefinition reply bit.

Track Reservation Table (TRT)

Word Format

59	47	35	23	11	0
track link	track link	track link	track link	†f	

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†l	11-8	Each bit set indicates corresponding byte (0 through 3) is first track of a preserved file.
	7-4	Track interlock bits.
	3-0	Track reservation bits.

Track Link Byte (Format 1)

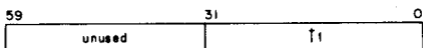
<u>Bit</u>	<u>Contents</u>
11	Set.
10-0	Next track in track chain.

Track Link Byte (Format 2)

<u>Bit</u>	<u>Contents</u>
11	Clear.
10-0	End of chain (EOI sector in file).

Machine Recovery Table (MRT)

Word Format



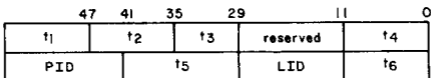
<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	31-0	Each bit represents one logical track (bits 10-5 of the logical track number denote the word number in the MRT and bits 4-0 are the bit numbers within the word).

The meaning of the MRT bit depends upon the state of the track interlock bit in the TRT.

<u>Track Interlock Bit</u>	<u>MRT Bit</u>	<u>Description</u>
0	0	Track is not interlocked or it is local to another machine.
0	1	First track of a file is local to this machine.
1	0	Track is interlocked by another machine.
1	1	Track is interlocked by this machine.

Logical ID Table (LIDT)

Word Format



<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59-48	Length of usable LIDT.
†2	47-36	Total length of LIDT.
†3	35-30	Ordinal of physical ID (PID).

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†4	11-1 0	Reserved. LIDT interlock (0 if locked).
†5	41 40 39-31 30	PID disabled (1 if disabled). Remote mainframe PID. Reserved. Host mainframe PID.
†6	11 10 9-1 0	LID disabled (1 if disabled). Remote mainframe LID. Reserved. Host mainframe LID.

Job Control Area (JCB)

For the Job Control Area, there is one area for each origin type and job class.

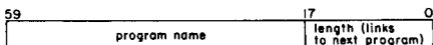
59	47	35	23	11	0	
in. queue priority	lower bound	upper bound	priority age intvl	cur. intvl count		INQT
in. queue priority	lower bound	upper bound	priority age intvl	cur. intvl count		ROQT
in. queue priority	lower bound	upper bound	priority age intvl	cur. intvl count		OTQT
init. CPU priority	CPU time slice	CM time slice	†1			SVJT
max FL any job	max FL all jobs		max ECS FL any job	max ECS FL all jobs		MXJT
†2	reserved					PFCT
reserved						
reserved						

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	23-12	Maximum number of jobs or users (TXOT).
†2	59-48	Index into tables of limits.
	59-57	Index a table of limits for size of each direct access file.
	56-54	Index a table of limits for number of permanent files.
	53-51	Index a table of limits for cumulative size of indirect access files.
	50-48	Index a table of limits for size of each indirect access file.

Libraries/Directories

Resident CPU Library (RCL)

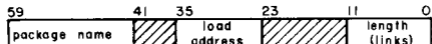
Type OVL



Type ABS

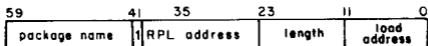


Resident PP Library (RPL)

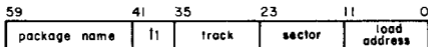


PP Library Directory (PLD)

CM Resident

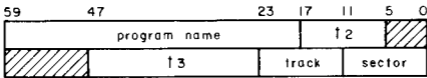


Non-CM Resident

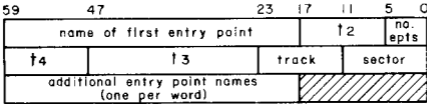


CPU Library Directory (CLD)

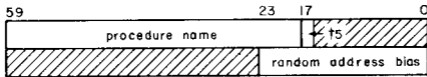
Type OVL



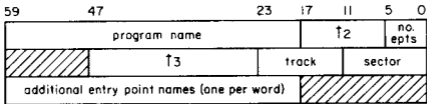
Type ABS



Type PROC

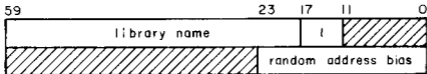


Type REL



User Library Directory (LBD)

Type ULIB



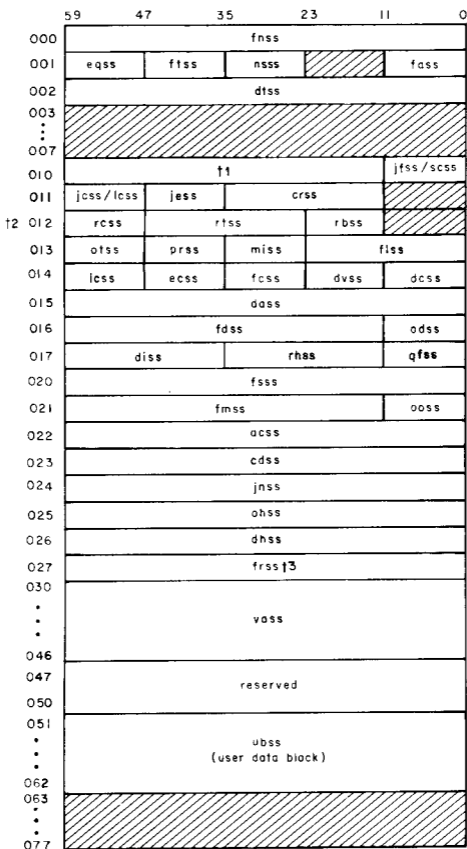
<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	41-36	Alternate device or system device equipment number.
†2	17-15	Unused.
	14	Relocatable record flag.
	13	NOS/BE record flag.
	12	Unused.
	11-6	Alternate device equipment number.
†3	47-24	If program is CM resident, field contains the absolute address in RCL. If program is assigned to alternate system device, field has mass storage address of copy on system device.
†4	59-48	FL required (use of bits 59 and 58 indicate MFL= entry point).
†5	17	Set if CCL procedure.

PROBE Data Area

000	Packed date and time when data gathering began.	TPDT
001	Count of alternate CPU exchanges - CPUO to CPUJ and CPUJ to CPUO.	TACE
003	Count of CIO requests by function code.	TCIO
043	Count of requests from MTR to CPUMTR to be executed in monitor mode. One word per function.	TMTR
062	Count of requests from MTR to CPUMTR to be executed in program mode. One word per function(only PMXF words are used).	TMNR
160	Count of requests from pool PPs to CPUMTR to be executed in monitor mode.	TPPU
221	Count of requests from pool PPs to CPUMTR to be executed in program mode.	TPRG
262	Reserved for installation.	TRSV
312	Count of searches of PLD. One counter per PP routine, 2 counters per word.	TSPL

SYSTEM SECTOR FORMAT

Standard Format



<u>Ref.</u>	<u>Description</u>										
†1	For print/punch files, pfss (bits 47-36), rass (bits 35-12); for input files, jsss (bits 59-36), bits 35-24 unused, jtss (bits 23-12).										
†2	For input files, bits 59-18 are defined as terminal name (tnss).										
†3	<table border="0"> <tr> <td>Bit 59-12</td> <td>Remote user's family name.</td> </tr> <tr> <td>Bit 11</td> <td>Data in userblock.</td> </tr> <tr> <td>Bit 2</td> <td>Job originated from remote mainframe.</td> </tr> <tr> <td>Bit 1</td> <td>File active status (1= active).</td> </tr> <tr> <td>Bit 0</td> <td>File placed in queue.</td> </tr> </table>	Bit 59-12	Remote user's family name.	Bit 11	Data in userblock.	Bit 2	Job originated from remote mainframe.	Bit 1	File active status (1= active).	Bit 0	File placed in queue.
Bit 59-12	Remote user's family name.										
Bit 11	Data in userblock.										
Bit 2	Job originated from remote mainframe.										
Bit 1	File active status (1= active).										
Bit 0	File placed in queue.										

The following apply to all system sectors.

fsss	FNT entry.
eqss	Equipment number.
ftss	First track.
nsss	Next sector.
fass	Address of FST entry.
dtss	Last modification date and time (packed format).

The following apply to input files only.

jsss	Job sequence number.
jtss	Job time limit.
jfss	Job flags.
jcsc	Job statement CM field length.
jess	Job statement ECS field length.
crss	Cards read.
tnss	Terminal name.

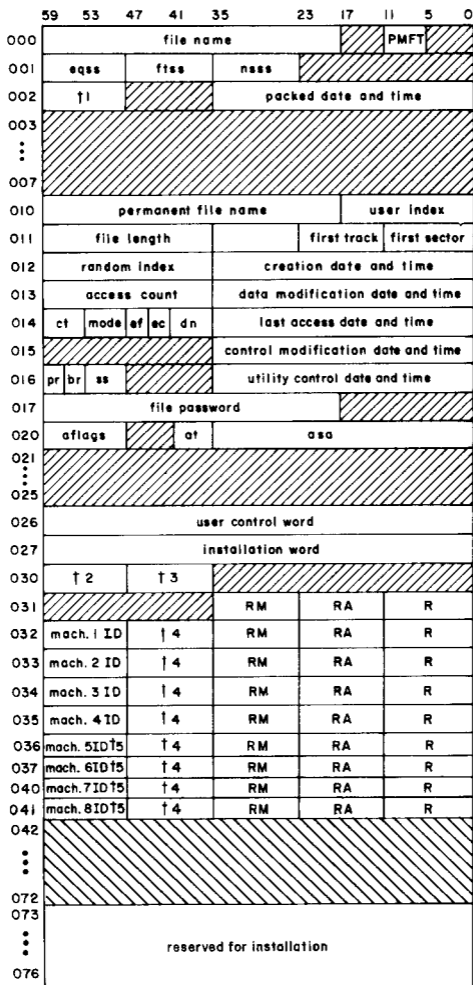
The following apply to print/punch files only.

pfss	Punch format.
rass	Random address of dayfile.
scss	Spacing code for 580 PFC support.
lcss	Lines or statement limit index.
rcss	Repeat count.
rtss	Random index.
rbss	Requeue number.

The following apply to all queued files.

otss	Origin type.
prss	Priority.
miss	Creation mainframe machine ID.
flss	File size (sectors/10g).
icss	Internal characteristics.
ecss	External characteristics.
fcss	Forms code.
dvss	Device code.
dcss	NOS/BE device code.
dass	Destination user number.
fdss	Destination family name.
odss	Family ordinal of destination (future).
diss	Destination terminal identification (TID).
rhss	Text area random address.
qfss	Resident mainframe machine ID.
fsss	FST entry.
fmss	Family name of creator.
ooss	Family ordinal of creator (future).
acss	User number of creator.
cdss	Queued file creation date and time.
jnss	Job statement name.
ohss	PID and job name from origin mainframe.
dhss	LID of destination mainframe and origin user number.
frss	File routing control.
vass	Account file validation block.
ubss	User block.

Direct Access File System Sector Format



CTSS

Permanent File Catalog Entry

UCSS

eqss Equipment number.
 ftss First track.
 ucsc Current user counts:
 RM READMD users.
 RA READAP users.
 R READ users.

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	59-49 48	Zero. Set if enhanced EOI sector present.
†2	59-55 54 53 52 51 50 49 48	Reserved. File currently attached by system utility. File has been purged. File can be shortened (W mode). File can be rewritten (W or M mode). Zero. File can be extended (W, M, or A mode). Zero.
†3	47-36	Fast attach (40xx); upper bit set indicates file is in fast attach mode and lower six bits (41-36) contain index into FAT table if file is global fast attach.
†4	47-38 37 36	Zero. Local utility attach flag (file attached by system utility in this MF). Local write flag (file attached in W, M, or A mode in this MF).
†5	--	Machines 5-8 are only present if shared RMS is present.

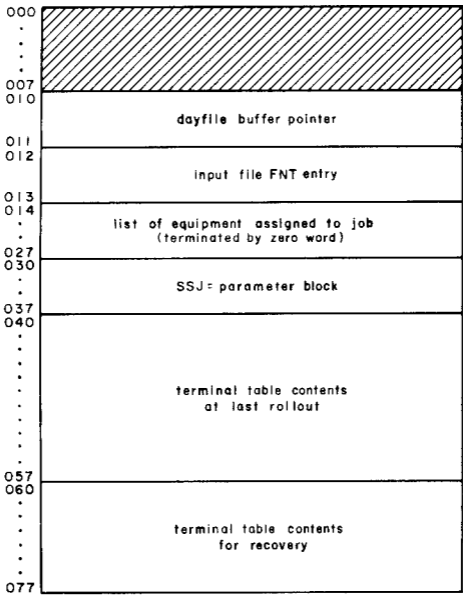
ECS Direct Access Chain

	59	47	35	23	17	11	5	0
000	** UECS.					LIFT		
001	eqss	ftss						
002			dtss					
003								
004	mid1	ft1	ln1	ra1	lt1			
005	mid2	ft2	ln2	ra2	lt2			
006	mid3	ft3	ln3	ra3	lt3			
007	mid4	ft4	ln4	ra4	lt4			

eqss Equipment number.
 ftss First track.
 dtss Last modification date and time
 (packed format).
 mid Machine ID.
 ft First track of subchain.
 ln Length of ECS block.
 ra RAE of ECS block.
 lt Last track of subchain.

ROLLOUT FILE

System Sector

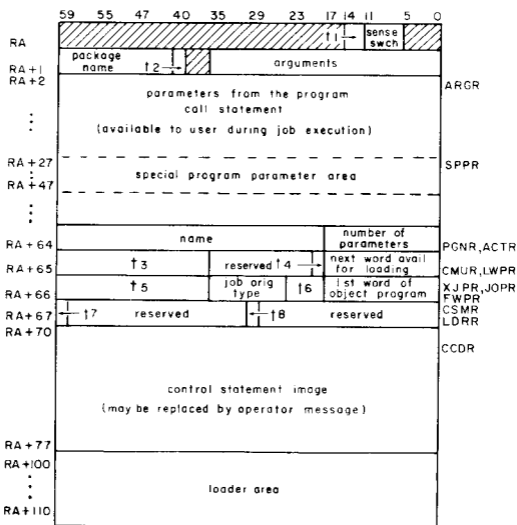


File Format

control point area	
dayfile buffer	
FNT entries terminated by logical record	
terminal output † terminated by logical record	
central memory	O(CM)
extended core storage	FL-MCMX/2-1 (CM) O(ECS)
central memory	FL-1 (ECS) FL-MCMX/2 (CM)
central memory	FL-1 (CM)

† This part of the rollout file is used only for TXOT jobs.

JOB COMMUNICATION AREA



<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†1	14	CFO bit if console forced operator command is allowed.
	13	Subsystem idledown flag.
	12	Pause flag.
†2	40	Auto recall.
†3	59	Set if compare/move unit (CMU) is present.
	58-36	LWA+1 of loadable area in ECS (CYBER Loader).
†4	18	Set if load from system library.
†5	59	Set if CEJ/MEJ option is available.
	58-36	FWA of loadable area in ECS (CYBER Loader).

<u>Ref.</u>	<u>Bit No.</u>	<u>Description</u>
†6	23-20	Reserved.
	19	Set if program called from DIS.
	18	RSS bit.
†7	59	Set indicates system is in 64-character set mode.
†8	29	Set if load has completed.

EXCHANGE PACKAGE AREA

Exchange package area for CDC CYBER 170 Series, Models 171, 172, 173, 174, 175, 720, 730, 750, and 760; CDC CYBER 70 Series, Models 71, 72, 73, and 74; and CDC 6000 Series Computer Systems.

	59	53	47	41	35	17	0
000	P		A0		B0		
001	RA		A1		B1		
002	FL		A2		B2		
003	EM		A3		B3		
004	RAE		A4		B4		
005	FLE		A5		B5		
006	MA		A6		B6		
007			A7		B7		
010	X0						
011	X1						
012	X2						
013	X3						
014	X4						
015	X5						
016	X6						
017	X7						

Exchange package area for CYBER 170 Model 176 Computer Systems.

	59	53	35	17	0
000			P	A0	B0
001			RA	A1	B1
002			FL	A2	B2
003			PSD	A3	B3
004			RAE	A4	B4
005			FLE	A5	B5
006			NEA (MA)	A6	B6
007	EEA	A7	B7		
010	X0				
011	X1				
012	X2				
013	X3				
014	X4				
015	X5				
016	X6				
017	X7				

The exchange package area fields apply to all NOS computer systems unless otherwise noted.

<u>Field</u>	<u>Description</u>
P	Program address.
A _i	Address registers.
B _i	Increment registers.
RA	Reference address for central memory.
FL	Field length for central memory.

<u>Field</u>	<u>Description</u>
EM†	Exit modes. An exit mode is selected by setting the appropriate bit and disabled by clearing the appropriate bit.

<u>Bit</u>	<u>Description</u>
59	CM data error.††
58	CMC input error.††
57	ECS flag register operation parity error.††
56-53	Not used.
52-51	Hardware error exit status bits.†††
50	Indefinite operand.
49	Operand out of range.
48	Address out of range.

PSD†††† Program status designator (PSD) register.

<u>Bit</u>	<u>Description</u>
53	Exit mode flag.
52	Monitor mode flag.
51	Step mode flag.
50	Indefinite mode flag.
49	Overflow mode flag.
48	Underflow mode flag.
47	LCME (ECS) error condition.
46	CM error condition.
45	LCME block range condition.
44	CM block range condition.
43	LCME direct range condition.
42	CM direct range condition.
41	Program range condition.
40	Not used.
39	Step condition.
38	Indefinite condition.
37	Overflow condition.
36	Underflow condition.

† Does not apply to model 176.

†† Models 171, 172, 173, 174, 175, 720, 730, 750, and 760 only.

††† Model 74 only.

†††† Model 176 only.

<u>Field</u>	<u>Description</u>
RAE	Reference address for ECS.
FLE	Field length for ECS.
MA	Monitor address.
NEA†	Normal exit address.
EEA†	Error exit address.
Xi	Operand registers.

ERROR FLAGS

<u>Error Flag</u>	<u>Mnemonic</u>	<u>Description</u>
1	ARET	Arithmetic error.
2	PSET	Program stop.
3	PPET	PP abort.
4	ITET	SCP invalid transfer address.
5	CPET	CPU abort.
6	PCET	PP call error.
7	TLET	Time limit.
10	FLET	File limit.
11	TKET	Track limit.
12	SRET	SRU limit.
13	FSET	Forced error.
14	ODET	Operator drop.
15	RRET	Operator rerun.
16	OKET	Operator kill.
17	SSET	Subsystem abort.
20	ECET	ECS parity error.
21	PEET	CPU parity error.
22	SYET	System abort.
23	ORET	Override error condition.

PSEUDO ERROR FLAGS

<u>Error Flag</u>	<u>Mnemonic</u>	<u>Description</u>
40	TIET	Terminal interrupt.
43	MLET	Message limit error.

† Model 176 only.

MASS STORAGE LABEL FORMAT

DEVICE LABEL TRACK FORMAT (SHARED RMS NOT PRESENT)

000	label sector	LSLT
001	track reservation table	TRLT
•		
•		
012		
013	sector of local information (2-word entries)	LMLT
014	device information sector	DILT
015	intermachine communication area (ECS label track only)	CMLT
016	MMF environment tables (ECS label track only)	ETLT
017	CPUMTR storage move area for ECS (ECS label track only)	SMLT

DEVICE LABEL SECTOR FORMAT (SHARED RMS NOT PRESENT)

000	reserved		
001	reserved		
002	reserved		
003	label level	equipment type	reserved
004	reserved		
005	reserved		
006	reserved		
007	reserved		
010	NOS MST		
•			
•			
027	NOS MST		
030	unused		
•			
•			
077	unused		

DEVICE LABEL TRACK FORMAT (SHARED RMS PRESENT)

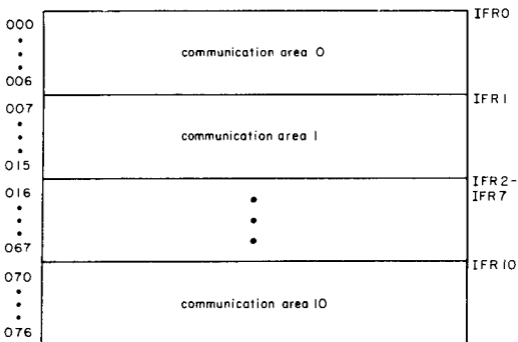
000	label sector	LSLT
001	TRT (track reservation table)	TRLT
•		
•		
•		
012	local MST's	LMLT
013		
014	device information sector	DILT
015	communication sector (used only if device is ECS)	CMLT
016	environment table (used only if device is ECS)	ETLT
017	MRT machine 1	MRTL
•	•	
•	•	
•	•	
026	MRT machine 8	
027	not used	
•		
•		
•		
044	label (backup copy)	LSBT
045		
046	TRT (backup copy)	TRBT
•		
•		
057	not used	

DEVICE LABEL SECTOR FORMAT (SHARED RMS PRESENT)

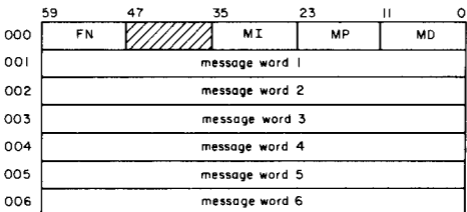
000	reserved		
001	reserved		
002	reserved		
003	label level	equipment type	reserved
004	reserved		
005	reserved		
006	reserved		
007	reserved		
010	NOS MST		
•			
•			
027	DAT/REDEF TABLE (used on shared devices only)		
030			
•			
037			
040	unused		
•			
•			
077			

MULTIMAINFRAME TABLES

INTERMACHINE COMMUNICATION AREA



Each communication area has the following format.



FN	Intermachine function number.
MI	Machine initiating request.
MP	Machines to process request.
MD	Machines done processing request.

MMF ENVIRONMENT TABLES

Sector 16_g of the ECS label track is defined as follows:

	59	47	11	0	
000	MMFL for mainframe 1				MFET
001	MMFL for mainframe 2				
002	MMFL for mainframe 3				
003	MMFL for mainframe 4				
004	multi-mainframe 1 system time				STET
005	multi-mainframe 2 system time				
006	multi-mainframe 3 system time				
007	multi-mainframe 4 system time				
010	next DAT track			DAT count	DAET
011				FAT count	FAET
012	One word per flag register bit. Each word contains the MMFL word of the machine which currently has the corresponding flag register interlock.				FRET
.					
.					
033					
034	machine 1 requests				CMET
035	machine 2 requests				
036	machine 3 requests				
037	machine 4 requests				
040	machine 1 requests				
041	machine 2 requests				
042	machine 3 requests				
043	machine 4 requests				
044	unused				
.					
067					
070	installation area				INET
.					
.					
077					

MMF - DAT TRACK CHAIN (ECS)

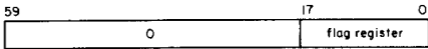
Track N

0000 : : 0777 1000	device access table (DAT)
	fast attach table (FAT)

Track M (same format for each device)

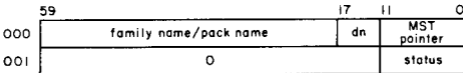
0000 : : 0011 0012 : : 0017 0020 : : 0025 0026 : : 0033 0034 : : 0041 0042 : : 0077 0100 : : : 1077 1100 : : : 1177 1200 : : : 1277 1300 : : : 1377 1400 : : : 1477	MST for shared device (global area)
	local area for machine index 1
	local area for machine index 2
	local area for machine index 3
	local area for machine index 4
	unused
	TRT for device
	MRT1 (machine recovery table)
	MRT2
	MRT3
	MRT4

MMF - ECS FLAG REGISTER FORMAT



<u>Bit No.</u>	<u>Name</u>	<u>Description</u>
17-12	---	Reserved.
11	COMI	CPUMTR intermachine communication request present.
10	CIRI	CPUMTR interlock recovery.
9	FATI, PFNI	FAT and PFNL interlock.
8	IFRI	Intermachine function request interlock.
7	BTRI	Block transfer in progress.
6	PRSI	Deadstart ECS preset in progress.
5	DATI	Device access table interlock.
4	TRTI	TRT interlock; machine specified by bits 3-0 is requesting a TRT interlock.
3-0	---	Machine mask indicating which machine has TRT interlock bit set.

DEVICE ACCESS TABLE (DAT) ENTRY



dn	Device number.
MST pointer	If zero, device is not shared.
status	Bits 11-5 are reserved; bit 4 is set if recovery is in progress, and bits 3-0 are machine mask of machines accessing device.

FAST ATTACH TABLE (FAT) ENTRY - GLOBAL

	59	47	35	23	17	11	0
000	fast attach file name						
001		first trk	RM	RA	R		
002	mach. 1 ID		RM	RA	R		
003	mach. 2 ID		RM	RA	R		
004	mach. 3 ID		RM	RA	R		
005	mach. 4 ID		RM	RA	R		
006	family name				dn		
007	0						

RM READMD users.
 RA READAP users.
 R Read/write users.
 dn Device number.

PFNL ENTRY FORMAT - GLOBAL

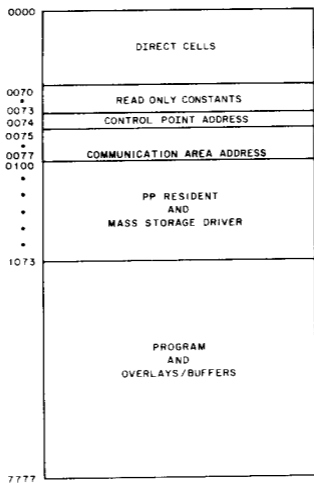
000	0
001	PFNL (global)
002	PFNL for mainframe 1
003	PFNL for mainframe 2
004	PFNL for mainframe 3
005	PFNL for mainframe 4
006	0
007	0

The first entry of the FAT is an eight-word entry of PFNL words in the preceding format.

PP MEMORY LAYOUT

POOL PROCESSORS

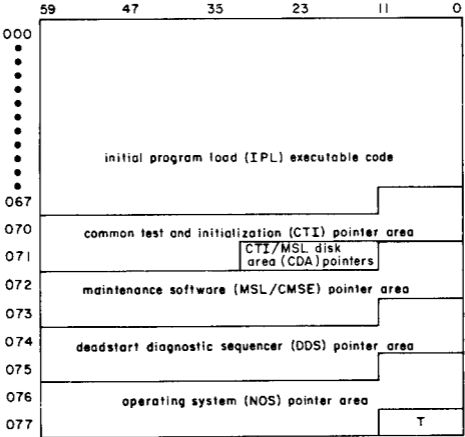
(PP2 through PP11 on 10 PP machines; PP2 through PP11 and PP20 through PP31 on 20 PP machines.)†



†PP numbers are in octal notation.

DEADSTART PANEL SETTINGS AND OPTIONS

DISK DEADSTART SECTOR FORMAT



T = IPL transfer address - 1 (7420₈)

**COLDSTART FROM CARD READER PANEL SETTINGS FOR 667
OR 669 TAPE UNITS**

Word on Panel	Setting				Octal
0001	111	101	1cc	ccc	75cc
0002	111	111	0cc	ccc	77cc
0003	fff	000	000	000	f000
0004	000	000	000	000	0000
0005	111	111	0cc	ccc	77cc
0006	001	100	000	000	1400
0007	111	100	0cc	ccc	74cc
0010	111	001	0cc	ccc	71cc
0011	111	110	110	100	7664
0012	000	000	0tt	ttt	00tt
0013	rrr	ppp	xxx	xxx	rpxx
0014	eee	010	11u	uuu	e2uu

**COLDSTART FROM TAPE UNIT PANEL SETTINGS FOR 667
OR 669 TAPE UNITS**

Word on Panel	Setting				Octal
0001	111	101	ttt	ttt	75tt
0002	011	110	001	101	3615
0003	001	000	001	100	1014
0004	001	111	000	001	1701
0005	000	101	111	110	0576
0006	111	111	ttt	ttt	77tt
0007	000	000	11u	uuu	00uu
0010†	000	011	000	000	0300

†The remainder of the panel is not used.

**COLDSTART FROM CARD READER PANEL SETTINGS FOR
844/885 DISK UNITS**

Word on Panel	Setting				Octal
0001	111	101	1cc	ccc	75cc
0002	111	111	0cc	ccc	77cc
0003	fff	000	000	000	f000
0004	000	000	000	000	0000
0005	111	111	0cc	ccc	77cc
0006	001	100	000	000	1400
0007	111	100	0cc	ccc	74cc
0010	111	001	0cc	ccc	71cc
0011	111	110	110	100	7664
0012	000	000	0tt	ttt	00tt
0013	rrr	ppp	xxx	xxx	rpxx
0014	eee	011	uuu	uuu	e3uu

**COLDSTART FROM DISK UNIT PANEL SETTINGS FOR
844/885 DISK UNITS**

Word on Panel	Setting				Octal
0001	000	000	000	000	0000
0002	111	101	1tt	ttt	75tt
0003	111	111	0tt	ttt	77tt
0004	eee	001	vvv	vvv	elvv
0005	111	111	0tt	ttt	77tt
0006	eee	011	uuu	uuu	e3uu

Word on Panel	Setting				Octal
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	rrr	ppp	xxx	xxx	rpxx
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000

**WARMSTART PANEL SETTINGS FROM CHANNEL WITH ACTIVE
PP (CDC CYBER 170 SERIES ONLY)**

Word on Panel	Setting				Octal
0001	001	100	000	010	1402
0002	111	011	0tt	ttt	73tt
0003	000	000	001	111	0017
0004	111	101	1tt	ttt	75tt
0005	111	111	0tt	ttt	77tt
0006	eee	ddd	ddd	ddd	eddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	000	000	000	000	0000
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000
0015	000	000	000	000	0000
0016	000	000	000	000	0000
0017	000	000	000	000	0000
0020	111	001	001	010	7112

**WARMSTART PANEL SETTINGS FROM CHANNEL WITH ACTIVE
PP (CDC 6000 AND CDC CYBER 70 SERIES ONLY)**

Word on Panel	Setting				Octal
0001	001	100	000	010	1402
0002	111	011	0tt	ttt	73tt
0003	000	000	001	011	0013
0004	111	101	1tt	ttt	75tt
0005	111	111	0tt	ttt	77tt
0006	eee	ddd	ddd	ddd	eddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	rrr	ppp	xxx	xxx	rpxx
0013	000	000	000	000	0000
0014	111	001	001	010	7112

WARMSTART PANEL SETTINGS FROM CHANNEL WITH NO ACTIVE PP

Word on Panel	Setting				Octal
0001	000	000	000	000	0000
0002	000	000	000	000	0000†
0003	000	000	000	000	0000†
0004	111	101	1tt	ttt	75tt†
0005	111	111	0tt	ttt	77tt
0006	eee	ddd	ddd	ddd	eddd
0007	111	100	0tt	ttt	74tt
0010	111	001	0tt	ttt	71tt
0011	111	011	000	001	7301
0012	rrr	ppp	xxx	xxx	rpxx
0013	rrr	ppp	xxx	xxx	rpxx
0014	000	000	000	000	0000

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

Word	Setting				Octal
0002	111	101	1tt	ttt	75tt
0003	111	111	0tt	ttt	77tt
0004	010	001	000	000	2100

KEY TO PANEL SETTINGS

	1	Switch up.
	0	Switch down.
CC	/ ccc ccc	Card reader channel number.
DDD	/ ddd ddd ddd	Deadstart function; dependent on device type:
26U	/ 010 11u uuu	667/669 tape units.
12U	/ 001 01u uuu	67x tape units (800 b/i).
3UU	/ 011 uuu uuu	844/885 disk units (warm-start).
1VV	/ 001 vvv vvv	844/885 disk units (cold-start).
E	/ eee	Tape/disk unit controller number.
F	/ fff	Card reader controller number.
TT	/ ttt ttt	Tape/disk channel number.
U	/ uuu	Tape/disk unit number.

WORD 12 AND/OR 13 OPTIONS †

R	/ rrr = 0	Level 0 (initial) deadstart; no recovery (all PP and CM confidence tested).
	= 1	Level 1 recovery deadstart; the system, all jobs, all active files, and permanent files are recovered from checkpoint information on mass storage (all PP and CM confidence tested).
	= 2	Level 2 recovery deadstart; all jobs, active files, and permanent files are recovered from checkpoint information on mass storage; system is loaded from deadstart tape (all PP and CM confidence tested).

† Word 12 for CYBER 70 and 6000 Computer Systems; word 13 for all other machines.

= 3

Level 3 recovery deadstart; the system, all jobs, and active files are recovered from central memory tables; permanent files are also recovered (memory confidence testing occurs in PPs only).

P / ppp

Bit 8 Unused.

Bit 7 = 1 Save PPO in CM during express deadstart dump.

Bit 6 = 1 Display CMRDECK.

XX / xxx xxx

CMRDECK number.

The following deadstart panel setting transfers the contents of PPO to another PP.

Word on Panel	Setting				Octal
0001	010	000	000	000	2000
0002	111	111	111	110	7776
0003	111	011	ppp	ppp	73pp
0004	000	000	000	000	0000
0005	000	011	000	000	0300

PP / ppp ppp

PP to which transfer is to be made.

MASS STORAGE DATA ORGANIZATION

EXTENDED CORE STORAGE (ECS)

NOS accesses ECS I and ECS II as a single device.

- Equipment type DE/DP.†
- Sectors/track 16.
- Tracks/device

121	125K of ECS I.
242	250K of ECS I.
484	500K of ECS I.
968	1,000K of ECS I.
1,937	2,000K of ECS I.
126	131K of ECS II.
252	262K of ECS II.
504	524K of ECS II.
1,008	1,048K of ECS II.
2,016	2,097K of ECS II.
- Words of data/device

123,904	125K of ECS I.
247,808	250K of ECS I.
495,616	500K of ECS I.
991,232	1,000K of ECS I.
1,983,488	2,000K of ECS I.
129,024	131K of ECS II.
258,048	262K of ECS II.
516,096	524K of ECS II.
1,032,192	1,048K of ECS II.
2,064,384	2,097K of ECS II.
- Maximum data rate 80K words per second for PP transfers. 160K words per second for 2x PPs.
- Address mapping:

System		Physical	
Unit	Bits	Unit	Bits
Track	0-10	Address	0-20
Sector	0-3		

Formula:

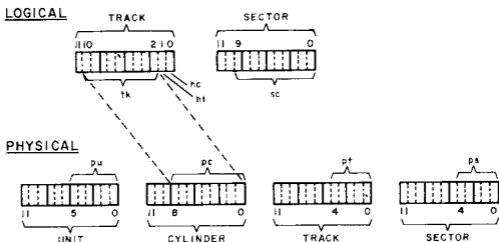
$$(T_{0-10} \times 2020_8) + S_{0-3} = \text{linkage word}$$

$$(T_{0-10} \times 2020_8) + 20_8 + (S_{0-3} \times 100_8) = \text{data}$$

†ECS subequipment values are in associated MST. The values are in word DILL (byte 3) and further define the type of ECS equipment.

7x5x/844-21 DISK STORAGE SUBSYSTEMS (HALF TRACK)

- Equipment type DI
- Sectors/track 107 x n
- Tracks/device 1632
- Words/device 11,175,936 x n
- Maximum data rate 46.1K words per second



int(x) Integer portion of x.
 rem Remainder of x divided by y.
 (x/y)
 tk Logical track.
 sc Logical sector.
 pu Physical unit number (bits 5 through 0).
 pc Physical cylinder number (bits 8 through 0).
 pt Physical track number (bits 4 through 0).
 ps Physical sector number (bits 4 through 0).
 lu Logical unit.
 ht Half-track bit (bit 1 of logical track).
 hc Half-cylinder bit (bit 0 of logical track).
 a Intermediate result.

$$lu = \text{int}(sc/153_8).$$

$$a = ht + 2 * \text{rem}(sc/153_8).$$

$$ps = \text{rem}(a/30_8).$$

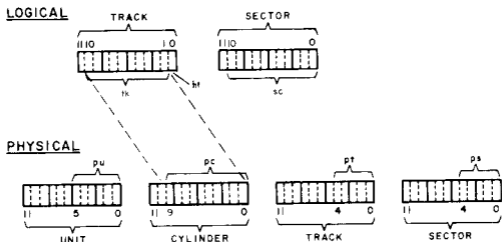
$$pt = hc * 11_8 + \text{int}(a/30_8).$$

$$pc = tk \text{ (bits 10 through 2)}.$$

pu = Obtained from physical unit list in DDLL MST word.

7x5x/844-41/-44 DISK STORAGE SUBSYSTEMS (HALF TRACK)

- Equipment type DJ
- Sectors/track 227 x n
- Tracks/device 1640
- Words/device 23, 825, 920 x n
- Maximum data rate 46.1K words per second



int(x) Integer portion of x.
 rem Remainder of x divided by y.
 (x/y)
 tk Logical track.
 sc Logical sector.
 pu Physical unit number (bits 5 through 0).
 pc Physical cylinder number (bits 9 through 0).
 pt Physical track number (bits 4 through 0).
 ps Physical sector number (bits 4 through 0).
 lu Logical unit.
 ht Half-track bit (bit 0 of logical track).
 a Intermediate result.

$$lu = \text{int} (sc/343_8).$$

$$a = ht + 2 * \text{rem} (sc/343_8).$$

$$pt = \text{int} (a/30_8).$$

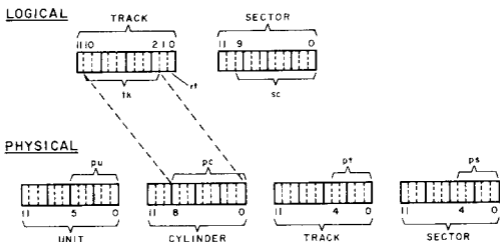
$$ps = \text{rem} (a/30_8).$$

$$pc = tk \text{ (bits 10 through 1)}.$$

pu = Obtained from physical unit list in DDLL MST word.

7152/7154/844-21 DISK STORAGE SUBSYSTEMS (FULL TRACK)

- Equipment type ' DK
- Sectors/track 112 x n
- Tracks/device 1632
- Words/device 11,698,176 x n
- Maximum data rate 92.16K words per second



int(x) Integer portion of x.
 rem Remainder of x divided by y.
 (x/y)
 tk Logical track.
 sc Logical sector.
 pu Physical unit number (bits 5 through 0).
 pc Physical cylinder number (bits 8 through 0).
 pt Physical track number (bits 4 through 0).
 ps Physical sector number (bits 4 through 0).
 lu Logical unit.
 rt Relative track in physical cylinder (bits 1 and 0 of logical track).

$$lu = \text{int}(sc/160g).$$

$$ps = \text{rem}[(rt \times 162g + \text{rem}(sc/160g)).30g].$$

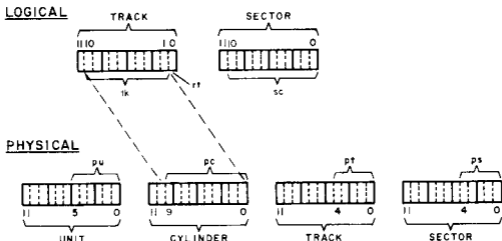
$$pt = \text{int}[(rt \times 162g + \text{rem}(sc/160g))/30g].$$

$$pc = tk \text{ (bits 10 through 2).}$$

pu = Obtained from physical unit list in DDL MST word.

715x/844-41/-44 DISK STORAGE SUBSYSTEMS (FULL TRACK)

- Equipment type DL
- Sectors/track 227 x n
- Tracks/device 1640
- Words/device 23,825,920 x n
- Maximum data rate 92.16K words per second



int(x) Integer portion of x.
 rem Remainder of x divided by y.
 (x/y)
 tk Logical track.
 sc Logical sector.
 pu Physical unit number (bits 5 through 0).
 pc Physical cylinder number (bits 9 through 0).
 pt Physical track number (bits 4 through 0).
 ps Physical sector number (bits 4 through 0).
 lu Logical unit.
 rt Relative track in physical cylinder (bit 0 of logical track).

$$lu = \text{int}(sc/343_8).$$

$$ps = \text{rem}[(rt*345_8 + \text{rem}(sc/343_8))/30_8].$$

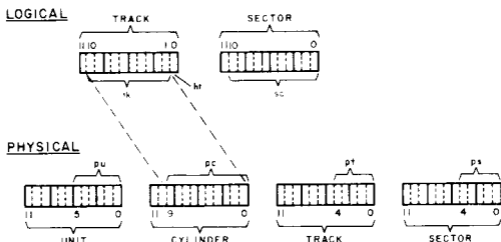
$$pt = \text{int}[(rt*345_8 + \text{rem}(sc/343_8))/30_8].$$

$$pc = tk \text{ (bits 10 through 1).}$$

pu = Obtained from physical unit list in DDLL MST word.

7155/885 DISK STORAGE SUBSYSTEMS (HALF TRACK)

- Equipment type DM
- Sectors/track 640 x n ($1 \leq n \leq 3$)
- Tracks/device 1682
- Words/device 68,894,720 x n
- Maximum data rate 61.44K words per second



int(x) Integer portion of x.
 rem Remainder of x divided by y.
 (x/y)
 tk Logical track.
 sc Logical sector.
 pu Physical unit number (bits 5 through 0).
 pc Physical cylinder number (bits 9 through 0).
 pt Physical track number (bits 4 through 0).
 ps Physical sector number (bits 4 through 0).
 lu Logical unit.
 ht Half-track bit (bit 0 of logical track).

$$lu = \text{int}(sc/1200_8).$$

$$pt = \text{int}(sc/20_8).$$

$$ps = ht + \text{rem}(sc/20_8).$$

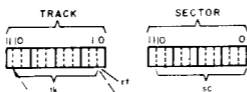
$$pc = tk \text{ (bits 10 through 1)}.$$

pu = Obtained from physical unit list in DDLL MST word.

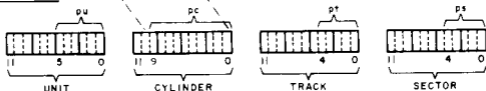
7155/885 DISK STORAGE SUBSYSTEMS (FULL TRACK)

- Equipment type DQ
- Sectors/track $640 \times n$ ($1 \leq n \leq 3$)
- Tracks/device 1682
- Words/device $68,894,720 \times n$
- Maximum data rate 122.88K words per second

LOGICAL



PHYSICAL



int(x) Integer portion of x.

rem Remainder of x divided by y.

(x/y)

tk Logical track.

sc Logical sector.

pu Physical unit number (bits 5 through 0).

pc Physical cylinder number (bits 9 through 0).

pt Physical track number (bits 4 through 0).

ps Physical sector number (bits 4 through 0).

lu Logical unit.

rt Relative track in physical cylinder (bit 0 of logical track).

$$lu = \text{int} (sc/1200g).$$

$$ps = \text{rem} (sc/40g).$$

$$pt = rt * 24g + \text{int} (sc/40g).$$

$$pc = tk \text{ (bits 10 through 1)}.$$

pu = Obtained from physical unit list in DDLL MST word.

PP FUNCTION REQUESTS

The following list provides a quick reference to monitor function mnemonics and related codes.

<u>Mnemonic</u>	<u>Code</u>	<u>Mnemonic</u>	<u>Code</u>
ABTM	34	RCHM	12
ACTM	50	RCLM	44
CCAM	35	RCPM	45
CCHM	03	RDCM	46
CDBM	06	REMM	13
CEFM	36	REQM	14
CKSM	67	RJSM	17
CSTM	66	RLMM	64
DCHM	04	ROCM	15
DCPM	37	RPPM	51
DEPM	27	RPRM	16
DEQM	05	RSJM	52
DFMM	73	RSTM	21
DLKM	61	RTCM	53
DPPM	42	SEQM	10
DRCM	30	SCPM	31
DSRM	23	SFBM	54
DSWM	33	SFIM	40
DTKM	41	SPLM	57
EATM	32	STBM	55
ECSM	43	TDAM	62
ECXM	24	TGPM	25
IAUM	47	TIOM	63
JACM	60	TSEM	26
LCEM	65	UADM	56
LDAM	70	URFM	55
PIOM	72	VMSM	71
PRLM	11		

NOTE

All monitor functions should be treated as if a storage move can occur while the request is pending. All PP routines should take this into account when being coded. Absolute addresses set before issuing a monitor function must be considered invalid after the function completes.

MTR FUNCTIONS

A PP sets one of the following codes in the output register when a system request is made. The system replies to the request with a word in the output register as shown.

01 Reserved

02 Reserved

03 Check Channel - CCHM

Request: OR 0003 cccc **** **

 cccc Channel number.

Reply: OR 0000 cccc 000r **** **

 cccc Channel assigned if r
 is 1.

 r 1 Channel assigned.
 0 Channel not as-
 signed.

04 Drop Channel - DCHM

Request: OR 0004 00 ch **** **

 ch Channel number.

Reply: OR 0000 0000 0000 0000

05 Drop Equipment - DEQM

Request: OR 0005 00eq **** **

 eq Equipment number.

Reply: OR 0000 0000 0000 0000

Hung PP occurs for any of the following conditions.

- Illegal equipment number.
- Undefined equipment.
- Equipment not reserved.
- Equipment is mass storage.

06 Check Dayfile Buffer - CDBM

Request: OR 0006 bbbb 00mc 000s aaaa

bbbb Byte count of message.

mc Message control; refer to DFMM message control specifications.

s State of delay:

0 Wait until dayfile buffer identified by aaaa is not busy and not interlocked.

1 Wait until the PP dump buffer is not busy.

aaaa Refer to state of delay description.

Reply: This function is set only by CPUMTR for delayed processing of DFMM requests. Refer to DFMM reply specifications.

07 Reserved

10 Set Equipment Parameters - SEQM

Request: OR 0010 00eq 00sf pppp qqqq

eq Equipment number.

sf Subfunction code:

00 On equipment.

01 Off equipment.

02 Set channels for access.

03 Set equipment mnemonic.

04 Set byte 0 of EST.

05 Set byte 1 of EST.

06 Set byte 2 of EST.

07 Set byte 3 of EST.

10 Set byte 4 of EST.

pppp Channels of access for subfunction 02, equipment mnemonic for subfunction 03, and not used for subfunctions 00 and 01. Mask for EST byte for subfunctions 04-10. Mask must have ones to save data and zeros to change data.

qqqq Not used for subfunctions 00-03. New data for EST byte for subfunctions 04-10. Data position must match mask.

Reply: OR 0000 0000 0000 0000 0000

Hung PP occurs for an illegal equipment.

11 Pause for Storage Relocation - PRLM

Request: OR 0011 **** **** **** ****

Reply: OR 0000 0000 0000 0000 0000

12 Request Channel - RCHM

Request: OR 0012 bbaa ddcc **** ****

aa First channel choice.

bb Second channel choice.

cc Third channel choice.

dd Fourth channel choice.

Reply: OR 0000 00ch **** **** ****

ch Channel assigned.

13 Request Exit Mode - REMM

Request: OR 0013 eeee **** **** ****

eeee Exit mode.

Reply: OR 0000 0000 0000 0000 0000

14 Request Equipment - REQM

Request: OR 0014 00eq **** **

eq Equipment number.

Reply: OR 0000 00st **** **

st eq If equipment is assigned.
0 If equipment is not available.

15 Roll Out Control Point - ROCM

Request: OR 0015 00cp **** **

cp Control point number.

Reply: OR 0000 0000 0000 0000 0000

16 Request Priority - RPRM

Request: OR 0016 pppp 000t **** **

pppp Priority.
t Flags:

<u>Bit</u>	<u>Description</u>
0	Type of priority to change: 0 if CPU priority and 1 if queue priority.
1	Range check for queue priority: 0 if no check requested and 1 if check requested.

Reply: OR 0000 ssss 0000 0000 0000

sss 0 if requested queue priority was set. Current queue priority if range check failed.

17 Request Job Sequence Number - RJSM

Request: OR 0017 **** **

Reply: OR 0000 00ss ssss ss00 ****

ss...s Display code sequence number.

20 Reserved

21 Request Storage - RSTM

Request: OR 0021 ffff xxxx **** **

ffff Field length request
(100₈-word blocks
for CM request and
1000₈-word blocks
for ECS request).

xxxx 0 CM request.
1 ECS request.

Reply: OR 0000 xxxx 0000 0000 0000

xxxx If zero, request is
honored; if nonzero
storage is not
available.

Hung PP occurs if ECS is requested and user ECS is not defined.

22 Reserved

23 DSD Request - DSRM

This function is honored only from DSD.

Request: OR 0023 0023 00rr **** **

rr Request:
00 Set monitor step.
01 Step monitor.
02 Enter date and
time.
03 Set emergency step.

Reply: OR 0000 0000 0000 0000 0000

24 ECS Transfer - ECXM

MTR changes this request to ECSM and calls CPUMTR to process it. Refer to ECSM description for request and reply formats.

25 IAF/TELEX Get Pot - TGPM

Request: OR 0025 **** *
Request: OR 0025 **** *
Request: OR 0025 **** *

Reply: OR 0000 pppp 0000 0000 0000

pppp Pot pointer; 0 if pot
unavailable.

26 Process IAF/TELEX Request - TSEM

Request: OR 0026 **** *
Request: OR 0026 **** *
Request: OR 0026 **** *

MB IAF/TELEX request.

Reply: OR 0000 0000 0000 0000 0000

27 Disk Error Processor - DEPM

Request: OR 0027 00ec 00op *llll* sfun

ec Error code.

op Operator code (read or
write).

llll Address of linkage
bytes in PP.

sfun Status/function:

<u>Bits</u>	<u>Description</u>
-------------	--------------------

11-0	Device function code if function timeout error (ec=FT).
------	--

MB (t4-CM).

MB+1 LDAM address.

MB+2 Bits 59-48 exit address to
main driver and bits 47-0 disk
address message.

MB+3 Bits 59-0 disk address message.

MB+4 Bits 59-48 first linkage byte
from sector read, bits 47-36
second linkage byte, and bits
35-0 reserved.

MB+5 Bits 54-48 error exit address,
bits 47-36 RDCT, bits 35-24
STSA, bits 23-12 UERP, and
bits 11-0 SLM.

Reply: OR 0000 MSFW **** *
 MB Bits 59-0 dayfile message.
 MB+1 Bits 59-0 dayfile message.
 MB+2 Bits 59-0 dayfile message.
 MB+3 Bits 59-0 dayfile message.
 MB+4 Bits 59-0 dayfile message.
 MB+5 Bits 59-48 7EP flags, bits
 47-36 incremented retry count,
 bits 35-24 RDSX or WDSX exit
 address, and bits 23-0 LJM
 RETRY ADDR.

30 Driver Recall CPU - DRCM

Request: OR 0030 **** *
 Reply: OR 0000 0000 0000 0000 0000

31 Select CPUs Allowable for Job Execution - SCPM

Request: OR 0031 000c **** *
 c 0 Any CPU.
 1 CPU 0 only.
 2 CPU 1 only.
 Reply: OR 0000 0000 0000 0000 0000

This request is ignored if user ECS is assigned to the requesting job.

32 Enter/Access System Event Table - EATM

Request: OR 0032 000f **** **ee eeee
 f 0 Enter event.
 1 Return event count.
 2 Return events to
 message buffer.
 eeeee Event.

Reply: OR 0000 ssss **** **** **** (f=0)
 ssss Zero if event entered.

OR 0000 cccc **** **** **** (f=1)
 cccc Count of events in
 table presently.

OR 0000 cccc **** **** wwww (f=2)
 cccc Count of events in
 table presently.

wwww CM word count of
 events returned ≥ 1 .

33 Driver Seek Wait - DSWM

Request: OR 0033 **** **** ffff ****
 MB cccc eeee tttt ssss chrv
 MB+1 001u 00pu **** **** ****
 MB+2 yyyy 0000 0000 0000 mmmm

ffff Status flags:
 0 Drop channel and
 release software
 unit interlock.
 1 Request channel
 without unit
 interlock.
 2 Seek in progress.
 4 Storage move wait
 or unit switch.
 10 Hardware drive
 reserved.
 11 Request/select
 channel, soft-
 ware unit inter-
 lock, and system
 equipment (if bit
 5 of chrv is set).
 2000 Controller re-
 served.

cccc Channel.
 eeee Equipment.
 tttt Logical track.
 ssss Logical sector.

chrv	Channel reservation control. If bit 5 is set, system device selection is enabled. Bits 4-0 nonzero if channel t4 reserved.
lu	Logical unit if ffff>4.
pu	Physical unit if ffff>4.
yyyy	Type of device reserved (ffff= 10 or 2000).
mmmm	Time starting reserve wait (ffff= 10 or 2000).

Intermediate
processing:

OR 0033 00lu 00pn 0000 cpfg

MB cccc eeee tttt ssss 0001

lu	Logical unit.
pn	PP number.
cp	Control point number (bits 11-7).
fg	40 System selection needed. 20 Unit interlock needed. 10 Dual channel selection needed.
cccc	Channel.
eeee	Equipment.
tttt	Logical track.
ssss	Logical sector.

Reply: OR 0000 chrv 0012 xxrp cccc

MB cccc eeee tttt ssss 00cs

chrv Address of channel reservation control word in PP memory.

12 General status function.

rp Return parameter:
rp cs if status is error free.
rp 6000 +ec if error (ec = disk error code).

cccc Selected channel.

eeee Selected equipment (if system selection requested).

tttt Logical track.

ssss Logical sector.

cs 0 if channel returned.
1 if channel assigned.

A hung PP condition results if any of the following occurs.

- Invalid equipment number (eq).
- Equipment not mass storage.
- Invalid channel number (ch).
- Channel not assigned to PP.

CPUMTR FUNCTIONS

34 Abort Control Point - ABTM

Request: OR 0034 **** **** **** ****

Reply: OR 0000 0000 0000 0000 0000

35 Change Control Point Assignment - CCAM

Request: OR 0035 ffnn **** **

ff Flags:

Bit Description

- 11 Set if job name at new control point is not required.
- 10 If set, job advance flag will be set at new control point.
- 9 If set, reject change if move flag is set; if not set and move flag is set on the new control point, a PRLM is entered in OR after change.

nn New control point number.

Reply: OR 0000 mmmm 0000 0000 0000

mmmm 0 Control point changed.
≠0 Control point not changed.

36 Change Error Flag - CEFM

Request: OR 0036 c0ef pppp **** **

c If zero, change error flag at current control point; if nonzero, change error flag at specified control point.

ef Error flag to set.

pppp Control point number of desired control point (needed only if c ≠ 0).

Reply: OR 0000 ssss 0000 0000 0000

ssss Status:
1 If storage move at control point pppp.
0 Otherwise.

PP hung occurs if the specified control point does not have a job assigned to it or if ef=0 and the error flag at the control point is 0.

37 Drop CPU From Control Point - DCPM

Request: OR 0037 **** **** **** ****

Reply: OR 0000 ssss 0000 0000 0000

sss CPU status from STSW.

40 Set FNT Interlock - SFIM

Request: OR 0040 aaaa ffff 0000 0000

aaaa Address of FST or FNT.

ffff Function:

- 0 Clear FNT interlock.
- 1 Set FNT interlock.
- 2 Clear FNT interlock and FNT/FST.
- 3 Set FNT interlock (verify FNT).

MB+0 eeee eeee eeee eeee eeee

ee...e FNT entry (function 3 only).

Reply: OR 0000 ssss **** **** ****

sss Status:

- 0 Interlock set/clear.
- 1 Incorrect interlock status.
- 2 FNT entry does not match that in message buffer.

TFSW in control point cleared if FST address=job input FST address (function 2 only).

41 Drop Tracks - DTKM

Request: OR 0041 00eq tttt ssss ****

eq Equipment number.

If bit 10 of the equipment byte is set (20eq), the tracks to be dropped are local to another mainframe.

If bit 11 of the equipment byte is set (40eq), the checkpoint bit for this device is set upon completion of the function.

tttt First track.

If bit 11 of tttt=1, all tracks from tttt to end of chain are dropped.

If bit 11 of tttt=0, all tracks after tttt are dropped and ssss is inserted in track byte.

ssss Sector number.

Reply: OR 0000 0000 0000 00nn nnnn

nnnnnn Number of sectors contained in the tracks dropped.

PP hung occurs if any of the tracks to be dropped are not reserved.

42 Drop PP - DPPM

Request: OR 0042 **** **** **** ****

Reply: OR 0000 0000 0000 0000 0000

43 ECS Transfer - ECSM

Read/Write ECS Sector

Request: OR 0043 wcaa aaaa sppp pppp

wc Word count -1.

aaaaaa Absolute CM address.

s Subfunction:
0 Read relative ECS (RRES).
1 Write relative ECS (WRES).

ppppppp Relative ECS address.

Read/Write ECS Words

Request: OR 0043 wcaa aaaa sppp pppp

wc Number of words to transfer minus one.

aaaaaa CM address to transfer to or from.

s Subfunction:
2 Read up to 100_g ECS words (RECS).
3 Write up to 100_g ECS words (WECS).

ppppppp ECS address to transfer to or from.

Set/Clear Flag Register Bit

Request: OR 0043 wc** **** s*** ****

wc Bit position in flag register to be manipulated. A nonzero status is returned in byte 1 of the output register if the function cannot be performed.

s Subfunction:
4 Test and set flag register bit (SFRS).
5 Unconditionally clear flag register bit (CFRS).

Read ECS According to List

Request: OR 0043 **aa aaaa s*** ****

aaaaaa A list of addresses and word counts is located at aaaaaa. Each word in the list has the following format and the list is terminated by a zero word. (Data is read starting at aaaaaa + 20 octal.)

**** **** **wc aaaa aaaa

wc Number of ECS words to read.
aa...a ECS address to read from.

s 6 Read ECS according to list (RELS).

Reply (for all subfunctions):

OR 0000 ssss **** aaaa aaaa

sss Status (zero if no errors, 7777₈ if ECS error occurred during the transfer).

aa...a ECS address that the error occurred at.

44 Recall CPU - RCLM

Request: OR 0044 **** **** **** ****

Reply: OR 0000 0000 0000 0000 0000

45 Request CPU - RCPM

Request: OR 0045 **** **** **** ****

Reply: OR 0000 0000 0000 0000 0000

PP hung can occur if control point is not in I status.

46 Request Data Conversion - RDCM

Request: OR 0046 000c 0m0w **** ****

c If c=0, the value to convert is in MB+0. If c=1 through 6, c is the number of values to convert in MB+0 through MB+5. If c=7, the value to convert is a 60-bit number in MB+0 and conversion is in F20.3 format.

m MB word containing quarter nanounits to be recalculated as milliunits (if c=0 or 7, m is ignored). If m=1, MB+0 is recalculated; if m=2, MB+1 is recalculated, etc.

w MB word containing SRU value to be divided by 10,000 (if c=0, w is ignored). If w=1, MB+0 is divided; if w=2, MB+1 is divided, etc. If c=7 and w≠0, w is a flag indicating that the quarternanosecond units are to be converted to CDC CYBER 176 CPU clock cycles.

MB+0 nnnn nnnn nnnn nnnn nnnn

MB+1 nnnn nnnn nnnn nnnn nnnn

.
.

MB+5 nnnn nnnn nnnn nnnn nnnn

nn...n is a 30-bit or 60-bit integer. If a 30-bit integer, upper 30 bits are ignored.

Reply:

OR 0000 0000 0000 0000 0000

MB+0 cccc cccc cccc cccc cccc

MB+1 cccc cccc cccc cccc cccc

.
.

MB+5 cccc cccc cccc cccc cccc

cc...c is display code conversion in F10.3 format.

If c=7, the value in MB+0 is converted to F20.3 format and returned as follows:

OR 0000 0000 0000 0000 0000

MB+0 cccc cccc cccc cccc cccc

MB+1 cccc cccc cccc cccc cccc

MB+2 **** **** **** **** ****

.
.

MB+5 **** **** **** **** ****

cc...c is display code conversion in F20.3 format.

Hung PP occurs if c>7, m>6, or w>6.

47 Interlock and Update - IAUM

Request: OR 0047 ***s mode **ff ffff

s Subfunction:

- 0 Attach fast attach file (AFAS).
- 1 Return fast attach file (RFAS).
- 2 Increment PF activity count (IPAS).
- 3 Decrement PF activity count (DPAS).
- 4 Set PF system interlock requested bit (SIRS).
- 5 Clear PF system interlock requested bit (CIRS).
- 6 Set PF system interlock bit (SPIS).
- 7 Clear PF system interlock bit (CPIS).
- 10 Increment permanent file family count (IPFS).
- 11 Decrement permanent file family count (DPFS).
- 12 Enter intermachine message request (IFRS).

mode Mode to attach file in.

ffffff FST address of local fast attach file.

This function is used to interlock and update fields (not related to a specific device) that reside in CMR and also reside in ECS for multimainframe.

This function can result in PP hung for the following.

- Illegal function code.
- Illegal FST address (AFAS/RFAS).
- Illegal mode number (AFAS/RFAS).
- No compare on FNT entry (AFAS).
- IFRS option requested when not in MMF mode.

Reply: OR 0000 stat **** **

stat Status:
0 Normal completion.
1 Function cannot be completed at this time because the fast attach file is attached in a conflicting mode or the PF system interlock or request for interlock is set.
2 Fast attach read count overflow/underflow or PF activity count is too great (IPAS) or PF activity count underflow (DPAS).

MB+0 Contains the global FST if the request was AFAS (0) and stat = 1.

This function may be rejected if the flag register bit interlocking IAUM requests is set by another machine. When this happens, bit 59 or OR is set, indicating to PPR to reissue the request.

50 Accounting Functions - ACTM

Account block begin (option ABBF)

Request: OR 0050 0001 **** **

MB aaaa bbbb cccc dddd eeee

aaaa SRU M1 multiplier.
bbbb SRU M2 multiplier.
cccc SRU M3 multiplier.
dddd SRU M4 multiplier.
eeee SRU adder.

Reply: OR 0000 0000 0000 0000 0000

Compute SRU working multipliers (option ABSF)

Request: OR 0050 0002 **** **

Reply: OR 0000 0000 0000 0000 0000

Account block change (option ABCF)

Request: OR 0050 0003 **** **

MB aaaa bbbb cccc dddd eeee

aaaa SRU M1 multiplier.
bbbb SRU M2 multiplier.
cccc SRU M3 multiplier.
dddd SRU M4 multiplier.
eeee SRU adder.

Reply: OR 0000 0000 0000 0000 0000

Compute and convert elapsed SRUs (option ABEF)

Request: OR 0050 0004 **** **

MB+0 **** aaaa aaaa aaaa aaaa

MB+1 **** bbbb bbbb bbbb bbbb

aa...a Old SRU value.
bb...b New SRU value.

Reply: OR 0000 0000 0000 0000 0000

MB cccc cccc cccc cccc cccc

cc...c Display code SRU, F10.3
format.

Compute accounting accumulators (option ABVF)

Request: OR 0050 0005 **** **

MB+0 **** ssss ssss ssss ssss

MB+1 **** **cc cccc cccc

MB+2 iiii iiii iiii iiii iiii

MB+3 **** **** ** *aaa aaaa

ss...s SRU value.
cc...c CPU time.
ii...i I/O accumulators.
aa...a Application adder.

Reply: MB+0 ssss ssss ssss ssss ssss

MB+1 cccc cccc cccc cccc cccc

MB+2 dddd dddd dddd dddd dddd

MB+3 tttt tttt tttt tttt tttt

MB+4 pppp pppp pppp pppp pppp

MB+5 aaaa aaaa aaaa aaaa aaaa

The following values are in display code, F10.3 format.

ss...s	SRU value.
cc...c	CPU time.
dd...d	Mass storage activity.
tt...t	Magnetic tape activity.
pp...p	Permanent file activity.
aa...a	Application adder activity.

Increment accumulator (option ABIF)

Request: OR 0050 0006 **** **fr

MB+0 **** **ii iiii iiii

MB+1 vvvv vvvv vvvv vvvv vvvv

f	Operation flag (0=add, 1=subtract).
r	Request count (1-3).
ii...i	Increment to apply.
vv...v	Accumulator value.

Reply: OR 0000 0000 0000 0000 0000

MB+0 **** **xx xxxx xxxx

MB+1 **** **yy yyyy yyyy

xx...x	New value first operation.
yy...y	New value second operation.

The SRU accumulator value is first converted to an integer number and then integer addition or subtraction is performed. If the converted accumulator value is less than 1, 1 is used. The upper half of the words containing the increments are preserved in the upper half of the reply.

Application program accumulator (option ABUF)

Request: OR 0052 0007 **** **

MB+0 **** ** aaaa aaaa aaaa

MB+1 **** ** **bb bbbb bbbb

aa...a CPU time (initial).

bb...b CPU time (ending).

Reply: OR 0000 0000 0000 0000 0000

MB cccc cccc cccc cccc cccc

cc...c Display code CPU seconds, F10.3 format.

The total CPU time used is calculated, the CPU multiplier is factored out, then the CPU time is converted to a display code number in the F10.3 format.

51 Request PP - RPPM

Request: OR 0051 **** **

MB Input register for PP

Reply: OR 0000 ssss **** **

sss Address of assigned PPs input register.

Zero if no PP is assigned.

52 Request Job Scheduler - RSJM

Request: OR 0052 **** **

Reply: OR 0000 0000 0000 0000 0000

53 Request Track Chain - RTCM

Request: OR 0053 c*eq tttt *sss ssss

c Equipment checkpoint
flag (bit 47).

eq Equipment number; if
zero, the best equip-
ment available is se-
lected.

tttt Current track if eq is
nonzero; device selec-
tion parameter if eq
is zero as follows:

0	TMPS	Temporary device.
1	INPS	Input file device.
2	OUTS	Output file device.
3	ROLS	Rollout file device.
4	DAYS	User day- file device.
5	PRIS	Primary file device.
6	LOCS	Local file device.
7	LGOS	LCO file device.

ss...s Sector count requested
(bits 16 through 0).
If ss...s=-1 (77...6),
request all available
tracks on device.

Reply: OR 0000 00eq **** *ttt

eq Equipment number.

tttt First track assigned.

A PP hung condition results if any of the following
occurs.

- Equipment not mass storage or out of EST.
- ECS address of MST set when not multimain-
frame mode.
- Current track is not reserved or is linked
to another track.
- Device selection parameter is out of range.

54 Set File Busy - SFBM

Request: OR 0054 **** **** eqaa aaaa

eq If eq is nonzero, set the equipment number field of the FST to eq. The FST is not set busy, but a reject is returned if the EST is already busy.

aaaaaa Address of file status word.

MB Value compare with file name word (aaaaaa-1).

Reply: OR 0000 ssss **** **** ****

sss 0 File was set busy.
1 File is busy.
2 Comparison failed.

Comparison is not performed if aaaaaa is not within the file name table.

55 Set Track Bit - STBM

Request: OR 0055 i0eq pppp ssss ****

i If bit 46 (i=2) is set, subfunction code 25 is ignored when I/O queue protect is disabled.

eq EST ordinal of device to process.

ssss

Subfunction:

- 00 Set track flawed status (STFS).
- 01 Clear track flawed status (CTFS).
- 02 Set track interlock bit (STIS).
- 03 Clear track interlock bit (CTIS).
- 04 Set preserved file bit (SPFS).
- 05 Clear preserved file bit (CPFS).
- 06 Update TRT from ECS (UTRS).
- 07 Set device interlock (SDIS).
- 10 Interlock IQFT track (IIQS).
- 11 Set IQFT track (SIQS).
- 12 Set global MST bit at ACGL (SGBS).
- 13 Clear global MST bit at ACGL (CGBS).
- 14 Set local MST bit at STLL (SLBS).
- 15 Clear local MST bit at STLL (CLBS).
- 16 Increment user count field (IUCS).
- 17 Decrement user count field (DUCS).
- 20 Set error code (SERS).
- 21 Clear device interlock (CDIS).
- 22 Increment family count in MST (IFCS).
- 23 Decrement family count in MST (DFCS).
- 24 Toggle family idle status in MST (TFIS).
- 25 Test global MST bit (TGBS).

ppp

Parameter depending on
subfunction:

<u>ssss</u>	<u>Description</u>
01-05	Track number (if bit 11 of eq field is set, set check- point bit; if bit 10 of eq field is set, ignore this function if I/O queue protect is disabled).
10	IQFT track num- ber.
12-15	Bit number in word.
20	Error code.
22	Bit number in word.

This function performs MST and TRT updates. CPUMTR performs these functions since MST/TRT may reside in ECS if running in a multimainframe mode and the copies in ECS need to be updated also.

Reply: OR 0000 000s **** **** ****

s. Status (0 if normal completion, 1 if request will set a bit or field which is already set).

If the function cannot be completed because the MST/TRT is interlocked, bit 59 of OR is set, indicating to PPR to reissue the request.

Reply (subfunction 25):

OR 0000 byt4 byt0 byt1 byt2

byt4 Byte 4 of MST word ACGL.
byt0 Byte 0 of MST word ACGL.
byt1 Byte 1 of MST word ACGL.
byt2 Byte 2 of MST word ACGL.

For the indicated subfunctions, CPUMTR performs the corresponding MST/TRT manipulations.

<u>Subfunction</u>	<u>Manipulation</u>
0-13	Read entire TRT and words 0, 1, and 2 of MST from ECS.
14-17	Write entire local area to ECS.
21	Write entire TRT and first three words of MST to ECS.

PP hung can result from the following occurrences.

- Track is not reserved (CTFS, STIS, CTIS, SPFS, CPFS, IIQS).
- Track is not interlocked (CTIS).
- Track is not preserved (CPFS).
- Track is not flawed (CTFS).
- Track information is nonzero (STFS).
- Clearing PF utility active bit in global MST word ACGL that was not previously set (CGBS).
- Wrong machine ID (CIPS).

56 Update Accounting and Drop PP - UADM

Request: OR 0056 wwww dddd 0000 0000

MB+0 opop aaaa brrr 00ii iiii

MB+1 opop aaaa brrr 00ii iiii

:

MB+5 opop aaaa brrr 00ii iiii

wwww Word count of options
in MB+0 through MB+5.

dddd Drop PP flag:
0 Drop PP.
1 Do not drop PP.

opop Options:
00 Increment low
core register.
02 Increment low
core register by
one.
04 Decrement low
core register by
one.
06 Decrement low
core register.
10g Increment control
point register.
12g Increment control
point register by
one.
14g Decrement control
point register by
one.
16g Decrement control
point register.
20g Increment control
point accounting
register and per-
form input/output
SRU calculation.
30g Increment control
point accounting
register and per-
form application
accounting SRU
calculation.
40g Set control point
register to value
iiiiii.

Set bit zero of word *iiiiii* of the control point; the control point is specified by the field *brrr* for this subfunction only (*brrr*=CPA address). The CPU is recalled. This subfunction is intended for DSD only; no further functions in *MB-MB+5* are processed. No error indication will be returned in the OR; the drop PP option is ignored. The bit will not be set if storage move is in progress or job advance is set or if the address is beyond FL.

aaaa

Word address of the register (must be within the range of addresses *10₈* through *130₈*).

bb

Low order bit address of the field to increment or decrement (0 through 59).

rr

Width of the register (1 through 59 bits).

iiiiii

18-bit signed value of an increment (if the operation is a decrement and the value is negative, the operation is an increment; a similar situation applies for increments).

Reply: OR 0000 eeee 0000 0000 0000

MB Unchanged.

eeee Error indication underflow on the register increment or decrement. (Bit 0 set indicates the operation at MB+0 was in error, bit 1 set indicates MB+1 and so on).

PP hung occurs for any of the following conditions:

- Too many requests.
- If control point update and address not between STSW and CSBW.
- If low core update and address is greater than or equal to CTRL.
- Illegal subfunction.
- Request count is zero, and drop PP option was not selected.

57 Search Peripheral Library - SPLM

Request: OR 0057 **** **nn nnnn ****

nnnnnn PP package name.

Reply: OR 0000 0Odd tttt ssss aaaa (PLD)

OR 0000 0lpp pppp *llll* aaaa (RPL)

OR 0000 02nn nnnn *llll* aaaa (SFP)

dd Alternate or system equipment number.

tttt Track.

ssss Sector.

aaaa Load address.

pppppp Program address.

llll Program length.

nnnnnn SFP package address.

PP hung occurs when a 6xx or 7xx program is not found.

60 Job Advancement Control - JACM

Request: OR 0060 000s **** **

- s 0 Clear job advancement flag.
- 1 Clear job advancement flag and control point area words associated with releasing control point.
- 2,3 Same as for 0 and 1, respectively, except that PPU is dropped.
- 4 If no activity, or if CPU activity and/or PPU in recall plus rollout flags are set, then set job advancement flag, drop CPU, and call IAJ to advance the job.

Reply: OR 0000 0000 0000 0000 0000

61 Delink Tracks - DLKM

Request: OR 0061 00eq ffff nnn lll

- eq Equipment number.

If bit 11 of the equipment byte is set (40eq), then the checkpoint bit for this device is set upon completion of the function.
- ffff Track onto which nnn is linked (bit 11 of ffff must be clear).
- nnn Track to be linked to ffff.
- lll Last track in chain to drop.

Reply: OR 0000 0000 0000 0000 0000

62 Transfer Data To/From Job - From/To Message Buffer - TDAM

Request: OR 0062 rrrr qqqq waaa aaaa

rrrr 0 Read.
1 Write.
2 Set completion bit
specified at aaaaaa.

qqqq Queue priority of job.

ww Number of words to transfer, or reply code if only completion bit is to be set.

aa...a If zero, use subsystem receiving buffer pointer at SSCR (RA+5lg); if nonzero, specifies relative address of receiving buffer.

MB Up to six words of data to be sent or to be read from job.

Reply: OR 0000 ssss cccc 0000 0000

ssss 0 Operation complete.
1 Move in progress.
2 Not ready for data.
3 Reject (write request to nonzero first word).
4 Inactive or job advance set.
5 SCP invalid parameters.

cccc Control point number of SCP if ssss=5.

63 Tape I/O Processor - TIOM

Request: OR 0063 uuuu iiii mmcc cccc

uuuu MAGNET unit descriptor
table address to be
cleared.

iiii 1/t, 1l/accounting incre-
ment.
t=0 for blocks read.
t=1 for blocks written.

mm Accounting multipliers.

cc...c FET completion code.

MB 0000 0000 0000 0000 0000

Reply: OR 0000 ssss uuuu uuuu uuuu

sss 0 Operation complete.
1 Function must be re-
issued, but uu...u
must not be reset on
reissue.

uu...u Unchanged.

64 Request Limit - RLMM

Request: OR 0064 ssss 0000 00vv vvvv

sss Subfunction code:
0 Clear overflow
flags (RLCO).
1 Increment time
limit (RLIT).
2 Increment SRU limit
(RLIS).
3 Start job step
(RLJS).
4 Set time limit
(RLTL).
5 Set SRU limit
(RLSL).

vvvvv Value of increment or
limit requested.

Reply: OR 0000 0000 0000 0000 ffff

ffff Flags depending on sub-
function:

<u>Sub- function</u>	<u>ffff</u>
0	Bits 11-7, zero; 6-0 specify overflow flags in SRUW before clear- ing bits 47-41.
1,2	Error flag (zero if no errors).
3,4,5	Zero.

A PP hung condition occurs if an illegal subfunction code is encountered.

65 Load Central Program - LCEM

Request: OR 0065 0faa aaaa pppp pppp

f LWA specified flag. If
f=1, MB contains the
LWA+1 to use for the
load.

aa...a User-specified load
address.

pp...p Program location:

- If ECS resident,
pp...p is tttt ssss:

tttt Track.
ssss Sector.

- If CM resident,
pp...p is 00cc cccc:

cc...c CM address.

MB 0000 0000 0000 00 ll llll

ll...l LWA+1 allowed for load.

Reply: OR 0000 00ff ffff 00 ll lll (normal)

ff...f First word address of load.

ll...l Last word address of load.

OR 0000 7777 eeee 00aa aaaa (error)

eeee Error flag.

aa...a Address in error:

eeee=0 ECS read error.

eeee≠0, Illegal load

aa...a≠0 address.

eeee≠0, Insufficient

aa...a=0 field length.

66 Clear Storage - CSTM

Request: OR 0066 rrww wwww 00aa aaaa

rr Bit Description

47-44 Special options:

Value Option

0 No special option;
clear storage only.

1 Check pointer to
last file executed
in CPA; clear it
if it matches
FWA+1. Also clear
storage.

2 Set CPA FNT inter-
lock and clear
storage.

3 Select options 1
and 2.

43 0 FWA specifies a CM
address.

1 FWA specifies an
ECS address.

42 0 FWA specifies an
absolute address.

1 FWA specifies an
address relative
to a control point.

NOTE

When clearing ECS, word count is the number of 1000₈ word blocks and the FWA is divided by 1000₈.

ww...w Word count.

aa...a First word address (if zero, MB contains list of addresses and word count terminated by a zero word).

MB+i 0000 00ww wwww 00aa aaaa

MB+n 0000 0000 0000 0000 0000

ww...w Word count for area i (i=0 to n-1).

aa...a FWA for area i.

Reply: OR 0000 0000 0000 0000 0000

67 Checksum Specified Area - CKSM

Request: OR 0067 00ff ffff 00 ll llll

ffffff Absolute first word address of checksum area.

ll...l Absolute last word address +1 of checksum area.

MB Checksum compare value.

Reply: OR 0000 0000 0000 0000 ssss

ssss Status:
0 Calculated checksum equals specified checksum.
≠0 Calculated checksum does not equal specified checksum.

MB Calculated checksum.

70 Load Disk Address - LDAM

CPUMTR selects the correct algorithm to use for disk address conversion based on the algorithm index contained in the MST of the equipment being processed.

Request: OR 0070 **** **** **** ****

MB **** 00eq ltlt lsls ****

eq Equipment.

ltlt Logical track.

lsls Logical sector.

Reply: OR 0000 0000 0000 ffff rsrs

MB **** 00eq ltlt lsls ****

MB+1 calu pupu pcpc ptpt psp

MB+2 0000 0000 0000 0000 0000

ffff Status flags:
0004 Storage move request or multi-unit device.
0011 Request channel if not reserved.
6000+ Error detected.
EC EC=NRDE if redefinition.
EC=ADDE if address error.

rsrs Remaining sectors in logical track on current physical unit (used internally by driver).

eq Equipment.

ltlt Logical track.

lsls Logical sector.

calu Control point address + logical unit.

pupu Physical unit.

pcpc Physical cylinder.

ptpt Physical track.

psps Physical sector.

PP hung occurs if illegal algorithm index in MST.

71 Validate Mass Storage - VMSM

Request: OR 0071 00eq tttt ssss ****

eq EST ordinal of device
to process.

tttt Track.

ssss Subfunction:
00 Obtain device
interlock and
validate mass
storage tables
(VEIS).
01 Validate mass
storage tables
(VEQS).
02 Verify track
chain beginning
with track tttt
(VTCS).

Reply: OR 0000 00st **** **

st Status:
00 No error.
01 Track count error.
02 PF count error.
04 Error in permits
chain.
10 Error in catalog
chain.
20 Error in indirect
chain.

72 PP I/O Via CPUMTR - PIOM

Request: OR 0072 **** ** 00fn baba

MB 00t4 00t5 t6t6 t7t7 ****

fn Subfunction code as
defined in COMSCPS.

0 Request ECS
buffer (REBS).

1 Read sector
(RESS).

2 Write sector
(WESS).

baba Relative buffer address in PP I/O buffers.

t4-t7 PP direct cells.

Reply: OR 0000 ecec 0000 0000 baba

 ecec Error code (7777=ECS error).

73 Issue Dayfile Message - DFMM

Request: OR 0073 bbbb 00mc **** **

bbbb Byte count of message. This value must translate to a word count of 5 or less for coded messages and 6 or less for binary messages.

mc Message control:

- 0 Message to master dayfile, control point dayfile, control point message buffer (MSIW).
- 1 Normal message with no message at control point area (NMSN).
- 2 Message to master dayfile only, with job name from message (JNMN).
- 3 Message to control point dayfile only (CPON).
- 4 Message to error log only (ERLN).
- 5 Message to account file only (ACFN).
- 6 Message to error log only with job name from message (EJNN).
- 7 Message to account file with job name from message (AJNN).
- 10 Used internally by CPUMTR to support option 1 (NMSN).
- 11 Message to binary maintenance log (BMLN).

If bit 4 of mc is set, the dayfile buffer is left busy after the message is issued.

MB PP message buffer contains the dayfile message to be issued.

Reply:

If the message is completed:

OR 0000 **** **** **** 0000

If the dayfile buffer is full:

OR 0000 bbbb 00mc *llll* aaaa

bbbb Refer to description of bbbb for request.

mc Refer to description of mc for request.

llll Length of mass storage error processor and direct cells which are to be saved by this PP.

aaaa Address of dayfile buffer pointers. This field is nonzero when PPR must call IDD to dump the dayfile buffer.

CPU FUNCTION REQUESTS

The CPU issues the following requests to the system as needed. These requests are processed directly by CPUMTR.

ABT - ABORT CONTROL POINT

Request: AB T000 0000 0000 0000

CPM - RESIDENT CPM FUNCTIONS

Request: CP M00 ffff 00pp pppp

ffff Function number.

pp...p Parameter.

END - TERMINATE CURRENT CPU PROGRAM

Request: EN D00 0000 0000 0000

LDR - REQUEST OVERLAY LOAD

Request: LD R00 0000 00aa aaaa

aaaaaa Specifies address of parameters for overlay load.

LDV - REQUEST LOADER ACTION

Request: LD V00 0000 0000 0000

Request: LD V00 0000 00aa aaaa

aaaaaa Specifies address of parameters for overlay load.

**LOD - REQUEST AUTOLOAD OF RELOCATABLE FILE,
FILE NAME IN (64g)**

Request: LO D00 0000 0000 0000

MEM - REQUEST MEMORY

Request: ME M00 tttt ttaa aaaa

tttttt Type of request:
 0 CM (abort if not available).
 1 ECS (abort if not available).
 2 CM (do not abort if not available).
 3 ECS (do not abort if not available).

aaaaaa Address of request word.

Request word:

vvvv vvvv vv** **** **bb

vv...v Value of FL request. If zero, return current field length. If negative (-1), return maximum field length. For other values:

Type	Value	Description
CM	> 0	Lower 17 bits indicate FL; bit 18 is no-reduce override.
ECS	> 0	ECS FL.
ECS	- 0	Release all ECS FL.

bb Status bits 00r c0x:
 r Clear CMM status.
 c Indicates CMM type request.
 x Completion bit.

Response: ffff ffff ff00 0000 0001

ff...f Field length or maximum FL.

A monitor call error can occur for the following.

- Illegal address.
- Clear CMM status with r=1 and c=0.
- Clear CMM status with r=1 and c=1 and CMM job step status not set.

A CMM error is issued by IMA if job step CMM status is set and a memory change request is issued that does not have the c bit set.

MSG - SEND MESSAGE TO SYSTEM

Request: MS Gr0 aaaa 00ff ffff

r	Recall (if desired).
aaaa	Message option: 0 Master dayfile. 1 Console line 1. 2 Console line 2. 3 Job dayfile. 4 Error log (system origin or SSJ= only). 5 Account log (SSJ= only). 6 Master dayfile.† 7 Job dayfile.† 10 CPUMTR internal suboption. 11 Maintenance log dayfile (system origin or SSJ= only).
ffffff	Address of message.

PFL - SET (P) AND CHANGE FIELD LENGTH

Request: PF L00 pppp ppff ffff

pppppp	New (P).
ffffff	New FL.

† Provided for compatibility with NOS/BE.

RCL - PLACE PROGRAM ON RECALL

If the programmer desires recall until system recall delay has expired:

Request: RC L00 0000 0000 0000

If the programmer desires recall until bit 0 is set:

Request: RC L20 0000 00aa aaaa

aaaaaa Program is placed on recall until bit 0 of aaaaaa is set.

RFL - REQUEST FIELD LENGTH

Request: RF L00 aaaa aanf ffff

aaaaaa Address of status response.

n No-reduce override.

ff...f Field length; if ff...f=0, current field length is returned.

Reply: 0000 ffff ff00 0000 0001

ff...f Field length.

RSB - READ SUBSYSTEM PROGRAM BLOCK

Request: RS Br0 00qq qqss ssss

r 1 Auto recall selected.

qqqq Subsystem queue priority; if qqqq=0, block is read from absolute core memory or relative to caller's control point area.

ss...s Address of status word in format.

Status

word: 0000 wwww aaaa aabb bbbb

wwww	Number of words to be read.
aa...a	Address to read from in subsystem, low core, or control point area. If address is in subsystem, data must be within field length. If address is in low core, data must be within size of CMR. If address is in control point area, data must be within bounds of control point area.
bb...b	Address of buffer to receive data. [If $(bb...b) < 0$, read is from absolute memory; if $(bb...b) \geq 0$, read is relative to caller's control point area].

Reply: rrrr wwww aaaa aabb bbbb

rrrr	4000 Transfer is successfully completed.
	2000 Subsystem is not present.
wwww	Number of words to be read.
aa...a	Address to read from in subsystem.
bb...b	Address of buffer to receive data.

SIC - SEND INTERCONTROL POINT BLOCK TO SUBSYSTEM PROGRAM

Request: SI Cr0 bbbb bbss ssss

 r 1 Auto recall selected.

 bb...b Address of buffer to be transferred to subsystem.

 ss...s Address of status word in format.

Status word: nnnn nnqq q00 0000 0000

 nn...n Buffer number of subsystem for transfer.

 qqqq Destination subsystem queue priority.

Reply: nnnn nnqq qqrr rrrr rrrr

 nn...n Buffer number of subsystem for transfer.

 qqqq Destination subsystem queue priority.

 rr...r 1 Transfer completed successfully.

 3 Destination subsystem is not present in the system.

 5 Subsystem buffer is full, subsystem is being moved, or subsystem job is advancing.

 7 Block length as specified in first word is larger than that permitted by the subsystem.

 11 Destination buffer is undefined by subsystem.

SPC - PROCESS SPECIAL REQUEST

This function can process special PP requests from any subsystem with queue priority of MXPS+1 or above. It provides the following capabilities:

- PP programs with names starting with I (such as ITA) can be called.
- If no PP is available, control is returned to the running program.

Request: SP C00 0000 00aa aaaa
 aa...a Address of PP request.

Reply: aa...a is not cleared if no PP is available.

TIM - REQUEST SYSTEM TIME

Request: TI M00 rrrr 00ff ffff
 ff...f Address for response.
 rrrr Function number.

For rrrr=0, the system replies with the accumulated CPU time as follows:

Reply: 2sss ssss ssss ssss mmmm
 ss...s Seconds.
 mmm Milliseconds.

For rrrr=1, the system replies with the current date in display code format as follows:

Reply: byy.mm.dd
 b Blank character.
 yy Year minus 1900.
 mm Month.
 dd Day.

For rrrr=2, the system replies with the current time of day in display format as follows:

Reply: bhh.mm.ss.
 b Blank character.
 hh Hours (00 to 23).
 mm Minutes.
 ss Seconds.

For rrrr=3, the system replies with the current Julian date as follows:

Reply: 0000 0000 00yy yydd dddd
 yyyy Year minus 1900 in
 display code.
 dddddd Day (001 to 365) in
 display code.

For rrrr=4, the system replies with the real time in the following format:

Reply: 0000 0000 ssss ssss ssss
 ss...s Seconds * 4096.

For rrrr=5, the system replies with the elapsed time since deadstart as follows:

Reply: ssss ssss mmmm mmmm mmmm
 ss...s Seconds.
 mm...m Milliseconds.

For rrrr=6, the system replies with the current date and time in binary packed format as follows:

Reply: 0000 0000 yymo ddhh mmss
 yy Year minus 1970.
 mo Month.
 dd Day.
 hh Hours.
 mm Minutes.
 ss Seconds.

For rrrr=7, the system replies with the accumulated SRUs as follows:

Reply: 0000 0000 uuuu uuuu uuuu
 uu...u SRUs in milliunits.

For rrrr=11g, the system replies with the number of CPU clock cycles used by the job (CDC CYBER 176 only) as follows:

Reply: 2000 cccc cccc cccc cccc
 cc...c CDC CYBER 176 CPU
 clock cycles.

If the request is made on a system other than CDC CYBER 176, the system replies as follows:

Reply: 6000 0000 0000 0000 0000

For rrrr=12g, the system replies with the number of CPU clock cycles since deadstart (CDC CYBER 176 only) as follows:

Reply: 2000 cccc cccc cccc cccc
 cc...c CDC CYBER 176 CPU
 clock cycles.

If the request is made on a system other than CDC CYBER 176, the system replies as follows:

Reply: 6000 0000 0000 0000 0000

XJP - INITIATE SUBCONTROL POINT

Request: XJ P00 tttt ttaa aaaa

 tttttt CPU time limit (in
 milliseconds) for sub-
 control point.

 aaaaaa Address of subcontrol
 point exchange pack-
 age.

Reply:	Register	Bits	Contents
	X2	59-0	Quarternano units† of CPU time before control was given to subcontrol point.
	X6	59-48	2000g + ef. ef Error flag set by control point.
	X7	59-0	Quarternano units† of CPU time used by subcontrol point.

XJR - PROCESS EXCHANGE JUMP REQUEST

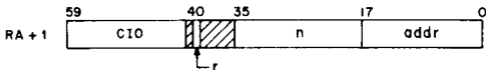
Request: XJ R00 ffff 00aa aaaa

ffff	Function code:
	0 Start job with exchange package at aaaaaa.
	1 Save current exchange package at aaaaaa.
aaaaaa	Address of exchange package.

FUNCTION PROCESSORS

CIO - COMBINED INPUT/OUTPUT

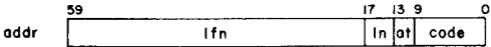
Call:



†Quarternano units = $(1/4 \times 10^{-9})$ CPU multiplier.

r Auto recall, if desired.
 n Count for skip operations.
 addr Address of the FET.

FET Format:



lfn Logical file name.

ln Level number ($0 \leq \text{ln} \leq 17_8$) for an EOR/EOF operation on the file (bits 17 through 14):

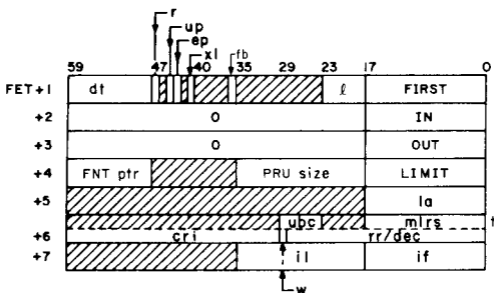
0	EOR operation.
1-16 ₈	Same as level 0.
17 ₈	EOF operation.

at Status information returned by CIO (bits 13 through 10):

01	End of reel/end of device (bit 10).
02	Parity error (bit 11).
11 ₈	Other error (applies only to mass storage files; refer to FET+6, dec field).

code Request/return code (bits 9 through 0):

<u>Bit</u>	<u>Description</u>
9	EOI bit.
4-3	Binary 10 if EOR; binary 11 if EOF.
1	0 if coded file; 1 if binary file.
0	Completion bit (set when operation is complete).



dt Device type.

r Random processing bit (bit 47). This bit is set if random processing will be performed on the mass storage file; r is checked only if $l \neq 0$.)

up User processing bit (bit 45). This bit is set if the user processes magnetic tape end-of-reel conditions; up is checked only if $l \neq 0$.

ep Error processing bit (bit 44). This bit is set if the user processes errors; for disk files, ep is checked only if $l \geq 2$.

xl Extended label processing (bit 41). (xl is 0 for standard label processing and 1 for extended label processing.)

fb File flush bit (bit 36).

l FET length -5.

FIRST First address of buffer.

IN Next input address.

OUT Next output address.

†These fields apply only to S and L format tapes.

LIMIT Limit address of buffer.

la Address of a list of random addresses used with READLS or RPHRLS mass storage operations.

ubc Unused bit count for S and L format tapes.

mlrs Maximum logical record size for S and L format tapes.

cri Current random index (for mass storage files only).

w Random rewrite request (for mass storage files only).

rr/dec rr Random request (for mass storage files only).

If $rr \neq 0$, and the request is a read request, rr is the random index.

If $rr \neq 0$, $w=0$, and the request is a write request, rr is the address for return of random index (the write operation is at the current position).

If $rr \neq 0$, $w=1$, and the request is a write request, rr is the random index.

dec Detail error return code (for mass storage files only):

<u>Code</u>	<u>Type of Error</u>
x001	Parity error.
x002	Address error.
x003	Device status error.
x004	6681 function reject or function code issued to mass storage device timed out with no response.
x005	Device reserved.
x006	Device not ready.
4007	Track limit (device full).

After an error, the file is positioned at the erroneous PRU. If the operation was a read and the system has verified that the proper PRU was read (although it probably contains incorrect data), then x in the code is 0 and the data is placed in the buffer; otherwise, x is 4. If the file is random, the current random index is set as usual.

- il Length of random index area (for mass storage files only).
- if First word address of random index area (for mass storage files only).

OPEN Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
100	READNR	Read, no rewind.
104	WRITENR	Write, no rewind.
120	NR	No rewind.
120	ALTERNR	Alter, no rewind.
140	READ	Read and rewind.
144	WRITE	Write and rewind.
160	ALTER	Alter and rewind.
300	REELNR	Read reel, no rewind.
340	REEL	Read reel and rewind.

CLOSE Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
130	NR	No rewind.
150	REWIND	Rewind.
170	UNLOAD	Rewind and unload.
174	RETURN	Rewind (decrement scheduled tape units).
330	NR	No rewind.
350	REWIND	Rewind.
370	UNLOAD	Rewind and unload.

CLOSER Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
330	NR	No rewind.
350	default	Rewind.
370	UNLOAD	Rewind and unload.

Read and Write Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
000	RPHR	Reads physical record.
004	WPHR	Writes physical record.
010	READ	Buffer read.
014	WRITE	Buffer write.
020	READSKP	Reads skip.
024	WRITER	Writes end of record.
034	WRITEF	Writes end of file.
200	READCW	Nonstop read of PRUs bounded by control words.
204	WRITECW	Nonstop write of PRUs bounded by control words.
210	READLS	Reads nonstop with list (mass storage only).

<u>Code</u>	<u>Name</u>	<u>Description</u>
214	REWRITE	Buffer rewrite in place (mass storage only).
224	REWRITER	End-of-record rewrite in place (mass storage only).
230	RPHRLS	Reads PRUs with list (mass storage only).
234	REWRITEF	End-of-file rewrite in place (mass storage only).
250	READNS	Reads nonstop until buffer is full or EOF or EOI.
260	READN	Reads data from an S or L formatted tape. Reads until buffer full or EOF or EOI.
264	WRITTEN	Writes nonstop on S or L formatted tape.
600	READEI	Reads information until buffer full or EOI.

File Positioning Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
040	BKSP	Backspaces file one logical record.
044	BKSPRU	Backspaces user-specified number of PRUs.
050	REWIND	Rewinds file.
060	UNLOAD	Rewinds and unloads file (if mass storage file, same as RETURN).
070	RETURN	Releases file space and releases file from job control.
110	POSMF	Positions multifile tape set to member of set.
114	EVICT	Releases file space.
240	SKIPF	Skips forward user-specified number of records or files.

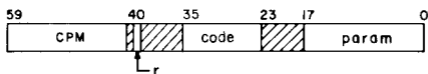
<u>Code</u>	<u>Name</u>	<u>Description</u>
240	SKIPFF	Skips forward user-specified number of records or files.
240	SKIPEI	Positions file at EOI.
640	SKIPB	Backspaces file user-specified number of records.
640	SKIPFB	Backspaces file user-specified number of files.

Data Transfer Macros

<u>Name</u>	<u>Function</u>
READC	Reads coded line from I/O buffer to working buffer.
WRITEC	Writes coded line from working buffer to I/O buffer.
READH	Reads coded line with space fill from I/O buffer to working buffer.
WRITEH	Writes coded line, deleting all trailing spaces from working buffer to I/O buffer.
READO	Reads one word from I/O buffer to X6.
WRITEO	Writes one word from X6 to I/O buffer.
READS	Reads line image to character buffer.
WRITES	Writes line image from character buffer.
READW	Fills working buffer from I/O buffer.
WRITEW	Writes data from working buffer to I/O buffer.

CPM - CONTROL POINT MANAGER

Call:



r Auto recall bit (must be set).
code CPM function code.
param Parameter for the function.

Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
000	SETQP	Sets job queue priority.
001	SETPR	Sets job CPU priority.
002	MODE	Sets exit mode flags.
003	SETASL	Sets account block SRU limit.
	SETJSL	Sets job step SRU limit.
	SETTL	Sets CPU time limit for job step.
004	EREXIT	Sets error exit address; when job aborts, control is returned to this address.
005	CONSOLE	Transfers information to/from console.
006	ROLLOUT	Rolls out job.
007	NOEXIT	Suppresses processing of EXIT statement if job aborts.
010	SETSSM	Sets secure system memory.
011	ONSW	Sets sense switches for user job.
012	OFFSW	Clears sense switches.

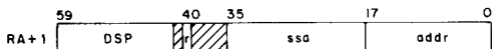
<u>Code</u>	<u>Name</u>	<u>Description</u>
013	GETJN	Gets job name.
014	GETQP	Gets job queue priority.
015	GETPR	Gets job CPU priority.
016	GETEM	Gets exit mode control.
017	GETASL	Gets account block SRU limit.
	GETJSL	Gets job step SRU limit.
	GETTL	Gets job step time limit.
020	---	Sets demand file random index (SSJ= only).
021	SETUI	Sets user index (SYOT only).
022	SETLC	Sets first loader control word.
023	SETRFL	Sets initial field length for job step.
024	GETJCR	Gets last error flag and job control registers.
025	SETJCR	Sets job control registers.
026	SETSS	Sets subsystem (TXOT only).
027	GETJO	Gets job origin code.
030	GETJA	Gets job accounting information.
031	USECPU	Specifies CPU to be used.
032	USERNUM	Returns user number.
033	GETFLC	Reads CM FL control word.
034	EESET	Enters event in system event table (SYOT only).
035	PACKNAM	Writes default pack name in control point area.
036	PACKNAM	Gets pack name from control point area.

<u>Code</u>	<u>Name</u>	<u>Description</u>
037	GETSS	Gets subsystem (TXOT only).
040	VALID	Validates user number (SSJ= only).
041	FAMILY	Enters family name (SYOT only).
042	---	Special CHARGE functions (SSJ= only).
043	DISSJ	Disables SSJ (SSJ= only).
044	VERSION	Returns version name.
045	GETLC	Gets first loader control word.
046	GETGLS	Gets global library set.
047	SETGLS	Sets global library set.
050	MACHID	Returns 2-character machine ID.
051	GETACT	Returns job activity information.
052	SETMFL	Sets job step maximum field length boundary.
053	DISSR	Disables SRU accumulation (SSJ= only).
	RENSR	Enables SRU accumulation (SSJ= only).
054	---	Sets job class (SSJ= only).
055	GETFLC	Reads ECS FL control word.
056	---	Validates user (SSJ= only).
057	GETPPF	Reads permanent file parameters.
060	SETPPF	Sets permanent file parameters (SSJ= only).
061	GETLOF	Reads list of files address.
062	SETLOF	Sets list of files address.

<u>Code</u>	<u>Name</u>	<u>Description</u>
063-072	Reserved	Reserved for CPUMTR.
073	---	Decrements family user count (SYOT only).
074	GETJCI	Reads job control information.
	SETJCI	Sets job control information.
075	PROTECT	Sets/clears ECS FL preservation over job steps and/or user file privacy.
076	SETOV	Sets/clears override flag (SSJ= only).
077	---	Initiates application program accounting.
100	---	Set pause bit.
101	GETSPS	Return status of system origin privileges.
102	---	Decrement security count (SSJ= only).
103	---	Update user access words (SSJ= only).
104	---	Set ZID in control point (SSJ= only).

DSP - DISPOSE PROCESSOR

Call:

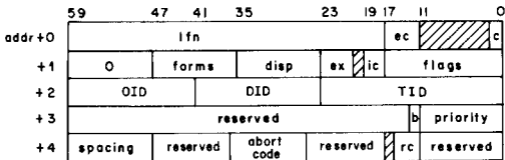


r Auto recall bit (must be set).

ssa System sector address (SSJ= and SYOT only).

addr First word address of parameter block.

The user must define the following parameter block before issuing the DSP call or ROUTE macro.



lfn Local file name of file to be routed.

ec Error code.

c Completion bit.

forms Forms code/input flags:

<u>Bits</u>	<u>Description</u>
47-46	Unused.
45	Do not protect input file.
44	Reserved.
43	Send file to input queue even if job statement error.
42-36	Reserved.

disp Disposition code:

<u>Code</u>	<u>Description</u>
IN	Release file to input queue.
LP	Print on any printer.
LR	Print on 580-12 printer.
LS	Print on 580-16 printer.
LT	Print on 580-20 printer.
PB	Punch system binary.
PH	Punch coded.
PL	Plotter.
PR	Same as LP.
PU	Same as PH.
P8	Punch 80-column binary.
SB	Same as PB.
SC	Rescind prior routing, change file to LOFT.

ex

External characteristics:

<u>Value</u>	<u>Print File</u>	<u>Punch File</u>
0	(default)	(default)
1	Unused	S8
2	A4†	80COL
3	B4†	Unused
4	B6	026
5	A6	029
6	A9	Unused
7	Reserved	Reserved

ic

Internal characteristics:

<u>Value</u>	<u>Description</u>
0	Display code.
1	ASCII code, zero byte terminated.
2	Binary.
3	ASCII code, unit separator terminated.

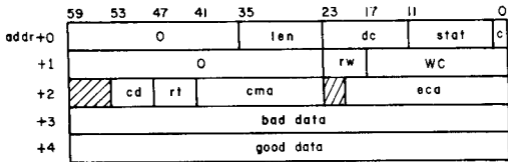
flags

Each bit indicates a parameter is specified:

<u>Bit</u>	<u>Description</u>
17	File name assigned by system is returned to addr+0, bits 59-18.
16	Unused.
15	Spacing code.
14	Repeat count.
13	Reserved.
12	No dayfile message, return error code to addr+0, bits 17-12.
11	Reserved.
10	Forms code.
9	Priority.
8	Internal characteristics.
7	External characteristics.
6	Use extended block.
5	Reserved for installations.
4	Disposition code.
3	OID/DID specified.
2	TID.
1	Route to central site.
0	End-of-job (deferred route).

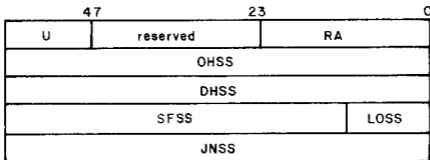
†Not supported. Provided for NOS/BE compatibility.

The 5-word parameter block must be defined as follows:



- len Length of error block.
- dc Device code (EC=ECS).
- stat Status:
 1 Dayfile message limit.
- c Completion bit.
- rw Read/write flag:
 1 Read.
 2 Write.
- wc Word count of block transfer.
- cd Recovery conditions:
 0 Block reread recovered.
 1 Single word reads recovered.
 2 Data not recovered.
- rt Retry count.
- cma CM address of transfer.
- eca ECS address of transfer.

EXTENDED BLOCK FORMAT



U If zero, do not update system sector with extended block.

RA Random address to be entered into the system sector for RHF text strings. If zero, do not change current value.

OHSS PID and job name from origin mainframe.

DHSS LID of destination mainframe and origin user number.

SFSS Family name of user who submitted input file ST OHSS.

LOSS Bits Description

 11 Data in user data block.

 10-3 Reserved.

 2 If set, job originated from link.

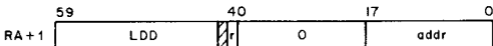
 1 Queue file status.

 0 Not used.

JNSS Job status name.

LDD - LOAD FAST DYNAMIC LOAD DIRECTORIES

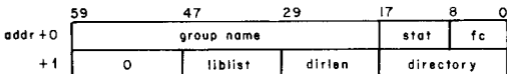
Call (LOADD macro or RA+1):



r Auto recall bit.

addr Address of parameter block.

The parameter block consists of two words in the following format.



group name Name of group of capsules or CCL procedures.

stat Status of call:

<u>Value</u>	<u>Description</u>
0	Function complete without error.
1	Illegal function code.
2	Bad directory address or length.
3	Bad liblist address or length.
1x	Unknown liblist entry or file nonmass storage.
2x	Directory space too small.

fc Function code (bit zero set upon completion):

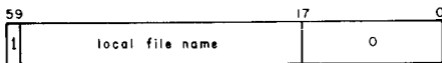
<u>Value</u>	<u>Description</u>
0	Specifies capsule (CAP).
404 ₈	Specifies procedure (PROC).

liblist Address of list of libraries to be searched after global library set.

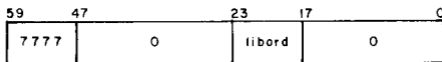
dirlen Length of area to receive generated directory.

directory Address of area to receive generated directory.

The generated directory has one of the following formats. For a local file library the format is:

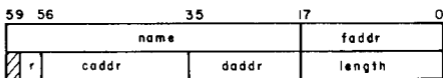


For a system library the format is:



libord The library ordinal of the library containing the capsule or procedure.

For each capsule or procedure found that belongs to the given group, LDD makes the following entry in the directory.



faddr Address, relative to the beginning of the directory, of the word containing the file entry associated with this capsule or procedure.

r Residence of capsule or procedure:
 0 Mass storage.
 1 Mass storage and CM.
 2 Mass storage and ECS.

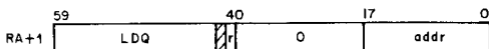
caddr CM or ECS address of capsule or procedure.

daddr Disk address (relative PRU) of capsule or procedure.

length Length of the capsule or procedure, including header, code image, and relocation and linking information, but excluding the prefix table.

LDQ - LOAD QUICKLY

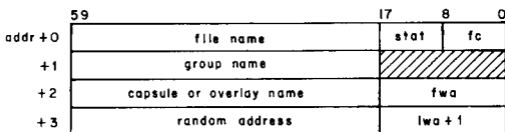
Call (LOADQ macro or RA+1):



r Auto recall bit.

addr Address of parameter block.

The 4-word parameter block must be defined as follows:



file name Name of file containing capsule or overlay.

stat Status of LDQ call (ignored during request). Upon completion of call, stat is set to one of the following values.

<u>Value</u>	<u>Description</u>
0	Function completed without error.
1	Illegal function code.
2	Bad address (must have fwa < lwa+1 < field length).
3	Nonexistent file or file not on mass storage.
4	Bad disk address (out of file bounds).
5	Capsule or overlay not found at specified location.
6	Insufficient space provided for capsule or overlay.

If either errors 5 or 6 occur, the contents of the loadable area are undefined.

fc Function code:
 0 Load capsule.
 2 Load overlay.

LDQ sets bit zero to one when the request is complete.

group name Name of capsule group; zero for overlay load.

capsule or overlay name Name of desired capsule or overlay.

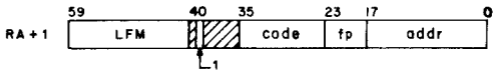
fwa First word address of the area into which the capsule or overlay is to be read.

random address Location of capsule or overlay on specified file.

lwa+1 Last word address plus 1 of area for capsule or overlay.

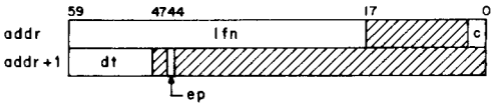
LFM - LOCAL FILE MANAGER

Call:



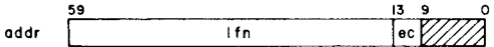
- code Function code.
- fp Function parameter.
- addr Address of the FET.

FET format:



- lfn File name.
- c Completion bit.
- dt Device type.
- ep Error processing bit (bit 44).

After the request is completed, the first word of the FET contains the following information.



- ec Error code.

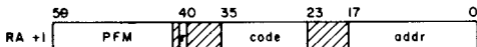
Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
000	RENAME	Renames local file.
001	ASSIGN	Accesses library file.
002	COMMON	Changes file type to library.
004-7 016, 030	RELEASE	Releases file to user-specified output queue.
010	LOCK	Sets write lockout bit for file.
011	UNLOCK	Clears write lockout bit for file.
012	STATUS	Obtains last status of file.
013	STATUS	Returns current position and status of file.
014	REQUEST	Requests operator assignment of equipment to file.
015	REQUEST	Assigns file to user-specified equipment.
017	SETID	Sets identifier code for file.
020	ASSIGN	Accesses library file.
021	ACCSF	Attaches control statement file as read-only file (SSJ= only).
022	ENCSF	Replaces the control statement file.
023	PSCSF	Positions control statement file.
024	LABEL	Assigns file to tape and processes tape.
025	GETFNT	Generates table of FNT/FST entries for all local files.
026	---	Requests tape assignment (SSJ= only).

Code	Name	Description
027	---	Enters VSN file entry (SSJ= only).
031	PRIMARY	Changes primary file.
032	FILINFO	Returns information about a file.
033	SETLFE	Set last file executed (SSJ= only).

PFM - PERMANENT FILE MANAGER

Call:

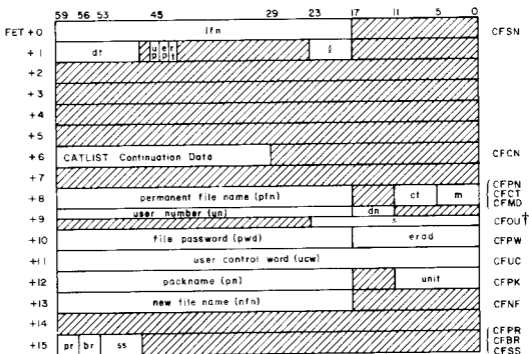


r Auto recall bit (must be set).

code Function code.

addr Address of the FET.

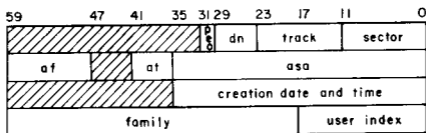
FET format:



†If alternate user name is not specified in a macro call, word 9 of the FET contains the name of the alternate catalog.

lfn Local file name.
 dt Device type.
 up User processing bit (bit 45).
 ep Error processing bit (bit 44).
 rt Real-time parameter bit (bit 43).
 f FET length minus 5.
 pfn Permanent file name.
 ct File category (refer to Permission Modes, File Categories).
 m File access mode (refer to Permission Modes, File Categories).
 un Alternate user number.
 dn Device number for CATLIST option (range is 1 to 77₈).
 s Number of PRUs (octal) desired for the file.
 pwd Optional file password.
 erad Error message return address.
 ucw User control word.
 pn Pack name of auxiliary device.
 unit Number of units.
 nfn New file name.
 pr Preferred residence for file.
 br Backup requirement for file.
 ss Subsystem.

Special request block format:



peo	PFC entry ordinal (ordinal of PFC entry within catalog sector).
dn	Device number for master device.
track + sector	Disk address of catalog entry for file.
af	Alternate storage status flags for (SETAF).
at + asa	Alternate storage type and alternate storage address for file.
creation date and time	Packed date and time file was created.
family	Family to which file belongs.
user index	User index under which file is saved.

Functions

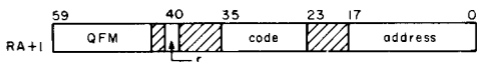
<u>Code</u>	<u>Name</u>	<u>Description</u>
001,CCSV	SAVE	Saves copy of temporary file as indirect access permanent file.
002,CCGT	GET	Generates temporary copy of indirect access permanent file.
003,CCPG	PURGE	Removes file from permanent file system.
004,CCCT	CATLIST	Provides catalog information.
005,CCPM	PERMIT	Grants permission to alternate user to access private file.
006,CCRP	REPLACE	Purges old file and saves new file as indirect access permanent file.
007,CCAP	APPEND	Appends contents of working files to indirect access permanent file.

<u>Code</u>	<u>Name</u>	<u>Description</u>
010,CCDF	DEFINE	Specifies file as direct access permanent file.
011,CCAT	ATTACH	Attaches direct access permanent file to user's control point.
012,CCCG	CHANGE	Alters parameters associated with permanent file.
013,CCUA	ATTACH †	Attaches the specified direct access permanent file to user's control point. The utility attach flag is set in the file's system sector.
014,CCSA	SETASA †	Sets alternate storage address into the catalog entry of the specified file.
015,CCAF	SETAF †	Sets alternate storage flags into the catalog entry of the specified file.
016,CCSD	SETDA †	Sets disk address of local file into the catalog entry of the specified permanent file. Permanent file may not already reside on disk. Local file must reside on appropriate permanent file device.
017,CCDD	DROPDS †	Drops all disk space associated with the specified file. File must have a valid copy on alternate storage.
020,CCAN	ASSIGNPF †	Assigns a local file to the appropriate direct access permanent file device for the specified family and user index.
021,CCOD	OLD	Generates a primary file type (PTFT) temporary copy of indirect access permanent file.

†Special request; SYOT and SSJ= required for this function.

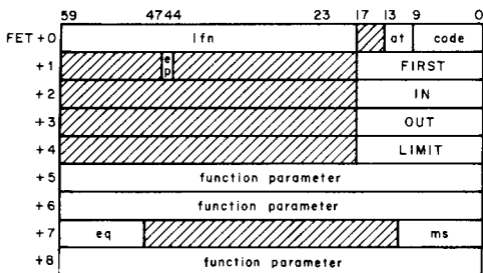
QFM - QUEUE FILE MANAGER

Call:



- r Auto recall bit (must be set).
- code Function code.
- addr Address of FET for the call.

FET format:



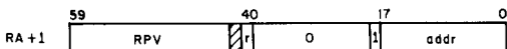
- lfn File name.
- at Abnormal termination code.
- code Completion code.
- ep Error processing bit.
- eq Equipment number.
- ms Mass storage error code.

Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
001	---	Attaches preserved file.
002	---	Detaches preserved file.
003	---	Purges preserved file.
004	---	Sets IQFT file.
005	---	Initializes IQFT file.
006	---	Requeues FNT/FST list.
007	---	Releases FNT/FST list.
010	---	Dequeues list.
015	RERUN	Sets rerun status.
016	NORERUN	Clears rerun status.
017	SUBMIT	Releases file to input queue.
020	---	Assigns file using MSAL control.
021	---	Return new jobname.
022	---	RHF text file processor.

RPV - REPRIEVE PROCESSOR

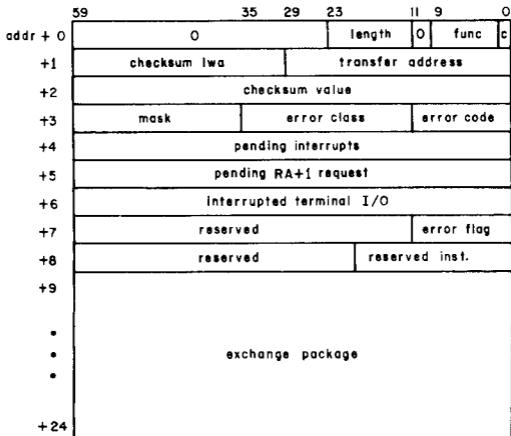
Call:



r Auto recall bit (must be set).

addr First word address of the parameter block.

The format of the parameter is as follows:



length Length of the parameter block including the exchange package area (minimum of 25 words).

func Function code:
 1 Setup.
 2 Program mode resume.
 3 Reset.
 4 Interrupt handler mode resume.

c Completion bit.

checksum End of area to be checksummed.

lwa If 0, no checksum is desired.

transfer address Address to which control is transferred when an interrupt is processed.

checksum value Either set to the checksum of the indicated area when RPV is called or compared against the computed checksum (if checksum lwa is specified) when a retrievable error is processed.

mask Mask bits to be set by call:

<u>mask</u>	<u>Description</u>
001	CPU error exit.
002	PP call error.
004	SRU limit.
010	Operator termination.
020	PP abort.
040	CPU abort.
100	Normal termination.
200	Terminal interrupt.

If the entire mask field is zero, all retrieve processing is cleared.

error class Set to the value of the mask bit which intercepts the indicated error (that is, if error x is intercepted by mask bit n, bit n in the error class field is set).

error code Octal code indicating error encountered.

<u>error code</u>	<u>Description</u>
0	Normal termination.
1	Time limit.
2	CPU error exit.
3	PP abort.
4	CPU abort.
5	PP call error.
6	Operator drop.
7	Operator kill.
10	Operator rerun.
11	Control statement error.
12	ECS parity error.
15	Auto recall error.
16	Job hung in auto recall.
17	Mass storage limit.
20	PP program not in library.
21	I/O limits.
40	Terminal interrupt.

pending interrupts Used to queue pending interrupts (that is, the nth error code sets bit n in this field).

interrupted terminal I/O Contains interrupted input request if an interrupt occurs while a terminal input request is pending.

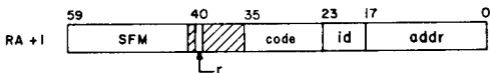
error flag Value of the operating system error flag at the time of the interrupt (refer to Error Flags, section 3).

reserved inst. This area is reserved for use by the installation.

exchange package A copy of the exchange package at the time of the interrupt (unchanged from the executing package at the time of the error). This is the exchange package that is used when the interrupt handler is started.

SFM - SYSTEM FILE MANAGER

Call:



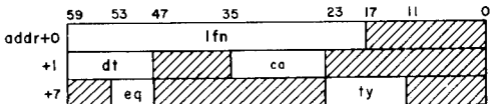
r Auto recall bit.

code Function code.

id File identification number.

addr Address of the FET for the file.

FET format:



lfn File name.
 dt Device type.
 ca Current attribute.
 eq Equipment number.
 ty Dayfile type:
 1 Master dayfile.
 2 Account dayfile.
 3 Error log dayfile.
 4 Maintenance log dayfile.

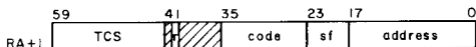
Functions

<u>Code</u>	<u>Mnemonic</u>	<u>Description</u>
0	TAFF	Terminate active dayfile.
1	AMDF	Access master dayfile.
2	AAFF	Access account dayfile.
3	AELF	Access ERRLOG.
4	AMLF	Access maintenance log.
5	AUDF	Access user dayfile.
6	RDTF	Return device type.
7	PADF	Protect active dayfile (SSJ= only).
10	CDBF	Clear dayfile byte (SSJ= only).
11	EFAF	Enter fast attach file (SSJ= only).
12	DFAF	Delete fast attach file (SSJ= only).
13	RFCF	Return file to Cyberlink.
14	ATDF	Attach inactive dayfile.
15	EGFF	Enter global fast attach (SSJ= only).
16	ELFF	Enter link fast attach (SSJ= only).
17	CDRF	Change DM* file to type ROFT.

<u>Code</u>	<u>Mnemonic</u>	<u>Description</u>
20	GDIF	Get device information.
21	SDFP	Set device information.
22	RSDF	Return system data.
23	LTBF	Logical ID processor (SSJ= only).

TCS - TRANSLATE CONTROL STATEMENT

Call:



r Auto recall bit (bit 40).

code Function code:

<u>Code</u>	<u>Macro</u>
004	CONTROL
005	EXCST

sf Subfunction code for CONTROL macro;
field not used for EXCST macro:

<u>sf</u>	<u>Action</u>
00	Read control state- ment, advance pointer.
01	Read control statement if not local file call.
02	Read control statement. (If local file call, set bit 17 of (RA+65g.)
4x	Product set format.

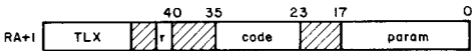
address FWA of buffer to store or read con-
trol statement.

Functions

<u>Code</u>	<u>Name</u>	<u>Description</u>
004	CONTROL	Reads next control statement in control statement stream and transfers it to specified address.
005	EXCST	Specified buffer contains control statement.

TLX - TELEX PROCESSOR

Call:



r	Auto recall bit.
code	Function code.
param	Parameter for the function.

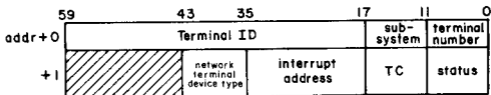
Functions

<u>Code</u>	<u>Description</u>
0	Set interrupt address.
1	Clear interrupt address.
2	Charge statement required.
3	Set character set mode.
4	Set parity.
5	Return terminal status.
6	Set no prompt bit.
7	Clear no prompt bit.
10	Process sort flag change.

Parameter Values

<u>Function Code</u>	<u>Parameter Value</u>	
0,1	Interrupt address.	
2	Not used.	
3	<u>Value</u>	<u>Description</u>
	0	Set normal mode.
	1	Set extended mode.
	2	Restore entry mode.
	10	Set normal mode, reset entry mode.
	11	Set extended mode, reset entry mode.
4	<u>Value</u>	<u>Description</u>
	0	Set even parity.
	1	Set odd parity.
5	Address of terminal status block.	
6,7	Not used.	
10	<u>Value</u>	<u>Description</u>
	0	Clear sort flag.
	1	Set sort flag.

FET Format:



TC Transmission code:

<u>Value</u>	<u>Description</u>
0	ASCII.
1	Correspondence.
2	Nixdorf.
3	Network.

status Status of the terminal connection:

<u>Bit</u>	<u>Description</u>
0	Parity (odd if set).
1	Entry characteristics (extended if set).
2	Current characteristics (extended if set).
3	Full duplex.
4	Tape mode.