

ccm 70-8R

OS-3 REFERENCE MANUAL

FOR OS-3 VERSION 6

September, 1977

OSU

COMPUTER CENTER

Oregon State University
Corvallis, Oregon 97331

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PREFACE

This manual provides an accurate description of control mode instructions, file structure, and job initialization for OS-3 Version 6. It does not include detailed descriptions of particular software systems. A user, with this manual and the manuals about the particular software package he is using should, however, be able to use the system with very little additional assistance.

TABLE OF CONTENTS

1.	INTRODUCTION	2
1.1.	LOGGING IN	2
1.1.1.	FROM TELETYPE	2
1.1.2.	FROM TV (CDC 211 DISPLAY DEVICES)	3
1.1.3.	FROM BATCH (CARD READER, RJE, OR REMOTE BATCH)	4
2.	CONTROL STATEMENTS	6
2.1.	ALGOL	6
2.2.	ASSEM	5
2.3.	ATTACH	7
2.4.	BASIC	8
2.5.	BKSP	8
2.6.	BREAK	8
2.7.	CC	8
2.8.	CLEAR	9
2.9.	COROL	9
2.10.	COMPASS	10
2.11.	COPY	10
2.12.	COSY	12
2.13.	DATE	13
2.14.	DECKEDIT	13
2.15.	DECKLIST	14
2.16.	DELAY	14
2.17.	DELETE	15
2.18.	DESTROY	16
2.19.	DETACH	16
2.20.	DIR	17
2.21.	DO	19
2.22.	DUMP	20
2.23.	EDIT	21
2.24.	ENDSUB	21
2.25.	EQUIP	21
2.26.	FORMS	24
2.27.	FORTRAN	25
2.28.	FP	27
2.29.	FWSP	28
2.30.	GO	28
2.31.	GOTO	29
2.32.	HI	29
2.33.	IF	29
2.34.	JOB	31
2.35.	LABEL	32
2.36.	LL	33
2.37.	LOAD	33
2.38.	LOGIN	37
2.39.	LOGOFF	37
2.40.	LUNLIST	37
2.41.	MERGE	38
2.42.	MESSAGE	38
2.43.	MFBLKS	40
2.44.	MI	40
2.45.	OSCAR	41

2.46.	OVLOAD	41
2.47.	RADAR	42
2.48.	RELEASE	42
2.49.	RENAME	43
2.50.	RESET	43
2.51.	REWIND	44
2.52.	RFP	45
2.53.	SAVE	45
2.54.	SDR	47
2.55.	SEFB	47
2.56.	SEFF	48
2.57.	SEND	48
2.58.	SFBLKS	50
2.59.	SORT	50
2.60.	START	50
2.61.	STATUS	51
2.62.	SUBMIT	53
2.63.	SYSTAT	54
2.63.1.	SYSTAT COMMANDS	54
2.63.1.1.	ABORT	54
2.63.1.2.	BATCH	55
2.63.1.3.	DROP	55
2.63.1.4.	EXIT	56
2.63.1.5.	HELP	56
2.63.1.6.	INPUT	56
2.63.1.7.	JOBLIST	57
2.63.1.8.	LINPUT	58
2.63.1.9.	LOUTPUT	58
2.63.1.10.	OUTPUT	59
2.63.1.11.	STATUS	60
2.63.1.12.	USERS	60
2.63.2.	DISPLAY INFORMATION DEFINITIONS	61
2.63.2.1.	INPUT AND OUTPUT QUEUES	61
2.63.2.2.	REGISTER FILE 778 BIT DEFINITIONS	62
2.63.2.3.	TOBOUND CODES	62
2.63.3.	SYSTAT COMMANDS FOR THE RJE CONSOLE USER	64
2.63.3.1.	AUTO	64
2.63.3.2.	BEGIN	64
2.63.3.3.	GO	64
2.63.3.4.	HOLD	64
2.63.3.5.	KILL	64
2.63.3.6.	RERUN	65
2.63.3.7.	REWIND	65
2.63.3.8.	ROUTE	65
2.64.	TAPEMAX	66
2.65.	TERMINAL	66
2.66.	TIME	66
2.67.	TRAFFIC	67
2.68.	UNABORT	67
2.69.	UNEQUIP	67
2.70.	WFM	68
2.71.	XABORT	68

USER NOTES

1. INTRODUCTION

THIS MANUAL INCLUDES A LIST OF THE OS-3 CONTROL MODE COMMANDS. THIS LIST INCLUDES ALL SYSTEM COMMANDS AND A BRIEF DESCRIPTION OF EACH, WITH PARAMETERS, WHERE APPLICABLE. THIS IS BY NO MEANS MEANT TO BE A TOTAL SYSTEM REFERENCE MANUAL. FOR CERTAIN COMMANDS, SUCH AS LANGUAGES (FORTRAN, ALGOL, ETC.), A REFERENCE MANUAL FOR THE PARTICULAR LANGUAGE OR MODULE IS ALSO NECESSARY.

1.1. LOGGING IN

1.1.1. FROM TELETYPE

IF YOU ARE CALLING FROM OFF-CAMPUS THROUGH A TELEPHONE AND ACOUSTIC COUPLER ARRANGEMENT, DIAL THE TELEPHONE NUMBER CORRESPONDING TO THE BAUD RATE OF YOUR TERMINAL. FOR THE PHONE LINES AVAILABLE INTO OS-3, CALL THE COMPUTER CENTER I/O DESK (754-3584).

TO LOG IN FROM A TELETYPE MODEL 33 OR MODEL 35, SWITCH THE #LINE/LOCAL# SWITCH TO THE #LINE# POSITION. TYPE A CONTROL-A BY HOLDING THE KEY MARKED #CTRL# AND PRESSING THE #A# KEY. IF OS-3 IS ACTIVE, THE TERMINAL SHOULD RESPOND WITH A CARRIAGE RETURN, A LINE FEED, AND A POUND SIGN. IF YOU RECEIVE NO RESPONSE, CHECK YOUR TELETYPE TO MAKE SURE IT IS ON-LINE.

IF YOU RECEIVE A MESSAGE #NO PORT#, OS-3 COULD NOT FIND A FREE LOGICAL TERMINAL TO ASSIGN TO YOUR LINE. TRY AGAIN LATER.

AFTER YOU RECEIVE THE POUND SIGN, YOU HAVE TWENTY SECONDS TO ENTER YOUR JOB NUMBER AND VALIDITY CODE. CORRECT MISTAKES WITH THE BACKSLASH KEY OR THE CONTROL-H (BACKSPACE) KEY. WHEN YOU HAVE ENTERED YOUR ENTIRE JOB NUMBER AND VALIDITY CODE, TYPE A CARRIAGE RETURN TO TELL THE COMPUTER YOU HAVE FINISHED. OS-3 WILL BLOT OUT THE AREA SO IT IS UNREADABLE AND THEN, IF THE JOB NUMBER WAS LEGAL, PRINT THE LOGON HEADER, CONSISTING OF THE DATE, TIME, YOUR TERMINAL NUMBERS, AND THE AVAILABLE MONEY LEFT ON YOUR ACCOUNT. UNDER THIS LINE WILL BE PRINTED ANY PUBLIC MESSAGES FOR THE DAY, FOLLOWED BY ANY PRIVATE MESSAGES TO YOUR SPECIFIC ACCOUNT. WHEN ALL MESSAGES HAVE BEEN PRINTED, THE TERMINAL WILL RESPOND WITH A CARRIAGE RETURN, LINE FEED AND A POUND SIGN TO SIGNIFY READINESS TO ACCEPT YOUR FIRST COMMAND.

IF YOU RECEIVE A MESSAGE OF THE FORM:

YOU ARE ALSO DETACHED ON TERMINAL NNN

YOU MAY ENTER AN #ATTACH# AND BE RECONNECTED TO YOUR PREVIOUS JOB AT THIS TIME. FOR THE ACTION OF THE ATTACH COMMAND AND ANY ERROR MESSAGES, SEE THE SECTION ON ATTACH.

IF THE MESSAGE #ILLEGAL JOB/USER NUMBER# IS PRINTED, THE JOB NUMBER AND/OR VALIDITY CODE ENTERED WERE INCORRECT. TRY AGAIN AND IF YOU STILL RECEIVE THE MESSAGE, TRY CONTACTING THE JOB NUMBER CLERK IF YOU FEEL THE NUMBER SHOULD BE VALID.

IF YOU RECEIVE THE MESSAGE #INSUFFICIENT TIME#, THE CPU TIME AVAILABLE ON THE ACCOUNT IS EXHAUSTED.

1.1.2. FROM TV (CDC 211 DISPLAY DEVICES)

LOGGING IN FROM A TV, SOMETIMES REFERED TO AS A CRT, IS A BIT DIFFERENT. TV'S HAVE NO CONTROL KEY, AND DO NOT COMMUNICATE IN THE #ASCII# CODE SET USED BY TELETYPES.

TO ENTER YOUR JOB NUMBER AND VALIDITY CODE TO A TV, FIRST CLEAR THE SCREEN. THIS IS DONE BY PRESSING THE BLUE #CLEAR# BUTTON FOUND ON THE UPPER LEFT-HAND PORTION OF THE KEYBOARD. WITH THE SCREEN CLEAR AND THE CURSOR IN THE UPPER LEFT-HAND PORTION OF THE SCREEN, ENTER A # CHARACTER (SHIFT-7). THIS IS THE SUBSTITUTE FOR THE CONTROL-A KEY FOUND ON THE TELETYPE. ANY TIME THIS CHARACTER IS FOUND IN THE EXTREME UPPER LEFT-HAND CHARACTER POSITION OF THE SCREEN, IT CAUSES CONTROL MODE (THE CONTROL STATEMENT PROCESSOR) TO READ THE SCREEN WHEN THE NEXT #SEND# IS PRESSED. THIS WILL CAUSE THE CURRENTLY RUNNING PROGRAM TO STOP EXECUTION RETURN TO THE CONTROL MODE PROGRAM TO READ THE DATA ON THE SCREEN.

AFTER TYPING THE # CHARACTER, ENTER YOUR JOB NUMBER AND VALIDITY CODE ON THE SAME LINE. YOU MAY CORRECT ANY TYPING MISTAKES BY USING THE FOUR KEYS IN THE LOWER LEFT-HAND PORTION OF THE KEYBOARD. THE #RESET# KEY WILL RESET THE CURSOR TO THE FIRST CHARACTER POSITION ON THE SCREEN (SAME AS A #CLEAR# BUT THE CURRENT INFORMATION IS STILL DISPLAYED ON THE SCREEN). THE #LINE-SKIP# WILL CAUSE THE CURSOR TO MOVE DOWN ONE LINE AND BEGIN ON THE FIRST CHARACTER OF THAT LINE. THE #BKSP# KEY WILL MOVE THE CURSOR BACK ONE CHARACTER SO IT IS UNDER THE PREVIOUS CHARACTER. TYPING A CHARACTER AT THIS POINT WILL REPLACE THE CHARACTER ABOVE THE CURSOR AND MOVE THE CURSOR RIGHT ONE POSITION. THE #SKIP# KEY WILL MOVE THE CURSOR TO THE RIGHT ONE CHARACTER POSITION WITHOUT CHANGING THAT CHARACTER.

AFTER YOU HAVE ENTERED THE (#), YOUR CORRECT JOB NUMBER, AND VALIDITY CODE ON THE SCREEN, PRESS THE #SEND# BUTTON. THIS IS THE BLUE BUTTON ON THE UPPER RIGHT-HAND PORTION OF THE KEYBOARD. THIS DIRECTS THE COMPUTER TO READ THE INFORMATION YOU HAVE DISPLAYED ON THE SCREEN, UP TO AND INCLUDING THE SEND MARK (THE TRIANGLE DISPLAYED AFTER PRESSING THE #SEND# BUTTON).

IF THE JOB NUMBER AND VALIDITY CODE ARE VALID, THE SCREEN WILL BE CLEARED AND A DISPLAY CONTAINING THE DATE, TIME, YOUR TERMINAL NUMBERS, AND THE MONEY AVAILABLE ON YOUR ACCOUNT WILL BE DISPLAYED. ON THE NEXT LINE ANY PUBLIC MESSAGES AND/OR PRIVATE MESSAGES WILL BE DISPLAYED. WHEN THIS DISPLAY APPEARS, YOU MAY BEGIN ENTERING CONTROL STATEMENTS.

IF THE MESSAGE #ILLEGAL JOB/USER NUMBER# APPEARS, THE JOB NUMBER AND/OR VALIDITY CODE ENTERED WERE INCORRECT. TRY AGAIN AND IF YOU STILL RECEIVE THE MESSAGE, TRY CONTACTING THE JOB NUMBER CLERK IF YOU FEEL THE NUMBER SHOULD BE VALID.

IF YOU RECEIVE THE MESSAGE #INSUFFICIENT TIME#, THE CPU TIME AVAILABLE ON THE ACCOUNT IS EXHAUSTED.

1.1.3. FROM BATCH (CARD READER, RJE, OR REMOTE BATCH)

A BATCH JOB IS COMPOSED OF A SET OF CARDS, THE FIRST OF WHICH IS A #JOB# CARD. THIS CARD CONTAINS THE SYMBOL #IJOB# IN COLUMNS ONE TO FOUR AND A COMMA IN COLUMN FIVE. AFTER THIS SYMBOL MAY BE AN OPTIONAL QUEUE FOR THE JOB'S DESTINATION. THESE QUEUES DETERMINE THE TIME AND RESOURCES THE JOB WILL NEED FOR EXECUTION. FOR MORE INFORMATION ABOUT QUEUE TYPES REFERE TO JOB UNDER CONTROL STATEMENTS.

FOLLOWING THE JOB CARD ARE ONE OR MORE CONTROL STATEMENT CARDS WITH POSSIBLE INTERMIXED DATA CARDS. THE FOLLOWING IS AN EXAMPLE OF A JOB TO COMPILE AND RUN A SMALL FORTRAN PROGRAM:

```

[JOB,FAST,730123,FROG,ROBERT SCHWARTZ
[TIME=5
[FORTRAN,L,R
        PROGRAM SMALL
C
C A SMALL PROGRAM TO PRINT THE SQUARE ROOTS
C FROM THE DATA CARDS FOLLOWING THE PROGRAM.
C
10      READ(60,100)X
C
C IF END OF FILE, QUIT
C
        IF(EOF(60))CALL EXIT
        SR=SQRT(X)
        WRITE(61,100)X,SR
        GOTO 10
100     FORMAT(F2.0)
101     FORMAT(X,F2.0,X,F6.4)
        END

[[
10
13
12
  5
24
[[
[LOGOFF

```

THE #FAST# ON THE JOB CARD IS USED TO TELL OS-3 THE JOB WILL REQUIRE LITTLE CPU TIME AND SCRATCH FILE SPACE. THIS WILL SPEED THE JOB'S PROCESSING AND POSSIBLY ALLOW IT TO PROCEED AHEAD OF LARGER JOBS CURRENTLY EXECUTING IN THE SYSTEM.

FOR A DETAILED LIST OF THE POSSIBLE QUEUES A JOB MAY BE DIRECTED TO, SEE THE CONTROL STATEMENT, #JOB#.

THE #([# CHARACTER REPRESENTS THE 7-8 MULTIPUNCH NEEDED TO IDENTIFY THE CARD AS A CONTROL STATEMENT. THE CARD CONTAINING A #([[# IS AN END-OF-FILE (EOF) CARD.

TERMINATING THE DECK IS A #[LOGOFF#. THIS CARD FUNCTIONS THE SAME AS THE #LOGOFF# COMMAND USED FROM REMOTE TERMINALS. IT SIGNALS TO OS-3 THAT THERE ARE NO MORE CARDS TO BE READ AFTER THAT POINT. THIS INSURES THAT IF THE NEXT USER SUBMITTING A JOB FROM BATCH LEAVE HIS #[JOB# CARD OFF, YOU WILL NOT BE CHARGED FOR PROCESSING HIS CARDS. (OS-3 WOULD THINK THAT SINCE NO #[JOB# CARD WAS FOUND, THE NEXT USERS DECK MUST BE PART OF YOUR DECK.)

2. CONTROL STATEMENTS

THE FOLLOWING ARE CONTROL STATEMENTS AVAILABLE UNDER OS-3, LISTED IN ALPHABETICAL ORDER.

2.1. ALGOL

THIS COMMAND LOADS THE ALGOL-60 COMPILER. PARAMETERS AVAILABLE:

A=<LUN> ASSEMBLY LISTING OUTPUT.
I=<LUN/NAME> SOURCE INPUT SPECIFIER.
L=<LUN> SOURCE LISTING OUTPUT UNIT.
P=<LUN> BINARY DECK PUNCH OUTPUT.
R LOAD AND RUN PROGRAM AFTER COMPILATION IF NO SEVERE ERRORS.
X=<LUN> BINARY DECK OUTPUT UNIT.

NOTE: THE USE OF THE #R# PARAMETER IS DISCOURAGED SINCE THIS RESULTS IN A #SEGMENTED# RUN OF THE PROGRAM WHICH SIMULATES THE USE OF A SMALL COMPUTER THROUGH THE USE OF MANY OVERLAYS AND SEGMENTS.

2.2. ASSEM

THIS COMMAND CALLS THE OS-3 ASSEMBLER. PARAMETERS AVAILABLE:

D=<LUN/NAME> DIAGNOSTIC OUTPUT FILE.
I=<LUN/NAME> SOURCE INPUT SPECIFIER.
L=<LUN/NAME> SOURCE LISTING OUTPUT UNIT.
P=<LUN/NAME> BINARY DECK PUNCH OUTPUT.
R=<LUN/NAME> GENERATES A CROSS REFERENCE OF SYMBOLS USED IN PROGRAM.
S=<LUN/NAME> SYMBOL OUTPUT FROM ASSEMBLY.
X=<LUN/NAME> BINARY OUTPUT FILE.

DEFAULT VALUE IF <LUN/NAME> NOT SPECIFIED:

D - STANDARD OUTPUT UNIT (61)
I - STANDARD INPUT UNIT (60)
L - STANDARD OUTPUT UNIT (61)
P - STANDARD PUNCH (62)
R - L UNIT OR IF NO L THEN LUN 61
S - X UNIT OR IF X NOT USED THEN P UNIT
X - STANDARD BINARY OUTPUT (56)
- (EQUIPPED IF NOT ALREADY DEFINED)-

2.3. ATTACH

THIS COMMAND WILL RE-CONNECT A USER TO A TERMINAL WHICH HAS BEEN #DETACHED#. THERE ARE THREE WAYS FOR A TERMINAL TO BE #DETACHED#.

- 1) THE USER TYPES #DETACH# WHILE IN CONTROL MODE.
- 2) THE USER#S TELEPHONE BECOMES HUNG UP WITHOUT THE USER LOGGING OFF.
- 3) THE USER#S TELETYPE SIGNAL PLUG IS DISCONNECTED FOR MORE THAN THIRTY SECONDS. (PRESSING THE #BREAK# KEY FOR MORE THAN THIRTY SECONDS WILL DETACH A TERMINAL.)

TO PERFORM THE ATTACH COMMAND, TYPE:

ATTACH,<LOGICAL TERMINAL NUMBER>

-OR-

ATTACH

IF THE ATTACH IS SUCCESSFUL, A MESSAGE: **ATTACH COMPLETE** WILL BE PRINTED AND YOU MAY THEN CONTINUE FROM WHERE YOU WERE INTERRUPTED. TO CONTINUE AN INTERRUPTED PROGRAM, USE THE #GO# OR #MI# COMMAND WHERE APPROPRIATE.

THE SECOND FORM REQUESTS THE SYSTEM TO FIND THE HIGHEST TERMINAL NUMBERED JOB WHICH IS DETACHED UNDER YOUR JOB NUMBER AND VALIDITY CODE. IF NONE ARE FOUND, THE MESSAGE:

ILLEGAL TERMINAL

IS PRINTED AND NO CHANGE OF STATUS HAS OCCURRED.

THERE ARE TWO POSSIBLE ERROR MESSAGES:

- 1) LEGAL FROM TTY ONLY
THE USER MUST BE AT A TELETYPE COMPATABLE DEVICE TO DO AN ATTACH.
- 2) ILLEGAL TERMINAL
THE LOGICAL TERMINAL SPECIFIED BY THE ATTACH COMMAND WAS EITHER
 - A) NON-EXISTENT.
 - B) NOT ONE GENERATED BY THE USER (JOB/USER NUMBER DID NOT MATCH.)
 - C) NOT DETACHED.

2.4. BASIC

THIS COMMAND CAUSES OS-3 TO LOAD THE BASIC INTERACTIVE COMPILER. FOR MORE INFORMATION ABOUT BASIC, SEE THE COMPUTER CENTER MANUAL CCM-71-08.

2.5. BKSP

THIS COMMAND CAUSES EACH OF THE LOGICAL UNITS SPECIFIED IN THE PARAMETER LIST TO BE BACKSPACED ONE PHYSICAL RECORD. IF THE LUN IS NOT A FILE OR A MAGNETIC TAPE OR THE FILE IS IN DESTRUCTIVE READ MODE, THE COMMAND WILL RESULT IN AN ERROR MESSAGE:

ILLEGAL FUNCTION LUN NN.

FORMAT:

BKSP,LUN,LUN,...,LUN
BKSP,LUN(NUMBER OF TIMES),...,ETC.

THE ABOVE FORMS MAY BE COMBINED. EXAMPLE:

BKSP,10,12,13(45),1(2),3

2.6. BREAK

THIS CONTROL MODE COMMAND WILL CAUSE A SIMULATED BREAKPOINT TO RADAR, THE ON-LINE DEBUGGING AID. ALL REGISTERS ARE RETAINED WHEN RADAR TAKES CONTROL, AND THE USER CAN THEN SINGLE-STEP, LOOK AT, OR MODIFY HIS PROGRAM, OR DUMP CERTAIN AREAS OF HIS CORE MEMORY, REGISTER FILES OR REGISTERS.

PLEASE DO NOT CONFUSE THIS COMMAND WITH THE #BREAK# KEY ON THE TELETYPE KEYBOARD.

2.7. CC

THE CC COMMAND IS USED TO PROVIDE A COMMENTING FEATURE FOR BATCH CONTROL CARD DECKS. IN ADDITION, IT PROVIDES A LABEL FOR TRANSFER FROM GOTO AND IF STATEMENTS. EXCEPT FOR THESE TWO FUNCTIONS, IT IS BASICALLY A DO-NOTHING COMMAND, AS IT HAS NO EFFECT ON THE EXECUTION OF A JOB.

WHEN USED IN BATCH JOBS, THE CC STATEMENT IS LISTED ON THE STANCARD OUTPUT UNIT, PROVIDING DOCUMENTATION OR COMMENTS FOR THE JOB.

WHEN USED IN CONJUNCTION WITH THE IF AND GOTO STATEMENTS, IT HAS A MORE IMPORTANT FUNCTION. THE FIRST

ALPHANUMERIC STRING ENCOUNTERED, BEYOND THE #CG# AND DELIMITER, IS USED AS A LABEL FOR TRANSFER FROM IF AND GOTO STATEMENTS. FOR FURTHER DETAILS SEE THE SECTIONS ON IF AND GOTO STATEMENTS.

THIS COMMAND IS LEGAL FROM TTY, TV, BATCH, TASK, AND DO UNITS.

EXAMPLES:

CC THIS IS A COMMENT AND DOES NOTHING
CC ZAP (ZAP MAY BE A LABEL FOR IF AND GOTO STATEMENTS)

2.8. CLEAR

THIS COMMAND WILL CLEAR THE BINARY RECORD AND FILE MARK PROCESSED BITS IN THE SPECIFIED FILE OR FILES STATUS.

EXAMPLES: CLEAR,1
CLEAR,1,2,10,21

2.9. COBOL

THIS COMMAND LOADS THE CDC COBOL COMPILER. FOR INFORMATION ABOUT COBOL, AND THIS VERSION OF THE COMPILER (2.0), SEE THE CDC LOWER 3000 COBOL REFERENCE MANUAL.

PARAMETERS AVAILABLE:

- I - SPECIFIES THE INPUT UNIT/NAME WHICH CONTAINS THE PROGRAM TO BE COMPILED.
- L - SPECIFIES THE OUTPUT UNIT ON WHICH THE LISTING AND DIAGNOSTICS ARE TO BE PLACED. THIS CAN ONLY BE A LUN. IF L IS USED BUT NO LUN IS PRESENT, THE LISTING IS PLACED ON LUN 61.
- M - THIS CAUSES THE COMPILER TO PRODUCE A MEMORY MAP OF THE PROGRAM'S DATA DIVISION STORAGE IF NO SEVERE DIAGNOSTICS WERE DETECTED IN COMPILATION. THE MAP IS WRITTEN ON THE L UNIT IF A LISTING WAS REQUESTED, OR ON LUN 61 IF NOT.
- O - THIS CAUSES THE COMPILER TO PRODUCE A LISTING OF THE OBJECT CODE PRODUCED IF NO SEVERE DIAGNOSTICS WERE DETECTED DURING COMPILATION. THE OBJECT LISTING IS WRITTEN ONTO THE L UNIT IF IT WAS SPECIFIED OR ONTO LUN 61 IF NOT.
- P - THIS REQUESTS THE COMPILER TO PUNCH A BINARY OBJECT DECK ONTO THE SPECIFIED UNIT. IF NO UNIT IS SPECIFIED, LUN 62 IS ASSUMED.

X - THIS CAUSES THE COMPILER TO PRODUCE AN OBJECT DECK ONTO THE SPECIFIED UNIT. IF NO LUN IS SPECIFIED, LUN 56 IS ASSUMED. IF THE LUN HAS NOT BEEN DEFINED IT'S EQUIPPED TO A FILE.

EXAMPLE CALLS:

COBOL,I=PROGRAM2,X,L
COBOL,L,M,P
COBOL,L=10,X,0

2.10. COMPASS

COMMAND TO LOAD THE CDC COMPASS ASSEMBLER. THE PARAMETERS FOR #COMPASS# ARE THE SAME AS THOSE FOR #ASSEM# WITH THE ADDITION OF THE FOLLOWING:

M - #MACRO# LIBRARY INPUT UNIT.
ANY #LIBM# (LIBRARY MACRO) REFERENCES WILL ATTEMPT TO RETRIEVE THE NEEDED MACROS FROM THIS UNIT. IT MAY ONLY BE A LUN.

2.11. COPY

CALLS THE OS-3 GENERAL PURPOSE COPY UTILITY. AVAILABLE PARAMETERS:

C - NUMBER OF RECORDS TO COPY FROM INPUT UNIT TO OUTPUT UNIT.

F - NUMBER OF FILES TO COPY.
THIS PARAMETER HAS TWO FORMS. THE FIRST IS F=N. USING THIS FORM WILL TELL COPY TO TRANSFER RECORDS FROM THE INPUT UNIT TO THE OUTPUT UNIT UNTIL N FILE MARKS HAVE BEEN COPIED. SPECIFYING F=0 WILL TELL COPY TO TRANSFER ALL RECORDS (UNTIL END OF DATA IS ENCOUNTERED).

THE SECOND FORM IS F(N). THIS INSTRUCTS COPY TO TRANSFER RECORDS FROM THE INPUT UNIT TO THE OUTPUT UNIT UNTIL N CONSECUTIVE FILE MARKS HAVE BEEN COPIED. SPECIFYING F(0) WILL HAVE THE SAME EFFECT AS F=0.

THE DEFAULT FOR THE F PARAMETER IS F=1 FOR MAGNETIC TAPES AND TV'S AND F=0 FOR ALL OTHERS.

I - INPUT UNIT (LUN/NAME) FROM WHICH TO COPY.
DEFAULTS TO LUN 100.

N - LIST NUMBER OF RECORDS COPIED.
COPY WILL PRINT A MESSAGE STATING HOW MANY RECORDS HAVE BEEN COPIED. THE MESSAGE WILL BE:

NNNNN RECORDS COPIED

- O - OUTPUT UNIT FOR COPY (LUN/NAME).
DEFAULTS TO LUN 61 FROM BATCH/TASK AND LUN 101
FROM TV AND TTY.
- P - PARITY FOR OUTPUT FILE.
(P=0 -> BCD, P=1 -> BINARY) IF NOT SPECIFIED,
RECORDS WRITTEN ONTO THE OUTPUT FILE WILL BE IN
THE SAME MODE AS THEY WERE READ FROM THE INPUT
FILE.
- S - SHIFT PARAMETER.
SPECIFIES NUMBER OF CHARACTER POSITIONS TO SHIFT
A RECORD BEFORE OUTPUT TO THE #O# UNIT. IF S>0
THEN SHIFT RIGHT. IF S<0 THEN SHIFT LEFT. IF
S=0 THEN NO SHIFT. S DEFAULTS TO 4 IF OUTPUT
UNIT IS AN LP OR TTY.
- T - TRUNCATION PARAMETER.
SPECIFIES NUMBER OF WORDS TO TRUNCATE RECORD
BEFORE WRITING IT ONTO THE #O# UNIT. NOTE:
TRUNCATION IS CALCULATED BEFORE THE #SHIFT# IS
APPLIED. DEFAULTS TO 250 WORDS ON TV (CDC 211)
AND TO ENTIRE INPUT RECORD SIZE ON ALL OTHER
DEVICES.
- V - VARIABLE LENGTH RECORDS ON INPUT UNIT.
RECORDS READ IN BCD MODE WILL HAVE TRAILING
BLANKS REMOVED. RECORDS READ IN BINARY MODE
WILL HAVE TRAILING WORDS OF ZEROS REMOVED.
DEFAULTS TO NO TRAILING WORDS REMOVED.

AS WITH MOST OS-3 SYSTEMS PROGRAMS, SPECIFYING A LOGICAL
UNIT IN THE RANGE OF 50 TO 59 FOR THE INPUT OR OUTPUT
LUN WILL CAUSE THAT LUN TO BE REWOUND BEFORE USE.
SPECIFYING A #/R# PARAMETER ON THE LUN WILL FORCE
REWINDING BEFORE USE. IF THE PARAMETER #/D# IS GIVEN IN
PLACE OF THE #/R#, COPY WILL REWIND AND SET DESTRUCTIVE
READ ON THE LUN BEFORE USE. USERS ARE CAUTIONED ABOUT
USING THIS PARAMETER, AS IT IS NON-REVERSIBLE. IT
SHOULD ONLY BE USED WHEN THE CONTENTS OF THE INPUT UNIT
ARE NO LONGER NEEDED.

EXAMPLE CALLS TO COPY:

```
CCPY  
COPY,I=1,C=2  
COPY,I=ZORCH,O=ZAP,F=2  
COPY,I=5/R,O=3/R,N,C=100,T=15,S=-10  
COPY,I=55,O=20  
COPY,I=4/D,O=5/R,F(21)
```

ERROR MESSAGES:

INPUT UNIT IS ABNORMAL/UNAVAILABLE

THIS INDICATES AN IRRECOVERABLE PARITY ERROR OCCURRED ON THE #I# UNIT OR NAME. THE #I# UNIT IS LEFT POSITIONED JUST AFTER THE BAD RECORD (IF A LUN) AND NO MORE INFORMATION HAS BEEN COPIED. FROM BATCH, THE USER WILL BE ABORTED.

INPUT RECORD TOO LARGE

THE LAST RECORD READ FROM THE #I# UNIT WAS LARGER THAN COULD BE CONTAINED IN MEMORY TO ALLOW COPY TO WRITE IT TO THE #O# UNIT. AS WITH THE ABOVE ERROR MESSAGE, THE #I# UNIT WILL BE POSITIONED JUST AFTER THE BAD RECORD AND THAT RECORD WILL NOT HAVE BEEN COPIED. AS ABOVE, THE USER WILL BE ABORTED IF BATCH. (THE LARGEST RECORD THAT CAN BE COPIED IS ABOUT 62000 WORDS LONG.)

2.12. COSY

THIS LOADS THE CDC COMPRESSED SYMBOLIC SOURCE EDITOR. AVAILABLE PARAMETERS:

- I - SPECIFIES THE EDITING COMMAND INPUT UNIT. IF NO LUN IS SPECIFIED, LUN 60 IS USED.
- L - SPECIFIES THE LOG UNIT ONTO WHICH ALL EDITING INFORMATION AND ERROR MESSAGES ARE WRITTEN. IF NO LUN IS SPECIFIED, LUN 61 IS ASSUMED.
- Z - THE FREE-FORM FLAG PARAMETER. IF SPECIFIED, CAUSES COSY TO RELAX THE REQUIREMENT THAT ALL COMMANDS START IN COLUMN 10. IT IS ESPECIALLY USEFUL WHEN USING COSY FROM A REMOTE TERMINAL WHERE COUNTING BLANKS CAN BECOME VERY TIRESOME.

/=<CHARACTER>

SPECIFIES THE COSY COMMAND CARD CHARACTER IS TO BE CHANGED TO <CHARACTER>. (DEFAULT TO #/#)

EXAMPLE CALLS:

```
COSY,LOG  
COSY,I=10,L=20,Z  
COSY,INPUT=1,LOG,/=#
```

FOR MORE INFORMATION ON COSY SEE THE COMPUTER CENTER PUBLICATION CCM-70-6.

2.13. DATE

THIS COMMAND CALLS THE DATE UTILITY. THIS PROGRAM WILL PRINT THE CURRENT DATE AND TIME ONTO THE SPECIFIED LUN. IF NO LUN IS USED, LUN 61 IS ASSUMED. EXAMPLE:

```
DATE
OCTOBER 8, 1974 7:45:34 AM
```

```
DATE,10
```

2.14. DECKEDIT

THIS COMMAND CALLS THE OS-3 BINARY DECK EDITOR. DECKEDIT IS USED TO PREPARE AND UPDATE #LIBRARY# FILES CONSISTING OF ONE OR MORE BINARY DECKS. THIS IS ESPECIALLY USEFUL FOR USERS WISHING TO CREATE A SUBROUTINE LIBRARY TO BE LOADED WITH VARIOUS MAIN PROGRAMS.

PARAMETERS AVAILABLE ARE:

- L - USED TO SPECIFY THE LIBRARY TO BE CREATED OR CHANGED.
- N - USED TO SPECIFY UNITS FOR NEW SUBPROGRAM INPUT.
- D - USED TO SPECIFY WHICH SUBPROGRAMS ARE TO BE DELETED.
- P - USED TO SPECIFY PUNCH UNIT AND SUBPROGRAMS TO BE PUNCHED.
- I - USED TO SPECIFY WHERE SUBPROGRAMS ARE TO BE INSERTED WITHIN THE LIBRARY.
- H - USED TO SPECIFY THAT SUBPROGRAMS ARE TO BE HELD. #HELD# SUBPROGRAMS REPLACE OLD COPIES OF THE SAME ROUTINES IN THE SAME POSITION WITHIN THE LIBRARY.
- \$ - USED TO SPECIFY #END OF PARAMETERS#.

FOR FURTHER INFORMATION ON DECKEDIT SEE THE COMPUTER CENTER PUBLICATION CCM-68-44R.

2.15. DECKLIST

THIS COMMAND CALLS THE OS-3 BINARY DECK LISTER. THE PURPOSE OF DECKLIST IS TO DISPLAY THE SUBPROGRAM NAMES (IDC), ENTRY POINT NAMES (EPT), EXTERNAL SYMBOLS (XNL), TRANSFER SYMBOLS (TRA), AND HOLLERITH INFORMATION ON EXS CARDS, FOR ALL SUBPROGRAMS CONTAINED ON A BINARY LIBRARY FILE.

PARAMETERS AVAILABLE ARE:

I - USED TO SPECIFY INPUT UNIT.

L - USED TO SPECIFY LISTING UNIT.

FOR FURTHER INFORMATION ON DECKLIST SEE THE COMPUTER CENTER PUBLICATION CCM-59-3.

2.16. DELAY

ALLOWS THE USER TO SPECIFY THE DELAY TIME FOR HIS TERMINAL TO DO A COMPLETE CARRIAGE RETURN. SOME TYPES OF TERMINALS ARE UNABLE TO COMPLETE A CARRIAGE RETURN IN ONE CHARACTER TIME. THE #DELAY# COMMAND CAN SET THIS DELAY TO 0 CHARACTERS (THE DEFAULT) OR UP TO 7 CHARACTERS OR ANY VALUE IN BETWEEN.

FORMAT OF THE COMMAND:

DELAY=N

WHERE N IS THE NUMBER OF CHARACTERS DELAY TO WAIT (FROM 0 TO 7).

WHAT IS ACCOMPLISHED BY THE DELAY COMMAND:

CONTROL MODE WILL PLACE INTO BITS 12-14 OF THE USER'S REGISTER FILE 77B THE NUMBER GIVEN ON THE DELAY COMMAND. IT THEN EXAMINES THIS REGISTER FILE EACH TIME A CARRIAGE RETURN IS SENT TO THE TERMINAL TO DETERMINE THE NUMBER OF DELAY CHARACTERS TO SEND. ALSO, THE OS-3 WRITE INSTRUCTION WILL DO THE SAME AT THE END OF A LINE WRITTEN TO A TELETYPE.

THE CODE SENT IS NOT A NULL CHARACTER, BUT A SPECIAL 400B (NINE BIT CODE) WHICH DOES NOT ACTUALLY GO TO THE TERMINAL. IT IS TRAPPED BY THE FRONT END PROCESSOR, AND CAUSES IT TO STOP SENDING TO THE TERMINAL FOR ONE CHARACTER TIME. ITS ONLY PURPOSE IS TO PROVIDE A DELAY. ANY USER MAY SEND THE 400B CODE TO PROVIDE THE SAME FUNCTION.

2.17. DELETE

THE DELETE COMMAND IS USED TO REMOVE THE NAME OF A SAVED FILE FROM THE FILE DIRECTORY. THE SAVED FILE MUST NOT BE PROTECTED. IN ORDER TO DELETE A PROTECTED FILE, PROTECTION MUST FIRST BE REMOVED (SEE RFP). BY FIRST EQUIPPING <LUN>=<FILENAME> A USER CAN DELETE THE <FILENAME> AND STILL BE ABLE TO REFERENCE THE INFORMATION ON THE <LUN> OR TO SAVE THE <LUN> UNDER ANOTHER <FILENAME>.

EXAMPLES:

```
DELETE,PROGRAM
DELETE,ZIP,ZAP,ZONKER
DELETE,10=FREEP
IN THE ABOVE EXAMPLE, THE LUN MUST BE ALREADY
EQUIPPED TO THE NAME #FREEP#.
```

ERROR MESSAGES:

```
LUN NN UNDEFINED
  THE LUN SPECIFIED IS NOT EQUIPPED.

<NAME> IS PROTECTED
  THE NAME SPECIFIED IS PROTECTED AND A
  PROTECTED FILE CANNOT BE DELETED.

<NAME> IS NOT SAVED.
  AN ATTEMPT WAS MADE TO DELETE A HARDWARE
  DEVICE SUCH AS #LP#, #PUN#, ETC.

<NAME> NAME-LUN INCONSISTENT
  THE LUN SPECIFIED WAS NOT THE ONE EQUIPPED TO
  THE FILE <NAME>.

<NAME> INSUFFICIENT SCRATCH FILE SPACE
  IN ORDER TO DELETE A SAVED FILE, IT MUST BE
  MADE INTO A SCRATCH FILE TEMPORARILY. YOU DO
  NOT HAVE ENOUGH SCRATCH FILE SPACE LEFT TO
  ALLOW THIS OPERATION. IF YOU STILL WISH TO
  DELETE THE FILE AND DO NOT WISH TO SAVE THE
  DATA ON A SCRATCH FILE, USE THE #DESTROY#
  COMMAND.
```

2.18. DESTROY

THE DESTROY COMMAND IS USED TO REMOVE FROM THE SYSTEM EACH OF THE FILES LISTED IN THE CALLING PARAMETERS. NO PRIVATE FILES MAY BE PROTECTED FROM A DESTROY.

EXAMPLES:

```
DESTROY, ZIP
DESTROY, FILEA, FILEB
```

THE COMMAND #DESTROY, <FILENAME> IS EQUIVALENT TO:

```
EQUIP, <LUN>=<FILENAME>
RFP, <FILENAME>
RELEASE, <LUN>
DELETE, <FILENAME>
UNEQUIP, <LUN>
```

NO ERROR MESSAGE IS ISSUED IF THE FILE DOES NOT EXIST.

ERROR MESSAGES:

```
<NAME> IS BUSY
  THE FILE NAME <NAME> IS CURRENTLY EQUIPPED BY
  SOME OTHER USER.
```

```
<NAME> DOES NOT BELONG TO YOU
  THE FILE NAME <NAME> DOES NOT BELONG TO YOUR
  ACCOUNT AND IS PROTECTED.
```

```
<NAME> INSUFFICIENT HARDWARE
  YOU TRIED TO DESTROY A PIECE OF HARDWARE WHICH
  CANNOT BE EQUIPPED AT THIS TIME.
```

```
<NAME> PARAMETER ERROR
  YOU TRIED TO DESTROY A HARDWARE DEVICE SUCH AS
  AN #MT#.
```

2.19. DETACH

THIS COMMAND WILL PLACE THE USER'S PROGRAM IN A SUSPENDED STATE FOR UP TO FIVE MINUTES. ITS USE IS TO ALLOW A USER TO MOVE FROM ONE TERMINAL TO ANOTHER SHOULD HIS TERMINAL BECOME DISABLED OR THE LINE HE IS DIALED INTO BECOMES FAULTY. THE FORM OF THE COMMAND IS:

```
DETACH
```

ISSUED WHILE IN CONTROL MODE. IF THE USER DOES NOT #ATTACH# WITHIN FIVE MINUTES, HE IS AUTOMATICALLY LOGGED OFF WITH NO MESSAGE PRINTED (AS THERE IS NO TERMINAL TO PRINT THE MESSAGE ON).

TO RE-CONNECT TO THE JOB AT A LATER TIME, LOG IN TO THE SAME JOB/USER NUMBER FROM WHICH YOU ~~#DETACHED#~~ AND ISSUE AN ~~#ATTACH#~~ COMMAND. (SEE ATTACH).

THE ONLY ERROR MESSAGE ISSUED BY THIS COMMAND IS ~~#LEGAL FROM TTY ONLY#~~ WHICH MEANS ~~#DETACH#~~ IS ILLEGAL FROM NON-TTY DEVICES (CDC 211 DISPLAYS, OR BATCH).

2.20. DIR

THE DIR COMMAND ENABLES A USER TO RECEIVE A LIST OF FILES CURRENTLY SAVED ON THE USER'S JOB NUMBER/VALIDITY CODE. SEVERAL PARAMETERS ARE ALLOWED ON THE DIR STATEMENT. THE FORM OF THE COMMAND IS AS FOLLOWS:

```
DIR
  [,OUTPUT=<LUN>]
  [,LONG]
  [,FILENAME=<FILENAME>]
  [,KEY=[-]CHANGE]
  [,KEY=[-]REFERENCE]
  [,KEY=[-]SIZE]
  [,TYPE=[-]PROTECTED]
  [,TYPE=[-]RAF]
  [,TYPE=[-]BUSY]
  [,TYPE=[-]ABNORMAL]
  [,CHANGE=<MMDDYY>[-<MMDDYY>/UP]]
  [,REFERENCE=<MMDDYY>[-<MMDDYY>/UP]]
  [,SIZE=<SIZE>[-<SIZE>/UP]]
```

THE ~~#OUTPUT#~~ PARAMETER IS USED TO SPECIFY WHERE THE DIRECTORY IS TO BE WRITTEN. NORMALLY, THE DIRECTORY IS LISTED ON THE STANDARD OUTPUT UNIT- TV OR TTY, OR LINE PRINTER IF BATCH. WITH THE O PARAMETER, OUTPUT MAY BE SENT TO ANY LUN THE USER DESIRES BY SPECIFYING O=<LUN>. (O=<FILENAME> IS NO LONGER VALID). IF THE INDICATED LUN IS NOT EQUIPPED, THE DIRECTORY PROGRAM WILL EQUIP A SCRATCH FILE TO USE FOR DIRECTORY OUTPUT.

THE ~~#LONG#~~ PARAMETER IS USED TO REQUEST A LONG FORM DIRECTORY. ORDINARILY, THE DIRECTORY LISTING IS JUST FILE NAMES, BUT WITH THE L PARAMETER, USERS MAY REQUEST DIRECTORY ENTRIES WHICH INCLUDE FILE SIZE AND STATUS, LAST CHANGE DATE AND TIME, AND LAST REFERENCE DATE AND TIME.

THE #KEY# PARAMETER IS USED TO SPECIFY SORT KEYS FOR ORDERING THE DIRECTORY, AND MAY APPEAR MORE THAN ONCE. NORMALLY, DIRECTORIES ARE PROVIDED IN ALPHABETIC ORDER, BUT A USER MAY ASK FOR THE DIRECTORY TO BE LISTED IN EITHER FILE SIZE ORDER (K=S), CREATE/CHANGE DATE ORDER (K=C), OR REFERENCE DATE ORDER (K=R). ANY COMBINATION OF SORT KEYS MAY BE SPECIFIED, HIGHEST TO LOWEST PRECEDENCE, EXCEPT THAT ALPHABETIC SORTING IS THE LOWEST PRECEDENCE AND IS NEVER SPECIFIED. A MINUS SIGN (-) PRECEDING A PARTICULAR SORT KEY INDICATES THAT THE KEY IS TO BE USED IN DESCENDING (RATHER THAN ASCENDING) ORDER. E.G. K=-C.

THE #FILENAME# PARAMETER IS USED TO REQUEST THE DIRECTORY ENTRY FOR JUST ONE PARTICULAR FILE NAME (E.G. F=SHS0407). WITH THE USE OF A #MASK# CHARACTER (QUESTION MARK ON TTY, #AND# MARK ON TV (CDC 211), 0/7/8 PUNCH ON CARDS), USERS MAY REQUEST VARIOUS SUBSETS OF THEIR DIRECTORIES BY INDICATING A #DONT-CARE# CONDITION FOR PART OF THE NAME. THE MASK CHARACTER SERVES TO TERMINATE THE FILE NAME AND ALL POSITIONS OF THE NAME BEYOND THAT POINT ARE IGNORED. THUS F=*^ WOULD LIST ALL PUBLIC FILES OWNED, AND F=ABC^ WOULD REQUEST INFORMATION FOR ALL FILES BEGINNING WITH #ABC#.

THE #CHANGE#, #REFERENCE#, AND #SIZE# PARAMETERS ARE BASICALLY THE SAME. THEY LIMIT THE ENTRIES TO BE LISTED IN THE DIRECTORY BY ESTABLISHING A RANGE OF DESIRED VALUES FOR CREATE/CHANGE DATE, REFERENCE DATE, OR FILE SIZE, RESPECTIVELY. EITHER A SINGLE DATE OR SIZE MAY BE REQUESTED (R=101576), OR A RANGE OF VALUES MAY BE GIVEN (S=5-50, C=010175-123175). THE WORD #UP# MAY BE SUBSTITUTED FOR THE UPPER BOUND ON A PARAMETER, INDICATING THAT ALL DATES OR SIZES ABOVE THE LOWER LIMIT ARE TO BE INCLUDED. BY MAKING THE LOWER BOUND ZERO, ALL SIZES OR DATES BELOW THE UPPER LIMIT WOULD BE LISTED. FOR EXAMPLE, S=10-UP WOULD INCLUDE ONLY THOSE FILES WHICH ARE AT LEAST 10 FILE BLOCKS IN SIZE, AND C=0-123176 WOULD INCLUDE ONLY THOSE FILES WHICH WERE CREATED OR CHANGED PRIOR TO 01/01/77. NO CHECKING IS DONE FOR LEGAL DATES, AND THE USER ASSUMES ALL RESPONSIBILITY FOR ENTERING VALID DATES IN CORRECT #MMDDYY# FORMAT.

THE #TYPE# PARAMETER IS USED TO REQUEST CERTAIN TYPES OF FILES TO BE LISTED. FOUR TYPES ARE RECOGNIZED: #ABNORMAL#, #BUSY#, #PROTECTED#, AND #RANDOM# ACCESS(RAF). AS WITH THE #KEY# PARAMETER, THE #TYPE# PARAMETER MAY BE REPEATED. ANY COMBINATION OF THE FOUR LEGAL TYPES IS ACCEPTABLE. A MINUS SIGN PRECEDING A PARTICULAR TYPE INDICATES THAT THAT TYPE IS NOT TO BE USED. THUS T=R,T=-B WOULD LIST ONLY NON-BUSY RAFS.

PARAMETERS ARE NOT REQUIRED, AND IF PRESENT, MAY APPEAR IN ANY ORDER OR COMBINATION. DEFAULT VALUES FOR OMITTED PARAMETERS ARE AS FOLLOWS:

- O - STANDARD OUTPUT UNIT
- L - SHORT FORM LISTING
- K - ALPHABETIC SORTING
- F - ALL FILES
- T - ALL TYPES
- C - ALL CREATE/CHANGE DATES
- R - ALL LAST REFERENCE DATES
- S - ALL SIZES

AS WITH MOST OS-3 SYSTEM SOFTWARE, ONLY THE FIRST LETTER OF A PARAMETER IS EXAMINED IN ORDER TO DETERMINE THE PARAMETER TYPE.

DIRECTORY OUTPUT INCLUDES THE DATE AND TIME OF THE DIRECTORY PLUS ALL FILENAMES IN THE USER'S DIRECTORY. LONG FORM DIRECTORIES ALSO INCLUDE A HEADING DESCRIBING THE ADDITIONAL INFORMATION LISTED. THIS INFORMATION CONSISTS OF THE FILE STATUS(+ FOR PROTECTED, R FOR RAF, B FOR BUSY, AND A FOR ABNORMAL), THE FILE SIZE IN BLOCKS, THE LAST CHANGE DATE AND TIME IN MM/DD/YY HH FORMAT, AND THE LAST REFERENCE DATE AND TIME, ALSO IN MM/DD/YY HH FORMAT. NOTE THAT THE TIME IS LISTED ONLY TO THE LAST HOUR, 24-HOUR FORMAT.

ANY TIME A DIRECTORY IS PROVIDED WHICH DOES NOT CONTAIN ALL FILES OWNED, THE WORD #(SUBSET)# WILL APPEAR IN THE DIRECTORY TITLE TO INDICATE THE ABBREVIATED LIST. NO TITLE IS PRINTED WHEN REQUESTING ONLY ONE FILE ENTRY (F=<FILENAME>).

2.21. DO

THIS COMMAND CAUSES CONTROL MODE TO BEGIN EXECUTING CONTROL STATEMENTS FROM THE SPECIFIED FILENAME OR LUN. THE STATEMENTS DO NOT REQUIRE ANY SPECIAL CONTROL CHARACTER AT THE LEFT, AND MAY BE CONTROL MODE COMMANDS, LIBRARY CALLS, OR OVERLAY CALLS. IF PROCESSING IS INTERRUPTED BY A CONTROL-A FOR EXAMPLE, IT MAY BE RESUMED BY TYPING #GO# TO FINISH EXECUTION OF THE CURRENT CONTROL STATEMENT (SUCH AS #ASSEM#, #FORTRAN#, ETC.). WHEN EXECUTION IS COMPLETE, TYPE #DO# WITH NO PARAMETERS TO CONTINUE PROCESSING THE SUBSEQUENT STATEMENTS ON THE DO FILE.

THE LUN OR NAME SPECIFIED IN THE PARAMETER LIST WILL ALWAYS BE REWOUND BEFORE CONTROL MODE PROCESSES THE FIRST CONTROL STATEMENT. EXAMPLES:

```
DO,ZIP
DO,5
```


DD

ERROR MESSAGES:

PARAMETER ERROR

AN ILLEGAL FILE NAME OR BAD OR
MISSING PARAMETER WAS GIVEN.

DD UNIT ERROR

AN ATTEMPT HAS BEEN MADE TO ~~ADD~~ AN
ILLEGAL FILE TYPE (LP, ETC.).

LUN XX UNDEFINED

THE LUN SPECIFIED BY XX IS NOT
EQUIPPED.

<NAME> NOT FOUND

THE FILE NAME <NAME> DOES NOT EXIST.

<NAME> IS BUSY

THE FILE NAME <NAME> WAS NOT
PROTECTED AND EQUIPPED BY ANOTHER
USE

2.22. DUMP

THIS COMMAND WILL GENERATE AN OCTAL CORE MEMORY DUMP
ONTO THE SPECIFIED LOGICAL UNIT. FORMAT:

DUMP[,ABORT][,([LUN])[,([LOW ADDR],[HIGH ADDR])]

IF THE LOW AND HIGH ADDRESS ARE NOT SPECIFIED, THEN THE
LOW AND HIGH ADDRESS OF LOWER MEMORY ARE ASSUMED,
RESPECTIVELY. IF THE LUN IS NOT SPECIFIED, LUN 61 IS
ASSUMED. AFTER EXECUTION OF THE DUMP COMMAND, CONTROL
IS RETURNED TO OS-3 CONTROL MODE.

IF THE ABORT PARAMETER IS SPECIFIED, THE DUMP WILL BE
GENERATED ONLY IF THE USER IS IN ABORT MODE. ONLY THE
LETTER A IS REQUIRED TO SPECIFY THE ABORT PARAMETER.
EXAMPLE CALLS:

DUMP,34,13000,43233
DUMP
DUMP,,10,1200
DUMP,ABORT,1,12300,77777
DUMP,A
DUMP,A,13

2.23. EDIT

THIS COMMAND CALLS THE OS-3 EDITOR. THE EDITOR IS USED TO PREPARE PROGRAMS OR DATA FILES FOR USE BY OTHER PROGRAMS OR PARTS OF THE OS-3 SYSTEM. FOR MORE INFORMATION ON THE EDITOR, SEE THE COMPUTER CENTER MANUAL CCM-70-7R. EXAMPLE CALL:

```
EDIT
EDIT,I=<LUN>/<NAME>
```

THE FIRST FORM CALLS THE EDITOR AND ASSUMES INPUT FROM THE USER'S STANDARD INPUT DEVICE. THE SECOND FORM ALLOWS INPUT OF COMMANDS TO COME INITIALLY FROM THE SPECIFIED LUN OR NAME. EDIT WILL PERFORM A #DO# ON THE SPECIFIED INPUT UNIT UNTIL ALL RECORDS HAVE BEEN READ OR UNTIL AN ERROR OCCURS, AT WHICH TIME EDIT WILL REVERT TO INTERACTIVE MODE, ACCEPTING COMMANDS FROM THE USER'S STANDARD INPUT DEVICE.

2.24. ENDSUB

THIS COMMAND IS LEGAL ONLY IN SUBMIT MODE. THAT IS, WHILE PROCESSING A SUBMIT COMMAND. ANY EXTRA ENDSUB CARDS IN A DECK WILL RESULT IN THE ERROR:

```
ILLEGAL CONTROL STATEMENT
```

AND THE JOB WILL BE ABORTED. (SEE SUBMIT)

2.25. EQUIP

THIS COMMAND IS USED TO ASSOCIATE A LOGICAL UNIT NUMBER WITH A NAMED FILE OR A PARTICULAR PIECE OF HARDWARE. THESE DEVICES ARE THEN REFERRED TO BY THE LUN. THE LUN MUST BE AN INTEGER CONSTANT BETWEEN 0 AND 99, INCLUSIVE. WHEN A USER LOGS IN, THE FOLLOWING DEFAULT ASSOCIATIONS ARE MADE:

LUN	DEVICE
---	-----
60	STANDARD INPUT (CAN BE UNEQUIPPED)
61	STANDARD OUTPUT (CAN BE UNEQUIPPED)
100	STANDARD INPUT (PERMANENT)
101	STANDARD OUTPUT (PERMANENT)

MOST COMPILERS AND ASSEMBLERS USE LOGICAL UNITS BETWEEN 54 AND 59. THUS, A USER SHOULD EXERCISE CARE IN USING THESE UNITS, AS THEY ARE USED AS SCRATCH UNITS BY SOME OTHER PROGRAMS. SOME SYSTEM SOFTWARE WILL UNEQUIP UNITS IN THE RANGE OF 50 TO 59. LUNS 100 AND 101 ARE PERMANENTLY ASSIGNED AS THE USER'S STANDARD INPUT AND OUTPUT RESPECTIVELY. THEY MAY APPEAR ONLY ON THE RIGHT HAND SIDE OF THE EQUAL SIGN IN THE EQUIP CONTROL STATEMENT. FOR REMOTE USERS, STANDARD INPUT AND STANDARD OUTPUT BOTH REFER TO THE USER'S TERMINAL. BATCH USERS HAVE THE CARD READER AS INPUT AND THE LINE PRINTER AS OUTPUT.

THE NAME TO THE RIGHT OF THE EQUAL SIGN MAY BE A PREVIOUSLY DEFINED LOGICAL UNIT NUMBER, A FILE NAME, OR ONE OF THE FOLLOWING:

FILE - THE WORD FILE IS USED TO DEFINE A LUN AS A SEQUENTIAL DISK STORAGE AREA. THIS STORAGE AREA MAY BE SAVED FOR FUTURE USE BY USING THE SAVE COMMAND. IF THE FILE IS NOT SAVED, IT WILL BE DESTROYED WHEN LOGGING OFF OR WHEN IT IS UNEQUIPPED.

LP - THE WORD LP IS USED TO ASSOCIATE A LINE PRINTER TO THE LOGICAL UNIT. ANY INFORMATION WRITTEN ONTO THIS LUN WILL BE PRINTED ON A HIGH-SPEED PRINTER AT THE MILNE COMPUTER CENTER WHEN IT IS UNEQUIPPED OR WHEN LOGGING OFF. FOR INFORMATION ON DIRECTING THE INFORMATION TO OTHER LINE PRINTERS, SEE THE SEND COMMAND.

MT <TAPE REEL NUMBER> AT <DENSITY> <COMMENTS>
THE SYMBOL #MT# FOLLOWED BY AN INTEGER IS INTERPRETED BY OS-3 AS A REQUEST TO MOUNT THE MAGNETIC TAPE SPECIFIED BY THE <TAPE REEL NUMBER>. THE DENSITY SPECIFIED MUST BE EITHER 200, 556, OR 800. THE TAPE REEL NUMBER MUST BE NUMERIC AND BE LESS THAN 8388608. THE COMMENT FIELD IS PRINTED ON THE OPERATOR CONSOLE AT THE COMPUTER CENTER, AND MUST CONTAIN THE INFORMATION AS TO THE RING STATUS (W OR R) AND THE TAPE'S PASSWORD. ANY OTHER INFORMATION IS OPTIONAL AND IS UP TO THE USER. (SEE EXAMPLE IN EQUIP STATEMENTS BELOW)

- NULL - THE WORD NULL REFERS TO A DEVICE WHICH DESTROYS ALL INFORMATION WRITTEN TO IT.
- PLOT - DEFINES A LUN TO BE AN X/Y PLOTTER.
- PTP - DEFINES A LUN TO BE A PAPER TAPE PUNCH.
- PUN - DEFINES A LUN TO BE A CARD PUNCH.
- RAF - DEFINES THE LUN TO BE A RANDOM ACCESS DISK STORAGE AREA. THIS STORAGE MAY BE SAVED FOR FUTURE USE WITH THE SAVE COMMAND. IF IT IS NOT SAVED, IT WILL BE DESTROYED WHEN THE USER LOGS OFF OR WHEN THE LUN IS UNEQUIPPED.
- TASK - DEFINES A REMOTE BATCH FILE FROM WHICH CONTROL STATEMENTS WILL BE PROCESSED AS A BATCH JOB WHEN IT IS UNEQUIPPED. FOR INFORMATION ON THE USE OF TASKS, SEE THE SECTION ON SEND AND THE DESCRIPTION OF THE SUBMIT COMMAND.

PUN, PLOT, PTP, AND LP UNITS MUST BE LABELED TO PREVENT LOSS OF OUTPUT. (SEE LABEL)

- HSI(DEV) - DEFINES HIGH-SPEED INPUT DEVICE #DEV#. THESE ARE REAL-TIME SPOOLED DEVICES USED FOR DATA COLLECTION. CURRENTLY, #DEV# MAY BE #PTR#, #PHA1#, OR #PHA2#.

A PARTICULAR LUN MAY BE USED ON THE LEFT HAND SIDE OF THE EQUAL SIGN IN AN EQUIP ONLY ONCE.

TO FURTHER AID IN THE ROUTING OF INFORMATION TO PARTICULAR DEVICES AND BATCH QUEUES, THE EQUIP COMMAND ALLOWS A DESTINATION SPECIFICATION ON EQUIPS TO NAMED DEVICES. THE DESTINATION IS SPECIFIED BY PLACING THE DESTINATION NAME IN PARENTHESES AFTER THE DEVICE TO BE EQUIPPED. SEE THE SEND COMMAND ON THE LEGAL DESTINATIONS FOR A PARTICULAR DEVICE. EXAMPLES:

```
EQUIP,1=FILE,2=FILE,3=FILE
EQUIP,10=60,43=100
EQUIP,4=NULL,2=PLOT
EQUIP,73=LP,6=TASK(NITE)
EQUIP,88=MT 23000 AT 556,W,PW=MUDD (SAUNDERS)
EQUIP,42=MT 90273 AT 800,R,PW=MYDATA
EQUIP,76=HSI(PHA2)
```

POSSIBLE ERROR MESSAGES:

PARAMETER ERROR
AN ILLEGAL OR MISSING PARAMETER
ON ENTERED COMMAND

<NAME> NOT FOUND
THE FILE NAME <NAME> COULD NOT
BE EQUIPPED.

<NAME> IS BUSY
THE FILE NAME <NAME> IS NOT
PROTECTED AND CURRENTLY
EQUIPPED BY SOME OTHER USER.

<NAME> INSUFFICIENT HARDWARE
THE HARDWARE DEVICE <NAME> IS
UNAVAILABLE OR NOT AUTHORIZED
TO BE EQUIPPED AT THIS TIME
(IE, MAG TAPES).

<NAME> DESTINATION UNKNOWN
ON THE IMPLIED #SEND#
OPERATION, THE DESTINATION
GIVEN IN THE
EQUIP,<LUN>=DEVICE(DESTINATION)
IS UNKNOWN OR ILLEGAL FOR THIS
DEVICE TYPE. (IE. #PR1# IS
NOT LEGAL FOR A #PUN# DEVICE)

2.26. FORMS

THIS COMMAND WILL INFORM THE OPERATOR THAT SPECIAL FORMS
ARE REQUIRED IN THE DEVICE ASSOCIATED WITH THE LUN.
THIS COMMAND SHOULD ALSO BE USED WHEN LARGE VOLUMES OF
MATERIAL ARE REQUIRED IN THE DEVICE.

PLEASE NOTE THAT THE FORMS COMMAND PLACES A #FORMS
RECORD# ON THE OUTPUT FILE AT THE CURRENT POSITION OF
THE FILE. THE FORMS RECORD WILL ALERT THE OPERATOR AT
THE SAME POINT THAT IT IS PLACED ON THE FILE. MORE THAN
ONE FORMS RECORD MAY BE PLACED ON AN OUTPUT FILE. EACH
FORMS RECORD WILL ALERT THE OPERATOR AS IT COMES UP IN
THE OUTPUT.

FORMAT:

FORMS, <LUN>, <COMMENTS TO OPERATOR>

IF LUN IS 62 AND UNIT 62 IS UNDEFINED IT WILL BE EQUIPPED TO A #PUN#.

EXAMPLES:

FORMS,10,TWO PART 8 1/2 X 11 SADDLE PUNCH
FORMS,3,NEED AT LEAST 1/2 ROLL OF PAPER TAPE
FORMS,13,THREE UP GUM LABELS

2.27. FORTRAN

THIS CONTROL MODE COMMAND WILL CALL THE OS-3 FORTRAN COMPILER. THE AVAILABLE PARAMETERS ARE:

- A - SPECIFIES THE LUN ONTO WHICH AN ASSEMBLY LANGUAGE LISTING IS TO BE WRITTEN. IF NO LUN IS PRESENT, THE L UNIT IS ASSUMED. IF NO L PARAMETER IS PRESENT, LUN 61 IS USED.
- C - THIS SPECIFIES THAT ASSEMBLY LANGUAGE STATEMENTS EQUIVALENT TO THE FORTRAN SOURCE PROGRAM ARE TO BE WRITTEN ONTO THE SPECIFIED LUN. IF NO LUN IS SPECIFIED, LUN 62 IS ASSUMED.
- D - THIS LUN IS WHERE THE DIAGNOSTICS ARE WRITTEN. IF NO LUN IS SPECIFIED, THEY WILL GO TO THE L UNIT. IF NO L PARAMETER IS SPECIFIED, LUN 61 IS ASSUMED.
- E - NO LUN SPECIFIED. THIS INSTRUCTS FORTRAN TO GENERATE COMPREHENSIVE ERROR CHECKING INTO THE COMPILED PROGRAM. THIS EXTRA CHECKING PRINCIPALLY CHECKS FOR ARRAY BOUNDS ERRORS. THIS USUALLY ACCOUNTS FOR AN INCREASE OF ABOUT TEN PERCENT IN THE SIZE OF THE OBJECT PROGRAM PRODUCED.
- H - THIS SPECIFIES THAT A COPY OF THE SOURCE DECK INPUT TO FORTRAN FOR COMPILATION IS TO BE WRITTEN ONTO THE SPECIFIED LUN. IF NO LUN IS SPECIFIED, LUN 62 IS ASSUMED.
- I - THIS SPECIFIES THE LUN OR NAME FROM WHICH FORTRAN WILL READ SOURCE STATEMENTS TO BE COMPILED. IF NO LUN IS SPECIFIED, LUN 60 IS ASSUMED. FORTRAN WILL REWIND THE INPUT UNIT IF IN THE RANGE OF 50-59 OR IF FILE MARK STATUS IS PRESENT. INPUT UNITS IN THE RANGE OF 50 TO 59 ARE UNEQUIPPED AT END OF COMPILATION.

- K - <NUMBER> ONLY. THIS TELLS FORTRAN WHICH CARD CODE TO ASSUME FOR THE INPUT DECK. IF K=26 OR K IS NOT PRESENT, INPUT IS ASSUMED TO BE IBM 026 CODES. IF K=29, THEN INPUT IS ASSUMED TO BE EXTENDED BCD CARD CODES. IF K=27, INPUT IS ASSUMED TO CONTAIN BOTH 026 AND 029 CARD CODES. THE K OPTION SHOULD BE USED ONLY WITH SPECIAL CARD DECKS.
- L - ON THIS UNIT IS WRITTEN A SOURCE LISTING OF THE PROGRAM. IF NO LUN IS SPECIFIED, LUN 61 IS ASSUMED. IF L IS NOT SPECIFIED, NO LISTING IS MADE.
- M - THIS SPECIFIES THAT A MAP OF SYMBOLS AND THEIR RELATIVE POSITIONS WITHIN THE COMPILED PROGRAM, AND ALL STATEMENT LABELS AND THEIR RELATIVE POSITIONS ARE TO BE WRITTEN ONTO THE SPECIFIED UNIT. IF NO LUN IS SPECIFIED, LUN 61 IS ASSUMED. NO MAP IS MADE IF M IS NOT SPECIFIED.
- N - THIS PARAMETER SPECIFIES THE NUMBER OF LINES PER INCH TO BE WRITTEN ONTO THE LISTING UNIT. THIS PARAMETER MUST BE EQUAL TO 6 OR 8. ANY OTHER WILL RESULT IN AN ERROR MESSAGE. FORTRAN WILL WRITE THE NECESSARY CARRIAGE CONTROL ONTO THE LISTING UNIT TO SET THE PROPER SPACING DESIRED. IF THIS PARAMETER IS ABSENT, FORTRAN WILL USE THE SYSTEM DEFAULT SPACING. (CURRENTLY 8 LINES/INCH)
- P - ONTO THIS LUN WILL BE WRITTEN AN OBJECT DECK OF THE SOURCE PROGRAM COMPILED. IF NO LUN IS SPECIFIED, LUN 62 IS ASSUMED.
- R - THIS SPECIFIES THAT BINARY OBJECT OUTPUT SHOULD BE SENT TO THE LUN SPECIFIED. IF NO LUN IS SPECIFIED, LUN 56 IS ASSUMED. THIS PARAMETER DIFFERS FROM X IN THAT THE LUN IS RELEASED BEFORE BEING WRITTEN ON, AND THAT THE OBJECT OUTPUT IS DESIGNED AS AN INPUT TO THE LOADER (SEE I PARAMETER FOR THE LOAD COMMAND), SINCE IT IS TERMINATED BY A BCD #RUN# RECORD. AFTER COMPILATION, IF NO SERIOUS ERRORS WERE DETECTED, FORTRAN WILL CALL THE LOADER TO LOAD THE OBJECT DECK PRODUCED.
- S - THIS INSTRUCTS THE FORTRAN COMPILER TO WRITE SYMBOL OUTPUT (FOR RADAR, ETC.) ONTO THE SPECIFIED LUN. IF NO LUN IS

PRESENT, THE SYMBOLS WILL BE WRITTEN ONTO THE P DEVICE. IF P IS NOT SPECIFIED, THE X UNIT IS USED. IF THE X DEVICE IS NOT PRESENT, THE R UNIT IS ASSUMED. IF NEITHER P, X, NOR R IS PRESENT, AN ERROR HAS OCCURRED.

X - THIS SPECIFIES THAT THE BINARY OBJECT OUTPUT OF THE COMPILATION IS TO BE WRITTEN ONTO THE SPECIFIED LUN. IF NO LUN IS PRESENT, LUN 56 IS ASSUMED. IF LUN 56 IS UNDEFINED, IT WILL BE EQUIPPED TO A #FILE#.

ALL LOGICAL UNITS EXPLICITLY SPECIFIED MUST HAVE BEEN PREVIOUSLY DEFINED BY THE USER. ANY OF THE PARAMETERS (A, C, D, E, H, I, K, L, M, N, P, R, S, AND X) MAY BE OMITTED, AND THE DESIRED PARAMETERS MAY BE LISTED IN ANY ORDER.

EXAMPLES OF CALLS TO FORTRAN:

```
FORTRAN,I=TEST,S=10,L=20,P,A=7
-FORTRAN,L,R
FORTRAN,L,R,E
FORTRAN,I=10/R,L=20/R,P,S
FORTRAN,R,INPUT=PROGRAM,E
FORTRAN,L,R,K=29,P,A,D=10
```

FOR MORE INFORMATION ON OS-3 FORTRAN SEE THE COMPUTER CENTER PUBLICATIONS CCM-68-39R AND CCM-73-04.

2.28. FP

THE COMMAND FP IS USED TO PROTECT A SPECIFIED FILE OR RAF. FILE PROTECTION MAKES THE FILE READ-ONLY AND THUS PREVENTS THE USER FROM ACCIDENTALLY MODIFYING THE FILE. A PROTECTED FILE OR RAF WHICH THE USER DOES NOT SAVE WILL BE DESTROYED WHEN THE USER LOGS OFF. A FILE WHICH HAS BEEN FILE PROTECTED MAY NOT BE DELETED OR MODIFIED UNTIL PROTECTION HAS BEEN REMOVED (SEE RFP COMMAND).

EXAMPLES:

```
FP,10
FP,1,2,3,4,5,ZIP,10,ZAP
FP,*BUGGER
```

POSSIBLE ERROR MESSAGES:

```
<NAME> NOT FOUND
THE FILE NAME <NAME> DOES NOT EXIST
```


<NAME> IS BUSY
THE FILE NAME <NAME> IS CURRENTLY EQUIPPED BY
SOME OTHER USER AND IS NOT ALREADY PROTECTED.

<NAME> IS NOT A FILE OR RAF
YOU CANNOT PROTECT A NON-SAVABLE HARDWARE TYPE
(E.G. TELETYPES, LINE PRINTERS, ETC.).

<NAME> PARAMETER ERROR
A MISSING OR ILLEGAL PARAMETER WAS SPECIFIED.

2.29. FWSP

THIS COMMAND IS SIMILAR TO THE BKSP COMMAND (SEE BKSP)
EXCEPT THAT THE FILE OR MAGNETIC TAPE IS SPACED FORWARD
ONE PHYSICAL RECORD.

EXAMPLES:

```
FWSP,10(10),2,3,4  
FWSP,40,41,42,5(1000)
```

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE FORWARD-SPACED.
ONLY FILES, MT#S AND NULL#S CAN BE
FORWARD-SPACED.

2.30. GO

THIS COMMAND WILL RESUME EXECUTION OF A USER PROGRAM
WHICH HAS BEEN INTERRUPTED BY A #TIME CUT#, CONTROL-A OR
SOME OTHER REASON. IF A PARAMETER LIST IS PRESENT IT
WILL BE PLACED INTO THE USER#S PARAMETER STRING BEFORE
CONTINUING THE PROGRAM.

EXAMPLES:

```
GO  
GO,I=10,O=20,N=10,T=4
```

2.31. GOTO

THIS CONTROL STATEMENT IS VALID FROM BATCH, TASK, AND DO UNITS. IT IS USED TO TRANSFER CONTROL IN A JOB STREAM FURTHER ALONG IN THE DECK. THE FORM OF THE COMMAND IS:
{GOTO <LABEL>

<LABEL> IS ANY ALPHANUMERIC STRING, BEGINNING WITH A LETTER, AND MUST BE 1-8 CHARACTERS IN LENGTH. UPON ENCOUNTERING A GOTO STATEMENT, CONTROL MODE SKIPS ALL RECORDS IN THE DECK UNTIL A {CC IS FOUND WITH A MATCHING LABEL. (SEE DESCRIPTION OF CC STATEMENT). CONTROL MODE THEN RESUMES EXECUTION OF THE JOB WITH THE NEXT STATEMENT IN THE DECK.

IF NO CC STATEMENT IS FOUND WITH A LABEL MATCHING THAT OF THE GOTO, THE JOB WILL LOG OFF (OR TERMINATE IF A DO FILE) WITHOUT EXECUTING ANY FURTHER CONTROL STATEMENTS.

WHEN SKIPPING AHEAD UNDER CONTROL OF A GOTO, CONTROL MODE WILL LIST ALL STATEMENTS NOT EXECUTED, PRECEDING EACH WITH **. NOTE ALSO THAT TRANSFER CAN OCCUR ONLY FORWARD WITHIN A DECK, NEVER BACKWARD.

EXAMPLES:

```
GOTO NEXT  
GOTO,LIST3
```

2.32. HI

IN RESPONSE, OS-3 WILL PRINT OUT THE DATE, TIME OF DAY, THE USER'S JOB NUMBER, TERMINAL NUMBER(S), CURRENT TRAFFIC, TOTAL TRAFFIC FOR THE DAY, AND SAVED AND SCRATCH BLOCK USE AND LIMITS.

2.33. IF

THIS STATEMENT ALLOWS USERS TO EXECUTE CONDITIONALLY CONTROL STATEMENTS WITHIN BATCH, TASK, OR DO FILES. THE FORM OF THE COMMAND IS:

```
{IF (<EXPRESSION>) <LABEL>
```

THIS IS VERY SIMILAR TO A FORTRAN #IF# STATEMENT. <EXPRESSION> IS A TRUE OR FALSE VALUE (NON-ZERO OR ZERO) BASED ON THE OPERATIONS AND OPERANDS GIVEN IN THE STATEMENT. <LABEL> IS THE LABEL ON A {CC STATEMENT (SEE CC COMMAND FOR MORE DETAIL) TO WHICH CONTROL IS TO BE TRANSFERRED IF THE RESULTING VALUE IS TRUE. TRANSFER MAY ONLY OCCUR FORWARD WITHIN A JOB.

THE STATEMENT IS SET UP EXACTLY LIKE A FORTRAN IF

STATEMENT. OPERATORS ALLOWED ARE: + - * / .EQ. .NE.
.GE. .LT. .GT. .LE. .IS. .AND. .OR. .NOT.

OPERANDS MAY BE NUMBERS IN THE RANGE 0-8388607.
NEGATIVE NUMBERS ARE NOT ALLOWED NOR IS THE UNARY MINUS.
OPERANDS MAY ALSO BE ANY OF THE FOLLOWING RECOGNIZED
SYMBOLS:

SUNDAY MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY
SATURDAY FP LDPT EOD EOF SDR BIN AU AE SAV BUSY PTP
MSF TASK RAF TV NULL PLOT TTY RJE MT CR PUN LP FILE
UNDEF TODAY TOD DATE SFLEFT MFLEFT TIMELEFT LOADEL
ABORTED CFBLKS MFBLKS SFBLKS TIME WCT UNITREC

THE FOLLOWING FUNCTIONS ARE ALSO ALLOWED:
STATUS(<LUN/NAME>) SIZE(<LUN/NAME>)
RECORDS(<LUN/NAME>) TYPE(<LUN/NAME>)

EXPRESSIONS MAY BE BUILT AS IN FORTRAN WITH ANY NUMBER
OF OPERATORS AND OPERANDS AND PARENTHESES WHERE NEEDED
PROVIDING PROPER FORTRAN SYNTAX IS OBSERVED.

A FEW CLARIFICATIONS:

#TOD# RETURNS TIME OF DAY IN 24 HOUR HHMM FORMAT.

#DATE# RETURNS TODAY'S DATE IN YYMMDD FORMAT.

#TODAY# RETURNS THE DAY OF THE WEEK AS A LOGICAL MASK
WHICH CAN BE TESTED AGAINST THE SYMBOLS #MONDAY#,
#TUESDAY#, ETC.

THE STATUS FUNCTION RETURNS A VALUE OF #BUSY# (FILE IS
BUSY), #SAVED# (A PERMANENT NAME HAS BEEN ASSIGNED TO
THE FILE), #AE# (ADDRESS ERROR - RAF ONLY), #AU#
(ABNORMAL/UNAVAILABLE - PARITY ERROR), #BIN# (LAST
RECORD PROCESSED WAS IN BINARY MODE), #SDR# (FILE IS
IN DESTRUCTIVE READ MODE), #EOF# (LAST RECORD
PROCESSED WAS AN END OF FILE), #LDPT# (FILE IS AT LOAD
POINT - BEGINNING OF INFORMATION), OR #FP# (FILE IS
PROTECTED).

THE #.IS.# OPERATOR WORKS LIKE A FORTRAN #AND#
FUNCTION. THAT IS, THE RESULT OF #A.IS.B# IS THE
LOGICAL AND OF A AND B. IT HAS THE SAME PRECEDENCE AS
.EQ. ETC. AND CAN BE USED TO TEST FOR A PARTICULAR
CONDITION WITHIN A STATUS. PLEASE SEE EXAMPLES BELOW.

THE #TYPE# FUNCTION RETURNS THE HARDWARE TYPE. EITHER
#UNDEF# (UNDEFINED), #FILE#, #RAF#, #CR#, #PUN#, #LP#,
#PLOT#, #TV#, #TTY#, #NULL#, #RJE#, #PTP#, OR #MT#.

THE SYMBOL #UNITREC# (FOR UNIT RECORD DEVICE) IS
DEFINED AS EITHER #PUN#, #LP#, #PLOT#, OR #PTP#.

IF THE VALUE OF THE EXPRESSION OF AN IF COMMAND IS TRUE, CONTROL IS TRANSFERRED AHEAD IN THE DECK TO THE FIRST CC STATEMENT ENCOUNTERED WITH THE SAME <LABEL> SPECIFIED IN THE IF STATEMENT. ALL COMMANDS NOT EXECUTED ARE LISTED, PRECEDED BY **. IF THE RESULT IS FALSE, CONTROL MODE SIMPLY PROCEEDS TO THE NEXT STATEMENT AS IF THE IF STATEMENT WERE NOT EVEN THERE.

EXAMPLES:

```
IF(TODAY.IS.MONDAY)ZIP
IF(STATUS(*Z).IS.FP.AND..NOT.ABORTED)JUMP14
IF(TIME.LT.20.AND.MFLEFT.GE.100)NEXT
IF(DATE.GE.761001.OR.TYPE(101).EQ.RJE)BOMB
IF(TODAY.IS.SATURDAY+SUNDAY)WEEKEND
IF(RECORDS(16).LT.2000)MORE
IF(SIZE(BIGFILE).GE.700)QUIT
IF(TIME*6+MFBLKS*3+SFBLKS/2.GE.900)ZONKER
IF(TYPE(16).IS.LP+PUN)DUMP3
IF(LOADDEL)STOP99
IF(WCT.GE.60.OR.TIME.GE.200)YELL
```

2.34. JOB

THIS CONTROL STATEMENT IS VALID ONLY FROM BATCH OR TASK, AND SHOULD BE THE FIRST CARD IN A DECK. THE JOB CARD IS USED TO IDENTIFY A BATCH JOB TO OS-3 SO THAT CHARGES MAY BE MADE AGAINST THE APPROPRIATE ACCOUNT. THE FORMAT OF A JOB CARD IS:

```
[JOB,[QUEUE,]JOB-NUM,VAL-CODE,[61=NAME,]COMMENTS
```

THE #[# AROUND THE #QUEUE# AND #61=NAME...# ARE TO DENOTE OPTIONAL FIELDS. THE #[JOB# DENOTES A 7-8 MULTI-PUNCH IN COLUMN 1 FOLLOWED BY #JOB# IN COLUMNS 2-4. FOR A #TASK# JOB, USE A #[#.

THE QUEUE PARAMETER MAY BE ONE OF THE FOLLOWING:

FAST - QUEUE FOR JOBS REQUIRING LESS THAN 30 CPU SECONDS OR 100 SCRATCH FILE BLOCKS. THE ADVANTAGE OF THIS QUEUE IS THAT IT HAS A HIGHER PRIORITY FOR GETTING LOGGED IN THAN ANY OF THE OTHER QUEUES. ONCE LOGGED IN, HOWEVER, IT HAS THE SAME PRIORITY AS ANY OTHER JOB. DUE TO THE SMALL TIME AND FILE SPACE LIMITS, THOUGH, JOBS IN THIS QUEUE SELDOM EXECUTE MORE THAN A FEW MINUTES.

LOW - QUEUE FOR JOBS WISHING TO EXECUTE DURING SECOND OR THIRD SHIFT. JOBS SPECIFYING THIS PARAMETER WILL NOT BEGIN EXECUTION UNTIL NON-PRIME TIME IS IN EFFECT.

- NITE - QUEUE FOR JOBS WISHING TO EXECUTE DURING THIRD SHIFT. SPECIFYING THIS PARAMETER WILL CAUSE THE JOB TO EXECUTE ONLY DURING THE CHEAPEST RATES AVAILABLE.
- MT1 - QUEUE FOR JOBS REQUIRING 1 TAPE DRIVE
- MT2 - QUEUE FOR JOBS REQUIRING 2 TAPE DRIVES
- MT3 - QUEUE FOR JOBS REQUIRING 3 TAPE DRIVES
- MT4 - QUEUE FOR JOBS REQUIRING 4 TAPE DRIVES

IF THE QUEUE FIELD IS MISSING OR DOES NOT CONTAIN ONE OF THE ABOVE, THE JOB MAY HAVE ANY TIME OR SCRATCH LIMIT, BUT MAY NOT USE TAPES.

FOR INFORMATION ON HOW TO USE THESE QUEUES FOR TASK JOBS, SEE SEND STATEMENT.

2.35. LABEL

LABEL IS A UTILITY PROGRAM USED TO LABEL SOME OUTPUT DEVICE TO ALLOW THE COMPUTER CENTER OPERATIONS STAFF TO DETERMINE THE OWNER OF THE OUTPUT. THE GENERAL FORMAT IS:

LABEL(, <LUN> [= OR ; <HW TYPE>]) / OR / <MESSAGE>

IF THE CHARACTER FOLLOWING THE SPECIFIED LUN IS AN APOSTROPHE ('), THE MESSAGE WILL BE WRITTEN ONTO THE LUN STARTING IN COLUMN ONE AS ONE BCD RECORD. IF THE CHARACTER IS A SLASH (/), THE MESSAGE WILL BE WRITTEN IN A FORMAT TO MAKE IT MORE READABLE FOR THE TYPE OF DEVICE SPECIFIED BY THE LUN. FOR EXAMPLE, IF THE LUN IS AN LP, THE MESSAGE WILL BE WRITTEN IN LARGE LETTERS. IF THE LUN IS A PUN, A CARD WILL BE PUNCHED WITH THE FIRST SEVEN CHARACTERS OF THE MESSAGE IN BLOCK LETTERS. IF THE LUN IS A PLOTTER THE LABEL WILL BE PLOTTED IN LETTERS ONE-HALF INCH HIGH. FOR THE PAPER TAPE PUNCH, LARGE CHARACTERS WILL BE BLOCK PUNCHED ONTO THE PTP. IF THE LUN IS NOT SPECIFIED, LUN 61 IS USED.

IF THE CHARACTER FOLLOWING THE SPECIFIED LUN IS AN EQUAL SIGN (=), LABEL WILL EQUIP THE LUN TO THE SPECIFIED HARDWARE TYPE. IF THE CHARACTER IS A COLON (;) AND THE LUN IS NOT EQUIPPED, LABEL WILL EQUIP THE LUN TO THE SPECIFIED HARDWARE TYPE. IF THE CHARACTER IS A COLON AND THE LUN IS EQUIPPED TO A FILE, MT, NULL, OR THE SAME HARDWARE TYPE, LABEL WILL USE THE HARDWARE TYPE SPECIFIED TO LABEL THE LUN. LEGAL HARDWARE TYPES ARE: FILE, LP, PUN, PTP, AND PLOT.

IF LUN 62 IS SPECIFIED AND NOT EQUIPPED, LABEL WILL

EQUIP IT TO THE PUNCH.

WHEN LABELING A PRINTER OR PUNCH, ADDITIONAL SLASHES BEYOND THE FIRST ONE WILL ADVANCE TO A NEW SET OF LINES ON THE PRINTER, OR A NEW CARD ON THE PUNCH.

EXAMPLE:

```
LABEL,10#THIS IS A SINGLE LINE LABEL
LABEL,7/SAVE PLOT FOR HOLMES
LABEL/LACAZOWITCZE
LABEL#0 HARLAN ELLISON
LABEL,5=LP/NAME AND DEPARTMENT
    (SAME AS:EQUIP 5=LP
      LABEL 5/NAME AND DEPARTMENT)
LABEL,9=PUN/INTERP/670000/NAME
LABEL,10:PLOT/NAME
    (EQUIP TO PLOT IF NOT EQUIPPED THEN PUT A
     PLOT LABEL ON 10 IF EQUIPPED TO FILE, MT
     NULL, OR PLOT)
```

2.36. LL

ABBREVIATED COMMAND FOR LUNLIST. SEE LUNLIST FOR FULL DESCRIPTION.

2.37. LOAD

THIS CONTROL MODE COMMAND CALLS THE OS-3 BINARY PROGRAM LOADER. BINARY INPUT IS PRODUCED BY COMPILERS AND ASSEMBLERS (FORTRAN, ASSEM, ALGOL, COBOL, ETC.). THE INFORMATION IS LOADED FROM THE LUNS OR NAMES SPECIFIED AFTER THE LOAD COMMAND. A LUN FOLLOWED BY #/R# WILL BE REWOUND BEFORE ANY INFORMATION IS READ FROM IT.

THE LOADER INFORMATION (BINARY DECKS) WILL BE LOADED IN THE ORDER SPECIFIED BY THE ORDER OF THE DECKS OR PARAMETERS. AFTER INFORMATION IS EXHAUSTED FROM ONE PARAMETER, THE NEXT UNIT WILL BE PROCESSED FOR LOADER INFORMATION. THE AVAILABLE PARAMETERS ARE:

- I - SPECIFIES THE UNIT OR NAME FROM WHICH LOADER COMMAND INFORMATION IS TO BE READ. IF A LUN IS NOT SPECIFIED, LUN 100 IS ASSUMED.
- L - SPECIFIES A LIBRARY FROM WHICH EXTERNAL SUBPROGRAMS WILL BE LOADED IF NOT INCLUDED IN THE BINARY DECKS LOADED.
- O - SPECIFIES A LUN OR NAME ONTO WHICH AN OVERLAY OF THE CORE IMAGE WILL BE WRITTEN AFTER LOADING HAS TERMINATED. THIS NAME

(OR NAME WHEN LUN IS ≠SAVED≠) CAN THEN BE TYPED AS A CONTROL STATEMENT TO BEGIN EXECUTION.

THERE MAY BE ONLY ONE I AND ONE O PARAMETER. HOWEVER, THERE MAY BE ANY NUMBER OF L PARAMETERS AND THESE WILL BE PROCESSED FROM RIGHT TO LEFT.

LOADER COMMANDS (VALID ONLY ON COMMAND INPUT):

- RUN - TERMINATE LOADING AND BEGIN EXECUTION OF THE PROGRAM IN CORE. THIS WILL CAUSE ALL EXTERNAL REFERENCES TO BE RESOLVED, POSSIBLY CAUSING SOME SUBPROGRAMS TO BE LOADED FROM THE SPECIFIED LIBRARY UNITS, OR FROM *LIB (THE MAIN FORTRAN LIBRARY) IF NONE WERE SPECIFIED. ERROR MESSAGES WILL BE PRINTED FOR EACH UNRESOLVED EXTERNAL REFERENCE. EXCEPT THAT EXECUTION WILL NOT BEGIN.
- END - THE O UNIT WILL BE WRITTEN (IF PRESENT) AND ALL EXTERNAL REFERENCES WILL BE RESOLVED IF POSSIBLE. DIAGNOSTICS WILL RESULT FOR ALL UNDEFINED SYMBOLS. CONTROL IS RETURNED TO CONTROL MODE WHEN THE LOADING IS FINISHED.
- MAP - THE MAP STATEMENT CAUSES A MEMORY MAP TO BE PREPARED OF THE SUBPROGRAMS AND ENTRY POINT SYMBOLS AND THEIR ABSOLUTE MACHINE ADDRESSES. ON A TTY, THE FIRST MAP COMMAND WILL RESULT IN ONLY A LIST OF SUBPROGRAM NAMES. TYPING MAP A SECOND TIME WILL RESULT IN A COMPLETE MEMORY MAP. IF A LUN IS SPECIFIED, AS IN MAP=<LUN> THEN THE MAP WILL BE WRITTEN ONTO THIS LUN. ALL EXTERNAL REFERENCES ARE RESOLVED BEFORE THE MAP IS PRINTED AND THE OVERLAY IS WRITTEN, IF REQUESTED.
- RADAR - THIS COMMAND WILL CAUSE THE PROGRAM LOADING PROCESS TO FINISH (AS IN RUN) THEN CONTROL IS TURNED OVER TO RADAR, AND THE ENTRY POINTS AND SUBPROGRAM NAMES AND THEIR ADDRESSES ARE PASSED TO RADAR TO ALLOW MORE EFFECTIVE DEBUGGING. (SEE RADAR MANUAL)
- EXS - THIS COMMAND WILL ALLOW THE USER TO DEFINE EXTERNAL SYMBOLS. IT IS USED TO DEFINE A VALUE TO A SYMBOL WHICH IS NOT DECLARED AS AN ENTRY POINT IN ANY OF THE USER'S PROGRAMS. THIS COMMAND IS TREATED AS A BINARY RECORD AND MAY OCCUR ON

COMMAND INPUT AS WELL AS WITHIN A BINARY DECK. (I.E. IT DOES NOT TERMINATE THE LOADING PROCESS.)

- EXAMPLES: 1) EXS,<SYMBOL>=<VALUE>
2) EXS,<SYMBOL> =<VALUE>
3) EXS,<SYMBOL1>=<SYMBOL2>+<VALUE>
4) EXS,<SYMBOLA>=<SYMBOLB>

IN EXAMPLE 1, A SYMBOL IS ASSIGNED AN OCTAL VALUE. IN NUMBER TWO, A SUBPROGRAM NAME IS ASSIGNED AN ABSOLUTE OCTAL LOCATION. IN NUMBER THREE, A SYMBOL IS GIVEN THE VALUE OF ANOTHER SYMBOL ADDED TO A CONSTANT. IN NUMBER FOUR, A SYMBOL IS GIVEN THE SAME VALUE AS ANOTHER SYMBOL.

TRA - THIS COMMAND IS USED TO SPECIFY A TRANSFER ADDRESS TO THE LOADER. NORMALLY, TRANSFER ADDRESSES ARE GENERATED AUTOMATICALLY BY COMPILERS AND ARE OF NO CONCERN TO THE AVERAGE USER. SOME USERS MAY, HOWEVER, DESIRE TO SPECIFY A PARTICULAR STARTING ADDRESS TO THE LOADER AND MAY DO SO WITH THIS COMMAND. THIS COMMAND DOES NOT TERMINATE THE LOADING PROCESS.

LIB - THIS COMMAND IS USED TO SPECIFY ADDITIONAL LOADER LIBRARIES, AND WORKS LIKE THE L PARAMETER ON THE LOADER CALL. IT DOES NOT TERMINATE THE LOADING PROCESS.

INCLUDE - THIS COMMAND ALLOWS THE USER TO CONTINUE DEFINING PARAMETERS IF THE SPACE AVAILABLE ON THE LOAD CONTROL STATEMENT IS NOT SUFFICIENT. THERE MAY BE ANY NUMBER OF INCLUDES, EACH BEING PROCESSED AS ENTERED.

CERTAIN SYMBOLS PERTINENT TO THE LOADER:

LOWMEM	SPECIFIES THE LOWER LIMIT FOR LOADING. DEFAULT VALUE = 00020 OCTAL
HIGHMEM	SPECIFIES THE UPPER LIMIT FOR LOADING. DEFAULT VALUE = 77776 OCTAL
UCLM.	LOWER LIMIT ON CHAPTER 2 COMMON. (UPPER MEMORY COMMON) DEFAULT VALUE IS 20000 OCTAL.
UCHM.	UPPER LIMIT ON CHAPTER 2 COMMON. (UPPER MEMORY COMMON) DEFAULT VALUE IS 53777 OCTAL.

PCD.BYTE SPECIFIES CERTAIN PARAMETERS ABOUT THE USE OF LOWMEM AND HIGHMEM. DEFAULT VALUE FOR PCD.BYTE IS 00005 OCTAL. PCD.BYTE HAS THREE BITS USED TO EFFECT THE LOADING OF PROGRAM, COMMON, AND DATA SEGMENTS (HENCE THE #PCD# NAME). THE OTHER BIT IS USED TO CONTROL OVERLAY GENERATION. THESE BITS ARE:

UXX XXX XXX XXX PCD (15 BITS OF PCD.BYTE)

D - IF 1 LOAD DATA AND CHAPTER TWO COMMON FROM HIGHMEM DOWN. IF 0 LOAD DATA AND CHAPTER TWO COMMON FROM LOWMEM UP. (#DATA# INCLUDES LABELED COMMON).

C - IF 1 LOAD COMMON FROM HIGHMEM DOWN. IF 0 LOAD COMMON FROM LOWMEM UP.

P - IF 1 LOAD PROGRAM AREA FROM HIGHMEM DOWN. IF 0 LOAD PROGRAM AREA FROM LOWMEM UP.

U - IF 1 GENERATE OVERLAY (IF #0# PARAMETER IS SPECIFIED) THAT WILL LOAD INTO UPPER MEMORY WHEN CALLED. (NOTE -THIS DOES NOT CAUSE THE LOADER TO LOAD INTO UPPER MEMORY)

X - NOT USED BY LOAD

EXAMPLES OF LOADER CALLS:

```
LOAD,56,L=MYLIB,0=OVERLAY
RUN
```

```
LOAD,I=LOADCOMS,L=*APLIB,L=*KEITHLB,L=*SYSLIB
EXS,OCTALOUT=BINOC
MAP=10
RUN
```

```
LOAD
EXS,PCD.BYTE=40002
INCLUDE,56,0=10
END
```

```
LOAD
EXS,PCD.BYTE=0
EXS,LOWMEM=40000
INCLUDE,34,35,36,37,38,0=99,L=*SYSLIB
MAP=24
END
```

2.38. LOGIN

THIS COMMAND MAY BE GIVEN FROM TELETYPE-LIKE TERMINALS ONLY, AS ITS SINGLE PURPOSE IS TO PROVIDE A BLOTTED OUT AREA FOR THE USER TO TYPE IN HIS JOB/USER NUMBER. IT IS LEGAL ONLY IF THE USER IS NOT LOGGED IN.

2.39. LOGOFF

THE LOGOFF COMMAND TERMINATES A SESSION WITH OS-3. FROM THE TIME OF LOGIN, UNTIL LOGOFF, OS-3 KEEPS ACCOUNT OF THE RESOURCES USED. THESE CONSIST OF:

- 1) CPU TIME IN MILLISECONDS
- 2) WALL CLOCK (CONNECT) TIME IN SECONDS
- 3) SAVE FILE SPACE IN FILE BLOCKS
- 4) LINE PRINTER RECORDS PRINTED
- 5) CARDS PUNCHED
- 6) PLOTTER RECORDS PLOTTED
- 8) MAGNETIC TAPE UNITS USED IN MILLISECONDS
- 9) PAPER TAPE RECORDS PUNCHED
- 10) CARDS READ IF FROM BATCH
- 11) REMOTE LINE PRINTER LINES PRINTED
- 12) HIGH SPEED DATA LINK RECORDS PROCESSED
(THIS IS A SUBSCRIBED SERVICE AND MOST USERS WILL NOT EXPERIENCE CHARGES FOR IT)

WHEN THIS COMMAND IS ENTERED, OS-3 WILL PRINT A LIST OF CHARGES INCURRED SINCE LOGIN. ALL LOGICAL UNITS WILL THEN BE UNEQUIPPED.

2.40. LUNLIST

THIS COMMAND WILL PRINT A LIST OF LOGICAL UNITS CURRENTLY EQUIPPED BY THE USER AND THE STATUS OF EACH (SEE STATUS). THE FILE SIZE AND RECORD COUNT (FOR UNIT RECORD DEVICES) WILL BE PRINTED FOR BATCH AND TV USERS, BUT NOT FOR TTY USERS. FOR TTY USERS TO OBTAIN THIS INFORMATION, USE THE COMMAND LUNLIST,ALL. THIS WILL PRINT THE LUNS AND STATUS STATED ABOVE, BUT WITH EXTRA BLANKS SQUASHED INTO ONE OR TWO BLANKS. THE #ALL# PARAMETER IS IGNORED FROM TV OR BATCH.

FOR UNIT RECORD DEVICES (LP,PLOT,TASK,PTP,PUN) THE DESTINATION (SEE SEND) WILL BE PRINTED FOR ALL NON-SITE DESTINATIONS.

EXAMPLE:

```
LUNLIST
  1 FILE +1          23 BLKS
 13 NULL
 24 TASK(NITE) JF    4 BLKS    127 RECS
 31 LP (WTR ) J     1 BLKS    17 RECS
 47 LP JF           2 BLKS    34 RECS
 60 TV
 61 TV
100 TV
101 TV
MFBLKS 30 CFBLKS 30 MFBLKLIM 100
```

2.41. MERGE

THIS COMMAND WILL CALL THE OS-3 MERGE UTILITY. TWO PARAMETERS ARE ALLOWED. THEY ARE $\neq I \neq$ TO SPECIFY MERGE OPTION INPUT UNIT, AND $\neq O \neq$ TO SPECIFY A LOG UNIT FOR ERROR MESSAGES AND ERROR COUNTS. MERGE OPTIONS ARE AS FOLLOWS:

- B - BLOCKING FACTOR
- D - DUPLICATE KEY HANDLING
- E - END OF MERGE OPTIONS
- I - INPUT FILE
- K - KEY FIELD
- L - LENGTH ERROR OPTIONS
- O - OUTPUT FILE
- P - PARITY ERROR OPTIONS
- R - RECORD SIZE
- S - SEQUENCE CHECKING OPTION
- T - TABLE FOR NON-STANDARD COLLATING SEQUENCE

FOR DETAILED EXPLANATIONS OF MERGE OPTIONS AND FURTHER INFORMATION ON USING MERGE, SEE THE COMPUTER CENTER PUBLICATION CCM-70-17.

2.42. MESSAGE

MESSAGE IS A COMMAND WHICH WILL ALLOW A USER TO SEND A MESSAGE TO THE SYSTEM SITE OPERATOR, OR ANOTHER USER ON THE SYSTEM. THE CALLING SEQUENCES ARE:

```
MESSAGE,OPR,<MESSAGE UP TO 69 CHARACTERS LONG>
THE MESSAGE WILL BE WRITTEN ONTO THE OPERATORS
CONSOLE, DISPLAYED ONTO THE OPERATORS CRT
DISPLAY, AND THEN THE USER WILL BE SUSPENDED
UNTIL THE SITE OPERATOR ANSWERS THE MESSAGE. IF
THE USER IS SENDING THE MESSAGE FROM A REMOTE
TERMINAL, A TIME LIMIT OF TWO TO THREE MINUTES
IS PLACED ON THE REQUEST SO THAT IF THE OPERATOR
DOES NOT ANSWER THE MESSAGE WITHIN THIS PERIOD
```

OF TIME THE MESSAGE WILL BE CANCELLED AND THE SUSPENSION WILL BE RELEASED. SHOULD THIS HAPPEN, THE USER IS NOTIFIED WITH THE MESSAGE:

TIME OUT -- TRY AGAIN LATER

AND THE OPERATOR IS INFORMED WITH ANOTHER MESSAGE THAT THE ORIGINAL HAS BEEN CANCELLED.

MESSAGE,<TERMINAL>,<SAME LIMIT ON LENGTH>
THIS MESSAGE WILL BE WRITTEN ONTO THE TERMINAL OUTPUT DEVICE OF THE TERMINAL REQUESTED, UNLESS THAT USER HAS TURNED ON HIS <INHIBIT MESSAGE> CONDITION WHICH WILL CAUSE AN ERROR MESSAGE TO BE SENT TO THE #SENDING# USER.

MESSAGE,OFF
THIS WILL INHIBIT MESSAGES FROM EVERYONE EXCEPT THE SITE OPERATOR, WHO WILL ALWAYS BE ABLE TO SEND A MESSAGE TO ANYONE.

MESSAGE,ON
THIS CLEARS THE INHIBIT MESSAGE CONDITION SO SUBSEQUENT MESSAGES ARE RECEIVABLE.

POSSIBLE ERROR MESSAGES ARE:

TIME OUT -- TRY AGAIN LATER.
AS STATED ABOVE UNDER MESSAGE,OPR,....

MESSAGE REJECTED
THE USER OR OPERATOR HAS INHIBITED MESSAGES FROM BEING SENT TO HIS TERMINAL.

ILLEGAL TERMINAL
THE TERMINAL NUMBER SPECIFIED IS NOT CURRENTLY LOGGED IN.

MESSAGE,<TERM> ILLEGAL FROM DO FILE OR BATCH CONTROL MODE ENCOUNTERED A MESSAGE COMMAND DIRECTED TO A TERMINAL WHILE READING FROM A #DO# FILE OR A BATCH INPUT STREAM. THIS MESSAGE WILL BE PRINTED ONTO THE USER'S STANDARD OUTPUT UNIT (LUN 101) AND THE USER WILL BE PLACED INTO ABORT MODE.

PLEASE NOTE THAT SENDING A MESSAGE TO TERMINAL 000 IS THE SAME AS SENDING ONE TO THE SITE OPERATOR (OPR) AND WILL SUSPEND THE USER UNTIL IT HAS BEEN ANSWERED OR TIMED OUT.

2.43. MFBLKS

MFBLKS[=<NUMBER> OR +<NUMBER>]

IF THE DELIMITING CHARACTER ON #MFBLKS# IS A PLUS SIGN, THE LIMIT ON TEMPORARY SCRATCH SPACE WILL BE SET TO THE CURRENT SCRATCH SPACE IN USE PLUS THE NUMBER GIVEN IN THE PARAMETER.

IF THE DELIMITER IS ANYTHING ELSE, THE LIMIT WILL BE SET TO EXACTLY THE NUMBER GIVEN, OR THE USER'S ACCOUNT LIMIT, WHICHEVER IS LESS.

IF THE DELIMITING CHARACTER IS A RETURN, THEN THE MAXIMUM SCRATCH USED, CURRENT IN USE, AND THE ACCOUNT MAXIMUM IS PRINTED ONTO THE USER'S TERMINAL.

EXAMPLES:

MFBLKS+20

MFBLKS=150

MFBLKS

MFBLKS 34 CFBLKS 12 MFBLKLIM 50

IN THE ABOVE LINE, MFBLKS IS THE MAXIMUM USED, CFBLKS IS THE CURRENT IN USE, AND MFBLKLIM IS THE ACCOUNT MAXIMUM.

2.44. MI

MI MEANS #MANUAL INTERRUPT#. THIS COMMAND CAN BE USED TO RETURN TO THE COMMAND MODE OF SOME PROGRAM WHICH HAS BEEN INTERRUPTED. FOR THE EXACT FUNCTION OF #MI# ON A PARTICULAR PROGRAM, CONSULT A MANUAL FOR THE PROGRAM BEING USED.

WHAT AN #MI# REALLY DOES:

TYPING #MI# CAUSES A PSEUDO-HARDWARE INTERRUPT. AT LOCATION 12 (OCTAL) IN LOWER MEMORY, THE 16 BIT PROGRAM COUNTER OF THE USER'S PROGRAM IS STORED, AND THE SIGN BIT OF LOCATION 12 IS SET IF THE PROGRAM WAS IN #RIS# MODE. THEN EXECUTION IS RESTARTED AT LOCATION 13. NONE OF THE USER'S REGISTERS ARE CHANGED.

IF A PARAMETER LIST IS PRESENT, IT WILL BE PLACED INTO THE USER'S PARAMETER STRING.

EXAMPLES:

MI

MI,K=1002,C=7,S=65311

ERROR MESSAGES:

CANNOT MI TO PROGRAM

PROGRAM IS NOT SET UP TO ACCEPT AN MI. IF ONE WERE EXECUTED, THE PROGRAM WOULD LOSE CONTROL. THE ONLY ACTION AVAILABLE IS TO TYPE #GO# TO CONTINUE EXECUTION.

2.45. OSCAR

OSCAR IS THE #OREGON STATE CONVERSATIONAL AID TO RESEARCH#. THIS COMMAND CALLS OSCAR FOR EXECUTION OF A PROGRAM, OR TO BE USED AS AN ON-LINE CALCULATOR. THERE ARE TWO PARAMETERS AVAILABLE:

- I - SPECIFIES INPUT OF A SOURCE PROGRAM TO BE EXECUTED.
- R - SPECIFIES A UNIT ONTO WHICH A LOG IS WRITTEN OF ALL COMMANDS TYPED TO OSCAR. THIS IS VALID ONLY FROM TV.

EXAMPLES:

OSCAR

OSCAR,I=OSCPROG

OSCAR,R=RECORD3

FOR MORE INFORMATION REFER TO COMPUTER CENTER MANUAL CCM 69-24R

2.46. OVLOAD

OVLOAD,<LUN/NAME>[,<PARAMETER STRING>]

THIS COMMAND WILL DO AN OVERLAY LOAD OF THE SPECIFIED UNIT OR NAME. THE UNIT IS REWOUND IF POSSIBLE BEFORE USE. AFTER LOADING, CONTROL IS PASSED TO THE PROGRAM. THE PARAMETER STRING IS OPTIONAL, AS NEEDED BY THE PROGRAM. THIS COMMAND IS USEFUL WHEN A FILE NAME WHICH HAS THE SAME NAME AS A VALID CONTROL STATEMENT IS TO BE CALLED. E.G. #OVLOAD,EDIT# WOULD CALL THE OVERLAY #EDIT#, WHILE JUST TYPING #EDIT# WOULD CALL THE OS-3 STANDARD TEXT EDITOR.

EXAMPLES:

OVLOAD,37

OVLOAD,ZIMZAM,I=10,O=20,L=30

OVLOAD,88,THIS IS THE PARAMETER STRING

ERROR MESSAGES:

OVLOAD FORMAT ERROR

THE FILE NAME OR LUN SPECIFIED WAS NOT AN
OVERLAY.

LUN XX UNDEFINED

THE LUN SPECIFIED BY XX WAS NOT EQUIPPED.

<NAME> NOT FOUND

THE FILE NAME <NAME> COULD NOT BE EQUIPPED.

<NAME> IS BUSY

THE FILE NAME <NAME> WAS NOT PROTECTED AND WAS
EQUIPPED BY ANOTHER

<NAME> INSUFFICIENT HARDWARE

AN UNAVAILABLE PIECE OF HARDWARE WAS
SPECIFIED.

<NAME> PARAMETER ERROR

A MISSING OR ILLEGAL PARAMETER WAS SPECIFIED.

2.47. RADAR

THIS CONTROL MODE COMMAND WILL CALL RADAR, THE
#REAL-TIME ASSEMBLER, DISASSEMBLER AND AID TO RESEARCH#. FOR MORE INFORMATION SEE THE RADAR MANUAL: CCM-70-9.

EXAMPLE:

RADAR

RADAR,<COMMAND LIST>

2.48. RELEASE

RELEASE IS A CONTROL FUNCTION USED TO DESTROY THE
INFORMATION CURRENTLY ON THE SPECIFIED LUN. RELEASE IS
VALID ON THE FOLLOWING DEVICES:

ON LP, PLOT, PUN, TASK, PTP, AND UNPROTECTED FILES
AND RAFS, ALL INFORMATION IS DESTROYED.

FOR MT, THE TAPE IS REWOUND.

FOR NULL, THE FUNCTION IS A NO-OPERATION.

EXAMPLE USE:

RELEASE,10,20,30

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE RELEASED.

2.49. RENAME

RENAME, <OLDNAME>=<NEWNAME>[+ OR -],...

THIS COMMAND WILL CHANGE THE NAME OF A FILE FROM <OLDNAME> TO <NEWNAME>. IF THE CHARACTER TERMINATING <NEWNAME> IS A #++ THE <NEWNAME> FILE WILL BE FILE PROTECTED. IF THE CHARACTER IS A #-# THE FILE WILL BE UNPROTECTED. OTHERWISE, THE FILE WILL HAVE THE SAME PROTECTION AS THE <OLDNAME> FILE.

EXAMPLES:

RENAME, ABCD=WXYZ
RENAME, ZOT=*ZIM+
RENAME, ZIP=ZAP-, ZIM=ZAM+, FROG=SMOG

ERROR MESSAGES:

<NAME> IS BUSY
THE FILE NAME <NAME> IS CURRENTLY EQUIPPED BY
SOME OTHER USER.

<NAME> DOES NOT BELONG TO YOU
THE FILE NAME <NAME> DOES NOT BELONG TO YOUR
ACCOUNT AND IS PROTECTED.

<NAME> INSUFFICIENT HARDWARE
YOU TRIED TO RENAME A PIECE OF HARDWARE WHICH
CANNOT BE EQUIPPED AT THIS TIME.

<NAME> PARAMETER ERROR
A MISSING OR ILLEGAL PARAMETER WAS SPECIFIED.

2.50. RESET

THE RESET COMMAND UNEQUIPS LOGICAL UNITS WITHIN THE RANGE SPECIFIED BY THE PARAMETERS. IF THE DELIMITING CHARACTER IS A #++, RESET WILL ALSO UNEQUIP THE FILE-PROTECTED LUNS. OTHERWISE ONLY THE NON PROTECTED OR SAVED LUNS ARE RESET. LP, PLOT, PTP, PUN, TASK ARE NON PROTECTABLE, AND ARE THEREFORE UNEQUIPPED BY BOTH RESET MODES. PARAMETERS AVAILABLE ARE USED TO SPECIFY

THE UPPER AND LOWER LIMITS OF LUN(S) TO BE #RESET#. SYNTAX:

RESET[+][,LOW LUN][,HIGH LUN]

IF THE HIGH LIMIT IS PRESENT, THE LOW LIMIT MUST ALSO BE PRESENT. ALL LUNS INCLUSIVE OF THE LOW AND HIGH LUNS WILL BE UNEQUIPPED ON THE BASIS OF THE #+# PARAMETER AS DESCRIBED ABOVE. IF LUN 60 AND 61 ARE INCLUDED WITHIN THE RANGE TO BE UNEQUIPPED, THEY WILL BE RE-EQUIPPED TO STANDARD INPUT AND STANDARD OUTPUT, RESPECTIVELY.

EXAMPLES:

RESET	ALL NON-PROTECTED LUNS.
RESET,90	ALL NON-PROTECTED LUNS FROM 90 TO 99.
RESET+	ALL LUNS.
RESET+,10,34	ALL LUNS FROM 10 TO 34.
RESET,9,13	ALL NON-PROTECTED LUNS FROM 9 TO 13.

NOTE: THE #+# PARAMETER MUST BE THE FIRST NON-BLANK CHARACTER FOLLOWING THE RESET COMMAND.

2.51. REWIND

THIS COMMAND WILL PLACE ALL LUNS SPECIFIED AT LOAD POINT. THE UNIT MUST BE A FILE, RAF OR MT.

EXAMPLES:

REWIND,10
REWIND,6,5,4,3,2

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE REWOUND. ONLY FILES, NULLS AND MAGNETIC TAPES CAN BE REWOUND.

2.52. RFP

THIS COMMAND WILL REMOVE FILE PROTECTION FROM THE SPECIFIED LUNS OR FILE NAMES. IF A LUN IS SPECIFIED AND ALREADY SAVED, THE USER MUST RFP THE FILE NAME. A USER CANNOT RFP A PUBLIC OR SEMI-PRIVATE FILE THAT BELONGS TO ANOTHER USER OR A FILE CURRENTLY IN USE BY ANOTHER USER (BUSY).

EXAMPLES:

```
RFP,10,20
RFP,MYLIB,1,56
RFP,ZIP,ZAP,ZIM,ZAM,10
```

ERROR MESSAGES:

```
LUN XX UNDEFINED
  THE LUN SPECIFIED BY XX WAS NOT EQUIPPED.
```

```
<NAME> IS BUSY
  THE FILE NAME <NAME> WAS ALSO EQUIPPED BY SOME
  OTHER USER.
```

```
LUN XX IS SAVED
  THE LUN XX IS SAVED. YOU MUST SPECIFY THE
  FILE NAME IN ORDER TO REMOVE PROTECTION FROM A
  SAVED FILE.
```

```
<NAME> DOES NOT BELONG TO YOU
  THE FILE NAME <NAME> BELONGS TO ANOTHER USER'S
  ACCOUNT.
```

2.53. SAVE

THE SAVE COMMAND IS USED WHENEVER THE USER WISHES TO STORE FILE OR RAF INFORMATION ON A PERMANENT BASIS. THE LUN MUST BE A FILE OR RAF. THE NAME SPECIFIED CAN BE ANY LENGTH, HOWEVER, ONLY THE FIRST EIGHT CHARACTERS WILL BE USED. THE NAME MUST NOT CURRENTLY EXIST, OR AN ERROR WILL RESULT. THE NAME CANNOT BE ONE OF THE AVAILABLE HARDWARE TYPES (SEE EQUIP). IF THE LUN IS FILE PROTECTED, THE NAME WILL BE PROTECTED AS WELL.

EXAMPLES:

```
SAVE,10=ZOT1,11=ZOT2,12=ZOT3
SAVE,8=*BLIPOUT
```

ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED BY XX WAS NOT EQUIPPED.

<NAME> ALREADY EXISTS
THE FILE NAME <NAME> IS ALREADY SAVED. YOU
MUST CHOOSE ANOTHER NAME. OR DELETE OR
DESTROY THE FILE, AND THEN TRY THE SAVE AGAIN.

LUN XX NOT A FILE OR RAF
THE LUN SPECIFIED BY XX IS NOT SAVABLE. ONLY
FILES AND RAFS CAN BE SAVED.

LUN XX NOT ENOUGH SAVED FILE SPACE
YOUR ACCOUNT DOES NOT HAVE ENOUGH SAVED FILE
SPACE IN ORDER TO SAVE THE LUN SPECIFIED BY
XX. YOU MUST DELETE OR DESTROY SOME EXISTING
FILES IN ORDER TO MAKE ROOM FOR THE NEW FILE.

<NAME> IS AN ILLEGAL NAME
YOU GAVE AN ILLEGAL NAME FOR A SAVED FILE.
YOU CANNOT SAVE A FILE WITH THE SAME NAME AS
AN EQUIPABLE HARDWARE DEVICE (LP, PUN, ETC.).
CHOOSE ANOTHER NAME AND TRY AGAIN.

LUN XX ALREADY SAVED
THE LUN SPECIFIED BY XX ALREADY HAS A
PERMANENT NAME ASSOCIATED WITH IT. A LUN
CANNOT BE SAVED UNDER MORE THAN ONE NAME AT A
TIME.

SAVED FILES ARE CONSIDERED PRIVATE (EQUIPABLE ONLY ON
THE SAME JOB/USER NUMBER SAVED UNDER) UNLESS THE FIRST
CHARACTER OF THE FILE NAME IS ONE OF THREE SPECIAL
CHARACTERS AS FOLLOWS:

- * - INDICATES THE FILE IS PUBLIC. ANY OS-3 USER
MAY EQUIP THE FILE.
- \$ - INDICATES THE FILE IS PUBLIC, BUT IS
#RUN-ONLY#. IT IS ACCESSABLE BY ANY OS-3 USER,
BUT CAN BE RUN ONLY, IT CAN NOT BE EXAMINED OR
COPIED BY ANY USER.
- † - INDICATES THE FILE IS SEMI-PUBLIC. THIS IS
SIMILAR TO A PUBLIC FILE, BUT THE FILE CAN BE
EQUIPPED ONLY BE USERS HAVING THE SAME ACCOUNT
NUMBER AS THE FILE'S OWNER. THEY NEED NOT HAVE
THE SAME VALIDITY CODE.

2.54. SDR

THIS COMMAND WILL REWIND THE SPECIFIED LUN TO LOAD POINT AND SET IT INTO #DESTRUCTIVE READ# MODE. THIS IS A MODE THAT CAUSES THE FILE TO BE #EATEN# AS IT IS READ. AS EACH RECORD IS READ FROM THE FILE, IT IS FREED TO THE FREE FILE POOL TO ALLOW THE SPACE TO BE USED AGAIN BY OTHER USERS. THE ADVANTAGE TO THIS IS THAT IT WILL LOWER THE #MFBLKS# OR SCRATCH SPACE IN USE BY THE USER AS THE FILE IS READ.

FOR EXAMPLE: A USER HAS A FILE THAT IS 57 BLOCKS LONG THAT HE WISHES TO COPY TO THE LINE PRINTER. IN ORDER TO MAKE A COPY OF THIS FILE, THE USER MUST DUPLICATE ITS CONTENTS ONTO AN #LP# FILE TYPE. TO DO THIS WOULD NORMALLY REQUIRE TWICE THE FILE SPACE SINCE THE FILE WOULD HAVE TO EXIST AS BOTH THE SCRATCH FILE AND THE LINE PRINTER FILE BEING COPIED. IF THE USER'S TOTAL #MFBLK# OR SCRATCH FILE BLOCK LIMIT IS ONLY 100 BLOCKS HE CANNOT COPY IT. HOWEVER, IF THE USER PLACES THE FILE IN #SDR# MODE, ONLY ONE COPY OF THE FILE NEED TO EXIST AT A TIME, SINCE THE INPUT COPY IS DESTROYED AS IT IS READ. IN PRACTICE, AN EXTRA BLOCK IS NEEDED.

WARNING!!!!!!!!!!!!!! THERE IS NO (REPEAT: NO) TURNING BACK. ONCE A FILE HAS BEEN SDR#ED IT CAN ONLY BE READ, RELEASED, CLEARED, AND UNEQUIPPED. THUS YOU SHOULD EXERCISE EXTREME CAUTION IN USING THIS FILE COMMAND.

THE CONTROL STATEMENT #COPY# ALLOWS THE #/D# SPECIFICATION ON THE INPUT UNIT TO ALLOW THE USER TO SPECIFY A DESTRUCTIVE REWIND BEFORE THE COPY IS BEGUN. FOR INFORMATION, SEE COPY.

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE PLACED INTO DESTRUCTIVE READ MODE. ONLY FILES, MAGNETIC TAPES, AND NULLS CAN BE SDR#D. FOR MAGNETIC TAPES, THE FUNCTION MERELY CAUSES A REWIND.

2.55. SEFB

THIS COMMAND WILL CAUSE THE SPECIFIED FILE TO BE SEARCHED BACKWARD UNTIL THE SPECIFIED NUMBER OF FILE MARKS. THE LUNS MAY BE SPECIFIED ONE AT A TIME, OR THE USER MAY USE THE REPEAT FACTOR (SEE BKSP). SEFB IS LEGAL ON FILES AND TAPES ONLY.

EXAMPLES:

SEFB,10,20
SEFB,7(12),9,14,87(3)

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE SEFB#ED. ONLY
FILES, MT#S AND NULLS CAN BE SEFB#ED.

2.56. SEFF

THIS COMMAND FUNCTIONS EXACTLY AS THE SEFB COMMAND,
HOWEVER, THE SEARCH IS MADE IN THE FORWARD DIRECTION.
(SEE SEFB) SEFF IS LEGAL ON FILES, RAFS, AND TAPES ONLY.

FOR A RAF, THE SEFF COMMAND WILL CAUSE THE RAF TO BE
PLACED AT THE PHYSICAL END OF INFORMATION.

EXAMPLES:

SEFF,10,23
SEFF,1(101),2(5),6

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
THE LUN SPECIFIED COULD NOT BE SEFF#ED. ONLY
FILES, MT#S, RAFS, AND NULLS CAN BE SEFF#ED.

2.57. SEND

THIS COMMAND IS USED TO CONTROL ROUTING OF INFORMATION
TO SPECIFIC DEVICE OR BATCH QUEUES. BATCH INFORMATION
(CARD IMAGE DECKS) ON TASK FILES CAN BE SENT TO A
VARIETY OF QUEUES WHICH WILL PROCESS THE JOBS ACCORDING
TO THE RESOURCES THEY REQUIRE. THESE QUEUES ARE:

- NITE - JOBS WILL NOT BEGIN EXECUTION UNTIL THIRD
SHIFT (CHEAPEST) IS IN EFFECT. (DOES NOT
RUN ON WEEKENDS)
- LOW - JOBS WILL NOT BEGIN UNTIL SECOND OR THIRD
SHIFT IS IN EFFECT.
- FAST - JOBS REQUIRING LESS THAN 30 CPU SECONDS

AND 100 SCRATCH FILE BLOCKS.

MT1 - JOBS REQUIRING 1 TAPE DRIVE.
MT2 - JOBS REQUIRING 2 TAPE DRIVES.
MT3 - JOBS REQUIRING 3 TAPE DRIVES.
MT4 - JOBS REQUIRING 4 TAPE DRIVES.
TASK - DEFAULT TASK QUEUE.

THE FORMAT OF THE SEND COMMAND IS:

SEND <LUN> TO <DESTINATION>

WHERE <DESTINATION> IS ANY OF THE ABOVE NAMES FOR OTHER DEVICES, THE DESTINATIONS ARE:

LINE PRINTER

SITE - ANY SITE LINE PRINTER
PR1 - SITE PRINTER NUMBER 1

CARD PUNCH

SITE - ANY SITE PUNCH

XY PLOTTER

SITE - ANY SITE PLOTTER

PAPER TAPE PUNCH

SITE - ANY SITE PAPER TAPE PUNCH

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
LUN IS NOT EQUIPPED

LUN XX NOT UNIT RECORD DEVICE.
LUN MUST BE A LP, PLOT, PTP, PUN OR TASK TO
BE #SENDABLE#.

<NAME> DESTINATION UNKNOWN
DESTINATION SPECIFIED IN SEND IS UNKNOWN TO
OS-3.

THE TERM #SITE# IS USED TO DESCRIBE ANY DEVICE AT
THE OSU MILNE COMPUTER CENTER.

2.58. SFBLKS

THIS COMMAND CAUSES THE CURRENT SAVE FILE BLOCKS AND THE SAVED FILE BLOCK LIMIT TO BE PRINTED ONTO THE USER'S OUTPUT DEVICE. THE DIFFERENCE BETWEEN THE VALUES OF SFBLKS AND SFBLKLIM REPRESENTS THE STORAGE AVAILABLE FOR MORE FILES. EACH FILE SAVED WILL BE CHARGED FOR THE SPACE USED BY THE FILE PLUS ONE BLOCK FOR THE NAME.

2.59. SORT

THIS COMMAND CALLS THE OS-3 SORT UTILITY. SORT IS A GENERAL-PURPOSE SORT-MERGE WHICH ALLOWS INPUT FROM UP TO THIRTY-TWO INPUT FILES. SORT ALLOWS TWO PARAMETERS ON THE CALL. THE $\neq I \neq$ PARAMETER IS USED TO SPECIFY LOGICAL UNIT FOR INPUT OF SORT OPTIONS. THE $\neq O \neq$ PARAMETER IS USED TO SPECIFY A LOG UNIT FOR ERROR MESSAGES AND RECORD COUNTS. SORT ALLOWS SEVERAL OPTIONS AS FOLLOWS:

- B - BLOCKING FACTOR
- E - END OF SORT OPTIONS
- I - INPUT FILE
- K - KEY FIELD
- L - LENGTH ERROR OPTIONS
- O - OUTPUT FILE
- P - PARITY ERROR OPTIONS
- R - RECORD SIZE
- T - TABLE FOR NON-STANDARD COLLATING SEQUENCES

FOR DETAILED EXPLANATIONS OF AVAILABLE OPTIONS AS WELL AS FURTHER INFORMATION ON USING SORT, PLEASE REFER TO THE COMPUTER CENTER PUBLICATION CCM-71-06.

2.60. START

THE START COMMAND WILL START EXECUTION AT THE ADDRESS SPECIFIED. THE ADDRESS MUST BE A SIX OR FEWER DIGIT OCTAL NUMBER. IF NO PARAMETER IS PRESENT, 0 IS ASSUMED. EXAMPLES:

```
START
START,77000,I=10,O=20,S=30,T=40,X=8
START,177531
```

ANY PARAMETER LIST PRESENT WILL BE PLACED INTO THE USER'S PARAMETER STRING BEFORE STARTING.

2.61. STATUS

IF A PARAMETER IS INCLUDED, THEN A LINE IS PRINTED FOR EACH ITEM SPECIFIED IN THE PARAMETER STRING. THIS LINE WILL CONTAIN STATUS ABOUT EACH FILE OR LUN GIVEN. THIS INFORMATION WILL CONTAIN SPECIAL CHARACTERS WHICH HAVE THE FOLLOWING MEANINGS:

CHARACTER	DEFINITION
-----	-----
+	READ-ONLY FILE (PROTECTED)
[LOAD POINT
]	END OF DATA
F	FILE MARK PROCESSED
D	FILE IN DESTRUCTIVE READ MODE
B	BINARY RECORD PROCESSED
A	ABNORMAL/UNAVAILABLE
E	ADDRESS ERROR (RAF ONLY)
S	FILE IS SAVED

THE ABOVE INFORMATION MAY BE FOLLOWED BY ADDITIONAL FILE-SIZE/RECORD-COUNT INFORMATION IF THE INFORMATION IS APPLICABLE TO THE TYPE.

THE NUMBER OF PARAMETERS SPECIFIED IS LIMITED ONLY BY THE LENGTH OF THE RECORD INPUT. EXAMPLES:

```
STATUS, ZIP
      ZIP FILE +[ ]S
```

```
STATUS, 10
      LUN 10 UNDEFINED
```

```
STATUS, *HI
      *HI FILE +[ ]S 1 BLKS
```

```
STATUS, 14
      LUN 14 LP (WTR ) ]F 4 BLKS 254 RECS
```

```
STATUS, 1, 2, 3, FRESH, *LIB, HELP
      LUN 1 FILE ]F 4 BLKS
      LUN 2 PUN ] 1 BLKS 245 RECS
      LUN 3 PTP ]F 1 BLKS 121 RECS
      FRESH FILE [ ]S
      *LIB RAF +[ ]S 99 BLKS
      HELP NAME NOT FOUND
```

THE STATUS COMMAND (WITHOUT PARAMETERS) WILL PRINT A LIST OF THE USER'S HARDWARE REGISTERS AND THEIR CONTENTS ONTO HIS TERMINAL. THIS IS USEFUL WHEN A PROGRAM HAS BOMBED COMPLETELY AND HE WISHES TO ANALYZE IT OR TAKE THE OUTPUT TO A CONSULTANT FOR HELP. EXAMPLE:

```
STATUS
```


P 120221
LJA 131002
A 00000032
Q 12130556
B1 55421
B2 00015
B3 77775
EU 27730000
EL 77642160
<ROS>
<AOV><DIV><EXP><BCD>
IM=<AOV/DIV><EXP/BCD>

MEANING OF THE ABOVE INFORMATION:

P IS THE SIXTEEN BIT PROGRAM COUNTER. POINTS TO CURRENT INSTRUCTION TO BE EXECUTED.

LJA IS THE LAST-JUMP-ADDRESS REGISTER. CONTAINS THE PROGRAM ADDRESS OF LAST BRANCHING INSTRUCTION.

A IS THE 24 BIT ACCUMULATOR.

Q IS THE 24 BIT QUOTIENT REGISTER.

B1 IS INDEX REGISTER 1.

B2 IS INDEX REGISTER 2.

B3 IS INDEX REGISTER 3.

EU IS UPPER 24 BITS OF E REGISTER.

EL IS LOWER 24 BITS OF E REGISTER. (THE E REGISTER IS FOR FLOATING POINT AND DOUBLE PRECISION OPERATIONS)

<ROS> - USER IS IN ROS MODE.

<AOV> - AN ARITHMETIC OVERFLOW HAS OCCURRED.

<DIV> - A DIVIDE FAULT HAS OCCURRED (DIVIDE BY 0)

<EXP> - AN EXPONENT FAULT HAS OCCURRED (E.G. OVERFLOW OR UNDERFLOW)

<BCD> - A BCD CONVERSION FAULT (BDP CONDITION ONLY) HAS OCCURRED.

IM= INDICATES CONTENTS OF INTERRUPT MASK:

<AOV/DIV> - ARITHMETIC OVERFLOW AND DIVIDE FAULT INTERRUPTS ARE ENABLED.

<EXP/BCD> - EXPONENT FAULT AND BCD FAULT INTERRUPTS ARE ENABLED.

2.62. SUBMIT

SUBMIT IS A COMMAND TO AID IN SUBMITTING TASK JOBS FROM INTERACTIVE TERMINALS, RUNNING BATCH JOBS, OR TASK JOBS. THE GENERAL FORMAT IS:

SUBMIT[,I=<LUN>/<NAME>] [,C=<CHAR>] ,<QUEUE> [,<COMMENT>]

THE I PARAMETER SPECIFIES THE INPUT UNIT TO SUBMIT FROM. IF NO I PARAMETER IS SPECIFIED THE USER MUST BE A BATCH OR TASK JOB AND INPUT DEFAULTS TO LUN 100.

THE C PARAMETER IS USED TO SPECIFY THE CHARACTER TO BE CHANGED TO A [(7/8) IF FOUND IN COLUMN ONE OF AN INPUT RECORD.

SUBMIT WILL READ THE FIRST RECORD FROM THE INPUT UNIT. IF THIS RECORD IS A JOB CARD, IT WILL USE THE QUEUE PARAMETER FROM THIS CARD IF ONE WAS NOT SPECIFIED ON THE (SUBMIT CALL. IF A JOB NUMBER AND VALIDITY CODE ARE PRESENT ON THIS JOB CARD, THEY WILL BE USED FOR THE JOB TO BE SUBMITTED. IF NO JOB NUMBER OR VALIDITY CODE ARE PRESENT, THE SUBMITTING USERS ACCOUNT WILL BE USED. A TASK WILL BE CREATED BY WRITING THIS FIRST JOB CARD ONTO THE UNIT, SENDING IT TO THE SPECIFIED QUEUE (SITE IS THE DEFAULT) AND COPYING ALL RECORDS AFTER THIS FROM THE INPUT UNIT ONTO THE TASK. COPYING WILL CEASE WHEN AN MATCHING NUMBER OF (ENDSUB CARDS FOR EACH (SUBMIT CARD NOT CONTAINING AN ≠I≠ PARAMETER HAVE BEEN COPYIED. COPYING WILL CEASE IMMEDIATELY IF A (LOGOFF CARD IS READ REGARDLESS OF HOW MANY OUTSTANDING (SUBMIT CARDS REMAIN.

ERROR MESSAGES:

INPUT NOT ALLOWED FROM XXXX
XXXX IS THE HARDWARE TYPE OF THE INPUT UNIT.

DESTINATION UNKNOWN
THE DESTINATION SPECIFIED IS UNKNOWN TO OS-3.
SUBMIT WILL SCAN FOR A MATCHING ENDSUB CARD -
NO JOB(S) WILL BE SUBMITTED.

ABORT MODE -- SUBMIT NOT PROCESSED.
THE USER WAS IN ABORT MODE WHEN SUBMIT WAS ENTERED. SUBMIT WILL SCAN FOR THE MATCHING (ENDSUB CARD IF THIS IS THE CASE AND NO JOB(S) WILL BE SUBMITTED.

INPUT RECORD LONGER THAN 40 WORDS.
THIS IS AN ABNORMAL CONDITION. PLEASE BRING OUTPUT TO A SYSTEMS PROGRAMMER FOR ANALYSIS.

INPUT UNIT IS ABNORMAL/UNAVAILABLE.

THE INPUT UNIT (LUN 100) BECAME ABNORMAL WHILE READING. PLEASE BRING OUTPUT TO A SYSTEMS PROGRAMMER.

IN ANY CASE, IF SUBMIT FINDS AN ERROR AND ISSUES ONE OF THE ABOVE DIAGNOSTICS, NO TASK WILL BE SUBMITTED. THE TASK IS RELEASED AND RECORDS ARE READ FROM THE I UNIT (IF POSSIBLE) UNTIL A MATCHING NUMBER OF IENDSUB CARDS HAVE BEEN READ. THE JOB IS THEN ABORTED AND PLACED INTO CONTROL MODE.

2.63. SYSTAT

SYSTAT IS A PROGRAM WHICH ALLOWS THE USER TO PEEK INTO THE INNARDS OF OS-3 AND OBTAIN INFORMATION ABOUT RUNNING JOBS, QUEUES AND OTHER USERS ON THE SYSTEM. SYSTAT MAY BE CALLED IN TWO WAYS:

- 1) SYSTAT,<COMMAND TO BE EXECUTED>
- 2) SYSTAT

IN EXAMPLE 1, SYSTAT WILL DO THE COMMAND AND THEN EXIT BACK TO CONTROL MODE. IN EXAMPLE 2, SYSTAT WILL ENTER AN INTERACTIVE MODE WHERE THE USER MAY REQUEST A DISPLAY AND UPON COMPLETION OF THAT DISPLAY REQUEST A NEW DISPLAY OR ISSUE ANOTHER COMMAND.

2.63.1. SYSTAT COMMANDS

2.63.1.1. ABORT

THIS COMMAND ALLOWS A USER TO ABORT A RUNNING BATCH JOB. ISSUING THIS COMMAND WILL CAUSE THE BATCH JOB SPECIFIED TO ENTER ABORT MODE. ANY #XABORT# OR #UNABORT# CONTROL CARD IN THE INPUT STREAM WILL REMOVE THE ABORT INDICATOR. THE COMMAND FORMAT IS:

ABORT,<RELATIVE BATCH TERMINAL NUMBER>

WHERE <RELATIVE BATCH TERMINAL NUMBER> IS AS DISPLAYED BY THE #BATCH# OR #STATUS# COMMANDS.

ERROR MESSAGES:

JOB NOT FOUND
THE JOB SPECIFIED DOES NOT EXIST.

JOB DOES NOT BELONG TO YOU
THE JOB EXISTS, BUT THE JOB NUMBER AND VALIDITY CODE DO NOT MATCH YOURS.

PARAMETER ERROR

A MISSING OR ILLEGAL PARAMETER WAS SPECIFIED.

2.63.1.2. BATCH

THIS COMMAND WILL PRINT OUT TWO LINES OF STATUS FOR EACH JOB LISTED. THE COMMAND FORMAT IS:

BATCH[, <JOB NUMBER>]

IF THE PARAMETER IS MISSING, ONLY JOBS WITH THE SAME JOB NUMBER AS THE CALLER WILL BE LISTED. IF THE PARAMETER IS 0 OR #ALL# THEN ALL JOBS WILL BE LISTED. THE OUTPUT FORMAT IS:

JOBNUM	Q	I/O	CPU	MFBLKS	TAPE
08:754335(TASK)		RUN	0110/1000	00560/02000	0/0
		RF60=00000000	RF61=12011234	RF77=00000602	

THE NUMBER LEFT OF THE #:# IS THE RELATIVE BATCH TERMINAL NUMBER USED IN DROPPING OR ABORTING THE JOB (SEE THE SECTION ON ABORT OR DROP). THE ITEM UNDER #Q# IS THE QUEUE FROM WHICH THE JOB LOGGED IN. THE ITEM UNDER #I/O# IS THE IOBOUND CODE (SEE THE SECTION ON IOBOUND CODES). THE CPU TIME OF THE JOB IS GIVEN AS CPU TIME USED/CPU TIME LIMIT. THE MFBLKS ARE MFBLKS USED/MFBLK LIMIT. TAPE INFORMATION IS E/R WHERE E IS TAPES EQUIPPED AND R IS TAPE DRIVES RESERVED BY THE JOB. THE SECOND LINE CONTAINS THE CONTENTS OF THE USERS REGISTER FILES 60B, 61B AND 77B (77B CONTAINS CERTAIN JOB STATUS BITS SUCH AS ABORT, RESTRICT, DROP, LOADING DELETED, ETC. FOR MORE INFORMATION, SEE THE SECTION ON REGISTER FILE 77B BIT DEFINITIONS.

THIS COMMAND MAY BE ABBREVIATED TO JUST #B#.

2.63.1.3. DROP

THIS COMMAND ALLOWS THE USER FROM A REMOTE TERMINAL TO #DROP# OR PERMANENTLY ABORT A JOB CURRENTLY EXECUTING OR ONE STILL IN THE INPUT QUEUE. THE COMMAND FORMAT IS:

DROP, <RELATIVE BATCH TERMINAL NUMBER>

-OR-

DROP, <QUEUE NAME>, <RELATIVE POSITION WITHIN QUEUE>

IF THE JOB IS EXECUTING, IT WILL BE ABORTED WITH A MESSAGE STATING SO, AND BE PLACED INTO A MODE WHICH WILL READ ALL INPUT FROM LUN 100 UNTIL END OF DATA IS REACHED (ALL CONTROL CARDS GONE). MULTIPLE JOB/LOGOFF GROUPS SUBMITTED FROM TASK WILL ALL GO AWAY. MULTIPLE JOBS

SUBMITTED FROM A CARD READER WILL SHOW UP AS SEPARATE ENTRIES IN THE INPUT QUEUE AND MUST BE DROPPED INDIVIDUALLY.

JOBS DROPPED WHILE IN AN INPUT QUEUE WILL BE MARKED SO THE SYSTEM WILL KNOW NOT TO ALLOW EXECUTION UPON LOGGING ON. WHEN THE JOB DOES LOG ON, A MESSAGE WILL BE PRINTED AND IT WILL THEN ENTER THE MODE SPECIFIED ABOVE TO CAUSE ALL INPUT TO BE CONSUMED. ONCE A JOB HAS BEEN DROPPED, ONLY AN OPERATOR CAN REMOVE THE `*DROP*` CONDITION, AND NOT EVEN HE OR SHE CAN SAVE A RUNNING JOB THAT HAS BEEN DROPPED, SO BE CAREFUL.

2.63.1.4. EXIT

THIS COMMAND TERMINATES SYSTAT EXECUTION AND RETURNS THE USER TO CONTROL MODE.

2.63.1.5. HELP

THIS COMMAND PRINTS HELPFUL INFORMATION ABOUT SOME ASPECT OF SYSTAT. COMMAND FORMAT IS: `HELP,<ITEM WANTED>`. IF SYSTAT IS UNABLE TO FIND INFORMATION ON THE ITEM DESIRED, A MESSAGE IS PRINTED STATING THE ERROR.

2.63.1.6. INPUT

THIS COMMAND WILL PRINT INFORMATION ABOUT THE INPUT QUEUES. THE COMMAND FORMAT IS:

`INPUT[,QUEUE NAME]`

IF QUEUE NAME IS MISSING OR `*ALL*` THEN ALL QUEUES WILL BE PRINTED. THE OUTPUT FORMAT IS:

QUEUE	RUN	WAIT	LIM
00 NITE	00	000	02
01 LOW	00	000	01
02 MT1	00	000	01
03 MT2	00	000	02
04 MT3	00	000	01
05 MT4	00	000	01
06 TASK	03	000	03
07 RJEA	00	000	01
10 RJEB	00	000	01
11 CR1	00	000	01
12 FAST	00	000	01

THE ENTRY UNDER `*RUN*` IS THE NUMBER OF JOBS CURRENTLY EXECUTING FROM THIS QUEUE. THE ENTRY UNDER `*WAIT*` IS THE NUMBER OF JOBS WAITING BEHIND THE RUNNING JOBS. THE ENTRY UNDER `*LIM*` IS THE MAXIMUM NUMBER OF SIMULTANEOUS

JOB S ALLOWED TO EXECUTE FROM THIS QUEUE.

FOR INFORMATION ABOUT THE QUEUES, SEE THE SECTION ON INPUT AND OUTPUT QUEUES.

THIS COMMAND MAY BE ABBREVIATED TO JUST #I#.

2.63.1.7. JOBLIST

THIS COMMAND WILL GIVE A LIST OF TERMINAL NUMBERS AND JOB NUMBERS MATCHING THE JOB NUMBER REQUESTED. THE FORMAT OF THE COMMAND IS:

```
JOBLIST [
,TTY=[([<PHY TERM NUM>]A/B/C/D)]...
[,TV]...
[,BAT]...
[,DET]...
[,<JOB NUMBER>]
```

A JOB NUMBER OF 0 OR #ALL# WILL MATCH ANY JOB NUMBER ON THE SYSTEM.

THE ITEMS IN [] ARE OPTIONAL. WITHOUT PARAMETERS, THE DEFAULT IS <YOUR JOB NUMBER>. SOME EXAMPLES ARE:

JOBLIST LIST ALL TERMINALS WITH MATCHING JOB NUMBERS.

JOBLIST,TV LIST TV#S WITH SAME JOB NUMBER AS YOURS.

JOBLIST,TTY=A LIST ALL TERMINALS ON MULTIPLEXOR A.

JOBLIST,TTY=452A LIST TERMINAL AND JOB NUMBER OF USER ON 452A.

JOBLIST,741024 LIST ANY TERMINAL WITH JOB NUMBER OF 741024.

JOBLIST,ALL LIST ALL TERMINALS

THE FORMAT LISTED BY THIS COMMAND IS:

```
TERM  JOBNUM
000-DET 673043
104-342A*741012
106-123B+741012
```

THE #*# MEANS THAT THE JOB NUMBER AND VALIDITY CODE OF THE CALLER MATCH THOSE OF THE LISTED USER. THE #*# INDICATES THE CALLER#S ENTRY IN THE LIST.

THIS COMMAND MAY BE ABBREVIATED TO JUST #J#.

2.63.1.8. LINFUT

THIS COMMAND WILL PRINT THE INFORMATION FOUND UNDER THE I OR INPUT COMMAND, BUT WILL ALSO PRINT INDIVIDUAL ENTRIES IN THE INPUT QUEUES AND CERTAIN STATUS ABOUT EACH. THE COMMAND FORMAT IS:

LINPUT[,QUEUE NAME[,<JOB NUMBER>]]

IF THE QUEUE NAME IS MISSING OR #ALL# THEN ALL QUEUES WILL BE PRINTED. IF THE <JOB NUMBER> IS MISSING, ONLY ITEMS BELONGING TO THE CALLER WILL BE PRINTED. IF THE <JOB NUMBER> IS #ALL#, THEN ALL ITEMS IN THE QUEUE WILL BE PRINTED.

THE OUTPUT FORMAT IS:

QUEUE	RUN	WAIT	LIM
00 NITE	00	000	02
01 LOW	00	000	01
02 MT1	00	000	01
03 MT2	00	000	02
04 MT3	00	000	01
05 MT4	00	000	01
06 TASK	03	005	03
002:755420	T		
003:755420	D		
07 RJE	00	000	01
11 CR1	00	000	01
12 FAST	00	000	01

THE ENTRY UNDER #RUN# IS THE NUMBER OF JOBS CURRENTLY EXECUTING FROM THIS QUEUE. THE ENTRY UNDER #WAIT# IS THE NUMBER OF JOBS WAITING BEHIND THE RUNNING JOBS. THE ENTRY UNDER #LIM# IS THE MAXIMUM NUMBER OF SIMULTANEOUS JOBS ALLOWED TO EXECUTE FROM THIS QUEUE.

ITEMS SUBMITTED FROM #TASK# OR #SUBMITTED# JOBS ARE MARKED WITH A #T# (TASK ORIGIN). ITEM MARKED WITH A #B# WERE READ FROM A CARD READER. ITEMS MARKED WITH A #D# HAVE BEEN #DROPPED# BY EITHER THE OPERATOR OR A USER (SEE THE SECTION ON DROP).

THIS COMMAND MAY BE ABBREVIATED TO JUST #LI#.

2.63.1.9. LOOUTPUT

THIS COMMAND WILL LIST INFORMATION FOUND UNDER THE O OR OUTPUT COMMAND, BUT WILL ALSO LIST EACH ENTRY FOUND IN AN OUTPUT QUEUE AND CERTAIN STATUS ABOUT THAT ENTRY. THE COMMAND FORMAT IS:

LOUTPUT(,QUEUE NAME(,<JOB NUMBER>))

IF THE QUEUE NAME IS MISSING OR #ALL# THEN ALL QUEUES WILL BE PRINTED. IF THE <JOB NUMBER> IS MISSING, ONLY ITEMS BELONGING TO THE CALLER WILL BE PRINTED. IF THE <JOB NUMBER> IS #ALL#, THEN ALL ITEMS IN THE QUEUE WILL BE PRINTED. BLOCKS OF ELEMENTS NOT BELONGING TO THE JOB NUMBER REQUESTED HAVE THEIR COMBINED TOTAL PRINTED IN A MESSAGE OF THE FORM:

GROUP OF NNNNNN BLOCKS (NNNNNN IS TOTAL)

THE OUTPUT FORMAT IS:

```
  ID  LEFT FILES TOTAL
PR1  00022  010  00180
000:750123 A  00022
GROUP OF 000100 BLOCKS
009:750123   00009
010:750123 AF 00071
PLT1 00000  000  00000
PUN  00000  000  00000
PTP  00000  000  00000
LINK 00000  000  00000
RJEA 00000  000  00000
RJEB 00000  000  00000
```

THE ENTRIES UNDER #LEFT# ARE TOTAL FILE BLOCKS LEFT IN CURRENT OUTPUT FILES. THE ENTRIES UNDER #FILES# ARE TOTAL NUMBER OF OUTPUT FILES REMAINING IN THE QUEUE. THE ENTRIES UNDER #TOTAL# ARE THE TOTAL FILE BLOCKS REMAINING IN THE QUEUE (DOES NOT INCLUDE THE CURRENT OUTPUT FILE).

AN #A# IN THE QUEUE ENTRY SAYS THE USER WAS IN #ABORT MODE# WHEN THE FILE WAS UNEQUIPPED. THIS IS NORMAL FOR FILES CREATED FROM A TERMINAL, AS ANY #ILLEGAL CONTROL STATEMENT# WILL CAUSE THE ABORT MODE CONDITION TO BE SET. FROM BATCH, IT DOES MEAN THE JOB ABORTED (OR WAS ABORTED) BEFORE IT TERMINATED.

AN #F# IN AN OUTPUT QUEUE ENTRY MEANS THE FILE WILL REQUIRE SPECIAL FORMS OR HANDLING BY THE OPERATOR.

THIS COMMAND MAY BE ABBREVIATED TO JUST #LO#.

2.63.1.10. OUTPUT

THIS COMMAND WILL LIST STATUS OF THE OUTPUT QUEUES. THE COMMAND FORMAT IS:

OUTPUT(,QUEUE NAME)

IF QUEUE NAME IS MISSING OR #ALL# THEN ALL QUEUES WILL BE PRINTED. THE OUTPUT FORMAT IS:

ID	LEFT	FILES	TOTAL
PR1	00022	002	00080
PLT1	00000	000	00000
PUN	00033	000	00000
PTP	00000	000	00000
LINK	00000	000	00000
RJEA	00000	000	00000
RJEB	00000	000	00000

THE ENTRIES UNDER #LEFT# ARE TOTAL FILE BLOCKS LEFT IN CURRENT OUTPUT FILES. THE ENTRIES UNDER #FILES# ARE TOTAL NUMBER OF OUTPUT FILES REMAINING IN THE QUEUE. THE ENTRIES UNDER #TOTAL# ARE THE TOTAL FILE BLOCKS REMAINING IN THE QUEUE (DOES NOT INCLUDE THE CURRENT OUTPUT FILE).

FOR INFORMATION ABOUT THE QUEUES, SEE THE SECTION ON QUEUES.

THIS COMMAND MAY BE ABBREVIATED TO JUST #Q#.

2.63.1.11. STATUS

THIS COMMAND WILL LIST ONLY THE FIRST LINE OF INFORMATION PRINTED BY THE B OR BATCH COMMAND. THE COMMAND FORMAT IS:

STATUS(,<JOB NUMBER>)

IF THE JOB NUMBER IS MISSING, ONLY JOBS WITH THE SAME JOB NUMBER AS THE CALLER WILL BE PRINTED. IF THE JOB NUMBER IS 0 OR #ALL# THEN ALL JOBS WILL BE PRINTED. THE OUTPUT FORMAT IS:

JOBNUM	Q	I/O	CPU	MFBLKS	TAPE
081754335	(TASK)	RUN	0110/1000	00560/02000	0/0

THE NUMBER LEFT OF THE ## IS THE RELATIVE BATCH TERMINAL NUMBER USED IN DROPPING OR ABORTING THE JOB (SEE ABORT OR DROP). THE ITEM UNDER #Q# IS THE QUEUE FROM WHICH THE JOB LOGGED IN. THE ITEM UNDER #I/O# IS THE IOBOUND CODE (SEE THE SECTION ON IOBOUND CODES). THE CPU TIME OF THE JOB IS GIVEN AS CPU TIME USED/CPU TIME LIMIT. THE MFBLKS ARE MFBLKS USED/MFBLK LIMIT. TAPE INFORMATION IS E/R WHERE E IS TAPES EQUIPPED AND R IS TAPE DRIVES RESERVED BY THE JOB.

THIS COMMAND MAY BE ABBREVIATED TO JUST #S#.

2.63.1.12. USERS

THIS COMMAND WILL LIST THE TERMINAL NUMBERS, JOB NUMBER, I-O STATUS, CPU TIME USED, WALL CLOCK TIME USED (CONNECT

TIME), MFBLKS (SCRATCH FILE SPACE IN USE), AND NUMBER OF MAGNETIC TAPES IN USE AND RESERVED BY ANY USER ON OS-3. THE PARAMETER FORMAT IS THE SAME AS FOR THE #J# COMMAND:

```
USERS(
,TTYI=[([<PHY TERM NUM>]A/B/C/D)])...
[,TV]...
[,BAT]...
[,DET]...
[,<JOB NUMBER>]
```

A JOB NUMBER OF 0 OR #ALL# WILL MATCH ANY JOB NUMBER ON THE SYSTEM.

THE ITEMS IN [] ARE OPTIONAL. WITHOUT PARAMETERS, THE DEFAULT IS <YOUR JOB NUMBER>.

THE OUTPUT FORMAT IS:

TERM	JOBNUM	I/O	CPU	WC	BLKS	MT
000-DET	673043	RUN	1	9:23		
104-123B	705341	IN	6	1:12	1	
117-TV	755023	TV	14	0:12	123	1/1

THE CPU TIME IS IN SECONDS. THE WALL CLOCK TIME IS IN HOURS AND MINUTES. MT INFORMATION IS E/R WHERE E IS NUMBER OF TAPES EQUIPPED AND R IS THE NUMBER OF TAPE DRIVES RESERVED.

FOR DEFINITIONS OF THE I/O CODES SEE THE SECTION ON ICBOUND CODES.

THIS COMMAND MAY BE ABBREVIATED TO JUST #U#.

2.63.2. DISPLAY INFORMATION DEFINITIONS

2.63.2.1. INPUT AND OUTPUT QUEUES

INPUT QUEUES CURRENTLY AVAILABLE UNDER OS-3 VERSION 6.1:

NAME	PURPOSE
NITE	JOBS WISHING TO EXECUTE ONLY DURING THIRD SHIFT.
LOW	JOBS WISHING TO EXECUTE ONLY DURING SECOND OR THIRD SHIFT.
MT1	JOBS REQUIRING 1 TAPE DRIVE.
MT2	JOBS REQUIRING 2 TAPE DRIVES AT ONCE.
MT3	JOBS REQUIRING 3 TAPE DRIVES AT ONCE.
MT4	JOBS REQUIRING 4 TAPE DRIVES AT ONCE.
TASK	JOBS SUBMITTED FROM TERMINALS OR THROUGH #SUBMIT#.
CR1	JOBS READ FROM SITE CARD READER.
RJEA	JOBS FROM RJE STATIONS.

FAST JOBS REQUIRING LESS THAN 30 CPU SECONDS AND LESS THAN 100 MFBLKS (SCRATCH DISK SPACE). FAST JOBS HAVE A HIGHER PRIORITY THAN ANY OTHER INPUT QUEUE FOR LOGGING IN. HOWEVER, AFTER IT IS LOGGED IN, IT IS GIVEN THE SAME PRIORITY AS ALL OTHER JOBS.

OUTPUT QUEUES AVAILABLE:

NAME	PURPOSE
----	-----
PR1	SITE PRINTER NUMBER 1.
PLT1	SITE PLOTTER NUMBER 1.
PUN	SITE CARD PUNCH.
PTP	SITE PAPER TAPE PUNCH.
LINK	UNUSED AT PRESENT. WILL BECOME INTER-COMPUTER LINK DEVICE.
RJEA	RJE OUTPUT LINE PRINTER STATION 1.
RJEB	RJE OUTPUT LINE PRINTER STATION 2.

2.63.2.2. REGISTER FILE 77B BIT DEFINITIONS

REGISTER FILE 77B CONTAINS USEFUL INFORMATION CONCERNING THE JOBS STATUS. THE BITS ARE:

OCTAL BIT	MEANING
-----	-----
40000000	ABORT FLAG.
20000000	RESTRICTED MODE
10000000	MESSAGE INHIBIT (BETWEEN USERS)
04000000	DROP FLAG.
000X0000	DELAY 0-7 (X) CHAR TIMES AT EOL.
0000X000	BATCH QUEUE OF ORIGIN * 2
00000020	PUBLIC MESSAGE AVAILABLE
00000010	CALL OVERLAY IN RF75B, RF76B.
00000004	ROS≠D UPON EXECUTION OF ≠JUMP≠
00000002	DATE HAS BEEN CALLED
00000001	LOADING DELETED FLAG.

2.63.2.3. IOBOUND CODES

THE IOBOUND FIELD DESCRIBES ANY EVENTS OR CONDITIONS FOR WHICH THE JOB IS WAITING. THE FOLLOWING ARE THE POSSIBLE CODES:

NAME	MEANING
----	-----
RUN	JOB IS EXECUTING.
IN	JOB WAITING FOR TTY OR RJE CONSOLE INPUT.
OUT	JOB WAITING FOR TTY OR RJE CONSOLE OUTPUT TO FINISH.
DISK	JOB WAITING FOR DISK INPUT/OUTPUT.

MSG JOB WAITING FOR OPERATOR MESSAGE REPLY.
 CTY JOB WAITING FOR MESSAGE TO APPEAR ON
 OPERATORS CONSOLE TYPEWRITER (TAPE EQUIP OR
 DISK PACK MOUNT).
 TV JOB WAITING FOR TV INPUT OR OUTPUT.
 HOG JOB NEEDS MORE MEMORY THAN CURRENTLY
 AVAILABLE. IT WILL BE RESTARTED WHEN
 SUFFICIENT MEMORY IS AVAILABLE AND WILL BE
 GIVEN HIGH PRIORITY FOR 3 SECONDS.
 CR JOB WAITING FOR CARD READER INPUT OR DATA
 FROM SOME HIGH SPEED INPUT DEVICE.
 STOP OPERATOR HAS STOPPED THE JOB.
 MNT JOB IS WAITING FOR THE OPERATOR TO MOUNT SOME
 REMOVABLE DEVICE (TAPE, DISK PACK).
 MEMQ JOB IS WAITING IN MEMORY ALLOCATION FOR SOME
 DIRECT I-O TRANSFER (TV OR TAPE).
 TIME JOB IS WAITING FOR ELAPSED TIME TO EXPIRE ON
 A TIME DELAY XREQ.
 PHAN JOB IS WAITING FOR PHANTOM TO PROCESS SOME
 FUNCTION.
 XREQ JOB IS WAITING FOR NON-RESIDENT XREQ
 PROCESSING.

A #-# SIGN TO THE LEFT OF THE IOBOUND CODE INDICATES THE
 JOB IS CURRENTLY EXECUTING A SHARED MONITOR FUNCTION
 (USER I-O, SCHEDULER, ETC.)

2.63.3. SYSTAT COMMANDS FOR THE RJE CONSOLE USER

2.63.3.1. AUTO

SETS AUTOMATIC SPOOLING. AS EACH NEW FILE ENTERS THE OUTPUT QUEUE FOR THIS SITE, OR AS EACH FILE FINISHES OUTPUTTING, THE NEXT AVAILABLE FILE FOR THIS SITE WILL BEGIN OUTPUTTING. THIS IS THE DEFAULT STATE WHEN A USER LOGS ON TO AN RJE DEVICE.

2.63.3.2. BEGIN

BEGIN OUTPUTTING FILE SPECIFIED BY THE <OUTPUT FILE NUMBER>. THIS NUMBER IS THE RELATIVE POSITION WITHIN THE OUTPUT QUEUE AS DISPLAYED BY SYSTAT.

IF THE OUTPUT QUEUE WAS EMPTY WHEN THE COMMAND IS ISSUED, THE MESSAGE **OUTPUT IDLE** IS DISPLAYED.

IF OUTPUT IS IN PROGRESS WHEN THIS COMMAND IS ISSUED, THE MESSAGE **OUTPUT ACTIVE** IS DISPLAYED.

2.63.3.3. GO

RESTARTS PRINTER AFTER A FORMS WAIT CONDITION OR AN EQUIPMENT CHECK CONDITION (PAPER OUT, ETC.). ALSO INITIATES READING CARDS IF THE READER HAS BEEN READIED.

2.63.3.4. HOLD

SETS MANUAL OUTPUT SPOOLING. THIS COMMAND CAUSES AUTOMATIC QUEUEING TO CEASE. AFTERWARDS, EACH OUTPUT FILE MUST BE INDIVIDUALLY STARTED WITH THE BEGIN COMMAND, OR THE USER MUST ENTER AN AUTO COMMAND TO REVERSE THE HOLD.

IF THIS COMMAND IS ENTERED WHILE A FILE IS BEING PRINTED, THE FILE WILL PRINT TO COMPLETION, BUT NO NEW FILES WILL BEGIN UNTIL AN AUTO OR BEGIN COMMAND IS GIVEN.

2.63.3.5. KILL

THIS COMMAND KILLS THE CURRENT OUTPUT FILE. ALL SPACE ON THE FILE IS RELEASED TO THE SYSTEM AND THE NEXT FILE IN SEQUENCE IS STARTED IF THE TERMINAL IS IN AUTO MODE. ONCE THIS COMMAND HAS BEEN ENTERED, THE FILE IS GONE. IF NO OUTPUT IS IN PROGRESS, THE MESSAGE **OUTPUT IDLE** IS DISPLAYED.

IF THE TERMINAL IS IN HOLD MODE AT THE TIME THIS COMMAND IS ENTERED, OUTPUTTING WILL CEASE AND THE USER MUST ENTER A BEGIN OR AN AUTO COMMAND TO BEGIN MORE OUTPUT.

2.63.3.6. RERUN

THIS COMMAND PLACES THE CURRENTLY OUTPUTTING FILE AT THE END OF THE OUTPUT QUEUE. THIS MAKES IT THE LAST OF THE LIST OF OUTPUT FILES TO BE SENT TO THE TERMINAL. AS OTHER FILES ARE ENTERED INTO THE RJE OUTPUT QUEUE, THEY WILL BE PLACED BEHIND IT. IF NO OUTPUT IS IN PROGRESS, THE MESSAGE **OUTPUT IDLE** IS DISPLAYED.

IF THE TERMINAL IS IN HOLD MODE AT THE TIME THIS COMMAND IS GIVEN, NO NEW OUTPUT WILL BE STARTED UNTIL THE USER ISSUES AN AUTO OR BEGIN COMMAND.

2.63.3.7. REWIND

THIS COMMAND WILL REPOSITION THE CURRENT OUTPUT FILE TO ITS BEGINNING AND RESTART IT. THE OUTPUT WILL CONTINUE REGARDLESS OF THE AUTO/HOLD STATUS OF THE TERMINAL. IF THE TERMINAL IS NOT CURRENTLY OUTPUTTING, THE MESSAGE **OUTPUT IDLE** IS DISPLAYED.

2.63.3.8. ROUTE

THIS COMMAND WILL TAKE A FILE IN THE USERS OUTPUT QUEUE, AND RE-QUEUE IT FOR PRINTING AT SOME ALTERNATE SITE. IF THE <SITE> IS OMITTED, THEN SITE (OSU COMPUTER CENTER) IS ASSUMED.

IF THE FILE SPECIFIED CANNOT BE FOUND, THE MESSAGE **FILE NOT IN QUEUE** IS DISPLAYED. IF THE FILE DOES NOT BELONG TO THIS SITE, THE MESSAGE **FILE NOT FOR THIS SITE** IS DISPLAYED. IN EITHER CASE, NOTHING MORE IS DONE.

IN ADDITION TO ANY ERROR MESSAGES LISTED ABOVE, THE FOLLOWING ARE ALSO POSSIBLE:

ILLEGAL COMMAND
COMMAND NOT RECOGNIZED.

PARAMETER ERROR
MISSING OR ILLEGAL PARAMETER.

LEGAL ONLY FROM RJE CONSOLE
RJE FUNCTIONS CAN ONLY BE EXECUTED
FROM A PROPERLY SIGNED-ON RJE
CONSOLE.

2.64. TAPEMAX

THIS COMMAND WILL ALLOW A USER TO LOWER THE NUMBER OF TAPES CURRENTLY RESERVED FOR HIS USE. THE FORMAT IS:

TAPEMAX=<NEW NUMBER TO RESERVE>

IF THE AMOUNT SPECIFIED IS GREATER THAN THE NUMBER CURRENTLY RESERVED, AN ERROR IS PRINTED:

ILLEGAL ATTEMPT TO INCREASE TAPEMAX

IF THE AMOUNT SPECIFIED IS LESS THAN THE NUMBER OF TAPES STILL IN USE (EQUIPPED) ANOTHER ERROR IS ISSUED:

MORE TAPES ARE ALREADY IN USE.

IT IS A GOOD IDEA TO USE THE TAPEMAX COMMAND WHEN A JOB HAS FINISHED USE OF ITS TAPES BUT STILL HAS COMPUTING TO DO. THIS FREES THE TAPE DRIVES TO BE USED BY SOME OTHER JOB.

MORAL: BE KIND TO YOUR FELLOW USERS.

2.65. TERMINAL

THIS COMMAND WILL PRINT A MESSAGE OF THE FORM:

MM/DD/YY HH:MM:SS TERMINAL LLL-PPPM TRAFFIC IS XX

ONTO THE USER'S TERMINAL. THE HH:MM:SS IS MILITARY TIME. MM/DD/YY IS THE DATE. LLL IS THE LOGICAL TERMINAL NUMBER. PPP IS THE PHYSICAL TERMINAL NUMBER, AND X IS THE MUX (A, B, C, OR D) INTO WHICH THE USER IS CONNECTED. THE TRAFFIC IS THE SAME AS GIVEN BY THE COMMAND <TRAFFIC>.

THIS COMMAND MAY BE GIVEN WITHOUT LOGGING IN.

2.66. TIME

THIS COMMAND HAS THE FOLLOWING THREE FORMS:

1) TIME=<NUMBER>

THIS ESTABLISHES AN UPPER LIMIT OF <NUMBER> SECONDS ALLOWED IN THE CURRENT SESSION (SINCE LOGIN) BEFORE THE SYSTEM INTERRUPTS THE JOB AND ISSUES A #TIME-CUT# DIAGNOSTIC.

2) TIME+<NUMBER>

THIS SECOND FORM TAKES THE NUMBER OF CPU SECONDS ALREADY USED BY THE JOB SO FAR, AND ADDS TO THIS THE <NUMBER> SPECIFIED AND USES THE TOTAL TO

ESTABLISH A NEW UPPER LIMIT.

3) TIME

THIS FORM CAUSES THE CONTROL MODE PROGRAM TO DISPLAY THE TOTAL NUMBER OF CPU SECONDS USED SINCE LOGIN. THE FORMAT OF THIS OUTPUT IS:

CPU 12.2 SEC WC 20.3 MIN

IN THE EVENT THAT A #TIME-CUT# MESSAGE IS ISSUED, THE USER MAY, IF DESIRED, ENTER A TIME COMMAND TO ESTABLISH A NEW LIMIT ON CPU TIME FOR THE SESSION. TO RESUME PROGRAM EXECUTION, ENTER A #GO# COMMAND. (SEE #GO#).

2.67. TRAFFIC

THIS COMMAND IS USED TO PRINT THE TOTAL NUMBER OF CURRENT USERS LOGGED IN TO OS-3. THIS COMMAND MAY BE ISSUED WITHOUT LOGGING IN, TO ESTIMATE THE LOAD. EXAMPLE:

TRAFFIC
TRAFFIC IS 45

2.68. UNABORT

THIS COMMAND WILL CLEAR A JOB'S ABORT FLAG. AFTER THIS COMMAND, NORMAL CONTROL MODE COMMANDS ARE AGAIN LEGAL.

EXAMPLE:
UNABORT

2.69. UNEQUIP

THIS COMMAND WILL DISASSOCIATE THE LOGICAL UNIT SPECIFIED FROM THE HARDWARE TYPE OR FILE NAME CURRENTLY EQUIPPED TO. IF THE FILE WAS NOT SAVED, ITS CONTENTS ARE LOST. IF THE FILE WAS A LP, PLOT, PTP, PUN, OR TASK, THE OUTPUT WILL BE QUEUED FOR PROCESSING BY OS-3 AS AN OUTPUT FILE, OR AS A TASK JOB. EXAMPLES:

UNEQUIP,10,12,34
UNEQUIP,99

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

LUN XX IS PROTECTED
THE LUN SPECIFIED BY XX WAS PROTECTED. YOU
CANNOT UNEQUIP PROTECTED FILES OR RAFS.

2.70. WFM

WFM IS USED TO WRITE A FILE MARK ONTO THE SPECIFIED LUN.
A REPEAT DESIGNATOR (SEE BKSP) IS PERMITTED TO ALLOW
MULTIPLE FILE MARKS TO BE WRITTEN ONTO A SINGLE LUN.
EXAMPLES:

WFM,10
WFM,3(1233),7,8,43(5)

WFM IS ILLEGAL ON PROTECTED FILES OR RAFS.

POSSIBLE ERROR MESSAGES:

LUN XX UNDEFINED
THE LUN SPECIFIED WAS NOT EQUIPPED.

ILLEGAL FUNCTION LUN XX
A FILE MARK COULD NOT BE WRITTEN ONTO THE
SPECIFIED FILE.

2.71. XABORT

THIS COMMAND WILL REVERSE THE JOBS ABORT FLAG. IF THE
JOB WAS NOT ABORTED, IT WILL ABORT IT. IF THE JOB WAS
IN ABORT MODE, ITS ABORT FLAG WILL BE CLEARED.

THIS COMMAND ALLOWS THE USER SOME LIMITED #CONDITIONAL#
CONTROL STATEMENT EXECUTION.