X2384

TO GET A COPY OF THIS DOCUMENT, $PRINT (6,6)GLOSS.DOC
ON THE PDP-11 TIMESHARING SYSTEM.

B-5500/5700 GLOSSARY AND HANDBOOK
11 JULY 1978

THIS IS AN ATTEMPT TO COLLECT IN ONE PLACE ALL
THAT YOU NEED TO KNOW TO USE THE B-5700, ESPECIALLY
THE STUFF THAT IS UN-DOCUMENTED ELSEWHERE.
WE NOW ARE OPERATING TWO MACHINES: THE ONE IN THE
COMPUTER CENTER RUNNING AS A PURE BATCH SYSTEM, AND
THE ONE IN APPLIED SCIENCES RUNNING AS A TIME
SHARING SYSTEM.

WE HAVE ATTEMPTED TO WRITE THIS WITH A MINIMUM OF
BNF (THAT <GARBAGE>::=<REFUSE>|<RUBBISH> NOTATION);
BUT SOME OF THE TERMS ARE SO UNIVERSALLY IMPORTANT
AND SO CONVENIENTLY EXPRESSED THAT WAY THAT YOU MIGHT
AS WELL TAKE THE TROUBLE TO LEARN THEM.

MANY ITEMS IN THE GLOSSARY ARE CALLED "LOCAL FEATURES", MEANING
THAT THEY ARE NOT FURNISHED BY BURROUGHS AS PART OF THE STANDARD
SOFTWARE AND MAY BE PECULIAR TO THE UCSC SITE. MOST OF THESE
FEATURES ARE THE RESULT OF PATCHES DEVELOPED ELSEWHERE, ESPECIALLY
DREXEL UNIVERSITY (PHILADELPHIA), HERIOT-WATT UNIVERSITY (EDINBURGH),
NATAL UNIVERSITY (SOUTH AFRICA), AND BROCK UNIVERSITY (ONTARIO, CANADA).
PROPER CREDIT ISN'T ALWAYS GIVEN IN THE TEXT, BOTH TO MAINTAIN
BREVITY AND BECAUSE WE SOMETIMES CAN'T DETERMINE THE REAL ORIGIN
OF A UBIQUITOUS PATCH.

$ INTRODUCES A COMPILER CONTROL CARD OR OBJECT PROGRAM CONTROL CARD (USUALLY)
SEE "COMPILER CONTROL CARDS" OR THE NAME OF THE SPECIFIC OBJECT PROGRAM.

\# PRECEDING A SPO MESSAGE MEANS SOMETHING MAY NEED OPERATOR ATTENTION.
ALSO USED AS A PROMPT BY CANDE.

\- PRECEDING A SPO MESSAGE MEANS A JOB WILL BOMB OUT.

. PRECEDING A SPO MESSAGE MEANS IT IS FOR INFORMATION ONLY. USUALLY
SOMETHING REQUESTED CANNOT BE DONE AND THE REASON IS GIVEN.

" MAY BE USED IN A SPO INPUT TO ENCLOSE CHARACTERS THAT WOULD
OTHERWISE CAUSE TROUBLE. EXAMPLE: PD "R/C"/= LISTS ALL FILES
WHICH HAVE THE <MFID> R/C .

* 1. PRECEDING A SPO MESSAGE MAY MEAN AN I/O ERROR THAT WAS NOT OR
CANNOT BE HELPED BY RETRIES.
2. IN CANDE IS EQUIVALENT TO THE "FIX" COMMAND.

? 1. REPRESENTS THE INVALID CHARACTER, WHICH IS ANY CHARACTER THAT IS NOT VALID
IN BURROUGHS CARD CODE. THIS IS NOT THE SAME AS THE ? CHARACTER ON THE
KEYPUNCH, WHICH HAPPENS TO GENERATE A VALID BURROUGHS CHARACTER " . FOR THE
029 KEYPUNCH A CONVENIENT INVALID CHARACTER IS COLON. A LOCAL FEATURE
ALLOWS READING OF 029 KEYPUNCH CODES, SO THAT THE ? ON THE KEYPUNCH
MAY BE USED AS THE INVALID CHARACTER EVEN THOUGH IT ISN'T.
THE INVALID CHARACTER OR 029 KEYPUNCH ? IS TO BE USED IN COLUMN 1
OF ALL JOB CONTROL CARDS.

2. ? FROM A TERMINAL UNDER DCMCP INTRODUCES A LINE WHICH ACTS AS
A SPO COMMAND. EXAMPLE: TYPING ?MX AT A REMOTE TERMINAL
IS EQUIVALENT TO TYPING MX ON THE SPO. FROM THIS IT FOLLOWS THAT
A CONTROL CARD FROM A REMOTE TERMINAL MUST BEGIN WITH ?? OR ?CC
TO HAVE THE SAME EFFECT AS A SINGLE ? OR CC ON THE SPO.
EXAMPLE: ??EXECUTE MY/PROGRAM

3. ? FROM A TERMINAL UNDER TSSMCP, FOLLOWED BY CARRIAGE RETURN,
ASKS WHAT IS GOING ON, OR FOR MORE EXPLANATION OF AN ERROR.

4. ? PRINTED ON A TERMINAL IS A SUBSTITUTE FOR ONE OF THE
VALID BCL CHARACTERS THAT CANNOT BE SENT TO A TERMINAL BECAUSE
THEY HAVE BEEN PREEMPTED FOR OTHER PURPOSES, OR BECAUSE THEY
DO NOT EXIST IN ASCII. THESE INCLUDE THE GREATER-THAN-OR-EQUAL
SIGN, THE LESS-THAN-OR-EQUAL SIGN, THE NOT-EQUAL SIGN, THE
LESS-THAN SIGN, AND THE GREATER-THAN SIGN. THESE ARE USED TO
TRANSMIT FUNCTIONS SUCH AS CARRIAGE RETURN AND LINE FEED TO
A TERMINAL.

< IS USED AS A BACKSPACE-AND-ERASE ON THE SPO CONSOLE TELETYPE.

A= APPEARING IN A MESSAGE ABOUT A JOB SHOWS THE ADDRESS WITHIN A
SEGMENT WHERE THE PROGRAM IS EXECUTING AT THE TIME THE MESSAGE
IS ISSUED. S= IN THE SAME MESSAGE SHOWS THE SEGMENT NUMBER TO
WHICH A= APPLIES.

A-REGISTER THE PROCESSOR REGISTER WHICH HOLDS THE TOP-OF-STACK
OPERAND

ACCEPT - SPO MESSAGE WHEN A PROGRAM IS REQUESTING INPUT
FROM THE OPERATOR. PROPER REPLY IS
<MIX INDEX>AX<WHATEVER THE PROGRAM WANTS FROM YOU>

ACCESSD - 1. MODIFIER FOR LIBMAIN/DISK DISK-TO-TAPE OPERATION. IF USED
MEANS TRANSFER FILES ONLY IF THEY HAVE BEEN ACCESSED.
2. CONTROL BIT OF A FILE, USED FOR 1. ABOVE, CAN BE SET OR RESET
BY THE USER, USING ?SET ACCESSD <MFID>/<FID> OR ?RESET ETC.

ADD - MODIFIER FOR LIBMAIN/DISK TAPE-TO-DISK OPERATION. IF USED

MEANS TRANSFER FILES ONLY IF THEY DO NOT ALREADY EXIST ON THE DISK.

AFILTER - PROGRAM WHICH CONVERTS PROGRAMS WRITTEN IN EXTENDED ALGOL INTO XALGOL.

ALGOL USUALLY MEANS B-5500 EXTENDED ALGOL, IN CONTRAST TO COMPATIBLE ALGOL (XALGOL) OR ALGOL-60. SEE EXTENDED ALGOL. ON OUR TIMESHARING SYSTEM, ALGOL MEANS GEORGIA TECH ALGOL, OR GTL. FOR B-5500 EXTENDED ALGOL USE TSPOL. FOR MOST PURPOSES XALGOL OR GT ALGOL IS PREFERRED TO B-5500 EXTENDED ALGOL; HOWEVER THE COMPILERS AND MUCH OF THE SOFTWARE ARE WRITTEN IN EXTENDED ALGOL AND HAVE TO BE COMPILED IN IT.

ALGOL-60 THE 1960 STANDARDIZED DEFINITION OF THE ALGOL LANGUAGE.

ALTERNATE SPO A TERMINAL CAN BE SET TO ACT AS A SPO, ACCEPTING SPO COMMANDS AND PRINTING SPO MESSAGES. THIS IS DONE BY THE BS SPO COMMAND, WHICH SEE. USE THE SC COMMAND TO SEE WHICH TERMINALS ARE CURRENTLY SET AS SPO'S. AN ALTERNATE SPO TERMINAL CANNOT BE USED FOR NORMAL TIMESHARING AT THE SAME TIME. TSSMCP ALLOWS ONLY ONE ALTERNATE SPO.

ARRAY MAPPING - THE HARDWARE LIMITS AN ARRAY ROW TO A MAXIMUM SIZE OF 1023 ELEMENTS. IF YOU DECLARE A FORTRAN ARRAY ROW TO BE LARGER THAN 1023 THE COMPILER BREAKS IT UP FOR YOU INTO A MULTI-DIMENSIONAL ARRAY, AND MAKES THE WHOLE OPERATION TRANSPARENT TO YOU.

THERE IS A KNOWN DIFFICULTY CONNECTED WITH THIS. IF YOU DIMENSION AN ARRAY TO CONTAIN FEWER THAN 1023 ELEMENTS, AND IF YOU ATTEMPT TO ACCESS WITH AN INVALID INDEX GREATER THAN 1023 THERE WILL BE NO ERROR MESSAGE (JUST LIKE ON A 360!) AND THE INDEX WILL BE INTERPRETED MODULO 1024.

ARRAY ROW - A ONE-DIMENSIONAL ARRAY, OR A PARTICULAR ONE-DIMENSIONAL SLICE OF A MULTI-DIMENSIONAL ARRAY, WHICH CONTAINS CONTIGUOUS SIMPLE VARIABLES. AN ARRAY ROW IS POINTED TO BY A SINGLE WORD DESCRIPTOR, WHICH IN SOME CASES IS MANIPULATED AS A WORD OF DATA STANDING FOR THE ENTIRE ARRAY ROW.

THE NOTATION FOR AN ARRAY ROW IS A[*] FOR A ONE-DIMENSIONAL ARRAY NAMED A, A[I,*] FOR THE I-TH ROW OF THE TWO-DIMENSIONAL ARRAY NAMED A, ETC.

AS SPO COMMAND (TSSMCP ONLY) TO GET AN ACTIVITY SUMMARY (WHO IS DOING WHAT)
FORMS ARE AS (TO GET EVERYTHING)
AS <STATION NUMBER> (WHAT IS THIS GUY DOING)
<MIX INDEX> AS (WHAT IS THIS JOB DOING)

AUTO-LDCNTRL= WITH BOJ AND AUTOMESS OPTIONS SET, THIS MESSAGE SHOWS THE MIX INDEX OF A LDCNTRL/DISK JOB RESULTING FROM USE OF THE CDONLY OPTION (WHICH CAUSES LDCNTRL/DISK TO "FLOAT" IN AND OUT OF THE MIX AS NEEDED).

AUTO-PRNPBT= WITH BOJ AND AUTOMESS OPTIONS SET, THIS MESSAGE SHOWS THE MIX INDEX OF A PRINTER BACKUP JOB STARTING UP AS A RESULT OF THE AUTOPRNT OPTION.

AUTOCE - OPTION 3 OF TSSMCP. AUTOMATICALLY STARTS CANDE/TSHARER FOLLOWING HALT/LOAD OF TSSMCP. IF THIS OPTION IS RESET YOU USE THE CE COMMAND WHEN YOU WANT TO START CANDE. A LOCAL FEATURE MAKES IT UNNECESSARY TO RY THE SCHEDULE

LINES.

AUTODS LOCAL FEATURE - OPTION 1 OF DCMCP. USED FOR UNATTENDED OPERATION, THIS OPTION TRIES TO TAKE CARE OF SITUATIONS REQUIRING OPERATOR INTERVENTION. IT WILL DS JOBS WHICH ENCOUNTER #NO FIL, #MT RQD, #ACCEPT, ETC. AND WILL AUTOMATICALLY RM JOBS WHICH ENCOUNTER #DUP LIBRARY. (NOTE THAT TSSMCP ALREADY DOES THIS ALL THE TIME.) YOU WILL NEED TO TURN OFF AUTODS WHEN YOU ARE AT THE CONSOLE TRYING TO RUN SOMETHING WHICH YOU KNOW WILL GENERATE A #NO FIL (E.G. LIBDIR/UTILITY).

AUTOPRNT OPTION 38 - WHEN SET CAUSES PRINTER BACKUP FILES TO BE PRINTED AUTOMATICALLY AS THEY ARE RELEASED FOR PRINTING. WHEN RESET THE OPERATOR USES THE PB COMMAND TO PRINT SPECIFIC BACKUP FILES, OR VARY THE NUMBER OF COPIES TO BE PRINTED. THIS OPTION IS NORMALLY LEFT ON, SHOULD BE TURNED OFF ONLY IF YOU WANT TO RUN WITH AN ABNORMALLY LOW FENCE IN TSSMCP. SEE ALSO UNITQ, PBDONLY, PACKETS, PRNPBT/DISK.

AUTORN - A LOCAL (UCSC) SPO OPTION THAT IF SET AUTOMATICALLY STARTS UP PSEUDO-READERS FOLLOWING A H/L, MAKES RN COMMAND UNNECESSARY.

AUXMEM - 1. HARDWARE FEATURE THAT ALLOWS 32 OR 64 K OF B-6700 MEMORY TO BE ATTACHED TO A B-5700 IN PLACE OF DRUMS. SYSTEM NOTE 4. 2. COMPILE-TIME OPTICN ($ OPTION) OF MCP'S THAT HAS TO BE SET ON FOR A SYSTEM TO USE AUXMEM.

AX SPO COMMAND TO SUPPLY INPUT REQUESTED BY A PROGRAM. USAGE: <MIX INDEX>AX<WHATEVER THE PROGRAM WANTS FROM YOU>

B-5000 - AN EARLY VERSION OF THE B-5500.

B-5500 - A NICE MACHINE.

B-5700 - ANOTHER NAME FOR THE SAME MACHINE. (INFLATION, Y'KNOW.)

B-REGISTER IN THE PROCESSOR, A 48-BIT REGISTER WHICH HOLDS THE NEXT-TO-TOP-OF-STACK OPERAND.

B6500LOAD COMPILE-TIME OPTION ($ OPTION) WHEN COMPILING MCP. INCLUDES CODE TO ALLCW LOADING LIBRARY TAPES CREATED ON A B6500 SYSTEM.

BACKGROUND - IN A "SCHEDULED" MESSAGE, MEANS THE JOB IS NOT ENTERED INTO THE MIX BECAUSE TIMESHARING IS RUNNING, THE "NOBATCH" OPTION IS NOT SET, AND RUNNING THE JOB NOW WOULD IMPACT TIMESHARING SERVICE. USE THE <SCHEDULE INDEX> XS SPO CCMMAND TO FORCE THE JOB TO RUN ANYWAY. SET THE NOBATCH OPTION TO PREVENT JOBS BEING SCHEDULED FOR BACKGROUND.

BACKUP SPO SEE ALTERNATE SPO

BACKUP DISK - SEE PBD

BACKUP TAPE - SEE LIBMAIN/DISK TO MAKE A BACKUP TAPE OF YOUR FILES THE APPROPRIATE COMMAND STRING FOR A TOTAL SYSTEM BACKUP IS APPROXIMATELY

CC COPY TSS/MCP,=/= TO <TAPENAME>;END

IF YOU WILL MOUNT THE LONG TAPES ON THE LOWER-LETTERED DRIVES (STARTING WITH MTA OR MTB) AND THE SHORT TAPE ON THE HIGHEST

DRIVE, AND PG ALL TAPES BEFORE YOU START, THE VARIOUS JOBS THAT
GET AUTO-ZIPPED WILL ORDINARILY GO TO THE RIGHT REELS.
BEFORE STARTING A TOTAL SYSTEM BACK UP YOU SHOULD HAVE ALL
USERS OFF THE SYSTEM (DS CANDE) OR YOU WILL KEEP GETTING
HUNG UP WITH FILE-IN-USE MESSAGES.

SEE PBT FOR SOME INFO ABOUT PRINTER BACKUP TAPES.

BADISK - <MFID> OF A FILE WHICH RESERVES A BAD SPOT ON THE DISK.
THE <FID> IS THE DISK ADDRESS. CREATED BY THE XD SPO COMMAND.
A LOCAL FEATURE PREVENTS COPYING BADISK FILES TO BACKUP TAPES.
THIS MAKES IT UNNECESSARY TO SAY [BADISK/=] IN A COPY LIST.

BCL BURROUGHS COMMON LANGUAGE CODE, A 6-BIT, 64-CHARACTER CODE
USED WITH BURROUGHS EQUIPMENT BEFORE THE ADVENT OF 8-BIT CODES
SUCH AS EBCDIC AND ASCII. IN MOST MANUALS, SO NOT REPEATED HERE.

BCL-EBCDIC DIFFERENCES -

BCL	EBCDIC	PUNCH
[	<	12-4-8
<	+	12-6-8
=	¯	0-5-8
(INV)	CENTS	12-2-8
NEQ	MESS	0-2-8
ARROW	|	12-7-8
]	>	0-6-8
(INV)	:	2-8
LEQ	NOT	11-7-8
:	'	5-8
"	?	0-7-8
GEQ	"	7-8
>	=	6-8
(INV)	!	11-2-8
+		12-0
x		11-0

SEE ALSO "DATA029"

BED OVERFLOW - SPO MESSAGE MEANING THE BED MCP ARRAY HAS
OVERFLOWED. TOO MANY JOBS ARE SLEEPING.

BINARY CARD FILE IT IS NOW (MARK XVI MCP) POSSIBLE TO READ CARDS
IN BINARY. THE CARD FILE SHOULD BE DECLARED IN THE PROGRAM
AS AN ALPHA FILE WITH A BUFFER SIZE OF 20 WORDS INSTEAD OF THE
USUAL 10. IN USING THIS FACILITY IT IS ESSENTIAL THAT YOU
PROVIDE YOUR OWN END-OF-FILE RECOGNITION, AS ?END DOES NOT FUNCTION.
TO READ A BINARY CARD FILE THE READER MUST BE DIRECTLY UNDER
THE CONTROL OF YOUR PROGRAM. HENCE IT IS NECESSARY TO TURN
OFF THE CDONLY OPTION WHEN READING BINARY CARDS. TRY, TRY
TRY TO REMEMBER TO TURN CDONLY BACK ON WHEN YOU ARE DONE.
(BECAUSE OF THE DATA029 FEATURE ALL VALID EBCDIC PUNCHES
CAN BE READ, SO THAT IN PRINCIPLE YOU MIGHT READ CARDS IN
EBCDIC AND THEN TRANSLATE CHARACTERS FROM BCL TO BCL.)

IT IS -NOT- POSSIBLE TO PUNCH BINARY CARDS FROM A PROGRAM.

BIT NUMBERING - IN MOST B-5500 USER MANUALS THE BITS OF A
MACHINE WORD ARE NUMBERED 0-47 FROM LEFT TO RIGHT. IN
COMPATIBLE ALGOL (XALGOL) THE BITS ARE NUMBERED 0-47
FROM RIGHT TO LEFT, FOR COMPATIBILITY WITH B-6700 S.
IN HARDWARE MAINTENANCE MANUALS THE BITS ARE NUMBERED
1-48 FROM RIGHT TO LEFT.

BK SPO COMMAND EQUIVALENT TO THE BREAK KEY ON A
TELETYPE TERMINAL. USED TO INTERRUPT UNWANTED
TYPEOUTS. MAY HAVE TO BE REPEATED TO KILL THEM ALL. USAGE IS
<MIX INDEX>BK IF UNWANTED OUTPUT IS FROM A JOB IN THE MIX
BK IF UNWANTED OUTPUT IS FROM MCP

BOJ 1. SPO MESSAGE INDICATING A BEGINNING OF JOB; THAT IS, A JOB
HAS ENTERED THE MIX. APPEARS ONLY IF BOJ OPTION IS SET.
2. OPTION 45 - CAUSES BOJ MESSAGES TO BE PRINTED ON THE SPO
IF SET, AND SUPPRESSES PRINTING OF BOJ MESSAGES IF RESET.

BREAKOUT/RESTART - A BREAKOUT IS A PROCESS OF SAVING THE
COMPLETE STATUS OF A RUNNING JOB SO IT CAN BE RESTARTED LATER
FROM THE SAME POINT IF THE SYSTEM CRASHES. THIS IS AVAILABLE
ONLY IN DCMCP, ONLY IF THE BREAKOUT $-OPTION IS SET DURING
COMPILATION, AND IS REPORTED TO NOT WORK VERY WELL ANYWAY.

BS SPO COMMAND TO SET A TERMINAL AS AN ALTERNATE
SPO, OR TO OVERCOME THE EFFECTS OF A US COMMAND.
TSSMCP USAGE IS BS<STATION NUMBER> TO SET A TERMINAL AS
ALTERNATE SPO, OR BS SPO TO SET THE SPO AS A SPO.
THE TERMINAL TO BE SET AS AN ALTERNATE SPO MUST BE "ALIVE"
BUT NOT LOGGED-IN; TO ACHIEVE THIS HIT A CARRIAGE RETURN ON
THE TERMINAL BUT DO NOT REPLY TO "ENTER USER CODE PLEASE".
DCMCP USAGE IS BS <TU>/<BU> OR BS SPO.
RELATED COMMANDS: SC, US

BUSY - WITH <UNIT MNEMONIC> MEANS SOMEBODY TRIED TO USE THE UNIT AND
IT WAS ALREADY IN USE. IT MAY BE NECESSARY TO USE THE <MIX INDEX> OK
COMMAND TO GET THE WAITING JOB GOING AGAIN AFTER THE IN-USE
UNIT BECOMES IDLE.

C ACCEPTABLE SUBSTITUTE FOR THE WORD "COMPILE" IN CONTROL CARD

C-FIELD, CF - A 15-BIT FIELD OF A MACHINE WORD, CONSISTING OF BITS
33-47 INCLUSIVE (ALGOL NOTATION 33:15)

C-REGISTER IN THE PROCESSOR, A REGISTER WHICH HOLDS
THE WORD PORTION OF THE INSTRUCTION COUNTER.
(SINCE THERE ARE 4 INSTRUCTION SYLLABLES TO A
WORD, THE COMPLETE INSTRUCTION COUNTER INVOLVES
A WORD PART AND A SYLLABLE PART. THE SYLLABLE
PART IS THE L-REGISTER.)

CANDE 1. COMMAND AND EDIT LANGUAGE OF THE TIMESHARING SYSTEM
2. <MFID> OR <FID> OF FILE NAMES OF PROGRAMS USED BY CANDE/TSHARER

CANDE CONTROL CHARACTERS
' (SINGLE QUOTE) FOR BACKSPACE AND ERASE A CHARACTER
! (EXCLAMATION POINT) TO DELETE THE CURRENT LINE
LEFT ARROW IS EQUIVALENT TO CARRIAGE RETURN
CONTROL-E TO INTERRUPT A RUNNING PROGRAM THAT IS NOT SENDING
TO THE TERMINAL. SOME PROGRAMS ARE NOT INTERRUPTIBLE.
? (QUESTION MARK) TO ASK FOR MORE EXPLANATION OF AN ERROR,
OR TO ASK THE SYSTEM WHAT IT THINKS IT IS DOING.
USE BREAK KEY TO STOP UNWANTED PRINTING ON TERMINAL, THEN
USE CONTROL-E IF DESIRED TO KILL THE PROGRAM FROM RUNNING.
ALSO, BACKWARDS SLASH (SHIFT-L ON TELETYPE) IS THE MULTIPLY
OPERATOR SIGN. UP ARROW OR HAT (SHIFT-N ON TELETYPE) IS THE

NOT-EQUALS SIGN.

CANDE VERBS

(IN THE UCSC SYSTEM MOST OF THESE CAN BE ABBREVIATED BY
SINGLE OR A FEW CHARACTERS. ANYTHING BELOW ENCLOSED IN
SQUARE BRACKETS [ ] IS OPTIONAL.)
ADD OR APPEND <PROGRAM NAME>[LINE NUMBERS]
BYE (TO LOG OUT)
BYE BYE (LOCAL FEATURE, LOG OUT AND DELETE WORKFILE)
CC SHORT OR CC LONG (FOR PRINTER CARRIAGE SIZE)
CHANGE (SEE MANUAL, NOT AVAILABLE ON ALL ACCTS)
CHARGE (NOT USED AT UCSC)
COMPILE [<PROGRAM NAME>][WITH LISTING] (LISTING GOES TO A PRINTER)
COPY [<FILE NAME>] TO PRINTER (OR TAPE OR PUNCH OR <FILE NAME>)
CREATE <FILE NAME>[LANGUAGE OR TYPE]
DELETE [LINE NUMBERS] (ALL OR PART OF THE WORK FILE)
DISPLAY <SEQUENCE NUMBER>
DO OR EXECUTE [OBJECT][FILENAME]
EQUATE (SEE MANUAL)
FILE OR FILES (WHAT FILES DO I HAVE)
FIND (SEE MANUAL)
FIX OR * (SEE MANUAL)
GUARD
HELLO
LIST
LIST FILES (IN GREAT DETAIL) [FROM <ACCOUNT>][TO PRINTER (OR <FILENAME>)]
LOAD <FILENAME>[/USERCODE] (TO BECOME WORK FILE)
LOCK
MAKE (SAME AS CREATE)
MERGE <FILENAME>[LINE NUMBERS]
PRINT <FILENAME>[/USERCODE] (ON TERMINAL, WITHOUT A HEADING)
PUBLIC <FILENAME>
REMOVE [SOURCE OR OBJECT][<FILENAME>] (OR WORKFILE)
RENAME <FILENAME> (THE WORK FILE)
REPLACE RECORDS
RESEQ [STARTING LINE NUMBER][+ LINE NUMBER INCREMENT]
RMERGE<FILENAME>[LINE NUMBERS]
RUN
SAVE
SCHEDULE
SEQ SSS + III SYSTEM-SUPPLIED LINE NUMBERS
SS STATION TO STATION MESSAGE
STATUS (FOR SCHED LINES) OR ? STATUS (FOR YOUR TERMINAL)
STOP <FILENAME> (STOP SCHEDULE LINE OPERATION)
TIME
TO (SAME AS SS)
TYPE (TO CHANGE FILE TYPE)
UNLOCK (SOURCE OR OBJECT FOR READ ONLY BY ANYBODY)
UPDATE (THE WORK FILE)
WHATS (THIS FILE LIKE?)

CANDE/TSHARER PROGRAM WHICH IMPLEMENTS TIMESHARING HANDLING OF TERMINALS. STARTED BY THE CE SPO COMMAND, OR AUTOMATICALLY AT HALT/LOAD IF THE AUTCCE OPTION IS SET.

CARD 1. COMPILER OPTION ($ OPTION) FOR MOST COMPILERS IF THE SOURCE LANGUAGE INPUT IS FROM CARDS ONLY. (OPPOSITE OF THE TAPE OPTION)
2. USUAL NAME OF THE SOURCE LANGUAGE INPUT FILE TO A COMPILER AND SOME OTHER PROGRAMS.

CARD CODE 1. THE BCL CARD CODE IS USED WITH THE B-5500. JUST ABOUT EVERY KEYPUNCH IN THE COMPUTER CENTER AND APPLIED SCIENCES HAS A PLACARD SHOWING HOW TO PUNCH BCL.
1.5 A LOCAL FEATURE ALLOWS READING 029 KEYPUNCH CODE IN MOST APPLICATIONS, MAKING IT UNNECESSARY TO USE THE BCL PUNCHING OR THE HOL OPTION DESCRIBED BELOW. SEE "DATA029"
2. FOR FORTRAN YOU MAY USE THE REGULAR 029 KEYPUNCH CODE. THEN USE THE HOL COMPILER OPTION WHEN COMPILING. NOTE HOWEVER THAT THE 029 CHARACTER COLON IS INVALID; THIS CANNOT BE OVERCOME WITH THE HOL OPTION. IF YOU USE THE NEW TAPE COMPILER OPTION TO PUT YOUR SOURCE FILE ON DISK THE SOURCE FILE WILL BE CONVERTED TO BCL, SO YOU WILL NEED TO PUNCH ANY UPDATES IN BCL AND NOT USE THE HOL OPTION.
3. THERE IS A PROGRAM BIN2BCL/UTILITY THAT WILL CONVERT 029 PUNCHED CARDS TO BCL AS FAR AS POSSIBLE, WRITING THE RESULT TO DISK. SOMEDAY TOM PENNELLO WILL WRITE UP INSTRUCTIONS FOR USING IT.

CARD, CONTROL - SEE COMPILER CONTROL CARD (THESE START WITH $) OR JOB CONTROL CARD (THESE START WITH ?).

CARD LOAD SELECT 1.- SWITCH ON CONSOLE, PUSH ON, PUSH OFF. WHEN LIGHTED THE LOAD BUTTON WILL CAUSE A CARD READER LOAD. WHEN UNLIGHTED THE LOAD BUTTON WILL USUALLY CAUSE A DISK LOAD. (ASSUMING THE LIGHT ISN'T BURNED OUT AND THE SWITCH IS REALLY IN THE CARD LOAD SELECT POSITION.)
ON THE APPLIED SCIENCES MACHINE ALL I/O CHANNELS WILL DISK LOAD WHEN CARD-LOAD-SELECT IS OFF. ON THE COMPUTER CENTER MACHINE ONLY CHANNEL #1 IS WIRED THIS WAY (THE OTHER CHANNELS ARE STILL WIRED FOR THE OBSOLETE DRUM LOAD FUNCTION). HENCE IF THE COMPUTER CENTER MACHINE WON'T DISK LOAD, AND I/O CHANNEL #1 IS SWITCHED OFF BECAUSE OF TROUBLE, YOU CAN USE THE "KERNEL" DECK, PRECEDED BY AN ESPOL SWISS CHEESE CARD, AND CARD-LOAD-SELECT TO GET THE MCP LOADED FROM DISK.
2. A PROGRAM WHICH LOADS FROM CARDS, USING THE HALT AND LOAD BUTTONS.

CARD READER, SPOOLING - SEE LDCNTRL/DISK.

CAST ALGOL SYMBOLIC LIBRARY FILE. SEE MAKCAST/DISK.

CC 1. SPO COMMAND THAT INDICATES THAT WHAT FOLLOWS IS JOB CONTROL CARD INFORMATION. IT SERVES THE SAME PURPOSE AS THE ? INVALID CHARACTER IN COLUMN 1 OF A JOB CONTROL CARD.
2. CENTRAL CONTROL, THE FOURTH (FROM LEFT) CABINET IN THE CENTRAL SYSTEM. CONTAINS LOGIC TO ALLOW EITHER PROCESSOR TO ACCESS ANY MEMORY MODULE, AND ANY I/O CHANNEL TO ACCESS ANY MEMORY AND PERIPHERAL UNIT.
3. PREFIX TO NAMES OF INDICATOR LIGHTS WHICH DISPLAY SIGNALS FROM THE CENTRAL CONTROL CABINET.

CCI03F - FLIPFLOP IN CENTRAL CONTROL THAT PROVIDES THE REAL-TIME CLOCK INTERRUPT TO THE SYSTEM EVERY 64/60 OF A SECOND. IF THIS INDICATOR ON THE DISPLAY PANEL STAYS LIGHTED IT IS A PRETTY SURE INDICATION THAT THE SYSTEM HAS QUIT RUNNING. THERE IS A TOGGLE SWITCH ON THE DISPLAY PANEL TO INHIBIT THIS INTERRUPT. THIS IS REQUIRED FOR MOST MAINTENANCE TEST ROUTINES. IT MUST BE OFF TO RUN MCP. IF YOU HALT/LOAD MCP WITH CCI03F INHIBITED IT WILL DETECT THE SITUATION AND GIVE YOU A SPO MESSAGE TO RESET THE TOGGLE SWITCH.

CD SPO COMMAND TO PRINT PSEUDO DECKS ON DISK. SEE, LDCNTRL/DISK.

CDA, CDB, ETC. <UNIT MNEMONIC> FOR PSEUDO CARD READERS.

CDONLY - OPTION 6. WHENEVER SET CAUSES LDCNTRL/DISK TO BE EXECUTED WHEN
A CARD READER GOES READY, AND TO GO AWAY WHEN THE ?END CARD IS
READ AND THE READER GOES NOT READY. THUS LDCNTRL/DISK DOES NOT
OCCUPY CORE WHEN THE READER IS NOT BEING USED.
AUTOMATICALLY LABELS THE CARD READER AS CONTROL/DECK, SO THAT A ?LABEL
CARD IS NOT REQUIRED. SEE LDCNTRL/DISK FOR MORE INFO.

CE TSSMCP SPO COMMAND TO START CANDE/TSHARER PROGRAM.
IF AUTOCE OPTION IS SET CANDE WILL START AUTOMATICALLY IN THE
COURSE OF A HALT/LOAD, WITHOUT REQUIRING USE OF THIS COMMAND.

CHANGE - 1. LIBRARY MAINTENANCE CONTROL CARD TO CHANGE
THE NAME OF A FILE. USAGE IS
?CHANGE <MFID>/<FID> TO <NEW MFID>/<NEW FID>
2. CANDE COMMAND TO DO THE SAME THING, AND MORE.
SEE TIME SHARING TERMINAL USERS GUIDE FOR DETAILS.
THIS VERB IS NOT AVAILABLE ON ALL ACCOUNTS.
3. FOR SOFTWARE CHANGES SEE "PATCH"

CHARACTER STRING OPERATIONS, XALGOL - THE STRING OPERATIONS REPLACE AND SCAN
OF XALGOL ARE BASED ON B6500 HARDWARE OPERATORS. STRING OPERATIONS
ARE DONE UNDER THE CONTROL OF POINTER VARIABLES. THE REPLACE
OPERATION TRANSFERS CHARACTERS FROM A SOURCE STRING TO A DESTINATION
STRING. THE SCAN OPERATION SCANS THE SOURCE STRING. THE REPLACEMENT
OR SCAN CONTINUES UNTIL THE SOURCE STRING IS EXHAUSTED, OR UNTIL A
SPECIFIED CONDITION IS MET, OR WHILE A SPECIFIED CONDITION EXISTS, OR
FOR THE NUMBER OF CHARACTERS SPECIFIED IN A COUNT. THE ORIGINAL VALUES
OF THE POINTER VARIABLES ARE PRESERVED, UNLESS OTHERWISE SPECIFIED.
THERE MAY BE MORE THAN ONE SOURCE STRING, IN WHICH CASE THE STRINGS
ARE TAKEN IN THE ORDER STATED; AND THE SOURCE MAY INCLUDE LITERAL TEXT
(ENCLOSED WITHIN DOUBLE QUOTE MARKS). INTEGERS MAY BE ADDED TO OR
SUBTRACTED FROM POINTER VALUES, MOVING THE POINTER THE CORRESPONDING
NUMBER OF CHARACTERS ALONG THE STRING. ALTHOUGH THE ORIGINAL POINTER
VALUES ARE PRESERVED, THE POINTER VALUES WHICH RESULT FROM THE OPERATIONS
ARE AVAILABLE (CALLED THE UPDATE VALUES). THE ACTUAL VALUES OF
POINTER VARIABLES ARE ESSENTIALLY ABSOLUTE ADDRESSES IN THE B-5500.

CHARACTER STRING REPLACEMENTS ARE DONE A WORD AT A TIME. THIS
MAY CAUSE SURPRISING RESULTS IF YOU TRY TO REPLACE CHARACTERS
IN WHICH THE SOURCE AND DESTINATION STRINGS OVERLAP WITHIN LESS
THAN A WORD DISTANCE.

EXAMPLES FROM XALGOL MANUAL, PAGE 6-19:
1. SCAN CARDCOL:CARDCOL := POINTER (BUFARRAY[0]) FOR
COUNT : 80-COUNT WHILE NEQ ""
THE PHRASE CARDCOL := POINTER (BUFARRAY[0])
DEVELOPS THE VALUE OF A POINTER TO BUFARRAY[0] AND ASSIGNS
THIS VALUE TO THE POINTER VARIABLE CARDCOL. THIS IS THE
ONLY STRING SOURCE THAT APPEARS IN THIS STATEMENT, SO
BUFARRAY[*] IS THE ONLY STRING THAT WILL BE SCANNED.
THE PART CARDCOL: MEANS THAT THE VARIABLE CARDCOL
IS TO RECEIVE THE VALUE OF THE POINTER THAT IS IN THE MACHINE
WHEN THE OPERATION TERMINATES. (THIS DOES NOT HAVE TO BE THE
SAME VARIABLE AS THE ONE APPEARING TO THE RIGHT OF THE COLON.)
THE MAXIMUM NUMBER OF CHARACTERS TO BE SCANNED IS 80-COUNT.
THE PART COUNT: MEANS THAT THE VARIABLE COUNT IS TO RECEIVE A
NUMBER EQUAL TO THE ORIGINAL COUNT VALUE (80-COUNT) MINUS THE

NUMBER OF CHARACTERS SCANNED. (THIS IS A SCREWY EXAMPLE.)
THE PART BEGINNING WITH WHILE IS THE CONDITION THAT WILL TERMINATE
THE SCAN IF THE COUNT GIVEN BY 80-COUNT IS NOT EXCEEDED FIRST.

2. REPLACE ID := POINTER (ACCUM[1])+3 BY CARDCOL:
CARDCOL FOR COUNT:63 WHILE IN ALPHA

FIRST THE POINTER VARIABLE ID IS SET TO THE VALUE OF A POINTER
THREE CHARACTERS FROM THE LEFT END OF ACCUM[1]. THIS IS WHERE
THE CHARACTERS FROM THE SOURCE WILL START TO BE PLACED. THE
CHARACTERS COME FROM A STRING POINTED TO BY CARDCOL (WHICH HAS
PREVIOUSLY BEEN GIVEN ITS PRESENT VALUE). AT THE END OF THE
OPERATION CARDCOL WILL BE UPDATED BY THE NUMBER OF CHARACTERS
THAT WERE TRANSFERRED. NOT MORE THAN 63 CHARACTERS WILL BE
TRANSFERRED. THE VARIABLE COUNT WILL CONTAIN THE NUMBER
ACTUALLY TRANSFERRED AT THE END OF THE OPERATION. CHARACTERS
WILL BE TRANSFERRED AS LONG AS THEY ARE IN ALPHA, WHICH MEANS AS
LONG AS THEY ARE LETTERS OR DIGITS, UNLESS THE MAXIMUM COUNT OF
63 IS EXHAUSTED FIRST.

NOTE ALSO THE STRING AND POINTER RELATIONS IN BOOLEAN EXPRESSIONS
ON PAGE 4-9 OF THE XALGOL MANUAL. IN PARTICULAR, IT IS POSSIBLE
TO SAY IF PA = PB TO COMPARE THE TWO POINTERS; AND IT IS ALSO
POSSIBLE TO SAY IF PA="X" TO COMPARE THE CHARACTER POINTED TO
BY PA WITH THE CHARACTER X .

CHECK 1. OPTION 25. IF SET CAUSES FREQUENT CHECKING OF MEMORY LINKAGES
WHICH SLOWS THINGS DOWN CONSIDERABLY. REQUIRES THAT MCP BE
COMPILED WITH THE CHECKLINK $-OPTION SET.
2. COMPILER OPTION ($ OPTION) TO HAVE SEQUENCE NUMBERS IN THE SOURCE
CHECKED FOR PROPER SEQUENCING.

CHUNK IN TSSMCP, 1024 WORDS OF CORE MEMORY ABOVE THE FENCE.

CI SPO COMMAND TO CHANGE THE INTRINSICS FILE.
USAGE IS CI <MFID>/<FID>
EXAMPLE CI TSS/INT.
THIS COMMAND IS ALSO USED TO SET UP THE INTRINSICS
FILE THE FIRST TIME, WHEN NONE HAS BEEN ASSIGNED.
IT IS PART OF THE RESPONSE TO THE "##LOAD INTRINSICS
NOW" MESSAGE, WHICH FOLLOWS COOL OR COLD START.

CL SPO COMMAND TO CLEAR A UNIT OR TERMINAL. CLEARING
A UNIT WILL KILL WHATEVER JOB IS USING THAT UNIT
AT THE TIME. THERE ARE 3 FORMS.
CL<UNIT MENMONIC> EX: CL LPA TO KILL PRINTING
CL<TERMINAL NUMBER> EX: CL 15
CL<TERMINAL NUMBER>$ EX: CL 15$
THE SECOND FORM PERFORMS A HARDWARE CLEAR ON THE LINE.
THE THIRD FORM LOGS OFF WHOEVER IS USING THE TERMINAL.
CLEARING A SCHEDULE LINE ALSO SAVES IT.
CLEARING A PRINTER WHICH IS PRINTING A PRINTER BACKUP
FILE WILL CAUSE THAT FILE TO BE DELETED. (USE THE QT
COMMAND TO KILL PRINTING WITHOUT LOSING THE FILE.)

CM SPO COMMAND TO CHANGE THE MCP FILE. USAGE IS
CM <MFID>/<FID>. EXAMPLE: CM TSS/MCP
TAKES EFFECT AT NEXT HALT/LOAD.

COLD START - PROCEDURE WHICH WIPES THE DISK CLEAN AND BUILDS AN
INITIAL DISK DIRECTORY. NORMALLY FOLLOWED BY A TAPE-TO-DISK

LOAD OF MCP. NECESSARY IF MCP GETS CLOBBERED AND COOL START
OR RELOADING MCP ALONE WILL NOT RESTORE OPERATION.

COLD START DECK CONSTRUCTION -

1. ESPOL LOADER CARD (SWISS CHEESE CARD)
2. COLD START OBJECT DECK
3. KERNEL OBJECT DECK
4. COLD START PARAMETER CARDS, CONSISTING OF
   - DRCTRYTP CARD
   - DIRECT CARD
   - DATE CARD
   - ESU CARD
   - SYSTEMS CARD
   - FILE CARD GROUPS
   - OPTION-SETTING CARDS
   - MEMDUMP DECK, CONSISTING OF
     - MEMDUMP CARD
     - MEMDUMP OBJECT DECK
   - STOP CARD
5. ESPOL LOADER CARD
6. TAPE-TO-DISK LOADER OBJECT DECK
7. TAPE-TO-DISK PARAMETER CARDS, CONSISTING OF
   - TAPE <NAME> (NOT REQUIRED IF <NAME> IS "SYSTEM"
   - FILE <MFID>/<FID> (NOT REQUIRED IF FILE IS MCP/DISK)
   - STOP

COLD START, TO PERFORM - DO THIS ONLY IF YOU ARE SURE THAT THERE IS NO OTHER WAY, SINCE IT WILL WIPE OUT FILES BACK TO THE LAST LIBRARY DUMP TAPE.

1. LOCATE THE COLD START CARD DECK. SEE THAT IT CORRESPONDS TO THE ABOVE DESCRIPTION. UPDATE THE DATE CARD TO TODAY'S DATE.
2. MOUNT A TAPE CONTAINING THE CURRENT MCP. THIS MAY BE THE MOST RECENT SYSTEM BACKUP TAPE, OR THE TAPE LABELLED "SOFWARE", OR THE "SYSTEM" TAPE. ANY DRIVE WILL DO. THE MCP ON THE "SYSTEM" TAPE IS GENERALLY OUT OF DATE, AND IS USED ONLY IF AN UP TO DATE MCP CANNOT EE LOCATED.
3. PRESS THE CARD LOAD SELECT BUTTON ON THE CONSOLE. IT SHOULD LIGHT (ON THE APPLIED SCIENCES MACHINE THE LIGHT IS UNRELIABLE.)
4. PRESS HALT, PUT DECK IN READER AND MAKE IT READY, THEN PRESS LOAD. THE MACHINE SHOULD READ THE FIRST PART OF THE DECK AND TYPE OUT "COLD STARTING, ENTER OK TO CONTINUE". AFTER YOU REPLY OK IT WILL THEN TYPE OUT "DIRCTRY BUILT" ON THE SPO. THEN IT SHOULD READ THE REST OF THE DECK AND THE SYSTEM TAPE SHOULD SPIN AROUND AND LOAD MCP. IT SHOULD THEN AUTOMATICALLY HALT/LOAD THE MCP WITH THE USUAL -H/L SPO MESSAGE, FOLLOWED BY A ##LOAD INTRINSICS NOW MESSAGE. YOU CAN IGNORE THE LACK OF INTRINSICS FOR A WHILE.
5. MAKE SURE THE DATA TRANSMISSION TERMINAL IS CLEARED (PRESS ADAPTER CLEAR AND DTTU CLEAR UNTIL THE N8F LIGHT STAYS OFF.) WE HAVE FOUND THAT IF THE DTTU IS NOT CLEARED LIBMAIN/DISK WILL GO INTO EXECUTION BUT WILL NOT LOAD ANY FILES.
6. AT THIS POINT YOU HAVE JUST THE MCP FILE ON THE DISK, AND SOME FILES THAT WERE ALLOCATED BY CARDS IN THE COLD START DECK. MOUNT THE FILE LIBRARY TAPE(S), IF YOU HAVE NOT DONE SO ALREADY. BRING IN ALL FILES, OR JUST THE FILES YOU WANT, WITH A LIBMAIN/DISK OPERATION.
   EXAMPLE: COPY ADD =/= FROM S0124;END
   THE TAPE SHOULD SPIN AND LOAD ALL THE FILES. DEPENDING ON THE OPTIONS IN THE COLD START DECK YOU MAY OR MAY NOT GET A BOJ MESSAGE FOR THE LIBMAIN/DISK JOB. IF YOU GET A FLOOD OF FILE LOADED MESSAGES USE THE SPO COMMAND RO TYPE LIBMSG TO TURN THEM OFF, AND THEN USE THE SPO COMMAND BK REPEATEDLY UNTIL THEY CEASE.
7. IF THERE IS MORE THAN ONE LIBRARY TAPE, YOU MAY START A SEPARATE

LIBMAIN/DISK JOB FOR EACH TAPE, TO SPEED THINGS UP SLIGHTLY.
IF YOU JUST WANT CERTAIN FILES OF YOUR OWN ON THE DISK YOU WOULD OF COURSE NOT SAY =/= IN THE LIBMAIN/DISK OPERATION, BUT INSTEAD GIVE THE NAMES OF THE FILES YOU WANT. BUT THEN YOU ALSO HAVE TO LOAD A BUNCH OF COMPILERS AND SYSTEM FILES AND SUCH FOR THE SYSTEM TO WORK.
8. IF YOU FORGET TO SAY "ADD" IN THE COPY COMMAND THEN MOST LIKELY IT WILL STOP, WITH THE COMPLAINT THAT LIBMAIN/DISK IS ALREADY ON DISK. OF COURSE IT IS, SO USE THE <MIX INDEX> IF SPO COMMAND TO CAUSE IT TO IGNORE THIS FILE FROM THE LIBRARY TAPE.
9. AT SOME POINT USE THE CI SPO COMMAND TO SET UP THE INTRINSICS FILE. THIS WILL NORMALLY BE CI INT/DISK IF YOU ARE GOING TO USE DCMCP, AND CI TSS/INT IF YOU ARE GOING TO USE THE TIMESHARING MCP.
10. YOU MAY ALSO WANT/NEED TO DIDDLE WITH THE OPTIONS. YOU MIGHT USE THE "TO" SPO COMMAND TO GET THEM ALL TYPED OUT, AND THEN SO OR RO AS NEEDED.

COLD STARTING...ENTER OK TO CONTINUE MESSAGE FROM COLD START
CARD-LOAD-SELECT PROGRAM. IF YOU ENTER OK THE DISK WILL BE WIPED CLEAN OF ALL FILES AND REBUILT.

COMMANDS, SPO AND REMOTE -
UNDER TSSMCP THESE ARE FOR THE SPO ONLY. UNDER DCMCP THESE ARE FOR THE SPO AND FOR REMOTE TERMINALS, WITH PERMISSION TO USE EACH SPECIFIC COMMAND BEING DETERMINED INDIVIDUALLY FOR EACH USERCODE.
A LOCAL FEATURE ALLOWS MULTIPLE COMMANDS IN ONE LINE, SEPARATED BY SEMICOLONS.

DCMCP	TSSMCP	MEANING
	AS	TYPE SUMMARY OF ACTIVITY ON SYSTEM
AX	AX	REPLY TO "ACCEPT" MESSAGE FROM A JOB
BK	BK	EQUIVALENT TO BREAK KEY ON A TERMINAL STOP UNWANTED TYPEOUTS
BO		TYPE A BLACKOUT FOR THE LOGIN MESSAGE
BS	BS	SET A TERMINAL AS ALTERNATE SPO
CC	CC	CONTROL CARD INPUT, EQUIV. TO QUESTION MARK
CD	CD	TYPE PSEUDO DECKS ON DISK
	CE	START CANDE/TSHARER TO START TIMESHARING
CI	CI	CHANGE (OR INITIALLY DESIGNATE) INTRINSICS FILE
CL	CL	CLEAR PERIPHERAL UNIT OR DATACOM LINE
CM	CM	CHANGE MCP AT NEXT H/L
CS	CS	CREATE SEPTIC TANK (MONITOR DATACOM RESULTS)
CT	CT	CHANGE TIME LIMITS FOR A JOB
CU	CU	TYPE CORE MEMORY USAGE
	CX	TREAT THIS LINE AS CANDE INPUT FROM SPO
DB	DB	DISK DEBUG
DD	DD	DISK DUMP
DP	DP	MEMORY DUMP
DS	DS	TERMINATE JOB
DT	DT	ENTER TODAY'S DATE MM/DD/YY
ED	ED	ELIMINATE A PSEUDO DECK
ES	ES	ELIMINATE JOB FROM SCHEDULE BEFORE EXECUTION
EX	EX	LIST EXPIRED FILES
FE	FE	ENTER COMMENT INTO MAINTENANCE LOG
FM	FM	REPLY TO FM RQD WHEN FORMS ARE IN PRINTER
FR	FR	FINAL REEL OF A COBOL TAPE
HD	HD	HOW MUCH DISK IS AVAILABLE?
HM		HALT MESSAGES
HR		HALT MESSAGES FOR MIX
HS	HS	HALT SEPTIC TANKING
IF	IF	IGNORE IN-USE FILE DURING LIBRARY COPY
IL	IL	REPLY TO #NO FIL; DESIGNATE LABELLED UNIT
IN	IN	ENTER A VALUE INTO PROGRAM'S PRT

IT	IT	INTERRUPT THE ONLINE/MAINT PROGRAM
LC	LC	LIST FILES FOR CREATOR
LD	LD	START LDCNTRL/DISK
LF	LF	LIST FILES FOR USER
LI		LOGIN FROM TERMINAL
LN	LN	START A FRESH LOG FILE
LO		LOG OUT FROM TERMINAL
LR		START FRESH REMOTE LOG
LS	LS	LIST FILES SECURITY
MC	MC	MARK FILE AS A COMPILER
	MF	MOVE FENCE AT NEXT H/L
MR	MR	RESERVE 2000 SEGMENTS OF DISK SPACE
MS	MS	SET OR RESET SYSTEM MONITOR
MX	MX	TYPE CURRENT JOB MIX
OC	CC	ENTER OPERATOR COMMENT IN LOG
OF	OF	OPTIONAL FILE (COBOL)
		OK FILE (LIBRARY MAINTENANCE)
OK	OK	RESUME PROCESSING
OL	OL	PRINT LABEL OR STATUS OF PERIPHERAL UNIT
OT	OT	TYPE VALUE FROM PROGRAM'S PRT CELL
OU	OU	DESIGNATE UNIT TO RECEIVE OUTPUT
PB	PB	START PRINTER BACKUP PRINTING
PC	PC	TYPE PACKET COUNT
PD	PD	TYPE DISK DIRECTORY INFORMATION
PG	PG	PURGE A TAPE
PO	PO	TYPE STATE OF AN OPTION
PP	PP	TYPE PACKETS ON DISK
PR	PR	CHANGE JOB PRIORITY
PS	PS	CHANGE PRIORITY OF JOB IN SCHEDULE
PT		PRINT TRACE
	QS	SEND URGENT SPO MESSAGE TO STATION(S)
QT	QT	QUIT PRINTING CURRENT PRINTER BACKUP FILE
QV		SET TIMER FOR PROGRAM NO RESPONSE TO TERMINAL
RC	RC	REEL CHANGE FOR A BAD TAPE
RD	RD	REMOVE PSEUDO DECK
RM		REMOVE OLD FILE WHEN #DUP LIBRARY EXISTS
RN	RN	SET NUMBER OF PSEUDO READERS
RO	RO	RESET AN OPTION
RP	RP	REMOVE PACKET
RR		MAKE TERMINAL UN-BS-ABLE
RS		RESTART AFTER BREAKOUT
RW	RW	REWIND TAPE
RY	RY	READY PERIPHERAL UNIT OR LINE
SA	SA	TYPE SEGMENT NR AND REL ADRS OF RUNNING PROGRAM
SC	SC	WHICH TERMINALS ARE SPO'S?
SD	SD	DS, BUT KEEP PSEUDO DECK ON DISK FOR LATER RERUN
SF	SF	SET CORE FACTOR
SI	SI	SET STATISTICS INTERVAL TIMER
SL		SET STATISTICS FILE
SM		START MIX MESSAGES (UNDO HR)
SO	SO	SET AN OPTION
SQ	SQ	DISK SQUASH
SS	SS	SEND MESSAGE TO STATION(S), LESS URGENT THAN QS
ST	ST	SUSPEND EXECUTION OF A JOB TEMPORARILY
SV	SV	SAVE PERIPHERAL UNIT OR SCHEDULE LINE
SY	SY	CREATE NEW STATISTICS FILE
TC		TIME AND CHARGES FOR REMOTE TERMINAL JOB
TF	TF	TYPE CORE FACTOR
TI	TI	TYPE TIME USED BY A JOB
TL	TL	TYPE TIME LIMITS FOR A JOB
TO	TO	TYPE OPTIONS STATUS

TR	TR	ENTER TIME OF DAY HHMM
TS	TS	TYPE CONTENTS OF SCHEDULE
UL	UL	REPLY TO #NO FIL FOR UNLABELLED MEDIUM
US	US	UNDC A BS
WA		WHAT TERMINALS ARE ATTACHED TO JOB?
WD	WD	TYPE CURRENT DATE
WI	WI	TYPE NAME OF INTRINSICS FILE
WK		WORKSET CONTROLS
WM	WM	TYPE NAME OF CURRENT MCP
WP		WHAT PROGRAMS ARE ASSIGNED TO REMOTE TERMINALS
WR		CREATE REMOTE/LOG FILE
WT	WT	TYPE CURRENT TIME OF DAY
WU	WU	WHO'S ON
WY	WY	WHAT IS THIS JOB WAITING FOR?
XD	XD	MARK A BAD AREA OF DISK
XS	XS	FORCE SCHEDULED JOB INTO EXECUTION
XT	XT	EXTEND TIME LIMITS FOR JOB
ZZ		SENSE EOT

COMMON - 1. FORTRAN STATEMENT
2. CONTROL CARD TO TRANSMIT ONE WORD OF INFORMATION TO A PROGRAM AT RUN TIME. THE FIRST VARIABLE DECLARED IN THE OUTER BLOCK OF THE PROGRAM, WHICH MUST BE A SIMPLE VARIABLE (NOT AN ARRAY, PROCEDURE, LABEL, ETC.) RECEIVES THE VALUE THAT IS ON THE COMMON CONTROL CARD. THE CONTROL CARD IS, FOR EXAMPLE
? COMMON = 12345

COMPATIBLE ALGOL - PROGRAMMING LANGUAGE WHICH IS ALMOST A SUBSET OF B-6700 ALGOL. IT IS CALLED XALGOL. PREFERRED OVER B-5500 EXTENDED ALGOL FOR GREATER SIMPLICITY, LESS CHANCE OF HANGING MACHINE.

COMPILE - 1. CONTROL CARD TO COMPILE A PROGRAM. 3 FORMATS:
A. ? COMPILE <MFID>/<FID> WITH <COMPILER NAME>
FOR A COMPILE-AND-GO-JOB
B. ? COMPILE <MFID>/<FID> WITH <COMPILER NAME> SYNTAX
FOR SYNTAX CHECK, NO EXECUTION, OBJECT CODE DISCARDED
C. ? COMPILE <MFID>/<FID> WITH <COMPILER NAME> LIBRARY
TO PUT THE COMPILED PROGRAM ON THE DISK FOR LATER EXECUTION

THE WORD "WITH" IS OPTIONAL FOR STANDARD COMPILERS SUCH AS FORTRAN, XALGOL, ETC.; REQUIRED FOR COMPILERS OF YOUR OWN THAT ARE NOT KNOWN TO THE SYSTEM.

IN A COMPILE-FOR-LIBRARY YOU MAY INCLUDE ?FILE CARDS FOR THE EXECUTION TIME JOB JUST AS IF YOU WERE DOING A COMPILE-AND-GO. THESE WILL BE STORED ON DISK AND BECOME DEFAULT FILE DEFINITIONS FOR EXECUTING THE JOB. OTHER JOB CONTROL CARDS MAKE LIKEWISE BE INCLUDED.

ESPOL IS NOT CONSIDERED A COMPILER, BECAUSE ITS OBJECT CODE OUTPUT IS NOT INTENDED FOR LOADING AND EXECUTION ON A RUNNING SYSTEM. THEREFORE FOR AN ESPOL JOB YOU DON'T USE A COMPILE CARD; INSTEAD YOU EXECUTE ESPOL/DISK.

THE <MFID>/<FID> IS SIGNIFICANT ONLY IN COMPILING TO LIBRARY. BUT IT MUST BE THERE AND BECOMES THE JOB NAME IN A COMPILE AND GO. CONTRARY TO SOME DIRECTIONS BOTH MFID AND FID MUST BE THERE. IF A PROGRAM COMPILED TO LIBRARY IS TO BE EXECUTABLE FROM A TIMESHARING TERMINAL THE <MFID> MUST BEGIN WITH 0 (ZERO). COMPILES DONE FROM A TIMESHARING TERMINAL AUTOMATICALLY SUPPLY THIS ZERO CHARACTER.

2. CANDE VERB TO COMPILE A PROGRAM

COMPILER CONTROL CARDS - THESE START WITH A $ AND CONTAIN INSTRUCTIONS TO SET OR RESET COMPILER OPTIONS. SEE "OPTIONS" FOR A LIST OF COMPILER OPTIONS, AND ENTRIES FOR EACH OPTION FOR DETAILS OF THEIR USE.

ALTHOUGH COMPILER CONTROL CARDS MAY OFTEN BE INTERSPERSED WITH PROGRAM SOURCE TEXT, THESE CARDS ARE NOT STATEMENTS IN THE PROGRAMMING LANGUAGE AND SHOULD NOT, FOR INSTANCE, BE FOLLOWED BY A SEMICOLON.

EXAMPLES:
$CARD LIST SINGLE HOL (THIS FORM FOR FORTRAN ONLY)
$SET LIST SINGLE TAPE (THIS FORM FOR ALGOL,XALGOL)
IN FORTRAN THE STANDARD FORM IS A $ CARD NAMING ALL THE OPTIONS YOU WISH TO REMAIN ON. IT IS ALSO PERMITTED TO $ SET OR $ RESET INDIVIDUAL OPTIONS. IT APPEARS THAT FORTRAN DOES NOT PERMIT ONE TO $SET OR $RESET A WHOLE LIST OF OPTIONS. IN ALGOL YOU MAY USE THE "SET" AND "RESET" VERBS TO SWITCH OPTIONS ON OR OFF WITHOUT AFFECTING OTHER OPTIONS. NOTE THAT SOME OPTIONS ONCE SET CANNOT BE CHANGED.

CONTINUE - 1. PACKET CONTROL CARD. MEANS DON'T START ANYTHING ELSE FOLLOWING UNTIL THE PREVICUS STEPS HAVE BEEN FINISHED; BUT IF THEY BOMB OUT, RESUME FROM HERE. THIS IS IN CONTRAST TO ?WAIT, WHICH CAUSES THE REST OF THE PACKET TO BE FLUSHED IF THE PRECEDING ACTIVITY FAILS. SEE SYSTEM NOTE 11, APPENDIX C.
2. FORTRAN STATEMENT

CONTROL CARD - SEE COMPILER CONTROL CARD (THESE START WITH $) OR JOB CONTROL CARD (THESE START WITH ?). JOB CONTROL CARDS ENTERED THROUGH THE SPO MAY START WITH CC INSTEAD OF ? IF YOU WISH.

CONTROL CARD ERROR - SPO MESSAGE, TELLS WHAT UNIT HAS THE ERROR AND SHOWS THE CONTROL CARD IN ERROR. BUT YOU HAVE TO FIGURE OUT WHAT THE ERROR IS.
IF YOU GET THIS MESSAGE IN RESPONSE TO A SPO COMMAND IT MEANS THAT THERE WAS PREVIOUSLY A CONTROL CARD ERROR IN A CARD ENTERED THROUGH THE SPO; AND THE SYSTEM IS EXPECTING THIS TO BE CORRECTED BEFORE IT WILL ACCEPT SPO COMMANDS. TO GET AROUND THIS TYPE "CC END" ON THE SPO. THEN YOU SHOULD BE ABLE TO ENTER COMMANDS.

CONTROL DECK 1. A DECK OF CARDS CONTAINING A COMPLETE JOB WITH ALL NECESSARY CONTROI CARDS.
2. DATA STORED ON DISK WHICH REPRESENTS A CONTROL DECK. READ BY PSEUDO-READERS.

CONTROL/DECK NAME OF THE INPUT FILE TO LDCNTRL/DISK.
WITH CDONLY OPTION SET THE READER WILL BE LABELLED AUTOMATICALLY. WITH THIS OPTION RESET AND USING THE LD DK SPO COMMAND TO START LDCNTRL/DISK IT IS NECESSARY TO PUT A ?LABEL CARD THROUGH THE READER TO LABEL IT.

THE FORMAT OF THE LABEL CONTROL CARD IS

COL 1	? (INVALID CHARACTER)
COLS 2-6	"LABEL"
COL 9	0 (ZERO)
COLS 10-16	"CONTROL"
COL 17	0 (ZERO)
COLS 18-21	"DECK"

ALL OTHERS BLANK

COOL START - PROCEDURE TO RECOVER FROM A DISK CORRUPTION INCIDENT, TRYING TO SAVE AS MANY EXISTING FILES AS POSSIBLE. THE COOL START DECK CONSISTS OF
1-CARD ESPOL LOADER (SWISS CHEESE CARD)
COOL START PROGRAM DECK
KERNEL PROGRAM DECK
COOL START OPTION CARDS. THESE ARE IDENTICAL TO THE COLD START OPTION CARDS (ESU, DRCTRYTP, ETC.) EXCEPT THAT THERE ARE NO FILE CARDS. DRCTRYTP MUST BE FIRST.
NORMALLY INCLUDED WITH THESE CARDS ARE
MEMDUMP CARD
MEMDUMP OBJECT DECK
AND THEN THE STOP CARD. ALSO THE "RECONSTR" CARD MAY BE INCLUDED TO AVOID HAVING TO ENTER "OK" ON THE SPO TO ALLOW DIRECTORY RECONSTRUCTION.

THE COOL START PROGRAM, KERNEL PROGRAM, AND TAPE TO DISK LOADER MAY BE USED INDEPENDENTLY IF DESIRED. THE COOL START PROGRAM CHECKS THE DISK FOR CORRUPTED FILE HEADER RECORDS AND DELETES FILES SO AFFECTED.

BEFORE DOING A COOL START HAVE A PRINTER RUNNING AND READY. OTHERWISE YOU WILL GET THE ENTIRE DISK DIRECTORY LISTED ON THE SPO. THIS MIGHT TAKE LONGER THAN YOU ARE WILLING TO WAIT.

COOL STARTING...ENTER OK TO CONTINUE MESSAGE FROM COOL START PROGRAM. IF YOU ENTER OK COOL START WILL PROCEED TO CHECK THE DISK DIRECTORY AND REMOVE ANY SUSPECTED CORRUPTION.

COPY 1. LIBRARY MAINTENANCE CONTROL CARD.
SEE LIBMAIN/DISK.
2. USED IN A FILE CONTROL CARD FOR A PRINT FILE TO SPECIFY MULTIPLE COPIES. EX: ?FILE LINE = LINE PRINT BACK UP COPY N
3. CANDE VERB TO COPY A FILE TO PRINTER, ETC.

CORE - CONTROL CARD TO LIMIT THE AMOUNT OF MEMORY A PROGRAM MAY USE.
EXAMPLE: ?CORE = 12000 TO LIMIT MEMORY TO 12000 WORDS.
?ALGOL CORE = 12000 FOR A COMPILER
DEFAULT IS NO LIMIT, WHICH IS NORMALLY OK.

CORE FACTOR - FOR BATCH-MODE PROGRAMS THE MCP TRIES TO RUN ONLY AS MANY AT ONCE AS WILL RUN WELL WITHIN THE RESOURCES THAT ARE AVAILABLE. ONE FACTOR IN THE DECISION WHETHER TO ADMIT AN ADDITIONAL JOB TO THE MIX IS THE AMOUNT OF MEMORY AVAILABLE AND THE ESTIMATED AMOUNT OF MEMORY NEEDED BY THE JOB. TO ALLOW THE SYSTEM OPERATOR MORE CONTROL OVER THIS SELECTION PROCESS THE SYSTEM EMPLOYS A "CORE FACTOR" WHICH IS MULTIPLIED BY THE ACTUAL MEMORY SIZE OF THE SYSTEM TO GET AN ASSUMED SIZE FOR THE SCHEDULING ALGORITHM TO USE. A CORE FACTOR OF 1.0 MEANS THE SCHEDULER THINKS THE MACHINE HAS EXACTLY THE AMOUNT OF MEMORY THAT IS REALLY HAS. A FACTOR HIGHER THAN 1.0 FOOLS THE SYSTEM INTO THINKING THAT IT HAS MORE CORE THAN IT REALLY HAS. THE OPERATOR SHOULD SET THE FACTOR SOMEWHAT HIGHER THAN 1.0 IF THE SYSTEM SEEMS TO BE LEAVING AN EXCESSIVE AMOUNT OF MEMORY UNUSED, AND SHOULD SET THE FACTOR SOMEWHAT LOWER THAN 1.0 IF THE SYSTEM APPEARS TO BE THRASHING. USE THE TF COMMAND TO SEE WHAT THE FACTOR CURRENTLY IS, AND THE SF COMMAND TO CHANGE IT. NOTE THAT THE FACTOR CANNOT BE ADJUSTED TO HELP TIMESHARING FROM EXCESSIVE

SWAPPING, AS TIMESHARING MUST ACCEPT ALL JOBS THAT ARE OFFERED.

CP RQD - SPO MESSAGE MEANS A JOB NEEDS A CARD PUNCH.

CPA UNIT MNEMONIC FOR THE CARD PUNCH.

CRA,CRB UNIT MNEMONIC FOR CARD READERS.

CRA NOT READY USUALLY HAPPENS WHEN THE READER HAS NOT SEEN THE ?END CARD. PUT A ?END CARD THROUGH THE READER.

CRASHES - IF THE SYSTEM CRASHES FREQUENTLY SEE "TROUBLE" FOR HELP.

CS SPO COMMAND TO CREATE SEPTIC TANK. SEE SEPTIC TANK.
REQUIRES THAT SEPTIC TANKING OPTION BE COMPILED INTO MCP.
FORMS: CS - TO LOG ALL DATACOM I/O RESULTS
CS <STATION NUMBER> TO LOG ONLY THOSE FOR A PARTICULAR STATION NUMBER. (TSSMCP ONLY)
CS <TU>/<BU> TO LOG ONLY THOSE FOR A PARTICULAR STATION, SPECIFIED BY TU/BU NUMBER RATHER THAN STATION NUMBER.

CT SPO COMMAND TO CHANGE TIME LIMIT FOR A JOB.
USAGE: <MIX INDEX>CT<PROCESSOR PART>,<I/O PART>

CU SPO COMMAND TO PRINT SYSTEM CORE USAGE
USAGE: CU TO GET INFO FOR ALL JOBS
<MIX INDEX> CU TO GET INFO FOR A PARTICULAR JOB

CUBE - COOPERATING USERS OF BURROUGHS EQUIPMENT. NICE PEOPLE.

CUBE LIBRARY - CONTRIBUTED PROGRAMS WRITTEN BY BURROUGHS AND B-5500 USERS, MAINTAINED ON 3 REELS OF TAPE, FORMERLY BY GORDON KENNEDY, BROCK UNIVERSITY, ST. CATHERINE'S, ONTARIO. INCLUDES ALL THE BURROUGHS APPLICATION-ORIENTED PROGRAMS.

CX TSSMCP SPO COMMAND TO INDICATE THAT THE FOLLOWING LINE SHOULD BE TREATED AS INPUT TO CANDE. IN THIS WAY THE SPO CAN BE OPERATED ALMOST AS IF IT WERE AN ORDINARY TIMESHARING TERMINAL.
---USE OF THIS FEATURE HAS A HIGH PROBABILITY OF CRASHING THE SYSTEM---

D-REGISTER REGISTER IN AN I/O CHANNEL WHICH HOLDS THE DESCRIPTOR

DATA CONTROL CARD TO PRECEDE A DATA DECK. TYPICAL USAGE:
?DATA CARDS
WHERE THE FILE IS KNOWN AS CARDS TO THE PROGRAM THAT OWNS IT.
FOR A COMPILE JOB THE COMPILER WILL TAKE THE FIRST ?DATA CARD AS THE START OF THE SOURCE LANGUAGE DECK REGARDLESS OF THE FILE NAME ON THE CARD.

FOR A JOB THAT REQUIRES MULTIPLE DATA DECKS IT APPEARS NECESSARY TO RUN THE JOB AS A PACKET, AND TO END EACH DATA DECK WITH A ?END CARD> EXAMPLE:

```
?USER = USERNAME
?PACKET
?EXECUTE PROGRAM/NAME
?DATA A
        (FIRST DATA DECK)
?END
?DATA B
```

```
                    (SECCND DATA DECK)
               ?END
               ?PACKEND
```

DATA029 - CONTROL CARD USED IN PLACE OF ?DATA TO CAUSE 029 KEYPUNCH CHARACTERS TO BE TRANSLATED TO BCL AS THE DATA DECK IS READ. ALL CHARACTERS THAT APPEAR THE SAME IN EBCDIC AND BCL ARE TRANSLATED. FOR BCL CHARACTERS WHICH DO NOT APPEAR ON THE 029 KEYBOARD THE TRANSLATIONS ARE:

BCL	029
[	CENT SIGN
]	! EXCLAMATION POINT
NEQ	| VERTICAL BAR
X	0-8-2 (A SINGLE KEY ON THE KEYPUNCH)
GEQ	_ UNDERLINE OR GEQ
LEQ	NOT SIGN OR LEQ
"	" OR ' (SINGLE OR DOUBLE QUOTE TURNS INTO DOUBLE QUOTE)
ARROW	CAN'T BE MADE, WITH THE PRESENT TRANSLATION TABLE. GRIPE IF THIS IS A PROBLEM FOR YOU.

IF A CONTROL CARD BEGINS WITH AN INVALID CHARACTER THE REST OF THE CARD WILL NOT BE TRANSLATED. THIS ALLOWS JOB DECKS PUNCHED IN BCL TO BE USED INTERCHANGEABLY WITH DECKS PUNCHED IN EBCDIC. TWO CAUTIONS:
1) A BCL CARD CANNOT BEGIN WITH A DOUBLE QUOTE, BECAUSE THAT IS EQUIVALENT TO THE 029 ? AND WILL CAUSE THE CARD TO BE READ IN EBCDIC.
2) AN EBCDIC CARD CANNOT BEGIN WITH COLON OR ANY OTHER BCL-INVALID CHARACTER, AS IT WILL BE INTERPRETED IN BCL.
THIS PATCH WAS DEVELOPED BY HERIOT-WATT UNIVERSITY.

DCA UNIT MNEMONIC FOR DATA COMMUNICATIONS SUBSYSTEM.

DCA ERR - DATACOM ERROR, SEVERAL KINDS POSSIBLE.
"EUSY INTERRUPT DURING WRITE" SEEMS TO BE A RESULT OF THE USER HITTING THE BREAK KEY TO INTERRUPT OUTPUT.
"EAD TU/BU NUMBER" MEANS MCP IS AT LEAST TEMPORARILY CONFUSED.

DCFILL/PRT A PROGRAM WHICH FOR DCMCP PRODUCES THE MCP/PRT FILE (USED BY THE DUMP ANALYZER) FROM THE MCP AND INTRINSICS STUFF FILES. TO RUN, EXECUTE THE PROGRAM AND <MIX>IL THE #NO FIL 'S FOR THE INPUT FILE. THE OUTPUT FILE WILL BE NAMED MCP/PRT.

DCMCP DATA COMMUNICATIONS MASTER CONTROL PROGRAM.
ONE NAME FOR THE NON-TIMESHARING MCP.

DCP DATA COMMUNICATIONS PROCESSOR - A STORED-PROGRAM CONTROLLER FOR REMOTE TERMINAL EQUIPMENT, WHICH WE DON'T HAVE ONE OF.

DD SPO COMMAND TO CAUSE DISK DUMP.

DEAD TERMINAL - TRY THE SPO COMMAND CL <TERMINAL NUMBER> $
WHEN THAT FAILS TRY PUSHING ADAPTER RESET AND DTTU RESET BUTTONS ON THE DTTU. WHEN THAT FAILS HALT/LOAD. WHEN THAT FAILS YOU WILL LIKELY FIND THAT THE ON-OFF KNOB CN THE TERMINAL WAS IN THE "LOCAL" POSITION ALL THE TIME INSTEAD OF CN "LINE".

DEBUGN - COMPILER OPTION ($ OPTION) TO INCLUDE THE COMPILED CODE IN THE LISTING.

DECK COMPILER $ OPTION FOR ESPOL ONLY, CAUSES AN OBJECT DECK TO BE PUNCHED. THIS DECK IS LOADABLE WITH AN ESPOL SWISS CHEESE CARD.

WITH OTHER PROGRAMMING LANGUAGES YOU NEVER PRODUCE AN OBJECT DECK.

DECK REMOVED - SPO MESSAGE. A PSEUDO DECK HAS BEEN REMOVED, EITHER BY OPERATOR REQUEST OR BECAUSE A PSEUDO READER HAS READ IT.

DECK SETUPS - SEE UNDER FORTRAN AND XALGOL FOR DECK SETUPS FOR THESE LANGUAGES. ESPOL IS NORMALLY RUN IN CONNECTION WITH PATCH/MERGE, WHICH SEE. DECK SETUP TO EXECUTE A COMPILED PROGRAM FROM DISK IS HIGHLY VARIABLE SINCE THERE ARE SO MANY POSSIBILITIES FOR FILES AND THINGS THAT MAY BE COMPILED INTO THE PROGRAM. IN GENERAL A DECK SETUP CONSISTS OF

```
?USER =      CARD
?COMPILE   OR ?EXECUTE CARD
PARAMETER CARDS SUCH AS ?PROCESS, ?STACK IF NEEDED.
?FILE   CARDS AS NEEDED
?DATA OR ?DATA029 CARD
DATA DECK, HEADED BY $ CARDS IF APPROPRIATE
?END     CARD
```

DFC DISK FILE CONTROL (HARDWARE BOX)

DFE DISK FILE ELECTRONICS (HARDWARE BOX) THIS SITS AT THE LEFT END
DFEU OF THE LINE-UP OF DISK CABINETS AND HANDLES UP TO FIVE DISK MODULES, ALSO CALLED DFSU'S, ALSO CALLED SU'S.

DFMCP DISK FILE MASTER CONTROL PROGRAM. ANOTHER NAME (OBSOLETE) FOR THE NON-TIMESHARING MCP.

DFSU DISK FILE STORAGE UNIT (HARDWARE). A MODULE CONTAINING FOUR PHYSICAL DISKS, HOLDS 9.6 MILLION CHARACTERS. ORGANIZED AS

```
1 SEGMENT = 240 CHARACTERS (6-BIT) = 30 MACHINE WORDS
1 TRACK = 100 SEGMENTS
1 DISK =  100 TRACKS
1 MODULE = 4 DISKS
```

DFX 1. DISK FILE EXCHANGE. HARDWARE TO ALLOW THE SYSTEM TO ACCESS MORE THAN ONE DISK FILE ELECTRONICS UNIT.
2. COMPILE-TIME OPTION ($-OPTION) FOR MCP TO INCLUDE CODE TO ALLOW A DFX TO BE USED.

DIAGNOSTIC PROGRAMS SEE MTR.

DIRECT CARD IN COLD START AND COOL START DECKS, WHICH SHOULD BE SET TO DIRECTORYTOP + <SIZE OF DIRECTORY> + 4.

DIRECTORYTOP, A BOUNDARY IN DISK SPACE ALLOCATION, SET BY THE
DRCTRYTP DRCTRYTP CARD IN THE COLD START DECK. ALSO, A DISK SEGMENT LOCATED AT THIS DISK ADDRESS. SEE MCP DOCUMENTATION FOR DETAILS OF CONTENTS. FOR PRESENT-DAY MCP'S DRCTRYTP SHOULD BE SET TO 436. THIS IS THE UPPER BOUNDARY OF MCP SCRATCH DISK SPACE AND THE LOWER BOUNDARY OF THE DISK DIRECTORY.

DIRECTORY BUILT MESSAGE FROM COLD START PROGRAM WHICH MEANS IT HAS SUCCEEDED IN CREATING A NEW DISK DIRECTORY.

DISK ADDRESSING - A DISK ADDRESS AS TYPED ON THE SPO IS A 7-DIGIT NUMBER. EDDTTSS WHERE E = DFEU NUMBER (ALWAYS ZERO FOR US),
DD = DISK NUMBER (00 THRU 11 FOR US),
TT = TRACK NUMBER (00 THRU 99)
SS = SECTOR NUMBER (00 THRU 99)

THE SECTORS ARE DIVIDED INTO THREE CONCENTRIC ZONES AS FOLLOWS.
ZONE 1 CONTAINS SECTORS 00-23
ZONE 2 CONTAINS SECTORS 24-55
ZONE 3 CONTAINS SECTORS 56-99

DISK LOAD BUTTON CARD - OBSOLETE FOR CURRENT SOFTWARE. THE MACHINE HAS BEEN REWIRED SO THAT IT CAN LOAD DIRECTLY FROM DISK WHEN THE CARD-LOAD-SELECT SWITCH IS OFF. IN OLDEN TIMES THE OPPOSITE OF CARD LOAD WAS DRUM LOAD, AND A ONE-CARD PROGRAM, CALLED THE DISK LOAD BUTTON CARD, WAS USED TO CALL IN MCP FROM DISK. THIS CARD DOES NOT WORK WITH CURRENT SOFTWARE, WHICH REQUIRES THE "KERNEL" PROGRAM TO GET MCP RUNNING FROM DISK.

DISK SQUASH - PROCEDURE WHICH ATTEMPTS TO COMPACT INFORMATION ON DISK TO REDUCE CHECKERBOARDING. SEE SQ COMMAND FOR HOW TO DO. INTRODUCED IN MARK XV, SYSTEM NOTE 11

DISKDIR/UTILITY - PROGRAM TO PRINT THE DISK DIRECTORY. (LOCAL)

DKA <UNIT MNEMONIC> FOR THE DISK FILE SYSTEM.

DKA N RETRIES ,MIX=AA,DA=BBBBBBBB,SEGS=CCC,R=DDDDDDDDDDDDDDDD,IO=E
THERE HAS BEEN A DISK ERROR DETECTED. THE OPERATION SUCCEEDED AFTER N RETRIES. MIX GIVES THE MIX INDEX OF THE JOB WITH THE TROUBLE, DA IS THE STARTING DISK ADDRESS, SEGS IS THE NUMBER OF SEGMENTS, R IS THE RESULT DESCRIPTOR, AND IO IS THE IO CHANNEL NUMBER.

DKA PARITY... - THERE WAS AN UNRECOVERABLE PARITY ERROR IN A DISK OPERATION. YOU MAY TRY THE JOB AGAIN, BUT IT PROBABLY WON'T HELP.

DKA I/O MEM PARITY - THIS IS NOT A PARITY ERROR ON THE DISK. IT IS A PARITY ERROR IN MEMORY ON A DISK TRANSFER, OR TROUBLE DURING DISK ADDRESSING, OR THE WRONG NUMBER OF CHARACTERS WAS WRITTEN. TRY AGAIN.

DKB <UNIT MNEMONIC> FOR A SECOND DISK FILE SYSTEM.
(WE HAVE ONLY ONE, HENCE NO DKB)

DKBNODFX COMPILE-TIME OPTION FOR MCP IF THERE ARE TWO DISK FILE SUBSYSTEMS AND NO DFX.

DKTEST - <MFID> FOR A DISK FILE CREATED BY THE ONLINE MAINTENANCE PROGRAM

DMPAREA/DISK - THIS DISK FILE HOLDS A PORTION OF THE CONTENTS OF MEMORY DURING A DUMP, SO AS TO MAKE ENOUGH MEMORY AVAILABLE TO HOLD THE DUMP PROGRAM. THE LOCATION OF THIS FILE ON DISK MUST BE KNOWN TO THE MEMORY DUMP CARD-LOAD-SELECT PROGRAM.

DOCUMENTATION - SOURCES ARE:
PUBLISHED BURROUGHS MANUALS - DAN ROSS HAS CURRENT LIST
PCN'S - BURROUGHS PUBLICATION CHANGE NOTICES TO PRINTED MANUALS
BURROUGHS MANUALS DISTRIBUTED WITH SOFTWARE UPDATES AS
PRINTER BACKUP FILES OR APPENDICES TO SYSTEM NOTES.
SYSTEM NOTE DISTRIBUTED WITH EACH SOFTWARE RELEASE.
A PRINTER BACKUP FILE OF THE SYSTEM NOTE IS NORMALLY INCLUDED ON THE SOFTWARE TAPE.
THIS DOCUMENT
SYMBOLIC SOURCE FILES OF PROGRAMS, OR COMPILER LISTINGS
CUBE NEWSLETTERS AND CORRESPONDENCE

NEWSLETTERS OF OTHER INSTALLATIONS
DOCUMENTATION FILES KEPT ON THE B-5500 SYSTEM DISK, MOSTLY
IN THE "INFORM" ACCOUNT
FILES ON THE PDP-11/45 SYSTEM AVAILABLE UNDER "HELP"
RITUAL CARDS AT THE CONSOLE
POSTED NOTICES AND SCRUFFY NOTES LEFT LYING AROUND

DP SPO COMMAND TO TAKE MEMORY DUMP. USAGE IS DP LP OR DP MT
FOR LINE PRINTER OR MAG TAPE DUMP. THE DUMP OPTION MUST
BE COMPILED INTO THE MCP FOR THIS TO WORK.

DRCTRYTP - CONTROL CARD IN COLD AND COOL START DECKS.
SEE "DIRECTORYTOP." SHOULD SAY DRCTRYTP 436.

DS SPO COMMAND TO TERMINATE A JOB. USAGE IS
<MIX INDEX>DS EX: 3DS
DCMCP, BUT NOT TSS MCP, ALSO ALLOWS DS <JOB NAME>

IF THE JOB BEING DS-ED CAME IN AS A PSEUDO-DECK THE DECK WILL BE REMOVED.
TO AVOID THIS AND RUN THE JOB AGAIN LATER USE THE <MIX INDEX>SD COMMAND.

DSKDUMP/UTILITY AS OF 17 JAN 77 NONE OF THE FOLLOWING SEEMS TO WORK RIGHT.
- PROGRAM TO PRODUCE ALPHA OR OCTAL DUMP OF DISK CONTENTS.
FUNCTION IS CONTROLLED BY A COMMON CONTROL CARD. VALUES OF COMMON ARE:
0 - OCTAL, DOUBLE SPACED
1 - ALPHA, DOUBLE SPACED
2 - ALPHA AND OCTAL, DOUBLE SPACED
3 - OCTAL, SINGLE SPACED
4 - ALPHA, SINGLE SPACED
5 - ALPHA AND OCTAL, SINGLE SPACED
10- SPECIAL FORMAT FOR PRINTING AVAILABLE DISK TABLE

EXECUTE, PROGRAM WILL ASK FOR STARTING ADDRESS AND NUMBER OF SEGMENTS
TO DUMP. REPLY WITH <MIX INDEX>AX<NUMBER>,<NUMBER>
WHERE <NUMBER> IS A DECIMAL INTEGER OR %<OCTAL NUMBER>
BEFORE EACH ACCEPT THE COMMON VALUE MAY BE CHANGED BY THE
COMMAND <MIX INDEX>IN25=<NEW VALUE>
NUMBER OF SEGMENTS MAY BE POSITIVE OR NEGATIVE, FOR ASCENDING
OR DESCENDING DUMP. IF STARTING ADDRESS IS NEGATIVE THE PROGRAM
WILL GIVE ANOTHER ACCEPT MESSAGE. WHAT YOU ANSWER THIS TIME IS AN
INCREMENT FOR ADDRESSES.

DS-ED - SPO MESSAGE MEANING A JOB HAS BEEN DS'ED, BY OPERATOR OR BY
AUTOMATIC ACTION ON AN ERROR, OR BY THE USER AT A TERMINAL.

DT SPO COMMAND TO ENTER CURRENT DATE IN FORM
MM/DD/YY EX: DT 12/31/75

DT PLEASE -SPO MESSAGE MEANS THE DATE OPTION IS SET AND YOU
HAVE TO ENTER THE DATE WITH A DT MESSAGE.

DTC DATA TRANSMISSION CONTROL - HARDWARE WHICH ATTACHES UP TO 16
DTCU DTTU'S TO THE COMPUTER, AND WHICH PERFORMS CONVERSIONS OF
DATA TRANSMISSION CODES ON INPUT AND OUTPUT.

DTC NOT READY - SPO MESSAGE AT HALT/LOAD TIME INDICATES DTC BOX IS
TURNED OFF, OR DTTU NEEDS RESETTING. OPEN DTC DOOR, LOOK FOR LIGHTS.
IF NO LIGHTS, THROW TOGGLE SWITCH TO LOCAL, RESET THE
CIRCUIT BREAKER BEHIND THE GATE, PUSH ON BUTTON, KEEP
RESETTING BREAKER UNTIL YOU GET IT TO STAY ON. THEN
THROW TOGGLE SWITCH BACK TO REMOTE AND

GO TO DTT SIDE OF BOX. IF THE N8F LIGHT IS ON PRESS THE ADAPTER CLEAR AND DTTU CLEAR BUTTONS UNTIL N8F STAYS OUT. THEN ON THE DTC SIDE OF THE BOX PRESS DTC CLEAR BUTTON.

DTT
DTTU — DATA TRANSMISSION TERMINAL. HARDWARE WHICH PROVIDES PER-LINE BUFFERING AND ATTACHES TERMINALS TO THE SYSTEM.

DUMMY — OPTION FOR AN OUTPUT FILE ON A ?FILE CONTROL CARD. CAUSES OUTPUT TO BE DISCARDED. SUPPOSED TO WORK FOR INPUT FILES ALSO, (GIVING AN IMMEDIATE END-OF-FILE) BUT DOESN'T SEEM TO. THIS IS A LOCAL FEATURE, THANKS TO A DREXEL U. PATCH.

DUMP
1. COMPILE-TIME OPTION ($-OPTION) FOR MCP TO ALLOW FOR CORE DUMP VIA THE DP SPO COMMAND.
2. CONTROL CARD FOR LIBMAIN/DISK
3. SEE MEMORY DUMP

DUP FIL - THERE IS A DUPLICATION OF FILES. REMOVE ONE AND OK THE JOB, OR USE THE <MIX>IL<UNIT MNEMONIC> COMMAND TO TELL IT WHICH UNIT TO USE.

DUP LIBRARY - A PROGRAM IS TRYING TO CREATE A FILE ON DISK AND A FILE OF THE SAME NAME ALREADY EXISTS. YOU MAY USE THE <MIX>RM SPO COMMAND TO REMOVE THE EXISTING FILE. TSSMCP AUTOMATICALLY REMOVES DUPLICATE FILES, WITHOUT ASKING. DCMCP DOES TOO, IF AUTODS IS SET.

E-REGISTER - PROCESSOR REGISTER WHICH CONTROLS WHAT KIND OF MEMORY OPERATION IS TO BE DONE AND WHICH REGISTER WILL FURNISH THE ADDRESS.

EBCDIC
1. EXTENDED BINARY-CODED-DECIMAL INTERCHANGE CODE. 8-BIT CODE USED WITH IBM 360'S AND OTHER COMPUTERS. ALSO, CARD CODE PUNCHED BY IBM 029 KEYPUNCH.
2. $ OPTION FOR BASIC AND FORTRAN COMPILATION ALLOWING USE OF A SOURCE DECK PUNCHED ON AN 029 KEYPUNCH. IDENTICAL TO THE "HOL" OPTION OF FORTRAN, WHICH SEE.

ED — SPO COMMAND TO ELIMINATE A PSEUDO DECK, WHEN IT IS ON A PSEUDO READER. USAGE IS ED CDA (OR CDB, OR WHATEVER). USE RD TO REMOVE A DECK THAT IS NOT YET ON A READER.
SEE LDCNTRL/DISK

ELBAT — IS "TABLE" SPELLED BACKWARDS. (NOW YOU KNOW!)

EOF — END OF FILE

EOF NO LABEL - MEANS A JOB HAS READ PAST THE END OF AN INPUT FILE AND THE USER DIDN'T SPECIFY WHAT IT SHOULD DO WHEN THIS HAPPENED. IF THIS HAPPENS ON A COMPILER IT MAY BE THAT THE SOURCE INPUT IS TOTALLY WRONG OR MISSING. IN ALGOL THE FIRST BEGIN MIGHT BE MISSING, OR THE LAST END, OR A DEFINE MIGHT BE MESSED UP, CAUSING MOST OF THE PROGRAM TO BE INTERPRETED AS THE BODY OF A DEFINE.

SOME PROGRAMS REQUIRE A "NINES CARD" TO MAKE THE INPUT END PROPERLY (XREF/JONES, FOR INSTANCE). THIS IS A CARD WITH 99999999 IN COLS 73-80. ANOTHER CAUSE THAT HAS BEEN SEEN FOR THIS MESSAGE IS A $ CARD OPTION SET ON IN A SOURCE FILE BEING USED AS THE "TAPE" FILE FOR A COMPILATION.

EOJ
1. SPO MESSAGE FOR END OF JOB. APPEARS ONLY IF EOJ OPTION IS SET.
2. OPTION 44, WHICH MUST BE SET TO ALLOW EOJ MESSAGES TO APPEAR ON SPO.

EOT 1. A DISK FILE REACHED THE END OF THE SPACE ALLOCATED FOR IT.
THIS MESSAGE HAS ALSC BEEN SEEN WHEN A FILE WAS SENT TO A LINE PRINTER
THAT HAD SOMETHING WRONG WITH IT.
2. END-OF-TAPE
3. END-OF-TASK

EQUATE - CANDE VERB. USAGE: EQUATE <INTERNAL NAME>=<MFID>/<FID>
WHERE <INTERNAL NAME> IS THE NAME OF THE FILE AS REFERENCED
IN THE PROGRAM AND THE MFID AND FID ARE THE NAME OF THE FILE ON DISK.
THE MFID MAY BE OMITTED, IN WHICH CASE THE FID WILL BE TAKEN AS THE
MFID, AND THE USER CODE WILL BE MADE THE FID. FOLLOWING THE <MFID>/<FID>
A <UNIT DESIGNATOR> MAY OPTIONALLY BE USED. IF IT IS MISSING
DISK SERIAL IS ASSUMED. UNIT DESIGNATORS ARE
REMOTE
DISK (IMPLIES SERIAL)
SERIAL
RANDOM
UPDATE
SPO
PRINT
BACKUP DISK
PUNCH
CARD (CARD READER)
PAPER TAPE
TAPE (MAGNETIC)
BACKUP TAPE
SPECIAL (UCSC FEATURE, SIMILAR TO SPECIAL IN ?FILE CARD. WILL
EQUATE FILE TO THE UNIT WHOSE NAME IS THE FIRST 3 LETTERS
OF THE FILE NAME.)
THE EQUATE STATEMENT IS USED BEFORE AN EXECUTE STATEMENT
EXAMPLE:

```
EQUATE DISK1 = NUDATA
EQUATE READER = TWX REMOTE
EXECUTE PROG1
```

"NUDATA" IS INTERPRETED AS NUDATA/<USER CODE>

INTRODUCED IN MARK XIII, SYSTEM NOTE 7
WE HAVE HAD TROUBLE GETTING EQUATE TO WORK WHEN THE PROGRAM TO
BE EXECUTED HAS A <FID> OF "DISK" . BELIEVE THIS IS CONNECTED
WITH THE FACT THAT A COMPILER TAKES THE FIRST ?DATA CARD AS THE
INPUT FILE REGARDLESS OF THE FILE NAME APPEARING ON THE CARD.

ERR: CANDE ERROR MESSAGE. IF YOU WANT FURTHER EXPLANATION TYPE ?
AT A TERMINAL, OR CX ? AT THE SPO.

ES SPO COMMAND TO ELIMINATE A JOB FROM THE
SCHEDULE. USAGE IS <SCHEDULE INDEX> ES. THE JOB HAS TO GO
INTO EXECUTION AND THEN WILL BE AUTOMATICALLY DS-ED.

ESP DISK - EXECUTIVE SCRATCH PAD DISK SPACE

ESPOL - PROGRAMMING LANGUAGE IN WHICH THE MCP'S AND INTRINSICS
ARE WRITTEN. MUCH LIKE ALGOL, BUT HAS SOME FEATURES STRIPPED
OUT AND SOME THINGS ADDED, SUCH AS THE ABILITY TO INSERT
MACHINE-LANGUAGE CODE AND USE ABSOLUTE MEMORY ADDRESSES.
NOT CONSIDERED A COMPILER, BECAUSE OBJECT CODE PRODUCED BY
ESPOL IS NOT LOADABLE FOR EXECUTION AFTER COMPILATION.

ESU 1. ANOTHER NAME FOR THE DISK FILE SUBSYSTEM.

2. CARD IN COLD AND COOL START DECKS SPECIFIED THE NUMBER OF ESU'S THE SYSTEM HAS.

EX 1. SPO COMMAND TC LIST EXPIRED FILES.
FORMS ARE EX <MFID>/<FID>, EX <MFID>/=, EX =/<FID>, EX =/=
2. ACCEPTABLE SUBSTITUTE FOR THE WORD EXECUTE IN CONTROL CARD.

EXCESS TIME - JOB HAS EXCEEDED THE TIME LIMIT SET FOR IT.

EXPANDED THE SYSTEM HAS DISCOVERED THAT A TIME SHARING JOB SEEMS TO BE THRASHING, AND HAS GIVEN IT AN ADDITIONAL CHUNK OF MEMORY.

EXPIRED - 1. REPLY TO EX SPO COMMAND.
2. MODIFIER FOR LIBMAIN/DISK DISK-TO-TAPE OPERATION. IF USED MEANS TRANSFER FILES ONLY IF THEY HAVE EXPIRED.

EXTENDED ALGOL - B-5500 VERSION OF ALGOL-60 WITH MANY ADDED FEATURES. ALL THE COMPILERS AND MUCH OTHER SOFTWARE ARE WRITTEN IN IT. TSPOL IS THE SAME LANGUAGE WITH THE COMMUNICATE FUNCTION ADDED.

F-FIELD A 15-BIT FIELD OF A MACHINE WORD, CONSISTING OF BITS 18-32 INCLUSIVE (ALGOL NOTATION 18:15).

F-REGISTER IN THE PROCESSOR, A REGISTER WHICH IS USED ONLY WHEN IN SUBROUTINE LEVEL. IT POINTS INTO THE USER'S STACK, TO A RETURN CONTROL WORD WHICH IS EFFECTIVELY THE BOTTOM OF THE STACK FOR THE CURRENT SUBROUTINE ACTIVATION. LOCAL VARIABLES OF THE SUBROUTINE ARE STORED IN THE STACK ABOVE THE F-REGISTER. THE PARAMETERS OF THE CALL ARE STORED BELOW THE F-REGISTER, BOUNDED ON TOP BY THE RETURN CONTROL WORD AND ON THE BOTTOM BY THE MARK STACK CONTROL WORD. ON EXIT FROM THE SUBROUTINE EVERYTHING ABOVE THE F-REGISTER CAN BE DISCARDED; THEN THE RETURN CONTROL WORD, MARK STACK CONTROL WORD, AND EVERYTHING BETWEEN THEM ARE DISCARDED AND THE F-REGISTER IS SET BACK TO THE PREVIOUS RETURN CONTROL WORD (IF INSIDE A PROCEDURE). IF EXIT IS TO THE OUTER BLOCK THE F-REGISTER VALUE BECOMES MEANINGLESS.

WHEN A PROGRAM BOMBS OUT, IT MAY BE HELPFUL IN DEBUGGING TO KNOW THE F-REGISTER VALUE, SO IT MAY BE PRINTED AS PART OF THE DISASTER MESSAGE.

F= 1. IN H/L MESSAGE FOR TSSMCP INDICATES THE CURRENT LOCATION OF THE FENCE.
2. IN SYSTEM HANG AND SIMILAR DISASTER MESSAGES INDICATES F-REGISTER VALUE.

FAE FILE ATTRIBUTE ERROR SPO MESSAGE. PROBABLY MEANS YOU TRIED TO WRITE ON A FILE THAT IS LOCKED OR OTHERWISE NCT WRITAELE.

FE SPO COMMAND TO ENTER A COMMENT INTO THE MAINTENANCE LOG. USAGE IS FE<WHATEVER YOU WANT TO SAY>

FEED CHECK - IF THIS HAPPENS ON A CARD READER, IT MEANS THE CARD AT THE FRONT OF THE DECK HAS NOT BEEN READ. INSPECT THE CARD (FOR FUZZY LEADING EDGE) AND RESET AND TRY AGAIN.

IF FEED CHECK AND READ CHECK OCCUR TOGETHER, IT "USUALLY" MEANS THAT TWO CARDS HAVE GONE THROUGH STUCK TOGETHER. REMOVE THE LAST TWO CARDS FROM THE STACKER, CRUMPLE THEM SLIGHTLY TO KEEP THEM FROM STICKING TOGETHER, AND

PUT THEM AT THE FRONT OF THE UN-READ CARDS. THEN
RESET AND START AGAIN.

HOW MUCH FEED WOULD A FEED CHECK CHECK IF A FEED CHECK
COULD CHECK FEED?

FENCE IN TSSMCP, A BOUNDARY IN CORE MEMORY BETWEEN
UN-SWAPPAELE SYSTEM STUFF THAT RUNS BELOW THE
FENCE AND SWAPPABLE JOBS THAT RUN ABOVE THE FENCE.
USER JOBS CAN BE RUN BELOW THE FENCE, AND HENCE
UN-SWAPPABLE, BY USING "RUN" INSTEAD OF "EXECUTE".
THE FENCE IS MOVED BY THE MF SPO COMMAND, FOLLOWED
BY A HALT/LOAD. A SETTING OF 16384 IS RECOMMENDED BY BURROUGHS
FOR GENERAL USE. AT UCSC WE USUALLY RUN WITH IT AT 13312
TO ALLOW MORE ROOM FOR USER JOBS; MUCH BELOW
THIS THE SYSTEM IS LIKELY TO HANG TOO OFTEN FOR
LACK OF MEMORY TO RUN IN. NEVER PUT THE FENCE
BELOW 10000, AS THE SYSTEM IS LIKELY TO HANG AND
REQUIRE A COOL START. THE SYSTEM ROUNDS WHATEVER FENCE
SETTING YOU SPECIFY TO BE AN INTEGRAL MULTIPLE OF 1024.

WHEN YOU HALT/LOAD TSSMCP PART OF THE H/L MESSAGE
SHOWS THE CURRENT LOCATION OF THE FENCE;
E.G. ...F=16384...

AS OF THE JULY 77, IT IS NOW POSSIBLE TO MOVE THE FENCE
UP TO 1K BELOW THE TOP END OF MEMORY. THIS MAKES ALL JOBS
RUN LIKE BATCH JOBS. THIS IS EFFICIENT WHEN JUST ONE PERSON
IS RUNNING A REALLY BIG JOB; OTHERWISE JOBS WILL GET
SCHEDULED FOR NO MEMORY.

FID FILE IDENTIFIER. FILES HAVE TWO-COMPONENT NAMES, WITH
A SLASH BETWEEN THE COMPONENTS. THE FIRST NAME IS CALLED
THE MULTI FILE IDENTIFICATION <MFID> AND THE SECOND
IS THE FILE IDENTIFICATION <FID>. ACTUALLY THERE IS NO
PARTICULAR SIGNIFICANCE TO EITHER COMPONENT OF THE NAME,
EXCEPT THAT UNDER TIMESHARING THE <FID> IS FORCED TO BE
THE USER NAME, AND ALL FILES ON THE SAME REEL OF TAPE MUST HAVE
THE SAME <MFID>. (THIS DOES NOT APPLY TO LIBRARY FORMAT TAPES.)

FILE CONTROL CARD - 1. ALSO CALLED A LABEL EQUATION CARD.
PURPOSE (SEE FILE NAME) IS TO ASSOCIATE A FILE NAME IN A
PROGRAM WITH AN ACTUAL FILE NAME OF THE <MFID>/<FID> KIND, OR
TO OVERRIDE SUCH AN ASSIGNMENT MADE IN A PROGRAM OR SOME OTHER
FILE INFORMATION. EXAMPLES:
?FILE CARD = SOURCE/DECK DISK SERIAL
?XALGOL FILE CARD = SOURCE/DECK DISK SERIAL

IN THESE EXAMPLES THE FILE KNOWN INSIDE THE PROGRAM AS CARD
IS EQUATED TO THE DISK FILE NAMED SOURCE/DECK. THE WORD SERIAL
IS REQUIRED FOR A DISK FILE IF IT IS TO BE READ SERIALLY
RATHER THAN RANDOM ACCESS. IF THE FILE APPLIES TO A COMPILATION
IT IS NECESSARY TO INCLUDE THE COMPILER NAME BEFORE THE WORD
FILE, AS IN THE SECOND EXAMPLE.

POSSIBLE MEDIA FOR USE IN FILE CARDS ARE:
DISK
DISK RANDOM (UCSC LOCAL FEATURE, AS SERIAL IS DEFAULT HERE)
DISK SERIAL
DUMMY (LOCAL FEATURE)
TAPE

PRINT
BACK UP (2 WORDS, NOT RUN TOGETHER)
BACK UP TAPE
PRINT OR BACK UP
SPECIAL
SPO
UPDATE

BACK UP MEANS THAT THE FILE WILL BE RUN TO PRINTER BACKUP DISK
RATHER THAN PRINTED AS THE PROGRAM EXECUTES. PRINT OR BACK UP
ALLOWS EITHER AT THE DISCRETION OF THE SYSTEM OPERATOR.

SPECIAL ALLOWS YOU TO SEND THE FILE TO A SPECIFIC DEVICE
BY USING THE <UNIT MNEMONIC> AS THE FIRST 3 CHARACTERS OF THE
<MFID>. EXAMPLE: ?FILE PRNTR = LPA/LPA SPECIAL WILL FORCE
THE FILE TO PRINT ON LINE PRINTER A (THIS WILL OVERRIDE EVEN
THE PBDONLY OPTION).

(AT UCSC THERE ARE SOME SPECIAL FEATURES. DISK SERIAL HAS BEEN MADE
DEFAULT, AND DISK RANDOM IS AVAILABLE IF YOU REALLY WANT A RANDOM
FILE. LINES66 IS AN OPTION FOR PRINT OR BACK UP FILES THAT SUPPRESSES THE
AUTOMATIC SKIP TO TOP OF PAGE. IN OTHER WORDS, IT ALLOWS YOU TO PRINT 66
LINES PER PAGE. THIS REQUIRES A CARRIAGE CONTROL TAPE WITH PUNCHES IN
CHANNELS 10 AND 11.)

2. FORTRAN FILE CARDS ASSOCIATE THE INTERNAL FILE NUMBERS, AS
USED IN READ AND WRITE STATEMENTS, WITH FILE NAMES IN THE OUTSIDE
WORLD. THE FORMAT IS ILLUSTRATED BELOW UNDER "FORTRAN DECK SETUPS."
FOR A COMPLETE EXPLANATION SEE APPENDIX B OF THE FORTRAN MANUAL.

FILE INTEGRITY CONFLICT - MESSAGE FROM DISK SQUASH MEANS A LARGE FILE CANNOT
BE MOVED TO A TEMPORARY AREA BECAUSE THERE IS NO TEMPORARY AREA THAT
IS LARGE ENOUGH TO RECEIVE IT. POSSIBLE ACTIONS ARE TO REMOVE THE
FILE, OR GIVE AN SQ NEXT COMMAND TO SKIP OVER THIS FILE.
OR, AT CONSIDERABLE RISK, USE THE SQ OK COMMAND TO MOVE THE
FILE ANYWAY.

FILE NAME - THIS IS A SOMETIMES CONFUSING MATTER BECAUSE THE NAME
OF A FILE CAN MEAN TWO DIFFERENT THINGS:
1. A FILE NAME OF THE FORM <MFID>/<FID> THIS IS THE NAME OF
A FILE AS IT REALLY EXISTS ON DISK, TAPE, ETC
2. THE NAME (<IDENTIFIER>) BY WHICH A FILE IS REFERRED TO INSIDE A PROGRAM,
AS IN A FILE STATEMENT OR DECLARATION OR A WRITE OR READ
STATEMENT.

ONE REASON THIS IS SO CONFUSING IS THAT IT IS OPTIONAL INSIDE
A PROGRAM TO ASSOCIATE THE FILE NAME WITH A <MFID>/<FID> NAME.
ANOTHER REASON FOR CONFUSION IS THAT THE SYSTEM WILL BY
DEFAULT MAKE SUCH AN ASSOCIATION FOR YOU. IF THE USER CODE IS
NULL IT WILL TAKE THE FILE NAME AS THE <FID> AND USE A <MFID> OF
SEVEN ZEROES. IF THE USER CODE IS PRESENT IT WILL (FOR UNIFORMITY
WITH THE TIMESHARING SYSTEM) BE TAKEN AS THE <FID> AND THE FILE
NAME WILL BECOME THE <MFID>. TOO, A LABEL EQUATION MAY HAVE
BEEN STORED WITH THE OBJECT PROGRAM AS A RESULT OF A ?FILE CONTROL
CARD IN THE DECK ON A COMPILE-TO-LIBRARY.

THE PURPOSE OF THE FILE CONTROL CARD IS TO LET YOU ASSOCIATE
A FILE NAME, AS KNOWN INSIDE A PROGRAM, WITH A <MFID>/<FID>
TYPE NAME AT RUN TIME. THIS IS OFTEN CALLED A LABEL EQUATION
CARD BECAUSE OF ITS APPEARANCE.
?FILE <NAME> = <MFID>/<FID>

ALSO THE TERM "LABEL EQUATION" IS USED IN SOME PROGRAMMING LANGUAGE MANUALS TO EXPRESS THE SAME KIND OF IDEA, THOUGH OFTEN IN DIFFERENT SYNTAX. A ?FILE CARD USED AT RUN TIME OVERRIDES ANY ?FILE CARD FOR THE SAME <NAME> THAT WAS PRESENT AT COMPILE TIME IN A COMPILE-FOR-LIBRARY, AND ALSO OVERRIDES ANY LABEL EQUATION INFORMATION CONTAINED IN A FILE STATEMENT IN THE SOURCE PROGRAM.

THE WHOLE THING WILL BECOME MUCH MORE CLEAR IF YOU WILL REVIEW THE DISCUSSION OF THE WHITE KNIGHT'S SONG IN "ALICE IN WONDERLAND".

FILE TYPE CODES - MAYBE YOU WANT I/O MEDIA NUMBERS??

FILL/PRT - OBSOLETE, SEE DCFILL/PRT FOR DCMCP AND TSFILL/PRT FOR TSSMCP.

FIXED - CONTROL CARD TO MAKE A FILE UNMOVABLE BY DISK SQUASHING.
?SET FIXED <MFID>/<FID>
?RESET FIXED <MFID>/<FID>
MARK XV SYSTEM NOTE 11

FLAG BIT 1. BIT 0 (LEFT-MOST BIT) OF A MACHINE WORD.
IN SOME CONTEXTS A FLAG BIT OF 0 INDICATES AN OPERAND AND A FLAG BIT OF 1 INDICATES A DESCRIPTOR OR CONTROL WORD.
2. SPO MESSAGE INDICATING A PROGRAM HAS BLOWN UP BECAUSE IT EXPECTED TO FIND AN OPERAND AND FOUND THE FLAG BIT SET.

IT IS BECAUSE OF THIS FLAG BIT PROBLEM THAT WORDS CONTAINING CHARACTER STRINGS ARE IN SOME CONTEXTS RESTRICTED TO 7 OR FEWER CHARACTERS.

FM SPO COMMAND TO REPLY TO A REQUEST TO MOUNT SPECIAL FORMS IN A PRINTER.
USAGE: <MIX INDEX>FM<UNIT MNEMONIC> WHERE THE <MIX INDEX> CORRESPONDS TO THAT GIVEN IN A #FM RQD MESSAGE, AND THE <UNIT MNEMONIC> SPECIFIES THE UNIT THAT HAS THE SPECIAL FORMS THAT ARE WANTED.

FM RQD - SPO MESSAGE INDICATING A JOB HAS REQUESTED SPECIAL FORMS ON A PRINTER.
POSSIBLE RESPONSES ARE
<MIX INDEX>OK IF THE SPECIFIED PRINTER ALREADY HAS THE DESIRED FORMS
<MIX INDEX>FM<UNIT MNEMONIC> TO SEND THE OUTPUT TO ANOTHER PRINTER
<MIX INDEX>OU DK TO SEND THE OUTPUT TO PRINTER BACKUP DISK FOR LATER HANDLING
<MIX INDEX> DS TO KILL THE JOB

FMT ERR NO LABEL - SPO MESSAGE INDICATING A PROGRAM HAS RUN INTO TROUBLE WITH A FORMAT STATEMENT AND THE USER HAS NOT SPECIFIED A LABEL TO BE BRANCHED TO IF THIS SHOULD OCCUR.

FORMAT COMPILER $ OPTION THAT CAUSES EXTRA SPACES ON THE LISTING AFTER EACH PROCEDURE END.

FORTRAN DECK SETUPS - ?COMPILE <MFID>/<FID> FORTRAN
?DATA029 CARD
$CARD LIST SINGLE
FILE 5=FILE5,UNIT=READER
FILE 6=FILE6,UNIT=PRINT
(FOR THESE TWO CARDS, THE WORD "FILE" MUST BEGIN IN COLUMN 1 AND BE FOLLOWED BY 2 BLANKS.)
FORTRAN PROGRAM
?DATA029 FILE5

DATA CARDS
?END

THE EXECUTION-TIME CARD INPUT IS ASSUMED TO BE FILE 5; HENCE
THE DATA FILE5 CARD.
THE $CARD LIST SINGLE CARD CALLS FOR A COMPILER LISTING, SINGLE
SPACED.
IN BURROUGHS CODE.

FR SPO COMMAND, APPLICABLE TO COBOL ONLY, TO
INDICATE THE FINAL REEL OF A MULTI-REEL FILE.

FREEF - USED IN A FILE CONTROL CARD UNDER PACKETS TO OVERRIDE THE
OTHERWISE AUTOMATIC ASSIGNMENT OF A PRINT FILE TO BACKUP DISK.
EX: ?FILE LINE = LINE PRINT BACK UP TAPE FREEF

FREEFILE - CANDE OPTION. IF SET FILES WILL BE SAVED
AS "UNLOCKED" BY DEFAULT. IF RESET FILES WILL BE SAVED AS
"LOCKED" BY DEFAULT. ADDED IN MARK XV.2, SYSTEM NOTE 12.

FREEFORM - FORTRAN COMPILER $ OPTION INSTRUCTS THE COMPILER TO IGNORE
THE USUAL CONVENTIONS FOR CARD COLUMNS AND ALLOW FREE-FORM INPUT.
RULES ARE:
CONTINUATION CARDS MUST HAVE A MINUS SIGN IN COLUMN 1
COMMENTS MUST BEGIN WITH C- IN COLS. 1-2.
LABELS CAN BE AT MOST 5 COLUMNS LONG.
FILE CARDS MUST START WITH THE WORD FILE IN COLUMN 1.
ONLY 66 COLUMNS OF CARD TEXT ARE ALLOWED.

FROM <USERCODE> CANDE STATION TO STATION MESSAGE.

FULLPGE - IF A PRINTER BACKUP FILE HAS AN <MFID> OF FULLPGE IT WILL BE
PRINTED WITHOUT AUTOMATIC PAGE SKIPS OVER THE PERFORATION
IN THE PAPER. THE LINES66 OPTION ACCOMPLISHES THE SAME THING.
(THIS IS A LOCAL FEATURE.)

GROUP MARK A CHARACTER IN BCL CODE WHICH PRINTS AS A LEFT ARROW.
IN SOME CONTEXTS IT MAY BE USED AS A LEGITIMATE CHARACTER,
WHILE IN OTHER PLACES IT INDICATES THE END OF A TEXT STRING
AND CANNOT BE TRANSMITTED.

GT ALGOL - SEE GTL.

GTL - GEORGIA TECH LANGUAGE. IT'S ON THE CUBE TAPE. THIS IS AN
EXTENSION OF ALGOL WHICH INCLUDES DOUBLE PRECISION, COMPLEX
NUMBERS, LISP (IT HAS CAR'S AND CDR'S), SIMPLE STRING HANDLING,
RECORDS, PLEXES, ADDED FUNCTIONS, SIMPLIFIED I/O, AND OTHER
NEAT STUFF.

H/L HALT/LOAD

H/L WITH... THIS SPO MESSAGE MEANS THAT MCP HAS BEEN HALT/LOADED.
IT TELLS YOU THE NAME OF THE MCP, AND IF IT IS A TSS MCP
IT TELLS YOU THE LOCATION OF THE FENCE (F=NNNNN). THEN
IT TELLS WHAT MEMORY MODULES ARE ON LINE R MEANS READY AND
AN @ SIGN MEANS NOT READY.
FOLLOWING THIS MESSAGE THE LIGHTS ON THE DISPLAY PANEL SHOULD
CONTINUE FLASHING FOR A WHILE, AND THEN YOU SHOULD GET THE
DATE AND TIME TYPED OUT (OR THE TR PLEASE OR DT PLEASE MSGS.)

HALT/LOAD OPERATOR ACTION CONSISTS OF PRESSING THE HALT BUTTON AND THEN THE LOAD BUTTON. YOU MAY HAVE TO PUSH THEM MORE THAN ONCE. NOTE THE EFFECT OF THE CARD-LOAD-SELECT SWITCH.

HALT/LOAD PROBLEMS 1. IS CARD LOAD SELECT CONSOLE SWITCH ON WHEN YOU WANT TO LOAD FROM DISK, OR VICE VERSA?
2. LOOK AT LIGHTS ON CC DISPLAY PANEL. IF LOFF IS LIGHTED IT MEANS THE CARD READER OR DISK WAS NOT READY. THERE SHOULD BE A VERTICAL COLUMN OF LIGHTS COUNTING IN A BINARY SEQUENCE. IF THESE ARE NOT GOING THERE IS LIKELY A HARDWARE PROBLEM IN THE CENTRAL PART OF THE SYSTEM.
3. CHECK THAT THE STOP ON OPERATOR SWITCH ON THE PROCESSOR DISPLAY PANELS (BOTH PROCESSORS) ARE DOWN (OFF). JIM FORGETS THESE SOMETIMES AFTER MAINTENANCE TESTING.
SEE ALSO "TROUBLE".

HD SPO COMMAND TO INQUIRE HOW MUCH DISK IS AVAILABLE. THE ANSWER TELLS HOW MUCH TOTAL SPACE, HOW MANY DIFFERENT AREAS IT IS FRAGMENTED INTO, AND THE SIZE OF THE LARGEST FREE AREA.

HDRLIST/UTILITY - PROGRAM TO PRINT DISK DIRECTORY HEADERS FOR SPECIFIED FILES. GIBBERISH TO ANYBODY BUT A SYSTEM PROGRAMMER.
EXECUTE THE PROGRAM; IT WILL GIVE AN ACCEPT MESSAGE ON THE SPO.
REPLY <MIX INDEX> AX <MFID>/<FID> FOR THE DESIRED FILE.
= MAY BE SUBSTITUTED FOR <MFID> OR <FID>.

HOL FORTRAN COMPILER $ OPTION WHICH TRANSLATES INPUT PUNCHED ON AN 029 KEYPUNCH INTO BCL. THIS IS NOT NEEDED AT UCSC BECAUSE THE ?DATA029 CARD IS AVAILABLE; ALTHOUGH THE HOL OPTION CAN BE USED IF THE SOURCE CAME FROM A "FOREIGN" TAPE. HOL ALSO CAUSES THE OBJECT PROGRAM TO TRANSLATE HOLLERITH STRINGS AND INPUT READ IN A-FORMAT TO BCL.
FOR PROGRAMS PUNCHED ON AN 026 KEYPUNCH IT IS NOT NECESSARY TO USE THE HOL OPTION - THE COMPILER WILL INTERPRET THE CARDS CORRECTLY, BUT WILL PRINT THE LISTING IN CHINESE (SUBSTITUTING % FOR LEFT PAREN, ETC.) USE OF HOL WILL MAKE THE PRINTING MORE TRADITIONAL.
TRANSLATIONS ARE:

KP	BCL
%	BECOMES (
@	BECOMES "
[	BECOMES)
:	BECOMES "
#	BECOMES =
<	BECOMES +
&	BECOMES +
>	BECOMES =

THE "EBCDIC" OPTION IS IDENTICAL WITH THE "HOL" OPTION.

HS SPO COMMAND TO HALT SEPTIC TANK. SEE SEPTIC TANK.

IF SPO COMMAND TO LIBMAIN/DISK TO IGNORE A FILE THAT CANNOT BE COPIED BECAUSE IT IS IN USE.

IL SPO COMMAND TO TELL A JOB WHERE TO FIND A FILE IT HAS REQUESTED. USAGE IS
<MIX INDEX>IL<UNIT MNEMONIC> OR
<MIX INDEX>IL<FILE NAME> (FOR FILE ON DISK)
EX: 2 IL MTC OR 2 IL BAH/HUMBUG

IF THE UNIT CONTAINS A MEDIUM WITH A STANDARD LABEL (TYPICALLY

MAG TAPE) THE IL MESSAGE WILL CAUSE THE SYSTEM TO SWALLOW THE LABEL, SO THAT THE USER PROGRAM WILL SEE THE DATA RATHER THAN THE LABEL. IF THE MEDIUM IS NOT LABELLED WITH A STANDARD LABEL THE USER PROGRAM WILL STILL SEE THE BEGINNING OF DATA. THE UL COMMAND DIFFERS FROM IL ONLY IN THAT IT WILL CAUSE EVEN A STANDARD LABEL ON THE MEDIUM TO BE SEEN AS DATA BY THE USER PROGRAM.

II UL DS OK - OR SOME COMBINATION LIKE THIS IS A PROMPT FROM MCP TO TELL YOU WHAT SPO COMMANDS ARE ACCEPTABLE IN RESPONSE TO A PRECEDING HELP-WANTED MESSAGE.

IN SPO COMMAND TO ENTER A VALUE INTO A PRT CELL
USAGE IS <MIX INDEX>IN <PRT CELL NUMBER> = <VALUE TO ENTER>
EXAMPLE IN26=3 INPUT TO CELL 25 IS THE "COMMON" CELL, AND MAY BE USED TO VARY THE VALUE OF "COMMON" WHILE A PROGRAM IS RUNNING.

INCLUDE - A COMPILER OPTION, NEW WITH MARK XVI, WHICH ALLOWS SOURCE TEXT FROM A FILE TO BE INCLUDED IN THE COMPILATION. EXAMPLES:

$ INCLUDE A/B
AT THE POINT WHERE THIS APPEARS IN THE SOURCE TEXT THE ENTIRE CONTENTS OF THE FILE NAMED A/B WILL BE INCLUDED.

$ INCLUDE A/B 1234-5678
AT THE POINT WHERE THIS APPEARS LINES 1234 THROUGH 5678 INCLUSIVE FROM FILE A/B WILL BE INCLUDED.

$ INCLUDE A
WHEN THE FILE NAME IS GIVEN WITHOUT A /<FID> PART THE USER CODE WILL BE TAKEN AS THE <FID> THIS IS ESPECIALLY APPLICABLE TO TIME SHARING.

$ INCLUDE +COPY A/B 1234-5678
IF A NEW FILE IS BEING MADE (AS WITH THE $NEWTAPE OPTION OF A COMPILER) THE + COPY PHRASE MEANS TO INCLUDE THE TEXT FROM FILE A/B INTO THE NEW FILE. IF THE +COPY PART IS NOT PRESENT THE $ INCLUDE STATEMENT ITSELF WILL APPEAR IN THE NEW FILE.

TEXT TO BE INCLUDED MAY CONTAIN $ INCLUDE CARDS.

INT/DISK USUAL NAME OF THE NON-TIMESHARING INTRINSICS FILE ON DISK.

INTRINSICS THIS IS A FILE OF PROCEDURES WHICH IMPLEMENT THE BUILT-IN FUNCTIONS OF LANGUAGES (LIKE THE TRIG FUNCTIONS) AND ALSO VARIOUS FUNCTIONS THAT ARE UNKNOWN TO THE USER BUT ARE NEEDED BY THE SYSTEM. THERE ARE SEPARATE VERSIONS FOR THE TIMESHARING MCP AND THE DCMCP (THE NON-TIMESHARING VERSION). THIS IS CONTROLLED BY THE TIMESHARING $ OPTION WHEN COMPILING THE INTRINSICS WITH ESPOL.

INV CHR IN COL - SPO MESSAGE INDICATING A CARD READER HAS ENCOUNTERED AN INVALID CHARACTER IN THE COLUMN INDICATED.
PUSH STOP ON THE READER, FIX THE CARD AND PUT IT ON THE FRONT OF THE UNREAD CARDS, THEN PUSH START ON THE READER.
THIS MESSAGE WILL NOT HAPPEN WHEN YOU ARE USING ?DATA029 BUT ANY INVALID CHARACTERS READ WILL BE TRANSLATED TO QUESTION MARKS.

INV KBD - RESPONSE TO AN INVALID OR INAPPROPRIATE SPO COMMAND.

INVALD INDEX - AN ARRAY INDEX (SUBSCRIPT) HAS BEEN USED IN SUCH A WAY THAT IT POINTS BEYOND THE END OF THE ARRAY. THIS IS AN ERROR IN YOUR PROGRAM LOGIC. THE ERROR MESSAGE SHOWS WHAT IS WRONG WITH THE INDEX, BUT THIS MAY BE MISLEADING, UNLESS YOU UNDERSTAND HOW INDEXING IS DONE IN THE MACHINE. THE HARDWARE HANDLES DIRECTLY INDEX VALUES RANGING FROM 0 THRU 1023. IF THE LOWER BOUND OF AN ARRAY IS NOT ZERO THE COMPILER WILL INSERT INSTRUCTIONS TO REPOSITION THE DATA AS IF THE ARRAY STARTED WITH THE 0-TH ELEMENT. FOR EXAMPLE, A FORTRAN ARRAY DIMENSION A(10) HAS VALID INDEX VALUES 1-10, BUT THE COMPILER WILL POSITION THE DATA SO THAT HARDWARE INDEX VALUES ARE 0-9. THIS WILL NOT CONCERN YOU AT ALL, AND YOU MAY IGNORE IT COMPLETELY, UNTIL THINGS GO WRONG. THEN THE INVALID INDEX VALUE REPORTED IS THE VALUE BEING USED IN THE HARDWARE, WHICH YOU WILL HAVE TO ADJUST TO SEE WHAT INDEX VALUE THE PROGRAM WAS ATTEMPTING TO USE.

SEE "ARRAY MAPPING" FOR A PROBLEM IN THIS REGARD.

INVALID CHARACTER THE BCL CHARACTER SET CONTAINS 64 CHARACTERS, REPRESENTED IN SIX BITS EACH. ONE OF THESE PRINTS AS A QUESTION MARK, AND IS CALLED THE INVALID CHARACTER. ANY CHARACTER READ FROM A CARD WHICH IS INVALID IN BURROUGHS CARD CODE IS TRANSLATED TO THE BCL QUESTION MARK CHARACTER. AN INVALID CHARACTER IN COLUMN 1 OF A CARD MARKS IT AS A JOB CONTROL CARD, UNLESS THE READER IS READING IN BINARY. AN INVALID CHARACTER IN ANY OTHER COLUMN CANNOT PRESENTLY BE READ UNLESS THE READER IS OPERATING IN BINARY. FOR PRINTING AND FOR TAPE AND DISK I/O THE QUESTION MARK BEHAVES AS AN ORDINARY CHARACTER. SEE "DATA029" .

INVLD ADRSS - A PROGRAM OR MCP HAS GONE BERSERK. MAY BE HARDWARE TROUBLE.

INVLD LINK - SPO MESSAGE. THE MEMORY MAPPING IS ALL LOUSED UP. IT WILL PROBAELY BE NECESSARY TO HALT/LOAD. MAY INDICATE HARDWARE PROBLEM. SEE "TROUBLE"

IO ERRORS - SPO MESSAGE WHEN A TAPE IS CLOSED. INFORMATION CONTENTS ARE
<UNIT MNEMONIC>IO ERRORS:<MFID><FID><NO. OF ERRORS>:<MFID>/<FID>=<MIX INDEX>.
AT UCSC THIS MESSAGE HAS BEEN REPLACED WITH "RETRIES"
THE NUMBER GIVEN IS THE NUMBER OF TIMES A PARITY ERROR WAS ENCOUNTERED DURING READING OR WRITING, IF THE OPERATION EVENTUALLY ENDED SUCCESSFULLY ("SOFT" ERRORS).
IT IS NOT UNUSUAL TO GET A FEW OF THESE ON A TAPE OPERATION, BUT IF YOU GET VERY MANY YOU SHOULD TRY A DIFFERENT TYPE OR DRIVE.

IT SPO MESSAGE TO INTERRUPT THE ONLINE/MAINT PROGRAM

I/O MEDIA NUMBERS

NUMBER	IDENTIFIER	MEDIUM
NONE	CARD	CARD READER
0	PUNCH	CARD PUNCH ONLY
1	PRINT	LINE PRINTER ONLY
2	TAPE	LABELED MAG TAPE
3		DESIGNATED UNIT (FIRST 3 CHARS OF <FID>)
4		PRINTER OR BACKUP TAPE
5		LABELED DESIGNATED OUTPUT FILE
6		PRINTER BACKUP TAPE ONLY
7		PAPER TAPE

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          8                      UNLABELED PAPER TAPE
          9                      UNLABELED MAGNETIC TAPE
          10       DISK RANDOM   RANDOM DISK FILE
          11                     SPO
          12       DISK SERIAL   SERIAL DISK FILE
          13       DISK UPDATE   UPDATE DISK FILE
          14                     DATA COMMUNICATION FILE
          15                     PRINTER BACKUP DISK ONLY
          16                     PRINTER BACKUP TAPE OR DISK
          17                     PRINTER OR PRINTER BACKUP DISK
          18                     PRINTER OR BACKUP TAPE OR DISK
          19       REMOTE        I/O REMOTE TERMINAL
          20                     PUNCH BACKUP TAPE ONLY
          21                     CARD PUNCH OR BACKUP TAPE
          22                     PUNCH BACKUP DISK ONLY
          23                     CARD PUNCH OR BACKUP TAPE OR DISK
          24                     PUNCH BACKUP TAPE OR DISK
          25                     PUNCH OR PUNCH BACKUP TAPE OR DISK
          32 ADDED TO ANY OF THE ABOVE WILL CALL FOR SPECIAL FORMS.
             AT UCSC, SPECIAL FORMS ON A SPO FILE IS ACTUALLY A DUMMY FILE.

JCB CCNTROL CARDS        - THESE START WITH AN INVALID CHARACTER IN
        COLUMN 1. THIS IS REPRESENTED AS ? IN THE LITERATURE, BUT ANY
        INVALID CHARACTER WILL DO.  AT UCSC A SPECIAL FEATURE (DATA029)
        ALLOWS 029 KEYPUNCH CODES TO BE USED FOR CONTROL CARDS.  WHEN ENTERED
        THROUGH THE SPO A CONTROL CARD MAY START WITH CC INSTEAD OF ?.

        THERE IS (OR IS SUPPOSED TO BE) A SEPARATE ENTRY IN THIS
        GLOSSARY FOR EACH TYPE OF CONTROL CARD. FOLLOWING IS A SUMMARY.

        ?COMPILE <PROGRAM>/<NAME> WITH <COMPILER NAME>
                (COMPILE AND EXECUTE THE COMPILED PROGRAM)
        ?COMPILE <PROGRAM>/<NAME> WITH <COMPILER NAME> LIBRARY
                (STORE COMPILED PROGRAM ON DISK FOR LATER EXECUTION)
        ?COMPILE <PROGRAM>/<NAME> WITH <COMPILER NAME> SYNTAX
                (SYNTAX CHECK ONLY, NO EXECUTION, OBJECT CODE DISCARDED)
        ?EXECUTE <PROGRAM>/<NAME>
                (EXECUTE A PROGRAM STORED ON DISK)
        ?FILE <FILENAME> = <MFID>/<FID> <PARTICULARS>
                (SOMETIMES CALLED A LABEL EQUATION CARD. <FILENAME> IS
                WHAT THE FILE IS CALLED INSIDE THE PROGRAM, AS IN A
                FILE DECLARATION. <MFID>/<FID> IS THE NAME OF THE FILE
                ON DISK OR TAPE, OR CONTAINS THE NAME OF THE UNIT IF
                A PARTICULAR OUTPUT UNIT IS DESIGNATED. <PARTICULARS>
                INCLUDE A LOT OF THINGS SHOWN UNDER THE FILE CARD ENTRY.)
        ?<COMPILER NAME> FILE ...
                (SAME AS A FILE CARD, BUT APPLIES TO THE COMPILATION
                STEP OF A JOB RATHER THAN EXECUTION STEP.  THIS IS HOW
                THE SYSTEM KNOWS WHAT TO DO IF THE SAME <FILENAME> IS USED
                BY A COMPILER AND BY THE PROGRAM BEING COMPILED.)
        ?UNIT <UNIT MNEMONIC>=<MFID>/<FID>
                (IF THE UNIT IS READY AND NOT ALREADY LABELLED, THIS
                CARD LABELS THE UNIT. USED ONLY FOR INPUT UNITS.)
        ?DATA <FILENAME>
                (A DATA DECK FOLLOWS THIS CARD.  IF THIS IS THE FIRST
                ?DATA CARD IN A COMPILE JOB THE <FILENAME> IS IGNORED AND
                THE DATA DECK IS TAKEN AS THE COMPILER SOURCE INPUT.)
        ?DATA029 <FILE NAME>  USED IN PLACE OF ?DATA CARD TO CAUSE
                029 KEYPUNCH CHARACTERS TO BE ACCEPTED.  SEE "DATA029".
        ?END    END OF A JOB, OR JOB STEP, OR DATA DECK.
        ?LABEL  (RARELY USED, LABELS THE CARD READER. SEE LDCNTRL/DISK
```

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        FOR AN EXAMPLE.)
?USER = <USER NAME>
        (REQUIRED IF THE FILES TO BE ACCESSED BY THE JOB ARE
        NOT PUBLIC.  SOME SITES REQUIRE
        ?USER=<USER NAME>/<PASSWORD>.)
?LOAD FROM <TAPE NAME> <MFID>/<FID>
?COPY <MFID>/<FID> <FROM OR TO> <TAPE NAME>
?REMOVE <MFID>/<FID>
?CHANGE <MFID>/<FID> TO <MFID>/<FID>
?UNLOCK <MFID>/<FID>
?PUBLIC <MFID>/<FID>
?LOCK <MFID>/<FID>
?UNLOAD TC <TAPE NAME> <MFID>/<FID>
?STACK = <INTEGER> (STACK SIZE FOR EXECUTE JOB)
?<COMPILER NAME> STACK = <INTEGER> (FOR COMPILE STEP)
?PROCESS = <INTEGER> (PROCESS TIME LIMIT IN MINUTES)
?<COMPILER NAME> PROCESS = <INTEGER> (FOR COMPILE STEP)
?IO = <INTEGER> (I/O TIME LIMIT IN MINUTES)
?<COMPILER NAME> IO = <INTEGER>
?CORE = <INTEGER> (MEMORY REQUIREMENT IN WORDS)
?<COMPILER NAME> CORE = <INTEGER>
?PACKET (INTRODUCES A PACKET OF SEVERAL JOB STEPS)
?PACKEND (END OF A WHOLE PACKET)
?WAIT  (DON'T DO ANYTHING MORE IN THIS PACKET UNTIL ALL
        PRECEDING PARTS HAVE BEEN FINISHED.)
?CONTINUE (IF ANYTHING GOES WRONG WHILE EXECUTING STEPS OF A
        PACKET, FLUSH ALL TO HERE AND RESUME EXECUTION.)
?COMMON = <INTEGER> (STORES <INTEGER> IN THE FIRST
        DECLARED OUTER BLOCK VARIABLE OF THE PROGRAM, WHICH
        MUST BE A SIMPLE VARIABLE (NOT AN ARRAY, ETC.))
?SET   SET A FILE CONTROL BIT (ACCESSD, FIXED, ETC.)
?RESET RESET  DITTO
?SAVE = <NUMBER OF DAYS TO SAVE COMPILED PROGRAM>
?PRIORITY = <0:HIGHEST, 32767:LOWEST>
```

MOST OF THE JOB CONTROL CARDS ARE OPTIONAL; A JOB MIGHT CONSIST OF A SINGLE ?EXECUTE CARD (OR ?COPY OR SOMETHING) AND A ?END CARD. CARDS LIKE CORE, STACK, ETC. ARE NEEDED ONLY IF THE DEFAULT VALUES OR ESTIMATES MADE BY THE COMPILER MUST BE OVERRIDDEN. THESE KINDS OF CARDS, AND ALSO ?FILE CARDS, MAY BE INCLUDED IN A COMPILE-TO-LIBRARY. THEY WILL BE STORED WITH THE OBJECT PROGRAM AND TAKE EFFECT WHEN THAT PROGRAM IS EXECUTED, UNLESS THEY ARE OVERRIDDEN BY CARDS IN THE JOB DECK.

JOBNAME - FOR EXECUTE AND RUN JOBS THE NAME OF THE JOB THAT APPEARS IN SPO MESSAGES IS THE NAME OF THE PROGRAM THAT IS BEING RUN. FOR COMPILE JOBS THE NAME OF THE COMPILE PART IS THE NAME OF THE COMPILER FOLLOWED BY THE MFID OF THE NAME OF THE PROGRAM BEING COMPILED.

KERNEL - THIS IS A CARD-LOAD SELECT PROGRAM WHICH LOADS MCP INTO CORE AND STARTS IT RUNNING. IT IS NOT NORMALLY RUN FROM CARDS, HOWEVER. INSTEAD IT IS LOADED ON TO DISK, BY INCLUDING THE OBJECT DECK IN THE COLD START OR COOL START DECK. THEN IT IS EXECUTED AS A RESULT OF PRESSING THE LOAD BUTTON WITH CARD LOAD SELECT TURNED OFF.

KERNEL MAY BE USED BY ITSELF IF DESIRED; FOR INSTANCE, IF THE KERNEL PROGRAM ON DISK GETS CLOBBERED. TURN ON CARD LOAD SELECT,

PUSH HALT, PRECEDE THE KERNEL DECK WITH AN ESPOL LOAD CARD,
PUT DECK IN READER AND MAKE READY, PUSH LOAD.

KILL A JOB, TO - USE THE MX COMMAND IF NECESSARY TO LEARN THE JOB'S MIX INDEX, AND THEN <MIX INDEX> DS. BUT IF THE JOB IS STILL IN THE SCHEDULE YOU HAVE TO <SCHEDULE INDEX> ES
USE THE TS SPO COMMAND TO LEARN THE SCHEDULE INDEX.
IF THE JOB IS USING A PERIPHERAL UNIT YOU CAN KILL IT BY CLEARING THE UNIT. EX: CL LPA WILL KILL WHATEVER JOB IS USING LPA.

LANGUAGES SEE "JOB CONTROL CARDS" AND "DECK SETUPS" FOR JOB CONTROL LANGUAGE. SEE TIMESHARING TERMINAL USERS MANUAL FOR COMMAND AND EDIT LANGUAGE (CANDE); SEE ALSO "CANDE VERBS" AND OTHER ENTRIES IN THIS GLOSSARY. SEE "PROGRAMMING LANGUAGES" FOR A LIST OF PROGRAMMING LANGUAGES.

LATEST - IF THIS APPEARS IN A ?LOAD CONTROL CARD THE FILE WILL BE LOADED UNLESS THE VERSION ON DISK HAS A LATER DATE THAN THE VERSION ON TAPE. ALSO WORKS AS A MODIFIER FOR ?COPY CARD. EXAMPLE:
? LOAD LATEST FROM <TAPE NAME> <MFID>/<FID>, ETC.
ADDED IN MARK XV.3, SYSTEM NOTE 12

LC SPO COMMAND TO LIST FILES FOR CREATOR
USAGE IS LC <MFID>/<FID>. = MAY BE SUBSTITUTED FOR MFID OR FID OR BOTH.

LD SPO COMMAND TO START THE LDCNTRL/DISK PROGRAM.
TWO FORMS: LD DK TO SPOOL ON TO DISK, AND
LD MT TO SPOOL ON TO TAPE. AFTER DOING THIS
SPO COMMAND YOU WILL GET A NO FIL CONTROL/DECK
MESSAGE FROM LDCNTRL/DISK. THE USUAL RESPONSE TO
THIS IS TO PUT A LABEL CARD THROUGH THE CARD
READER TO BE USED FOR SPOOLING. THE READER WILL
THEN BE USED FOR SPOOLING UNTIL AN END CONTROL
OR END PACKETS CONTROL CARD COMES ALONG.
SEE ENTRY UNDER "CONTROL/DECK" FOR THE FORMAT OF THE LABEL
CONTROL CARD.
ALSO SEE THE CDONLY OPTION, WHICH MAY BE MORE DESIRABLE
THE DIFFERENCE IS THAT LD DK KEEPS LDCNTRL/DISK RUNNING ALL THE TIME, WHILE
CDONLY OPERATION LETS IT FLOAT IN AND OUT OF EXECUTION AS NEEDED.

LDCNTRL/DISK - PROGRAM WHICH IMPLEMENTS PACKETS AND IN GENERAL PROVIDES FOR SPOOLING CARD INPUT ONTO DISK AS PSEUDO-DECKS TO BE READ BY PSEUDO-READERS. THE IDEA IS TO KEEP THE CARD READER FREE TO ACCEPT MORE JOBS AT ALL TIMES. THE PROGRAM RUNS BELOW THE FENCE IN TSSMCP. EASIEST WAY TO USE THIS IS WITH THE CDONLY OPTION. ALSO CAN BE STARTED WITH THE LD SPO COMMAND. SEE ALSO CONTROL/DECK.
ALTHOUGH LDCNTRL/DISK APPEARS IN THE DISK DIRECTORY, IT IS NOT REALLY A SEPARATE PROGRAM. MCP WILL CREATE IT AUTOMATICALLY IF IT IS NOT PRESENT ON DISK WHEN NEEDED.

LF SPO COMMAND TO LIST FILES FOR USER

LI DCMCP TERMINAL COMMAND TO LOG IN. USAGE IS ?LI:<USER CODE> OR ?LI:<USER CODE>:<PASSWORD> DEPENDING ON WHETHER PASSWORDS ARE REQUIRED. APPLIES TO DCMCP ONLY, NOT TO TSSMCP. THE CHARACTER : ABOVE IS ANY PUNCTUATION CHARACTER.

LIBDIR/UTILITY - UCSC PROGRAM TO LIST THE DIRECTORY OF A LIBRARY TAPE, IN <MFID> ORDER, IN <FID> ORDER, AND IN SEQUENTIAL ORDER.

NORMALLY RUN FROM THE SPO. TO USE:
CC EXECUTE LIBDIR/UTILITY;END
THE SYSTEM WILL COME BACK WITH #NO FIL ULMTX ETC. AND A
MIX NUMBER. THIS IS A PROMPTING MESSAGE TO SUGGEST THAT
THE PROPER RESPONSE IS <MIX INDEX> UL <UNIT MNEMONIC> FOR
THE TAPE DRIVE CONTAINING THE TAPE THAT YOU WANT A DIRECTORY FOR.
FOR EXAMPLE, 3ULMTC IF THE MIX INDEX OF LIBDIR/UTILITY IS 3 AND
THE TAPE IS MOUNTED ON UNIT C.

LIBERR - OPTION 22. IF SET, LIBRARY MAINTENANCE ERROR MESSAGES WILL PRINT ON THE SPO. IF RESET, THESE MESSAGES ARE SUPPRESSED. EXAMPLES OF ERROR MESSAGES ARE .<MFID>/<FID> NOT REMOVED (NOT ON DISK), OR .<MFID>/<FID> NOT COPIED (BAD HEADER)

LIBMAIN/DISK - PROGRAM WHICH PERFORMS LIBRARY MAINTENANCE FOR THE SYSTEM, SUCH AS COPYING FILES FROM DISK TO TAPE OR FROM TAPE TO DISK, REMOVING FILES, CHAINGING FILE NAMES, ETC. THIS PROGRAM IS NOT STARTED WITH AN EXECUTE CONTROL CARD; RATHER LIBRARY MAINTENANCE CONTROL CARDS CAUSE IT TO BE CALLED INTO EXECUTION AUTOMATICALLY.

LIBRARY MAINTENANCE CONTROL CARDS: (NEW WITH MARK XVI)
1. ?ADD
2. ?CHANGE
3. ?COPY
4. ?DUMP
5. ?LOAD
6. ?REMOVE
7. ?UNLOAD

IN ALL CONTROL CARDS FILE NAMES ARE OF THE FORM <MFID>/<FID>.
THE EQUAL SIGN = MAY BE USED AS A SUBSTITUTE FOR EITHER MFID
OR FID OR BOTH TO INDICATE ALL FILES. FOR EXAMPLE,
=/A MEANS ALL FILES HAVING THE <FID> A. B/= MEANS ALL
FILES HAVING THE <MFID> B; AND =/= MEANS ALL FILES ON THE
MEDIUM.

AFTER STATING A FILE NAME OR SET OF NAMES, YOU MAY OPTIONALLY
PUT IN SQUARE BRACKETS THE NAME OR NAMES OF FILES TO BE
EXCLUDED FROM THE LIST. THUS =/C[B/C] MEANS ALL FILES HAVING
THE <FID> C EXCEPT THE FILE NAMED B/C.
IF YOU WISH YOU MAY PUT THE WORD "EXCEPT" AHEAD OF THE SQUARE
BRACKETS TO REMIND YOU WHAT IT MEANS.

FURTHER, YOU MAY MAKE LISTS OF FILE NAMES SEPARATED BY
COMMAS, AS: A/B,C/D,=/E[H/E,J/E] .

SOME ILLUSTRATIVE EXAMPLES FOLLOW.
1. CC ADD FROM XYZ =/=;END
"ADD" MEANS TO BRING IN ONLY THOSE FILES THAT DO NOT
ALREADY EXIST ON THE DISK. THIS STATEMENT WILL CALL FOR A
LIBRARY TAPE NAMED XYZ AND WILL COPY TO DISK ALL FILES FOUND ON
THAT TAPE WHICH ARE NOT ALREADY ON THE DISK.

2. CC CHANGE =/B5500 TO =/B5700;END
"CHANGE" MEANS TO CHANGE FILE NAMES. IN THIS CASE
ALL FILES WITH THE <FID> "B5500" WILL HAVE THEIR
<FID>'S CHANGED TO "B5700".

3. CC DUMP TO ABC =/= [=/IS104];END
"DUMP" COPIES A FILE OR FILES FROM DISK TO TAPE.

IN THIS CASE IT WILL ASK FOR A TAPE NAMED ABC. ALL FILES
ON THE DISK WILL BE COPIED TO THE TAPE, EXCEPT THE FILES
HAVING THE <FID> "IS104". THE FILES REMAIN ON DISK.

WHEN YOU ATTEMPT TO COPY ALL FILES TO A TAPE SOME FILES WILL
NOT BE COPIED. THESE WILL BE TYPED OUT ON THE SPO WITH A
MESSAGE BEGINNING WITH A PERIOD. ALSO IT WILL BE UNABLE TO
COPY ANY FILES THAT ARE IN USE. YOU CAN GET AROUND THESE FILES
BY USING THE <MIX INDEX> IF SPO COMMAND, WHICH WILL CAUSE IT TO
IGNORE THE FILE THAT IS IN USE.

4. CC REMOVE A/B;END
THIS DELETES THE FILE A/B FROM THE DISK.

5. CC UNLOAD TO TAPE1 =/B;END
THIS WRITES THE FILES HAVING THE <FID> B TO A TAPE NAMED TAPE1,
AND THEN REMOVES THOSE FILES FROM THE DISK.

6. CC LOAD FROM TAPE1 =/=;END
THIS WILL ASK FOR TAPE1 AND THEN COPY EVERY FILE ON THE TAPE
TO THE DISK. IT WILL OVER-WRITE ANY FILE OF THE SAME NAME THAT
IS ALREADY ON DISK.

7. COPY IS THE NEW ALL-PURPOSE CONTROL CARD INTRODUCED AT
MARK XVI. FOR COMPLETE DETAILS SEE SYSTEM NOTE 14 BEGINNING
AT PAGE 166. BASICALLY COPY JUST TURNS AROUND THE ORDER OF
INFORMATION, AS COMPARED WITH LOAD AND DUMP.
CC COPY =/A FROM TAPE1 TO DISK;END
IN THIS EXAMPLE TAPE1 IS THE SOURCE AND DISK IS THE DESTINATION.
THE PHRASE "TO DISK" COULD HAVE BEEN OMITTED BECAUSE DISK IS
ASSUMED IF IT IS NOT MENTIONED.

CC COPY =/= [C/D] FROM TAPE1, =/D FROM DISK TO TAPE2; END

THIS ILLUSTRATES A COPY WITH MULTIPLE SOURCES.

THERE ARE SOME OTHER WORDS THAT MAY BE USED AS NEEDED IN
COPY STATEMENTS.

LATEST: USED ON TAPE-TO-DISK ONLY, THIS MEANS DO THE COPYING
ONLY IF THE VERSION ON TAPE IS MORE RECENT THAN THE VERSION ON
DISK.

ACCESSD: USED ON DISK-TO-TAPE ONLY. THE COPY IS PERFORMED ONLY
IF THE DISK FILE HAS BEEN ACCESSED.

EXPIRED: USED ON DISK-TO-TAPE ONLY. THE COPY IS PERFORMED ONLY
FOR FILES THAT HAVE PASSED THE EXPIRATION DATE.

ADD: USED FOLLOWING COPY ON TAPE-TO-DISK TO ACHIEVE THE SAME
EFFECT AS THE "ADD" CONTROL CARD. ONLY FILES THAT ARE NOT
ALREADY ON DISK ARE COPIED FROM TAPE.

NOHASH: THIS AFFECTS THE WAY THE DISK DIRECTORY IS SEARCHED
APPLIES TO DISK-TO-TAPE ONLY. SEE SYSTEM NOTE FOR DISCUSSION

UNLOAD: USED WITH COPY ON DISK-TO-TAPE HAS THE SAME EFFECT
AS THE "UNLOAD" CONTROL CARD.

<INTEGER> LIMITS THE NUMBER OF FILES TO BE COPIED.
AS: THIS ALLOWS FILE NAMES TO BE CHANGED IN THE COURSE OF COPYING.

COMPLICATED EXAMPLE:
CC COPY 18 NOHASH =/E,=/C AS =/D FROM DISK, =/=[A/D] FROM
TAPE1 TO TAPE2; END

THIS WILL COPY UP TO 18 FILES FROM DISK THAT FALL WITHIN THE SPECIFICATIONS =/B OR =/C. WHEN 18 FILES HAVE BEEN DONE, AND THERE ARE MORE FILES ON DISK TO DO, IT WILL ASK FOR A NEW REEL FOR TAPE2. FILES ON DISK WITH NAMES OF THE FORM <MFID>/C WILL BE WRITTEN ON TAPE WITH THE NAME <MFID>/D. AFTER ALL THE FILES FROM DISK HAVE BEEN TAKEN IT WILL COPY ALL FILES FROM TAPE1 EXCEPT THE FILE A/D. THE RESTRICTION TO 18 FILES PER REEL NO LONGER HOLDS.

THE ABOVE INFORMATION AND MUCH MORE IS CONTAINED IN THE SYSTEM NOTE (14) DISTRIBUTED WITH THE MARK XVI SYSTEM.

AS WITH LDCNTRL/DISK, LIBMAIN/DISK IS NOT REALLY A FREE-STANDING PROGRAM. MCP WILL CREATE IT AUTOMATICALLY WHENEVER IT IS NOT FOUND ON DISK WHEN NEEDED.

OPERATING INFORMATION: SOME FILES CANNOT BE COPIED BECAUSE THEY ARE SYSTEM FILES. THIS WILL BE INDICATED BY A MESSAGE, WHICH REQUIRES NO OPERATOR ACTION. LIBMAIN MAY COMPLAIN ABOUT A FILE BEING IN-USE. USE THE <MIX INDEX>IF COMMAND TO IGNORE THE FILE. WHILE LIBMAIN IS RUNNING IT WILL MARK FILES TO BE COPIED AS IN-USE. IF A USER PROGRAM TRIES TO ACCESS ONE OF THESE FILES IT WILL GET AN IN-USE ERROR MESSAGE, FOR WHICH THE ONLY ACCEPTABLE REPLY IS DS. THEREFORE COPIES OF LARGE NUMBERS OF FILES (SUCH AS COPY =/=) SHOULD NOT BE DONE WHILE THERE ARE USERS ON THE SYSTEM.

THE MESSAGE #MT RQD OCCURRING IN THE MIDDLE OF A COPY (IT WILL HAVE AN <MFID> OF A TAPE ALREADY IN USE, AND AN <FID> OF FILENNN WHERE NNN IS SOME NUMBER, MEANS THAT THE TAPE BEING USED HAD TOO MANY ERRORS TO GO ON, OR IS FULL. IT IS ASKING FOR A CONTINUATION REEL. THE ORIGINAL REEL CONTAINS FILES UP TO A POINT, SO DO NOT DISCARD IT OR YOU WILL LOSE THOSE FILES.

BADISK FILES ARE TREATED AS SYSTEM FILES AND CANNOT BE COPIED.

LIBMSG - OPTION 31. IF SET MESSAGES APPEAR ON THE SPO WHENEVER FILES ARE LOADED, DUMPED, ETC. BY LIBMAIN/DISK. IF RESET THESE MESSAGES ARE SUPPRESSED.

LIBRARY 1. FORMAT OF A TAPE WRITTEN BY LIBMAIN/DISK. LIBRARY TAPES HAVE A DIRECTORY PRECEDING THE FILES.
2. USED ON A COMPILE CONTROL CARD THIS WILL CAUSE THE OBJECT PROGRAM TO BE WRITTEN AS A DISK FILE, SO THAT IT CAN LATER BE RUN WITH AN EXECUTE CONTROL CARD. IF THE PROGRAM IS TO BE RUN FROM A TIMESHARING TERMINAL THE <MFID> OF THE NAME MUST BEGIN WITH A ZERO.

?FILE AND OTHER JOB CONTROL CARDS MAY BE INCLUDED IN A COMPILE FOR LIBRARY AS IF A COMPILE-AND-GO JOB WERE BEING DONE. THESE WILL BE STORED ON DISK WITH THE OBJECT CODE AND BECOME THE DEFAULT FILES FOR THE PROGRAM. ?FILE CARDS USED AT RUN TIME WILL OVERRIDE THEM.

EX: CC COMPILE A/B XALGOL LIBRARY

LIBRARY TAPE FORMAT -

PHYSICAL
RECORD CONTENTS
NUMBER
1   TAPE LABEL
2   TAPE MARK
3   NAME BLOCK, 1023 WORDS MAXIMUM, CONTAINING <MFID> AND <FID> FOR
        EACH FILE. LAST ENTRY IS AN OCTAL 14
4   TAPE MARK
5   COPY OF RECORD NUMBER 1 TAPE LABEL
6   LABEL FOR FILE 1
7   TAPE MARK
8   FILE HEADER, 30 WORDS FROM DIRECTORY
9   ENTIRE CONTENTS OF FILE, IN ROW SIZE BLOCKS
10   TAPE MARK
11   COPY OF LABEL RECORD
REPEAT RECORDS 6-11 FOR SUBSEQUENT FILES.

LIMIT $-CARD OPTION FOR COMPILERS. MEANS QUIT COMPILING WHEN NUMBER
OF SYNTAX ERRORS REACHES THE LIMIT. EX: LIMIT 10
DEFAULT SEEMS TO BE 100 IF LIMIT PARAMETER IS NOT USED

LINE CLEAR - RESPONSE TO A CL <LINE NUMBER> OR CL <LINE NUMBER> $ SPO COMMAND

LINE DID NOT CLEAR - RESPONSE TO CL <LINE NUMBER> SPO COMMAND.
TRY THE COMMAND AGAIN; ALSO SEE IF THE DTTU NEEDS RESETTING.

LINES66 - OPTION CAN APPEAR ON A ?FILE CARD FOR A PRINT FILE TO PREVENT
AUTOMATIC PAGE SKIPS OVER THE PERFORATION IN THE PAPER. DOES THIS
BY FORCING THE <MFID> OF THE FILE TO BE "FULLPGE", WHICH THE
PRNPBT/DISK PROGRAM RECOGNIZES AND HANDLES.

LIST - 1. COMPILER $ OPTION TO GET A LISTING OF THE SOURCE. THIS
WILL BE DOUBLE-SPACED UNLESS THE SINGLE OPTION IS ALSO SET.
2. CANDE VERB WITH MANY FORMS
LIST WITH MANY OPTIONS - SEE TIMESHARING USERS' MANUAL
LIST FILES - ALSO MANY OPTIONS. ONE THAT IS NOT IN THE MANUAL
IS LIST FILES PUBLIC. ADDED IN MARK XIII, SYSTEM NOTE 7.
ANOTHER IS LIST FILES FROM <USERCODE> TO FIND OUT WHAT YOU MAY
ACCESS IN SOMEONE ELSE'S ACCOUNT.

LN SPO COMMAND TO INITIATE LOGGING ROUTINE.
LN ML TO SAVE THE MAINTENANCE LOG. WHAT THIS
DOES IS TO RENAME THE CURRENT MAINTENANCE LOG,
AND THEN CREATE A NEW EMPTY ONE WITH THE NAME
MAINT/LOG AS THE CURRENT LOG.
LN BY ITSELF DOES THE SAME FOR THE FILE LOG/DISK, WHICH IS THE SYSTEM LOG.
LN DK COMPUTE DISK CHARGES AND INSERTS INTO LOG, THEN
RESETS CREATION DATES.

LOAD INTRINISCS NOW - SPO MESSAGE MEANS THAT YOU NEED TO
DO A CI COMMAND TO SET UP THE INTRINSICS FILE. IF THE
FILE IS NOT ON DISK YOU SHOULD LOAD IT FROM A TAPE.

MCP CHECKS THAT THE INTRINSICS FOR ISS/MCP HAVE THE
TIMESHARING OPTION SET, SO IF YOU CHANGE MCP'S WITH
THE CM COMMAND YOU WILL USUALLY HAVE TO DO A CI AFTER
THE NEXT HALT/LOAD.

LOCAL COLOR - LOCAL UCSC VARIATIONS TO THE SYSTEM. COME AND GO
AS MCP/TSSMCP GETS RECOMPILED.
1. SINGLE-LETTER (MOSTLY) ABBREVIATIONS FOR CANDE VERBS

2. AUTCDS OPTION UNDER DCMCP WILL DS JOBS WHICH REQUIRE OPERATOR
INTERVENTION, AND RM IN CASE OF #DUP LIBRARY.
3. AUTORN SYSTEM OPTION STARTS PSEUDO-READERS AUTOMATICALLY AFTER H/L,
REPLACES RNALL OPTION THAT APPLIES ONLY TO SHAREDISK ANYWAY.
4. PG COMMAND PRINTS THE PRN OF THE TAPE, AND DOES NOT ALLOW PG OF A TAPE
THAT DOES NOT HAVE A PRN ALREADY.
6. DISK SERIAL IS DEFAULT FOR FILES DECLARED DISK. RANDOM KEYWORD
IS AVAILABLE FOR A RANDOM FILE.
7. LINES66 KEYWORD FOR A PRINT FILE, OR GIVE THE FILE AN <MFID> OF 'FULLPGE'
TO SUPPRESS AUTOMATIC SKIP TO TOP OF PAGE.
9. AUTOMATIC MEMORY DUMP WILL GO TO DISK IF POSSIBLE, WILL NOT ASK
"WHICH UNIT?"
10. DATA029 FEATURE AND CONTROL CARD FACILITATES USE OF 029
KEYPUNCH FOR PROGRAM PREPARATION. SEE "DATA029".
11. ADDED AND MODIFIED CANDE VERBS AND FEATURES.
12. BADISK FILES CANNOT BE COPIED, MAKING IT UNNECESSARY TO
EXCLUDE THEM WHEN MAKING SYSTEM BACKUP TAPES.
13. SO <OPTION NAME> AND RO <OPTION NAME> ARE PERMITTED; THE
STANDARD SYSTEM REQUIRES A NOISE WORD AFTER THE SO OR RO.
14. "LONG CARRIAGE" MESSAGES DO NOT APPEAR ON THE SPO.
15. ON AN "UNLOAD" LIBRARY MAINTENANCE OPERATION, FILES ARE NOT
DELETED FROM DISK UNTIL THE COPY HAS BEEN COMPLETED SUCCESSFULLY.
16. THERE CAN BE MULTIPLE SPO COMMANDS ON THE SAME LINE, SEPARATED
BY SEMICOLONS.

LOCK - 1. CONTROL CARD TO LOCK A FILE. 2 FORMS
? LOCK <MFID>/<FID>
? LOCK <MFID>/<FID> WITH <NEW USERCODE> (FOR PRIVILEGED USER ONLY)
2. CANDE VERB FOR THE SAME PURPOSE. FORM IS
LOCK FILE1, FILE2, ETC.

LOCKED - FILE ATTRIBUTE MEANS THAT ONLY THE OWNER CAN READ AND
WRITE THE FILE. THIS IS SET BY DEFAULT FOR FILES CREATED
AT A TERMINAL. ALTERNATIVES ARE UNLOCKED OR PUBLIC.
UNLOCKED: ANYONE MAY READ, ONLY OWNER MAY WRITE
PUBLIC: ANYONE MAY READ OR WRITE

LOGIN, TO - UNDER TSSMCP HIT CARRIAGE RETURN. THE SYSTEM WILL
RESPOND WITH A MESSAGE "ENTER USER CODE, PLEASE-"
IF YOU REPLY WITH YOUR USER CODE (FOLLOWED BY CARRIAGE RETURN)
IT WILL THEN BLACK OUT AN AREA FOR YOU TO TYPE THE PASSWORD
WHERE IT CAN'T BE EASILY READ. IF YOU DON'T MIND THE PASSWORD
BECOMING PUBLIC KNOWLEDGE YOU MAY TYPE THE USER CODE FOLLOWED
BY A COMMA FOLLOWED BY THE PASSWORD AND CARRIAGE RETURN.
A REPLY "BADCODE" MEANS EITHER THE USER CODE OR PASSWORD IS
NOT ACCEPTABLE.

UNDER DCMCP IT IS NECESSARY TO TYPE ?LI: <USERCODE>: <PASSWORD>
FOLLOWED BY CARRIAGE RETURN. THE TERMINAL WILL ACT DEAD OTHERWISE.
TO MAKE YOUR USERCODE AND PASSWORD INVISIBLE, TYPE ?BO BEFORE
YOU USE ?LI. THE TERMINAL WILL TYPE A BLOTCH FOR YOU.

LOG 95% FULL - SPO MESSAGE, AND WHATEVER THE PERCENTAGE THIS CAN
BE SAFELY IGNORED. MCP WILL AUTOMATICALLY START A NEW LOG WHEN
THE OLD ONE FILLS UP.

LONG CARRIAGE - SPO MESSAGE INDICATING A CANDE TERMINAL USER
HAS SET THE CC LONG OPTION. THIS SUPPRESSES AUTOMATIC
CARRIAGE RETURN AND LINE FEED ON THE TELETYPE.
THESE MESSAGES ARE SUPPRESSED IN THE UCSC SYSTEM.

LP RQD, - SPO MESSAGE MEANS THAT A JOB REQUIRES A LINE PRINTER.
LPA RQD   SEE MORE INFO UNDER "RQD"

LPA,LPB   UNIT MNEMONICS FOR LINE PRINTERS

M   IN ESPOL "M" IS EQUIVALENT TO "MEMORY"

MAKCAST/DISK   PROGRAM FOR MAINTAINING SYMBOLIC LIBRARIES.
        DOCUMENTED (BADLY) IN SYSTEM OPERATION MANUAL, PP 5-5 THRU
        5-19. EXAMPLES OF USE FOLLOW.

        ?EXECUTE MAKCAST/DISK
        ?FILE C = CASTC/LIBRARY TAPE
        ?DATA029 CARD
        $$$ DISPLAY C DIR
        $$$ SUB2 LIST
        $$$ END
        ?END

        WHEN THIS IS RUN IT WILL CAUSE A #NO FIL SPO MESSAGE,
        REQUIRING YOU TO <MIX>IL FOR THE TAPE DRIVE CONTAINING THE
        CASTC TAPE. THEN IT WILL PRINT A DIRECTORY OF THE TAPE,
        AND A LISTING OF THE LIBRARY MEMBER NAMED SUB2.

        USE OF A CAST FILE IS IN CONNECTION WITH AN ALGOL COMPILATION.
        ALL WE KNOW IS - IN AN ALGOL COMPILATION YOU CAN INCLUDE A
        CARD LIKE
                $$ C ABCDEF
        WHICH MEANS TO INCLUDE THE TEXT OF THE MEMBER NAMED ABCDEF
        FROM THE FILE NAMED CASTC/LIBRARY. CAST FILES CAN BE ON TAPE
        OR DISK. YOU NEED A LABEL EQUATION CARD TO DECLARE THE FILE,
        FOR EXAMPLE: ?ALGOL FILE CASTC = CASTC/LIBRARY TAPE

MC   SPO COMMAND TO MAKE A FILE A COMPILER. THIS IS
        NOT REQUIRED AFTER RECOMPILING ONE OF THE STANDARD COMPILERS.
        IT IS REQUIRED IF YOU WRITE YOUR OWN COMPILER AND WANT
        TO BE ABLE TO USE THE COMPILE WITH CONTROL CARD.
        THE <FID> OF THE COMPILER IS FORCED TO BE "DISK"
        USAGE: MC <MFID>/<FID>

MCP   MASTER CONTROL PROGRAM - THE OPERATING SYSTEM.
        THERE ARE TWO VERSIONS, BATCH AND TIMESHARING.
        THE BATCH VERSION IS CALLED MCP, DFMCP, OR DCMCP
        THE TIME SHARING VERSION IS TSSMCP.
        WHAT WERE YOU EXPECTING TO FIND HERE - MALE CHAUVINIST PIG?

MCP/DISK   THE NAME OF THE DISK FILE WHICH
        CONTAINS THE NON-TIMESHARING MCP.

MCPA/DISK   ANOTHER COPY OF MCP/DISK ON THE SYSTEM TAPE. IN SOME
        OPERATIONS OF MODIFYING THE MCP IT IS NECESSARY
        TO RUN UNDER THE ALTERNATE COPY SO YOU CAN
        WORK ON THE COPY NAMED MCP/DISK.

MCP FILE LOADED MESSAGE FROM TAPE-TO-DISK MCP LOADER CARD LOAD
        SELECT PROGRAM. THE REQUESTED FILE HAS BEEN LOADED (NOT
        NECESSARILY SUCCESSFULLY).

MEDIA CODES   - SEE I/O MEDIA NUMBERS

MEMORY DUMP - YOU CAN TAKE A MEMORY DUMP WHILE THE SYSTEM IS RUNNING, USING THE DP LP COMMAND TO DUMP TO A PRINTER OR DP MT TO DUMP TO A TAPE. THIS IS USEFUL MAINLY WHEN A PARTICULAR USER PROGRAM IS IN TROUBLE, SINCE IT CAN'T BE DONE WHEN THE SYSTEM IS HUNG. TO BE USEFUL FOR PROGRAM TROUBLESHOOTING THE TERMNATE OPTION SHOULD BE TURNED OFF. ALSO, THE DUMP OPTION MUST BE COMPILED INTO THE MCP.

A CARD-LOAD-SELECT MEMORY DUMP PROGRAM IS PROVIDED TO AID IN ANALYZING MCP TROUBLE. THIS IS WRITTEN TO DUMP TO A TAPE OR DISK. IT REQUIRES AN AUXILIARY DISK FILE (DMPAREA/DISK) TO HOLD ENOUGH OF MEMORY CONTENTS TO ALLOW THE DUMP PROGRAM TO BE LOADED AND RUN. THEN THE APPROPRIATE DUMP ANALYZER PROGRAM IS RUN WHEN THE SYSTEM IS UP AGAIN. THIS IS DUMP/ANALYZE FOR DCMCP AND TSDUMP/ANALYZE FOR TSSMCP. A COMPLETE ANALYSIS REQUIRES THAT CERTAIN OTHER FILES BE PRESENT ON DISK. THESE ARE MCP/PRT FOR DCMCP AND TSSMCP/PRT FOR TSSMCP. THESE FILES CONTAIN THE CONTENTS OF THE MCP PROGRAM REFERENCE TABLES. THEY ARE CREATED BY RUNNING THE PROGRAM DCFILL/PRT OR TSFILL/PRT AS APPROPRIATE. OPERATION OF THESE PROGRAMS REQUIRES THE PRESENCE OF THE STUFF FILES, WHICH ARE A PRODUCT OF COMPILING MCP AND INTRINSICS WITH THE STUFF COMPILER OPTION SET. ONCE THE PRT FILES HAVE BEEN GENERATED FOR THE CURRENT COMPILATION THE FILL PROGRAMS AND THE STUFF FILES MAY BE REMOVED FROM DISK.

THE SYSTEM ALSO HAS PROVISION FOR TAKING A MEMORY DUMP AUTOMATICALLY AND RESTARTING ITSELF THROUGH THE AUTODUMP COMPILE-TIME OPTION OF MCP AND THE HALT OPTION AT RUN TIME. (HALT MUST BE RESET.) ALSO THE MEMORY DUMP PROGRAM MUST RESIDE ON THE DISK. THIS IS DONE BY INCLUDING THE DECK FOR THE MEMORY DUMP PROGRAM IN THE COLD START OR COOL START DECK, WHICH WILL LOAD IT ALONG WITH THE HALT/LOAD KERNEL. ALSO, THE FILE MEMORY/DUMP MUST BE ON DISK. THIS FILE IS CREATED AT COLD START TIME WITH A FILE CARD IN THE DECK. IF ALL CONDITIONS ARE MET THE PUNT ROUTINE OF MCP IS SUPPOSED TO TAKE A MEMORY DUMP AND THEN RE-BOOT THE SYSTEM WHEN A SYSTEM HANG OCCURS.

IN CASE OF FREQUENT CRASHES SEE UNDER "TROUBLE" FOR HINTS.

MEMORY/DUMP NOT IN DIRECTORY - THE SYSTEM IS TRYING TO TAKE A MEMORY DUMP TO DISK. SOME KLUTZ HAS REMOVED THE MEMORY/DUMP FILE FROM DISK. YOU CAN HALT/LOAD, LOSING THE DUMP. IF YOU WANT THE DUMP, YOU WILL HAVE TO MOUNT A SCRATCH TAPE AND RUN THE CARD-LOAD-SELECT MEMORY DUMP PROGRAM. REPLY WITH THE <UNIT MNEMONIC> OF THE TAPE DRIVE TO THE "WHICH UNIT?" QUESTION.

MESAGE FILE NOT ON DISK - SPO MESSAGE INDICATING THAT MESAGE/CANDE FILE IS MISSING AND WILL HAVE TO BE LOADED WITH LIBMAIN/DISK. THIS FILE CONTAINS THE CANDE ERROR MESSAGES.

MESAGE/CANDE DISK FILE CONTAINING THE ERROR MESSAGES FOR CANDE

MESSAGE/OTHEDAY - MESSAGE OF THE DAY THAT GETS PRINTED ON THE PACKET PAGE FOR BATCH JOBS. CREATED BY RUNNING THE PROGRAM SYSTEM/MESSGEN, WITH THE MESSAGE FOLLOWING ?DATA029 CARD.

MESSAGES, SPO - SEE "COMMANDS" FOR COMMANDS. MESSAGES FROM THE SYSTEM TO THE OPERATOR ARE SCATTERED THROUGH THE GLOSSARY.

TO FIND SOME MESSAGES IN THIS GLOSSARY YOU WILL HAVE TO LOOK
UNDER THE MESSAGE TEXT, DROPPING THE MESSAGE PREFIX. FOR INSTANCE,
THE MESSAGE MTC IO RETRIES... IS EXPLAINED UNTER IO RETRIES,
NOT UNDER MTC.

MF SPO COMMAND TO MOVE THE FENCE. USAGE IS
MF<INTEGER MORE OR LESS BETWEEN 12000 AND 16000>
DOES NOT TAKE EFFECT UNTIL NEXT HALT LOAD.
SEE FENCE.

MFID MULTI FILE IDENTIFICATION. THE FIRST PART OF A FILE NAME,
THIS IS THE PART WHICH APPEARS BEFORE THE SLASH. IF AN OBJECT PROGRAM
IS TO BE EXECUTABLE UNDER TIME SHARING THE FIRST CHARACTER OF
THE MFID MUST BE A ZERO. ON A MULTI-FILE TAPE (BUT NOT A LIBRARY
DUMP FORMAT TAPE) ALL FILES ON THE TAPE MUST HAVE THE SAME <MFID>.
THE SYSTEM WILL READ THE FIRST LABEL ON THE REEL AND WILL KNOW TO
SEARCH THE REEL FOR ANY OTHER FILES HAVING THE SAME <MFID>, HENCE
THE NAME "MULTI FILE IDENTIFICATION."

MIX THE SET OF JOBS THAT HAVE AT LEAST BEGUN
EXECUTION AND ARE NOW OCCUPYING SYSTEM RESOURCES.
USE THE MX SPO COMMAND TO LIST THE MIX.

MIX INDEX THE NUMBER OF A "SLOT" IN THE MIX.
USUALLY PRINTED ON THE SPO FOLLOWING AN = SIGN,
IN MESSAGES ABOUT A JOB IN THE MIX. REQUIRED
AS A PREFIX TO ANY SPO COMMAND THAT APPLIES TO
AN INDIVIDUAL JOB.
THE MIX INDEX OF THE MCP IS ZERO.

MR SPO COMMAND TO SET UP A 2000-SEGMENT FILE NAMED RESERVE/DISK.
THIS FILE WILL BE TAKEN IF A NO USER DISK SITUATION
OCCURS WHILE THE SYSTEM IS RUNNING.

MT RQD - SPO MESSAGE. A JOE HAS NEED OF A MAG TAPE. IF YOU THINK
THERE IS ALREADY A TAPE UP YOU PROBABLY NEED TO RY OR PG IT.
CHECK IT WITH THE SPC COMMAND OL<UNIT MNEMONIC> OF THE TAPE
DRIVE YOU HAVE IN MIND.

THE SYSTEM WILL SOMETIMES TREAT A TAPE CONTAINING A WRITE
RING AS A SCRATCH TAPE, EVEN THOUGH YOU THINK YOU HAVE SOMETHING
ON IT YOU WANT TO READ.

ANOTHER POSSIBILITY IS THAT A TAPE YOU HAVE BEEN USING HAS
EXPERIENCED A LOT OF ERRORS. THE SYSTEM WILL DECIDE THAT
THE TAPE IS UNUSABLE AND ASK YOU FOR ANOTHER REEL. IN THIS
CASE THE PORTION OF THE TAPE ALREADY WRITTEN ON THE FIRST
REEL IS GOOD UP TO THE BAD SPOT; THE SYSTEM HAS MARKED THE
BAD REEL WITH AN ARTIFICIAL END-OF-REEL AND WILL TREAT THE
SECOND REEL AS A CONTINUATION OF THE FIRST.

MTA (MTB, ETC.) NOT READY - SPO MESSAGE. USUALLY OCCURS WHEN
THE TAPE APPEARS TO BE READY (MOUNTED, REMOTE LIGHT ON).
IF SO, YOU CAN EITHER PRESS LOCAL AND THEN REMOTE, OR TYPE
ON SPO RY <UNIT MNEMONIC>.

THE MEANING OF THIS MESSAGE, WHEN THE UNIT APPEARS TO BE READY
ALREADY, IS USUALLY THAT THE SYSTEM THINKS YOU WANT TO SAVE
THE TAPE THAT WAS JUST WRITTEN ON THAT UNIT. IT IS TRYING TO
PROTECT YOU AGAINST ACCIDENTALLY WRITING ON A TAPE YOU INTENDED

TO SAVE.

MTR MAINTENANCE TEST ROUTINES. HARDWARE DIAGNOSTIC PROGRAMS
SEE "TROUBLE."

MULTIPLE DATA DECKS - TO HAVE MORE THAN ONE ?DATA OR ?DATA029
DECK FOR ONE PROGRAM EXECUTION REQUIRES MAKING THE JOB A
PACKET. SEE UNDER "DATA">

MULTIPLE-FILE-TAPES - ALL FILES TO BE STORED ON THE SAME TAPE MUST
HAVE THE SAME <MFID>. (THIS DOES NOT APPLY TO LIBRARY FORMAT
TAPES, WHICH HAVE AN INTERNAL DIRECTORY STRUCTURE.) TO READ
A FILE FROM A MULTI-FILE TAPE YOU DON'T HAVE TO DO ANYTHING
SPECIAL, BECAUSE THE SYSTEM KNOWS ENOUGH TO SEARCH THE WHOLE
TAPE WHEN THE <MFID> OF THE REQUESTED FILE CORRESPONDS TO THAT
OF THE FIRST FILE ON THE TAPE. TO WRITE A FILE ON A MULTI-FILE
TAPE, NOTE THE ALGOL CLOSE * CONSTRUCT, WHICH CLOSES A FILE
WITHOUT REWINDING THE TAPE. YOU CAN THEN WRITE ON THE TAPE
FROM THAT POINT.

MULTIPROCESSING FACTOR - SEE CORE FACTOR.

MX SPO COMMAND TO PRINT THE CURRENT JOB MIX.
THE REPLIES WILL BE OF THE FORM P: A/B = M OR P:A/B/C = M, WHERE
P IS THE JOB PRIORITY (0 HIGHEST, 32767 LOWEST)
A/B IS THE <MFID>/<FID> OF THE PROGRAM BEING EXECUTED, OR (FOR
A COMPILE JOB) THE COMPILER NAME AND THE MFID OF THE PROGRAM BEING
COMPILED.
C IS THE USER CODE
M IS THE MIX INDEX

NEEDS - IN A SCHEDULE MESSAGE TELLS THE ESTIMATED CORE NEEDS FOR
THE JOB.

NEW COMPILER $ OPTION MEANS THAT AN OUTPUT FILE NAMED NEWTAPE WILL
NEW TAPE BE PRODUCED CONTAINING SOURCE TEXT. IF THE TAPE OPTION
IS IN EFFECT THE NEWTAPE FILE WILL CONTAIN SOURCE RECORDS
FROM THE SOURCE FILE (NAMED TAPE) AS OVERRIDDEN BY INPUT FROM
CARDS. IF THE CARD OPTION IS IN EFFECT THE MAIN USE OF NEW
MIGHT BE TO GET A SEQUENCE NUMBERED SOURCE FILE ON TAPE OR DISK.

PUT A ?<COMPILER NAME> FILE NEWTAPE=<MFID>/<FID> CARD IN THE
DECK TO SPECIFY THE NAME OF THE DISK FILE TO CONTAIN THE NEW
FILE.

NEW LOG FILE IS THE FILE LOG/DISK HAS FILLED UP. THE SYSTEM HAS AUTOMATICALLY
CHANGED ITS NAME TO <SOMETHING>/LOG AND CREATED A NEW LOG/DISK.

NEW MAINTENANCE LOG FILE IS THE FILE MAINT/LOG HAS FILLED UP. THE
SYSTEM HAS AUTOMATICALLY CHANGED ITS NAME TO <SOMETHING>/MNTLOG
AND CREATED A NEW FILE WITH THE NAME MAINT/LOG.

NEWLOGGING - COMPILE $ OPTION FOR MCP INTRODUCED IN MARK XV.3.0
(SYSTEM NOTE 13) MAKES CHARGING OF PROCESSOR AND I/O TIME
MORE ACCURATE.

NEWS/CANDE OPTIONAL DISK FILE. IF PRESENT THE FILE IS TRANSMITTED
TO TERMINALS AS THEY LOG IN. (THIS IS A LOCAL FEATURE; THE STANDARD
SYSTEM TRANSMITS ONLY THE FIRST LINE OF NEWS/CANDE.)

NINES CARD - A CARD PUNCHED WITH 99999999 IN COLS 73-80.

NO FIL - A PROGRAM CANNOT FIND A NON-DISK (PROBABLY TAPE OR CARD) INPUT FILE.
USUAL CAUSE IS THAT IN THE ?FILE CARD YOU FORGOT TO SAY DISK.
IF YOU REALLY INTEND A TAPE FILE REPLY <MIX INDEX> UL <UNIT MNEMONIC>
OR <MIX INDEX> IL <UNIT MNEMONIC> AS APPROPRIATE. SEE IL AND UL
COMMAND ENTRIES FOR THE DIFFERENCE BETWEEN THESE.
IF THE MESSAGE IS PRECEDED WITH A MINUS SIGN THE JOB HAS BEEN
AUTOMATICALLY DS-ED.

WE HAVE SEEN THIS MESSAGE UNDER CERTAIN CIRCUMSTANCES WHEN
THE PROGRAM BEING RUN HAS AN <FID> OF "DISK". THIS IS PROBABLY
AN ARTIFACT OF THE PROVISION THAT THE FIRST ?DATA CARD FOR A
COMPILER IS THE INPUT FILE, REGARDLESS OF THE NAME ON THE CARD.
IN THIS CASE THE PROBLEM WAS CURED BY CHANGING THE NAME OF THE
PROGRAM.

NO FIL ON DISK - PROGRAM CAN'T FIND FILE THAT IS SUPPOSED TO BE ON DISK.
IF THE FILE NEEDS TO BE LOADED FROM A TAPE, LOAD IT (USING LIBMAIN/DISK
CC LOAD FROM <TAPENAME> <MFID>/<FID>; END ROUTINE).
IF YOU WANT TO SUBSTITUTE ANOTHER FILE THAT IS ALREADY ON DISK USE
<MIX INDEX> IL <MFID>/<FID> IF THIS MESSAGE IS PRECEDED BY A
MINUS SIGN THE JOB WAS AUTOMATICALLY DS-ED.

NO MEM NNN WDS -SPO MESSAGE MEANS THAT SUFFICIENT MEMORY WAS NOT
AVAILABLE TO RUN ALL THE JOBS CURRENTLY IN THE MIX. THIS
MESSAGE IS PRECEDED BY <MIX INDEX>; IF 00 THAT MEANS THE MCP.
THE SYSTEM WILL TRY TO RECOVER. IF IT SUCCEEDS THERE WILL BE
AN OK MEM MESSAGE. IF IT FAILS TO FIND ENOUGH MEMORY FOR MCP
THE SYSTEM WILL HANG AND YOU WILL HAVE TO HALT/LOAD. NO MEMS
WITH TSSMCP USUALLY MEANS THE FENCE IS SET TOO LOW.
MOVE IT UP WITH THE MF COMMAND AND HALT/LOAD AS SOON AS
CONVENIENT. THE REASON THIS HAPPENS IS THAT MCP WILL RUN OK
BY ITSELF WITH THE FENCE AS LOW AS 12000, BUT WHEN THINGS
LIKE PRINTER BACKUP (PRNPBT/DISK) AND LIBRARY MAINTENANCE
(LIBMAIN/DISK) START RUNNING THEY RUN BELOW THE FENCE AND CAUSE
A NEED FOR MORE MEMORY THERE.

NO SWAP DISK - SPO MESSAGE INDICATING NOT ENOUGH DISK SPACE IS AVAILABLE
IN TSSMCP TO SET UP A SWAP AREA FOR A USER'S CORE IMAGE. SEE
ENTRY UNDER NO USER DISK FOR POSSIBLE REMEDIES.

NO SYSTEM DISK -SPO MESSAGE INDICATING THAT THE FILE SYSTEM/DISK REQUIRED
FOR TIMESHARING IS MISSING. RUN SYSDISK/MAKER. SEE
TIME SHARING SYSTEM REFERENCE MANUAL, PAGE 1-11.
OR RESTORE THE SYSTEM/DISK FILE FROM A RECENT BACKUP TAPE.

NO USER DISK - SPO MESSAGE MEANS WHAT IT SAYS. POSSIBLE SOLUTIONS:
1. USE HD COMMAND TO SEE HOW MUCH SPACE IS AVAILABLE ON DISK.
IT MAY BE THAT THERE IS ENOUGH TOTAL SPACE, BUT NOT ENOUGH
CONTIGUOUS SPACE. IF SO, YOU MIGHT TRY A DISK SQUASH, WITH
THE COMMAND SQ <INTEGER> WHERE <INTEGER> IS THE SIZE AREA YOU NEED.
(OBTAINED FROM THE NO USER DISK - NNN SEGS MESSAGE)
THIS WILL USUALLY TAKE TOO LONG UNLESS THE TOTAL AVAILABLE SPACE
REPORTED FROM THE HD COMMAND IS ABOUT 10 TIMES AS LARGE AS THE
SPACE NEEDED. SQ STOP COMMAND IF YOU WANT TO GIVE UP.
2. REMOVE SOME FILES FROM DISK TO MAKE MORE ROOM.
UN-NEEDED FILES CAN SIMPLY BE REMOVED. OTHER FILES CAN BE
UNLOADED TEMPORARILY, AND LOAD BACK ON LATER.
3. IF THIS IS A RESULT OF LIBMAIN/DISK AND YOU DON'T REALLY
NEED THE FILE ANYWAY, YOU CAN USE THE <MIX>IF COMMAND TO SKIP IT.
4. IF THE SIZE OF THE SPACE NEEDED IS 901 IT IS NEEDED FOR A PBD FILE.

YOU COULD RUN THE JOB AGAIN SPECIFYING LINE PRINTER OUTPUT DIRECT TO THE PRINTER, OR TC BACK UP TAPE.

AFTER YOU TRY TO MAKE SOME ROOM ON THE DISK, YOU WILL USUALLY HAVE TO USE THE <MIX INDEX>OK MESSAGE TO GET THE JOB GOING AGAIN.

THE NO USER DISK SITUATION MAY RECUR SEVERAL TIMES BEFORE YOU GET ENOUGH SPACE TO SATISFY THE SYSTEM. THE HD COMMAND WILL TELL YOU WHAT IS GOING ON.

NO USER DISK FOR DATACOM TANKS - SPO MESSAGE INDICATING INSUFFICIENT DISK SPACE AVAILABLE TO RUN DATA COMMUNICATION. SEE "NO USER DISK" ABOVE FOR SUGGESTIONS.

NOBATCH - OPTION 9 FOR TSSMCP ONLY. IF SET BATCH JOBS HAVE THE SAME PRIORITY FOR RUNNING AS JCBS FROM TERMINALS, AND WILL ENTER THE MIX AND BE SWAPPED. IF RESET BATCH JOBS ARE DEFERRED IF THERE ARE NOT SUFFICIENT RESOURCES TO RUN THEM WITHOUT SWAPPING. IN GENERAL, THIS IS A PRETTY USELESS FEATURE. AT UCSC WE HAVE MODIFIED THE SWAP SCHEDULER TO GIVE PREFERENCE TO TIMESHARING TERMINAL JOBS AT THE EXPENSE OF BATCH AND SCHEDULE LINE JOBS.

NOBODY ON - IN THE RESPONSE TO AN AS OR WU COMMAND MEANS THAT THE TERMINAL LINE IS DIALED UP BUT NOT LOGGED IN.

NOHASH - MODIFIER FOR LIBMAIN/DISK CONTROL CARD. AFFECTS THE WAY THE DISK DIRECTORY IS ACCESSED. SEE SYSTEM NOTE 14 FOR FULL EXPLANATION.

NOSTOP - CANDE TOGGLE. CONTROLLED BY SET NOSTOP AND RESET NOSTOP. USED IN SCHEDULE LINE WORK. WHEN SET (BY A SET COMMAND IN THE SCHEDULE FILE) THE JOBS WILL CONTINUE RUNNING AFTER AN ERROR HAS OCCURRED. IF RESET THE SCHEDULED JOB IS TERMINATED IF AN ERROR OCCURS.

NOT A COMPILER - SOMEBODY HAS RUN A ?COMPILE CONTROL CABD WHERE THE LANGUAGE NAME IS NOT A COMPILER. YOU NEED TO USE THE MC COMMAND IF THE THING IS REALLY A COMPILER.

NOT A LIBRARY TAPE - SPO MESSAGE MEANS AN INPUT TAPE FOR LIBMAIN/ DISK IS NOT IN THE RIGHT FORMAT TO BE A LIBRARY TAPE. (IT MIGHT BE BLANK, OR IT MIGHT HAVE BEEN WRITTEN BY A USER PROGRAM.) ANOTHER KNOWN CAUSE OF THIS MESSAGE IS A WRITE RING IN AN INPUT TAPE.

NOT DUMPED - SPO MESSAGE FROM LIBMAIN/DISK. THE SPECIFIED FILE WAS NOT DUMPED TO TAPE FOR THE REASON GIVEN.

NCT LOADED - SAME AS NOT DUMPED, EXCEPT ON A TAPE-TO-DISK OPERATION. THE REASON "BAD HEADER" MIGHT MEAN THAT THE FILE WAS UNREADABLE FROM DISK BACK WHEN THE TAPE WAS MADE.

NOT PG-ED(PRN=0) - IF YOU GET THIS MESSAGE WHEN YOU TRY TO PG A TAPE IT MEANS THAT THE TAPE HAS A PHYSICAL REEL NUMBER OF ZERO. YOU NEED TO GIVE IT A NUMBER WITH THE COMMAND PG MTX-NNN, WHERE MTX IS THE <UNIT MNEMONIC> AND NNN IS A PHYSICAL REEL NUMBER. IF YOU REALLY WANT A PRN OF ZERO, YOU MAY COMMAND PG MTX-0.

NOT READY 1. SPO MESSAGE WITH SOME UNIT MNEMONIC. THE USER TRIED TO USE THE UNIT AND IT WAS NOT READY.
2. LIGHT ON CONSOLE. IT'S USUALLY OK EVEN IF THIS LIGHT IS ON WE OFTEN HAVE SOME PIECE OF HARDWARE SWITCHED OFF FOR SOME REASON.
3. LIGHT ON PRINTER, READER, ETC. PRESS THE START BUTTON TO MAKE IT GO OUT. FOR THE PRINTER YOU HAVE TO WAIT A FEW MINUTES

AFTER POWER ON BEFORE YOU CAN GET NOT READY TO GO OFF.

WHEN A JOB NEEDS A UNIT THAT IS NOT READY, MAKE THE UNIT READY AND THEN GIVE THE <MIX INDEX> OK MESSAGE TO RE-START THE JOB. THIS IS NOT NECESSARY FOR LIBMAIN/DISK AND OTHER "SYSTEM" PROGRAMS.

NULL - SPO RESPONSE TO A COMMAND INDICATING THAT THERE IS NOTHING TO REPORT. EXAMPLES: NULL MIX MEANS NO JOBS IN THE MIX.
NULL PD =/A MEANS THERE ARE NO FILES ON DISK WITH THE <FID> A.
NULL SQUASH MEANS DISK SPACE IS ALREADY SQUASHED AS MUCH AS POSSIBLE.

NULL VERIFICATION - SYSTEM RESPONSE TO LOGIN ATTEMPT UNDER DCMCP. MEANS THE USER NAME OR THE PASSWORD IS INCORRECT, OR THE MESSAGE WAS INCORRECTLY FORMATTED. (IT MUST BE ?LI/<USER NAME>/<PASSWORD> WHERE / IS A PUNCTUATION CHARACTER - SPACE ALONE IS NOT SUFFICIENT.)

OC SPO COMMAND TO ENTER AN OPERATOR COMMENT IN THE SYSTEM LOG.

OF SPO COMMAND.
FOR COBOL - INDICATES FILE IS OPTIONAL
FOR LIBMAIN - MEANS CK FILE

OK SPO COMMAND TO PERMIT A JOB TO CONTINUE IF IT HAS STOPPED FOR SOME REASON. ONE REASON MIGHT BE AN ST COMMAND. ANOTHER REASON MIGHT BE THAT THE JOB NEEDED A UNIT THAT WAS NOT AVAILABLE AT THE TIME. USAGE IS <MIX INDEX> OK.

OK MEM - SPO MESSAGE MEANS THE SYSTEM HAS RECOVERED FROM A NO MEM.

OL SPO COMMAND TO PRINT LABEL OF A UNIT. USEFUL TO LEARN WHO IS USING THE UNIT, WHAT TAPE IS MOUNTED, ETC.
USAGE IS OL<UNIT MNEMONIC>
ANOTHER FORM IS OL<TWO LETTER CODE>, WHERE THE TWO-LETTER CODE IS THE FIRST TWO LETTERS OF A UNIT MNEMONIC. THIS IS USED TO LEARN IF ANY UNIT OF THE SPECIFIED KIND IS IN USE.

OPTIONS - 1. MCP OPTIONS CONTROLLABLE BY SPO DURING OPERATION
APPLICABLE SPO COMMANDS: PC, RO, SO, TO

OPTION#	MCP	TSSMCP	FUNCTION
47	DRA	DRA	USE DRUM A OR AUXMEM, IF IT EXISTS
46	DRB	DRB	USE DRUM B OR AUXMEM, IF IT EXISTS
45	BOJ	BOJ	TYPE BEGINNING OF JOB MSGS ON SPO
44	EOJ	EOJ	TYPE END OF JOB MSGS ON SPO
43	OPEN	OPEN	SPO MESSAGE ON FILE OPENS
42	TERMNATE	TERMNATE	SEE UNDER "TERMNATE"
41	DATE	DATE	MAKE OPRTR ENTER DATE AT HALT/LOAD
40	TIME	TIME	MAKE OPRTR ENTER TIME AT HALT/LOAD
39	UNUSED	UNUSED	
38	AUTOPRNT	AUTOPRNT	AUTOMATICALLY PRINT BACKUP FILES
37	CLEARWRS	---	CLEAR WRITE READY STATUS DATA COMM STATIONS
36	DISCONDC	---	SEND DISCONNECT CODE TO STN
35	CMPLFILE	CMPLFILE	SPO MSG ON COMPILER FILE ACTION
34	CLOSE	CLOSE	SPO MESSAGE ON FILE CLOSES
33	ERRORMSG	ERRORMSG	USER'S ERROR MSGS GO TO SPO ALSO
32	RET	RET	TYPE MAG TAPE RETENTION MSGS
31	LIBMSG	LIBMSG	SPO MSGS FROM LIBMAIN/DISK
30	SCHEDMSG	SCHEDMSG	SPO MSGS WHEN SOMETHING SCHEDULED
29	SECMSG	SECMSG	SPO MSGS CONCERNING FILE SECURITY
28	DSKTOG	DSKTOG	PREVENT USER ACCESS TO DIRCTRY/DISK

```
27      RELTOG  RELTOG  DON'T LET PGM RELEASE A SECURE FILE
26      PBDREL  PBDREL  SPO MSG WHEN A PBD FILE IS RELEASED FOR PRINTING
25      CHECK   CHECK   CHECK ALL MEMORY LINKS OFTEN
24      DISKMSG DISKMSG
23      ---     DISKLOG
22      LIBERR  LIBERR  TYPE ERR MSGS FROM LIBMAIN/DISK
21      PBDONLY PBDONLY ALL PRINT FILES GO TO PRTR BACKUP DISK
20      SAVEPBT SAVEPBT PRTR BACKUP TAPE SAVED AFTER PRINTING
19      RSMSG   RSMSG    TYPE CHANGES TO FILE ACCESSD BIT
18      AUTOUNLD AUTOUNLD       IF NO USER DISK OCCURS, AUTOMATICALLY
                        REMOVE EXPIRED FILES TO TAPE
17      RNALL   RNALL   APPLIES TO SHAREDISK SYSTEMS
        AUTORN  AUTORN  UCSC LOCAL GOODIE. START PSEUDO READERS AUTOMATICALLY
16      CODEOLAY CODEOLAY
15      COREST  ---     APPLIES TO "STATISTICS" SEE SYSNOTE 4
14      DATAOLAY DATAOLAY
13      HALT    HALT    HALT MCP WHEN DISASTER DETECTED
12      ---     REMOTE  ALLOW TERMINALS TO ACCESS SYSTEM
11      ---     CEMESS  RESET TO SUPPRESS CANDE BOJ & EOJ MSGS
10      ---     BATCHZIP        APPLIES TO SHAREDISK SYSTEMS ONLY
09      ---     NOBATCH BATCH AND TIMESHARE JOBS GET EQUAL PRIORITY
08      STOPTEST STOPTEST       OMIT AUTOMATIC TAPE CONFIDENCE TEST
                        WHEN A TAPE APPEARS TO BE BAD
07      PNCHLOCK PNCHLOCK       LOCK PUNCH AFTER EACH FILE
06      CDONLY  CDONLY  AUTOMATIC LDCNTRL/DISK INVOCATION
05      PKTONLY PKTONLY ALL CARD READER JOBS RUN AS PACKETS
04      SEPARATE SEPARATE       WASTE PRINTER PAPER BETWEEN JOBS
03      AUTODS          TRY TO KEEP THE SYSTEM GOING WITHOUT OPERATOR
                AUTOCE  AUTOMATIC START OF CANDE AFTER HALT/LOAD
02      NONAME  NONAME  SET IF SYSTEM HAS MODEL III I/O CHANNELS
01      AUTOMESS AUTOMESS       MESSAGES FOR LDCNTRL/DISK AND PRNPBT/DISK
00      OPTN    OPTN
```

2. COMPILER CONTROL CARD OPTIONS ($-CARD OPTIONS)

(NOTE: DO NOT END COMPILER CONTROL STATEMENTS WITH A SEMICOLON.)

```
BEND    MATCH BEGIN-END STATEMENTS
CARD    INPUT FROM CARDS ONLY
CHECK   SEQUENCE NUMBERS
DEBUGN  LIST OBJECT CODE
EBCDIC  IN FORTRAN AND BASIC ONLY, IDENTICAL TO HOL OPTION
$       IN COLS 3-71. LIST ALL CARDS WITH $ IN COL 1.
FREEFORM        (FORTRAN) ALLOW FREE-FORM INPUT
HOL (FORTRAN ONLY)      ACCEPT IBM 029 KEYPUNCH INPUT
INCLUDE   SOURCE TEXT FROM ANOTHER FILE
INFO    COMPILER DIAGNOSTIC INFO
LIMIT <INTEGER>         STOP WHEN THIS MANY ERRORS
LISTA   LIST ALL INCLUDING OMITTED CARD IMAGES
LIST    LIST ALL COMPILED CARD IMAGES
LISTP   LIST ONLY CARD IMAGES FROM READER (IF OTHERS ARE RESET)
NEW     CREATE A NEW SOURCE FILE NAMED NEWTAPE
NEW TAPE        SAME AS NEW
OMIT    OMIT FOLLOWING CARD IMAGES UNTIL OMIT IS POPPED
PAGE    PAGE SKIP THE LISTING
PRT     LIST THE PRT CONTENTS
PUNCH   PUNCH A CARD IMAGE CONTAINING A SYNTAX ERROR
        AND LIST COMPILER DIAGNOSTIC INFORMATION
SEGS    LIST SEGMENT BEGINNINGS AND ENDINGS
SEQ     ASSIGN NEW SEQUENCE NUMBERS
SEQERR  IF CHECK OPTION SET, FLAG SEQ ERRORS AS COMPILE ERRORS
SEQXEQ  REFER RUN-TIME ERRORS TO SEQUENCE NUMBERS RATHER THAN SEGMENTS
SINGLE  SINGLE SPACE LISTING, OTHERWISE WILL BE DOUBLE
```

TABLES PRINT SOME COMPILER INFORMATION (SEG 0,FIB, ETC.)
TAPE   MERGE INPUT FROM CARD READER AND A FILE NAMED "TAPE"
TIME   LIST SUMMARY OF COMPILATION (COMPILE TIME, PROG SIZE, ETC.)
TSSEDIT TO COMPILE CARD-FORMAT FORTRAN FILE FROM A TERMINAL
VOID   SEE UNDER VOID
VOIDT   SEE UNDER VOIDT
XREF   PRODUCE CROSS-REFERENCE LISTING

OT SPO COMMAND TO PRINT VALUE OF A PRT CELL
USAGE IS <MIX INDEX> OT
REPLY IS <JOB NAME> : R+ <INDEX> = <PRT DATA>

OU SPO COMMAND TO DESIGNATE AN OUTPUT UNIT FOR A PRINT FILE. FORMS ARE
<MIX INDEX>OU LP TO SEND OUTPUT TO A PRINTER
<MIX INDEX>OU MT TO SEND OUTPUT TO A PRINTER BACKUP TAPE
<MIX INDEX>OU DK TO SEND OUTPUT TO PRINTER BACKUP DISK
<MIX INDEX>OU TO SEND OUTPUT TO PRINTER OR BACKUP TAPE.
THIS MESSAGE IS A POSSIBLE RESPONSE TO #LP RQD OR #PBT MT RQD.
IT IS ALSO USED FOR SOME OTHER PURPOSES, SUCH AS REPLY TO
"NO SORT MEM" MESSAGE TO CAUSE SORT TO BE DONE ON DISK.

P IN ESPOL THIS IS A SYNONYM FOR THE WORD "POLISH".

P1,P2,PA,PB - THE TWO PROCESSORS OF THE SYSTEM ARE DESIGNATED AS
PA (ON THE LEFT END) AND PB (ON THE RIGHT END). THERE IS A SWITCH
ON THE TOP OF THE DISPLAY PANEL THAT ALLOWS EITHER TO FUNCTION AS
PROCESSOR 1 OF THE SYSTEM. WHEN THIS SWITCH IS IN THE PA1L
POSITION PROCESSOR A IS DESIGNATED PROCESSOR 1, AND IN THE PB1L
POSITION PROCESSOR B IS PROCESSOR 1. ONLY PROCESSOR 1 CAN BE
IN CONTROL STATE AND SERVICE INTERRUPTS. IF THE SYSTEM ACTS
FLAKY YOU MIGHT TRY THROWING THE SWITCH TO PB1L AND HALT/LOAD.
(THE COMPUTER CENTER MACHINE HAS ONLY ONE PROCESSOR.)

PACKET#NNNN SPO MESSAGE IN RESPONSE TO A PP COMMAND, OR TO CD WHEN MCP
HAS PACKETS. SHOWS THE FIRST CARD OF EACH PACKET.

PACKETS 1. A SYSTEM FEATURE THAT ALLOWS A GROUP OF JOBS
TO RUN TOGETHER, EFFECTIVELY MAKING ONE JOB WITH
SEVERAL STEPS THAT MAY RUN CONCURRENTLY OR IN A STRICT
ORDER. ALL THE JOB CONTROL INFORMATION APPEARS ON A PAGE
OF THE PRINTER OUTPUT, ALL PRINTER OUTPUT IS GROUPED TOGETHER,
AND PRINTER BACKUP DISK IS FORCED UNLESS EXPLICITLY OVERRIDDEN.
2. COMPILE-TIME OPTION OF MCP'S TO IMPLEMENT THE
PACKETS FEATURE.

TO USE PACKETS EITHER THE CDONLY OPTION MUST BE SET OR
LDCNTRL/DISK MUST BE STARTED WITH THE LD DK COMMAND.
THE DECK THAT IS TO RUN AS A PACKET BEGINS WITH A ?PACKET
CARD AND ENDS WITH A ?PACKEND CARD UNLESS THERE IS ANOTHER
?PACKET CARD FOLLOWING. AT LEAST ONE PSEUDO READER MUST BE
RUNNING TO START THE PROCESSING OF PACKETS.

A ?WAIT CARD IN A PACKET REQUIRES THAT ALL JOBS PRECEDING THIS
CARD BE COMPLETED BEFORE PROCEEDING. THUS STRICT SEQUENCING
MAY BE ENFORCED. A ?CONTINUE CARD MEANS THE SAME, EXCEPT THAT
EXECUTION OF THE PACKET MAY RESUME FROM THIS POINT IF SOMETHING
PRECEDING BOMBS OUT.

SEE CDONLY OPTION, PKTONLY OPTION, CONTINUE, WAIT
PP, RC, AND PC COMMANDS. SEE APPENDIX C TO SYSTEM NOTE 11.

PAGE $-CARD OPTION FOR COMPILERS. MEANS SKIP THE LISTING TO A NEW PAGE.

PASCAL PROGRAMMING LANGUAGE, DOCUMENTED IN "LECTURE NOTES IN COMPUTER SCIENCE, VOL. 18, PASCAL USER MANUAL AND REPORT" BY KATHY JENSEN (A UCSC GRADUATE) AND NIKLAUS WIRTH, PUBLISHED BY SPRINGER-VERLAG. THE B-5500 IMPLEMENTATION IS FROM HERIOT-WATT UNIVERSITY, EDINBURGH, AND IS A PRE-PROCESSOR WHICH GENERATES XALGOL TEXT FROM THE PASCAL SOURCE AND THEN CALLS THE XALGOL COMPILER. THERE IS A PAPER FROM HERIOT-WATT WHICH EXPLAINS HOW TO USE B-5500 PASCAL.

```
DECK SETUP:
        ?EXECUTE PASCAL/PASCAL
        ?DATA029 SOURCE
                SOURCE DECK GOES HERE
        ?DATA029 INPUT
                INPUT DECK GOES HERE
        ?END
```

PATCH - 1. <MFID> OF A FILE CONTAINING PATCHES TO SOFTWARE.
2. PATCHES TO PROGRAMS ARE IN SOURCE LANGUAGE FORM AND ARE USUALLY APPLIED WITH THE PATCH/MERGE PROGRAM. AS DISTRIBUTED BY BURROUGHS,
100-SERIES PATCHES ARE NECESSARY TO CORRECT ERRORS
200-SERIES PATCHES ARE ENHANCEMENTS, DEBUGGING AIDS, OR UNTESTED PATCHES
300-SERIES PATCHES ARE USER-SUBMITTED CORRECTIONS

PATCH/MERGE - PROGRAM TO APPLY PATCHES TO SYSTEM PROGRAMS.

```
DECK SETUP OUTLINE:
?EXECUTE PATCH/MERGE
?DATA CARD
$@ <OPTIONS> (SEE BELOW)
$. <NUMBER> PATCHES FOR <PROGRAM NAME>
$*EXECUTE ESPOL/DISK
   (OR, $*COMPILE <PROGRAM NAME> WITH <COMPILER NAME> LIBRARY
$*FILE <NAME> = <MFID>/<FID>
   (OR, $* <COMPILER NAME> FILE <NAME> = <MFID>/<FID> ETC.
$*DATA CARD
$-  <COMMENT IF DESIRED>
$ SET <OPTION>
   (ETC. OPTION CARDS FOR COMPILATION)
$#PATCH NUMBER <NUMBER> FOR <PROGRAM> CONTAINS <NUMBER> CARDS
  <CARDS GO HERE>
$#PATCH NUMBER <NUMBER> FOR <PROGRAM> CONTAINS <NUMBER> CARDS
  <NEXT PATCH HERE>
  AND SO ON.
?END
```

THE NUMBER OF PATCHES SPECIFIED ON THE $. CARD IS THE TOTAL NUMBER, FROM THE DECK AND FROM THE PATCH FILE ON DISK.
THE $* CARDS ARE CONTROL CARDS FOR A COMPILE JOB THAT WILL RECOMPILE THE PROGRAM BEING PATCHED. PATCH/MERGE WILL ZIP THE CONTROL DECK IF THE ZIP OPTION IS SELECTED, CAUSING THE COMPILATION TO TAKE PLACE WITH THE PATCHED SOURCE.
THE $- CARD INTRODUCES A PATCH THAT IS NOT COUNTED IN THE NUMBER OF PATCHES, AND USUALLY CONTAINS THE $OPTION CARDS NEEDED FOR COMPILATION. THIS PATCH IS NOT MERGED BY SEQUENCE NUMBERS WITH THE OTHERS, SO IT SHOULD NOT IN GENERAL CONTAIN ANY SEQUENCE-NUMBERED CARDS.
EACH PATCH DECK BEGINS WITH A $# CARD.
CARDS IN THE PATCH DECK CONTAIN SEQUENCE NUMBERS IN COLS 73-80.

OPTIONS TO GO ON THE $@ CARD:

CARD - INPUT IS FROM CARD READER ONLY, NO DISK FILES
CONFLICTS - LIST ANY CONFLICTS AND HOW RESOLVED
DELETE - DELETE FOLLOWING PATCH NUMBERS EX: DELETE 5,201,301
FINAL - SETS MERGE, ZIP, NEW DISK, NONO, AND LIST
LIST - SETS LISTI, LISTG, AND CONFLICTS
LISTG - LIST THE GENERATED PATCH DECK
LISTI - LIST ALL INPUT
MERGE - MERGE INPUT FROM CARDS, DISK FILE NAMED PATCH/<PROGRAM NAME>,
AND DISK FILE NAMED PATCHES/<PROGRAM NAME>
(IT'S OK FOR ANY OF THESE TO BE NOT PRESENT.) CARDS TAKE
PRECEDENCE OVER PATCH FILE, WHICH TAKES PRECEDENCE OVER PATCHES.
NEW DISK - WILL CREATE A NEW FILE NAMED PATCHES/<PROGRAM NAME> ON DISK
CONTAINING ALL THE PATCHES. PREVIOUS FILE OF THAT NAME WILL BE DELETED
PREVIOUS FILE PATCH/<PROGRAM NAME> WILL ALSO BE DELETED
NONO - IF NOT SET, PATCH NUMBER WILL GO IN COLS 68-72 OF EACH CARD
PUNCHG - PUNCH THE GENERATED PATCH DECK
PUNCHI - PUNCH ALL INPUT PATCHES
ZIP - AUTOMATICALLY SUBMIT THE PATCH DECK FOR COMPILATION

THERE CAN BE MORE THAN ONE $@ CARD IF NECESSARY.

$: MAY BE USED IN COLS 1-2 OF A CARD TO INSERT COMMENTS INTO THE PATCH DECK
THE PATCH/MERGE USER MANUAL IS AN APPENDIX TO SYSTEM NOTE 6.

PATCHES - <MFID> OF A FILE USED BY PATCH/MERGE. SEE "NEW DISK" ABOVE.
IF THIS FILE IS PRESENT ON DISK WHEN PATCH/MERGE IS RUN WITH
THE MERGE OPTION ITS CONTENTS WILL BE MERGED WITH THE PATCH
FILE AND PATCH DECK.

PB SPO COMMAND TO PRINT A PRINTER BACKUP DISK FILE. USED IF
THE AUTOPRNT OPTION IS RESET, ALLOWS SELECTIVE PRINTING OF
THESE FILES. A PBD FILE HAS A FILE NAME LIKE PBD/AAAABBB
WHERE AAAA IS THE FILE NUMBER AND BBB IS THE "REEL" NUMBER
OR PACKET NUMBER WITHIN THE FILE. IF YOU SAY PB AAAA YOU WILL
GET THE WHOLE FILE. IF YOU SAY PB AAAA#BBB YOU WILL GET JUST
THAT "REEL". ALSO YOU CAN FOLLOW ANY OF THESE FORMS WITH
A MULTIPLE COPY OPTION: PB AAAA = 2 WILL GET TWO COPIES OF
FILE AAAA. =0 WILL GET EXACTLY ONE COPY, REGARDLESS OF THE NUMBER
THE USER SPECIFIED IN THE LABEL EQUATION. PUNCH BACKUP FILES
ARE JUST LIKE PRINTER BACKUP FILES EXCEPT THE <MFID> IS PUD
INSTEAD OF PBD.

TO PRINT A BACKUP TAPE USE PB <UNIT MNEMONIC> FOR THE TAPE
RATHER THAN THE DISK FILE NUMBER.

PBD <MFID> OF A PRINTER BACKUP DISK FILE. TO BE PRINTED THE
WHOLE NAME MUST HAVE A NUMERIC <FID>, EX: PBD/0001001.
PBD FILES WITH AN ALPHABETIC <FID> ARE SOMETIMES SUPPLIED
WITH A SYSTEM SOFTWARE RELEASE. TO PRINT ONE OF THESE
CHANGE THE NAME TO THE NUMERIC FORM SHOWN ABOVE.

FORMAT OF PBD FILES: FILES CONSIST OF 18-WORD RECORDS. THESE
ARE STORED IN 90-WORD BLOCKS, WITH THE FIRST RECORD IN WORDS 72-89
OF THE BLOCK AND THE LAST RECORD IN WORDS 0-17 OF THE BLOCK.
EACH BACKUP FILE CONSISTS OF ONE CONTROL RECORD, WHICH IS THE
FIRST RECORD OF THE FIRST BLOCK, AND DATA RECORDS IN THE
REMAINING RECORDS. THE LAST FEW RECORDS MAY BE GARBAGE TO FILL
OUT A BLOCK. A DATA RECORD CONTAINS A 17-WORD PRINT RECORD
FOLLOWED BY A CONTROL WORD. IN THE CONTROL WORD THE 15 LEAST
SIGNIFICANT BITS CONTAIN THE RECORD NUMBER AND SOME OTHER BIT IS

ON TO INDICATE THE LAST RECORD OF THE FILE. PUNCH BACKUP
FILES APPEAR TO HAVE THE SAME FORMAT, AND SIMPLY DO NOT USE
THE CARACTERS BEYOND THE 80TH.

APPLICABLE COMMANDS: PB
APPLICABLE OPTIONS: AUTOPRNT, PBDONLY

PBDONLY - OPTION 21 IF SET WILL FORCE ALL PRINT AND PUNCH FILES TO BACKUP
DISK. IF RESET ALLOWS OUTPUT TO GO DIRECTLY TO THE PRINTER OR PUNCH.
THE ADVANTAGE OF USING PBDONLY IS THAT A LONG-RUNNING JOB CANNOT
SEIZE THE PRINTER AND PREVENT OTHER PRINT JOBS FROM BEING DONE.
THE "SPECIAL" VERSION OF THE FILE CONTROL CARD OVERRIDES
PBDONLY AND ALLOW A PRINT FILE TO GO TO A DESIGNATED PRINTER.

PBT PRINTER BACKUP TAPE. ALTERNATIVE TO PBD. ABOUT THE ONLY REASON
YOU WOULD WANT TO USE THIS IS IF YOUR JOB DOES A TREMENDOUS
AMOUNT OF OUTPUT, SO THAT A PBD FILE WOULD TAKE UP TOO MUCH DISK.
ANOTHER POSSIBILITY IS THAT YOU MIGHT WANT TO SAVE A PRINTER
BACKUP TAPE FOR FUTURE REPRINTING. SEE "SAVEPBT" OPTION.

PBT MT RQD - SPO MESSAGE MEANS A JOB REQUIRES A PRINTER BACKUP TAPE.
IF YOU DON'T WANT TO GIVE IT A TAPE YOU MAY USE THE <MIX>OU DK COMMAND.
TO SEND PRINT TO A DISK BACKUP FILE.

PC SPO COMMAND TO GET THE PACKET COUNT (# OF PACKETS ON DISK)

PD SPO COMMAND TO PRINT DIRECTORY INFORMATION.
PD A/B TO FIND OUT IF FILE A/B IS ON THE DISK
PD A/= TO PRINT THE NAMES OF ALL FILES ON DISK HAVING THE
<MFID> OF A.
PD =/= TO PRINT THE NAMES OF ALL FILES. (TAKES FOREVER.)
ANY OF THESE MAY BE FOLLOWED BY MODIFIERS
SIZE TO GET THE SIZE OF THE FILE IN DISK SEGMENTS
RECS TO GET THE NUMBER OF RECORDS
DATE TO GET THE CREATION DATE
LAST TO GET THE DATE OF LAST ACCESS
USE THE BK SPO COMMAND IF YOU GET MORE PD OUTPUT THAN YOU WANT.
PD <MFID> IS EQUIVALENT TO PD<MFID>/=

PG SPO COMMAND TO PURGE A TAPE. THIS ERASES THE LABEL AND
MAKES THE TAPE LOGICALLY BLANK. THERE ARE TWO FORMS OF
THIS COMMAND. FOR GENERAL USE THE FORM IS PG<UNIT MNEMONIC>.
WITH A NEW TAPE, FOR THE FIRST TIME, USE THE FORM
PG<UNIT MNEMONIC>-<PRN> WHERE <PRN> IS THE NEXT UNUSED
PHYSICAL REEL NUMBER. ALSO IF A TAPE SOMEHOW LOSES ITS
PRN YOU SHOULD RESTORE IT WITH THE DASH FORM OF THE PG
COMMAND AT THE NEXT OPPORTUNITY.
OUR MCP'S ARE PATCHED TO REQUIRE YOU TO PG WITH A PRN
IF THE TAPE LACKS A PRN; ELSE YOU GET A NOT PG-ED(PRN=0) MESSAGE.

PHYSICAL REEL NUMBER (PRN) THIS NUMBER IS PUT ON A REEL OF TAPE THE FIRST
TIME IT IS PUT INTO SERVICE AND PG-ED. THEREAFTER IT SERVES AS
A HARDWARE SERIAL NUMBER FOR THE REEL AND APPEARS IN THE
MAINTENANCE LOG WITH A RECORD OF ALL ERRORS INVOLVING THAT TAPE.
THIS HELPS TO RESOLVE WHETHER TAPE TROUBLE IS DUE TO A BAD DRIVE
OR TO BAD TAPE.

PKTONLY - OPTION 5. FORMERLY THIS REQUIRED THAT ALL DECKS RUN
THROUGH THE CARD READER BE PACKETS; THAT IS, THEY HAD
TO BE ENCLOSED WITHIN ?PACKET AND ?PACKET OR ?PACKEND CARDS.
NOW (MARK XVI) IT APPEARS THAT ALL UNENCLOSED DECKS WILL BE AUTOMATICALLY

PROCESSED AS ONE-JOB PACKETS IF THIS OPTION IS SET.

PO SPO COMMAND TO PRINT AN MCP OPTION SETTING. FORMS ARE
PO<OPTION NUMBER> OR PO<OPTION NAME>

PP SPO COMMAND TO PRINT INFORMATION ABOUT PACKETS ON DISK

PR SPO COMMAND TO CHANGE PRIORITY OF A JOB
USAGE IS <MIX INDEX> PR <PRIORITY> WHERE THE PRIORITY
RANGES BETWEEN 0 AND 32767 INCLUSIVE, 0 IS HIGHEST.

PRINTERS - <UNIT MNEMONIC> IS LPA FOR THE PRINTER ON EITHER SYSTEM.
SEE ?FILE CARD FOR HOW TO USE THE "SPECIAL" OPTION TO DIRECT OUTPUT TO
A PRINTER WITHOUT GOING THROUGH PRINTER BACKUP DISK FILES.
SEE "FULLPGE" AND "LINES66" TO OVERRIDE AUTOMATIC
PAGE THROWS OVER THE PERFORATION IN THE PAPER.
SEE ALSO INFORMATION ABOUT PBD FILES, PBDONLY OPTION, AUTOPRNT OPTION,
CANDE AND COPY VERB.
CARRIAGE CONTROL TAPES FOR THE BURROUGHS PRINTERS ARE PHYSICALLY
THE SAME AS IBM CARRIAGE CONTROL TAPES, BUT THE CHANNELS ARE NUMBERED
BACKWARDS.

PRINTER BACKUP FILES - SEE PBD, PBDONLY, AUTOPRNT

PRIORITY SEE PR COMMAND. IN TSSMCP THE PRIORITY HAS NO EFFECT ONCE A
JOB GETS INTO EXECUTION. IN DCMCP PRIORITY IS EFFECTIVE THROUGHOUT
EXECUTION, AND CONTROLS COMPETITON AMONG JOBS FOR MEMORY AND CPU.
SET THE PRIORITY OF A JOB INITIALLY BY INCLUDING A
?PRIORITY = ____ CARD AFTER THE ?COMPILE OR ?EXECUTE CARD
OF A JOB. PRIORITY RANGES FROM 0 TO 32767, WITH 0 HIGHEST.
IF THERE IS NO ?PRIORITY CARD THE SYSTEM WILL ASSIGN A
DEFAULT PRIORITY, OR WILL USE THE PRIORITY THAT WAS SPECIFIED
WHEN THE PROGRAM OR COMPILER WAS COMPILED.
TO ALTER THE PRIORITY OF A RUNNING JOB USE THE PR COMMAND.
TO ALTER THE PRIORITY OF A JOB WHILE IT IS STILL IN THE
SCHEDULE USE THE PS COMMAND.

PRN SEE PHYSICAL REEL NUMBER.

PRNPBT/DISK - PROGRAM WHICH PRINTS PRINTER BACKUP TAPE AND DISK
FILES AND PUNCH BACKUP FILES. LIKE LDCNTRL/DISK AND LIBMAIN/DISK
THIS PROGRAM IS CREATED AUTOMATICALLY BY MCP IF IT IS NEEDED AND
NOT FOUND ON DISK.

PROBLEMS - SEE "TROUBLE" FOR HINTS ON FREQUENT SYSTEM CRASHES.

PROCESS - JOB CONTROL CARD TO SET PROCESSOR TIME LIMIT. IF THIS CARD
IS NOT USED THE SYSTEM DEFAULTS TO NO LIMIT.
EXAMPLE:
?PROCESS = 30 TO SET A TIME LIMIT OF 30 MINUTES.
?ALGOL PROCESS = 10 FOR THE COMPILE STEP OF A COMPILE-AND-GO

PROGRAMMING LANGUAGES -
ALGOL - B-5500 EXTENDED ALGOL. SEE ALSO GTL.
XALGOL - NEAR-SUBSET OF B-6500 EXTENDED ALGOL, WITH SOMEWHAT NICER
STRING FEATURES THAN B-5500 EXTENDED ALGOL AND LESS CHANCE
OF CAUSING SYSTEM HANGS.
EXTENDED ALGOL - ALGOL-60 WITH MANY ADDED FEATURES, INCLUDING
INCOMPREHENSIBLE STRING PROCESSING.
FORTRAN - CLASSICAL FAVORITE
ESPOL - ALGOL-LIKE LANGUAGE IN WHICH MCP IS WRITTEN

TSPOL - VERSION OF ALGOL IN WHICH CANDE AND ITS SUPPORT PROGRAMS
ARE WRITTEN
GTL - GEORGIA TECH LANGUAGE, DERIVED FROM ALGOL, HAS NICE STRING
FEATURES, LISP, PARSING, PLEX PROCESSING, RECORDS, SEVERAL
EXTENSIONS TO ALGOL SUCH AS RETURN STATEMENT, VALUE-RETURNING
CASE STATEMENT, ETC. ALSO DOUBLE PRECISION, COMPLEX.
COBOL - DOD 1961 COBOL
COBOL 68 -
APL - CONSULTANT HAS A MANUAL. TSSMCP ONLY.
WIPL - ANOTHER LANGUAGE ON THE CUBE TAPE, UNKNOWN QUANTITY.
PASCAL - SEE ENTRY "PASCAL" FOR REFERENCE.
SMALLTALK IS AVAILABLE UNDER TSSMCP.
SNOBOL3 IS ON THE SYSTEM.
BASIC
A NUMBER OF OTHER LANGUAGES ARE USED AT OTHER SITES. INQUIRE.

PRT 1. PROGRAM REFERENCE TABLE. THIS CONTAINS FOR
A PROGRAM ALL THE SIMPLE VARIABLES DECLARED IN
THE OUTER BLOCK, DESCRIPTORS FOR ALL THE ARRAYS
DECLARED IN THE OUTER BLOCK, ETC.
2. COMPILER $ OPTION TO PRINT THE CONTENTS OF THE PRT FOR
THE COMPILED PROGRAM.
3. <FID> OF A FILE CONTAINING PRT INFORMATION FOR THE MCP.
USED BY THE DUMP ANALYZER.
4. <FID> OF A PROGRAM USED TO MAKE PRT FILE (SEE 3.) ABOVE. USE
TSFILL/PRT FOR TSSMCP AND DCFILL/PRT FOR DCMCP.
THE MAXIMUM PRT SIZE FOR ANY PROGRAM IS 1023 WORDS.

PS SPO COMMAND TO CHANGE PRIORITY OF A JOB IN THE SCHEDULE
USAGE IS <SCHEDULE INDEX> PS <PRIORITY>

PST ABBREVIATION FOR PROCESSOR TIME USED BY A JOB.

PUBLIC - 1. FILE ATTRIBUTE MEANS ANYONE MAY READ OR WRITE.
2. CONTROL CARD TO MAKE A FILE PUBLIC. EX: ?PUBLIC <MFID>/<FID>
3. CANDE VERB TO MAKE A FILE PUBLIC. USAGE IS
PUBLIC FILE1, FILE2, ETC.

PUD <MFID> FOR PUNCH BACKUP DISK FILES. SEE PBD ABOVE FOR INFO
ON NORMAL FORMS FOR NAMES AND PUNCHING FILES DISTRIBUTED WITH
THE SYSTEM SOFTWARE.

PUT PUNCH BACKUP TAPE, SEE PBT FOR MORE INFO.

PUT MT RQD - SPO MESSAGE MEANS A TAPE IS REQUIRED TO HOLD A PUNCH
BACKUP FILE. SEE PBT MT RQD ENTRY FOR HELP.

QS SPO COMMAND TO SEND MESSAGE TO ONE OR MORE STATIONS UNDER TSSMCP.
UNLIKE SS THIS MESSAGE GOES OUT IMMEDIATELY REGARDLESS OF
WHAT THE USER IS DOING. FORMS ARE QS<TERMINAL NUMBER><MSG>
OR QS <USER CODE> <MSG> OR QS ALL <MSG>.

QT QT SPO COMMAND TO MAKE PRNPBT/DISK OR LDCNTRL/DISK SKIP
THE CURRENT FILE IT IS WORKING ON. IT WILL RESUME WITH THE
NEXT. USAGE IS QT <UNIT MNEMONIC> OR <MIX INDEX> QT.
MOST OFTEN USED TO GET RID OF UNWANTED PRINTER OUTPUT WHEN
RUNNING UNDER PBDONLY.

R ACCEPTABLE SUBSTITUTE FOR THE WORD "RUN" IN A CONTROL CARD.

R-REGISTER IN THE PROCESSOR, A REGISTER WHICH POINTS

TO THE BASE OF THE PRT. IT ALSO IS THE UPPER BOUND OF THE STACK. THIS REGISTER CONSISTS OF ONLY THE MOST-SIGNIFICANT 9 BITS, AS THE OTHER SIX BITS ARE ROUNDED TO ZERO.

R/C A PROGRAM WHICH RUNS UNDER DCMCP TO PROVIDE FOR CREATION AND EDITING OF FILES FROM TERMINALS. IT DOES MUCH THE SAME THINGS THAT CANDE DOES WITHOUT TIMESHARING. TO GET A USER MANUAL RUN THE FOLLOWING JOB.

```
?EXECUTE XREF/JONES
?FILE DISK = TEACHER/0000094
?DATA CARD
$ DISK SIX DOCONLY DOCUMENT FINAL
        [A CARD WITH 99999999 IN COLS 73-80]
?END
```

THE SOURCE OF THIS PROGRAM IS THE CUBE TAPE.

RC SPO COMMAND FOR A REEL CHANGE WHEN A TAPE IS FOUND TO BE BAD.

RD SPO COMMAND TO REMOVE A PSEUDO-DECK. USAGE IS RD # <DECK NUMBER> OR RD <PSEUDO DECK MNEMONIC>. THIS IS EFFECTIVE ONLY WHEN THE DECK IS NOT BEING READ BY A PSEUDO-READER. FOR THE LATTER CASE USE THE ED COMMAND. IF A GARBAGE DECK APPEARS IN RESPONSE TO THE PP OR CD COMMAND, AND RD WILL NOT REMOVE IT, IT WILL BE NECESSARY TO COOL START OR COLD START TO GET RID OF IT.

READ CHECK 1. THE READ CHECK LIGHT ON THE CARD READER MEANS THAT THE LAST CARD READ WAS READ INCORRECTLY. REMOVE IT FROM THE STACKER, PUT IT AT FRONT OF THE UN-READ CARDS, RESET AND START.

IF READ CHECK AND FEED CHECK ARE BOTH LIT ON THE CARD READER, SEE "FEED CHECK" FOR PROPER REMEDY.

2. A DISK CONTROLLER OPERATION. WHEN A READ CHECK IS ISSUED TO THE DISK THERE IS AN IMMEDIATE I/O COMPLETION INTERRUPT AND THE I/O CHANNEL IS RELEASED FOR OTHER USE. THE DISK PROCEEDS TO CHECK THE INDICATED AREA FOR PARITY ERRORS. IF A PARITY ERROR IS FOUND THE READ CHECK BIT WILL BE SET IN THE RESULT DESCRIPTOR OF THE NEXT DISK OPERATION TO BE DONE. THIS IS NOT IMPLEMENTED IN MCP.

READY LIGHT ON SPO - IF THE READY LIGHT IS ON THIS MEANS THAT THE SYSTEM IS WAITING FOR INPUT FROM THE SPO. IF THE READY LIGHT KEEPS COMING BACK ON AFTER YOU HIT "END OF MESSAGE", THIS PROBABLY MEANS THAT THE SYSTEM IS EXPECTING AN END CONTROL CARD FOR A JOB. SO TYPE IN "CC END" AND HIT END-OF-MESSAGE.

REMOVE - CONTROL CARD TO REMOVE A FILE FROM THE DISK. EXAMPLE:
? REMOVE A/B
THE EQUAL SIGN MAY BE SUBSTITUTED FOR <MFID> OR <FID> OR (HEAVEN FORBID!) BOTH. SEE LIBMAIN/DISK FOR ALL THE POSSIBILITIES.

REPLACE - SEE "CHARACTER STRING OPERATIONS" FOR INFORMATION HELPFUL TO AN UNDERSTANDING OF THE XALGOL REPLACE STATEMENT.

RESERVE/DISK A FILE CREATED BY THE MR SPO COMMAND, IF A NO-USER-DISK SITUATION ARISES THIS FILE WILL BE TAKEN AUTOMATICALLY TO SATISFY IT.

RESERVE/DISK ALREADY PRESENT - SPO MESSAGE IN RESPONSE TO MR
COMMAND IF RESERVE/DISK ALREADY EXISTS.

RM SPO COMMAND TO REMOVE A FILE FROM DISK IN A DUP LIBRARY SITUATION.
THE FILE ON DISK WILL BE REMOVED AND THE FILE THE PROGRAM IS TRYING
TO CREATE WILL THEN BE CREATED AND THE PROGRAM WILL RESUME.
USAGE IS <MIX INDEX> RM
UNDER TSSMCP RM IS DONE AUTOMATICALLY. UNDER DCMCP IT IS DONE
AUTOMATICALLY IF THE AUTODS OPTION IS SET (LOCAL FEATURE).

RN SPO COMMAND TO START PSEUDO-READERS. FORMS ARE
RN <NUMBER> START <NUMBER> READERS
RN #<NUMBER> ASSIGN A PSEUDO READER TO READ PSEUDO DECK GIVEN BY <NUMBER>
RN TYPE THE NUMBER OF PSEUDO READERS CURRENTLY STARTED
FOR TSSMCP THE MAXIMUM NUMBER OF PSEUDO READERS IS 4
THESE ARE USED TO READ PSEUDO DECKS PLACED ON DISK BY LDNTRL/DISK
AND ALSO ZIPPED DECKS. THE AUTORN FEATURE (LOCAL) AUTOMATICALLY
STARTS PSEUDO-READERS AFTER A HALT/LOAD.

RO SPO COMMAND TO RESET AN OPTION. USAGE IS RO<OPTION NUMBER>
OR RO <OPTION NAME>. (THIS IS A LOCAL FEATURE; THE STANDARD SYSTEM
REQUIRES RO X <OPTION NAME> , WHERE X CAN BE ANYTHING.)

ROTO/BOOTER - PROGRAM TO ANALYZE SEPTIC TANK FILES. SEE SYSTEM NOTE 11.
TO USE, EXECUTE ROTO/BOOTER;COMMON=NNNN WHERE NNNN IS THE
NUMBER THAT IS THE <FID> OF THE SEPTIC FILE TO BE ANALYZED.

RP SPO COMMAND TO REMOVE PACKET FROM DISK. SEE RD COMMAND.

RQD MESSAGE WITH <UNIT MNEMONIC> OR THE FIRST TWO LETTERS OF A UNIT MNEMONIC
MEANS A PROGRAM REQUIRES A PARTICULAR UNIT, OR ANY UNIT OF THE SPECIFIED
KIND. AFTER YOU MAKE THE UNIT AVAILABLE YOU MAY HAVE TO USE THE
<MIX INDEX>OK COMMAND TO GET THE PROGRAM GOING AGAIN.

RS IN TSSMCP PRIOR TO MARK XVI THIS WAS THE SPO
COMMAND TO SEND A MESSAGE TO A STATION. IT IS
NOW CHANGED TO THE QS COMMAND IN TSSMCP.

RSMSG - OPTION 19. IF SET, TYPE A MESSAGE ON SPO WHENEVER THE
"ACCESSD" BIT OF A FILE IS SET OR RESET.

RUN 1. CANDE VERB MEANS COMPILE (IF NECESSARY; DON'T COMPILE
IF THIS PROGRAM IS ALREADY COMPILED) AND THEN EXECUTE.
2. CONTROL CARD, IN TSSMCP, MEANS EXECUTE A PROGRAM BELOW
THE FENCE. REQUIRES AN OK FROM THE OPERATOR.
3. FROM A TERMINAL UNDER DCMCP ??RUN <PROGRAM>/<NAME>
MEANS ATTACH THE TERMINAL TO THE PROGRAM HAVING THAT
NAME IF THAT PROGRAM IS ALREADY RUNNING. IF NOT, EXECUTE THE
PROGRAM AND ATTACH THE TERMINAL TO IT.

RUN CONTROL CARD 1.- SPO MESSAGE MEANS SOMEBODY WANTS TO RUN
A JOB BELOW THE FENCE IN TSSMCP. TO ALLOW THIS YOU HAVE TO
GIVE IT AN OK MESSAGE.
2. IN DCMCP THE RUN CONTROL CARD ENTERED FROM A TERMINAL
ATTACHES THE TERMINAL TO AN ALREADY-RUNNING JOB, OR STARTS
THE PROGRAM IF IT IS NOT ALREADY RUNNING. IN TSSMCP THE RUN
CONTROL CARD IS USED INSTEAD OF EXECUTE IF THE JOB IS TO RUN
BELOW THE FENCE (WHICH WILL MAKE IT UNSWAPPABLE).

RW SPO COMMAND TO REWIND A TAPE. USAGE RW<UNIT MNEMONIC>

RW/L - SPO MESSAGE INDICATING A TAPE HAS BEEN REWOUND AND LOGICALLY PLACED OFFLINE. TO GET IT BACK ON LINE EITHER RY IT OR HIT THE LOCAL BUTTON ON THE DRIVE AND THEN THE REMOTE BUTTON.

RY SPO COMMAND TO READY A LINE OR PERIPHERAL. USAGE IS RY<UNIT MNEMONIC> OR RY<LINE NUMBER>. MOST OFTEN USED WITH UNIT MNEMONIC OF A MAG TAPE DRIVE TO READY THE DRIVE AFTER THE MCP HAS MARKED IT NOT READY. THE SAME EFFECT CAN BE ACCOMPLISHED BY PUTTING THE DRIVE IN LOCAL AND THEN BACK IN REMOTE. THIS COMMAND IS USED WITH LINE NUMBERS TO START UP THE SCHEDULE LINES FOLLOWING THE CE COMMAND AT H/L TIME. A LOCAL FEATURE DOES THIS AUTOMATICALLY.

S= APPEARING IN A MESSAGE ABOUT A JOB INDICATES THE SEGMENT NUMBER IN WHICH THE PROGRAM WAS RUNNING WHEN THE MESSAGE WAS ISSUED. ASSOCIATED WITH THIS IS A= , WHICH GIVES THE RELATIVE ADDRESS WITHIN THE SEGMENT. REFER TO A COMPILER LISTING OF THE PROGRAM TO LEARN WHICH STATEMENT CORRESPONDS TO THE S= ,A= REFERENCE.

S-REGISTER PROCESSOR REGISTER WHICH POINTS TO THE TOP OF THE PORTION OF THE STACK RESIDING IN MEMORY. (THE A AND B REGISTERS MAY CONTAIN THE TOP ONE OR TWO WORDS OF THE STACK.)

SA SPO COMMAND TO GET SEGMENT NUMBER AND RELATIVE ADDRESS OF A RUNNING PROGRAM. USAGE IS <MIX INDEX>SA

SAVE - A SAVE ARRAY OR SAVE PROCEDURE IS ONE WHICH IS TO REMAIN IN CORE AND NOT BE OVERLAID FOR THE DURATION OF EXECUTION.

SAVING A PERIPHERAL UNIT MAKES IT TEMPORARILY UNAVAILABLE FOR AUTOMATIC ALLOCATION. SEE SV SPO COMMAND.

SAVERESULTS COMPILE-TIME OPTION ($-OPTION) FOR MCP THAT CAUSES DATA COMMUNICATION RESULTS TO BE SAVED IN A CIRCULAR LIST FOR USE IN TROUBLE ANALYSIS.

SC SPO COMMAND TO TYPE WHICH TERMINALS ARE SET AS SPO'S.

SCAN - SEE "CHARACTER STRING OPERATIONS" FOR INFORMATION HELPFUL TO AN UNDERSTANDING OF THE XALGOL SCAN STATEMENT.

SCHEDULE 1. CANDE VERB. SEE TIMESHARING USERS' MANUAL.
2. THE SCHEDULE IS A LIST OF JOBS THAT HAVE NOT YET BEGUN EXECUTION FOR SOME REASON. FOR EXAMPLE, A JOB JUST READ IN MAY BE SCHEDULED IF THERE IS NOT SUFFICIENT CORE TO RUN IT RIGHT NOW. USE THE TS COMMAND TO FIND OUT WHAT IS IN THE SCHEDULE. USE THE ES COMMAND WITH THE SCHEDULE INDEX TO REMOVE A JOB FROM THE SCHEDULE IF YOU NO LONGER WANT IT RUN. USE THE XS COMMAND WITH THE SCHEDULE INDEX TO FORCE THE SCHEDULED JOB TO RUN NOW IF AT ALL POSSIBLE, EVEN THOUGH TOTAL SYSTEM THROUGHPUT WILL SUFFER. IN TSSMCP THE NOBATCH OPTION CONTROLS WHETHER BATCH JOBS WILL RUN WITH THE SAME PRIORITY AS TIMESHARING JOBS, OR WILL BE HELD UNTIL THEY WILL NOT IMPACT TIMESHARING.

THE TASK SCHEDULE SHOWS WHAT TASKS HAVE BEEN SCHEDULED FROM CANDE TIMESHARING TERMINALS.

SCHEDULED - SPO MESSAGE MEANS A JOB HAS BEEN PLACED IN THE SCHEDULE BECAUSE IT IS NOT TO BE RUN IMMEDIATELY. THE

REASON FOR THIS ACTION IS GIVEN. THE NUMBER FOLLOWING
THE EQUAL SIGN IS THE <SCHEDULE INDEX>.

SCHEDULE INDEX - THE INDEX NUMBER OF A JOB IN THE SCHEDULE, AS
GIVEN BY THE SCHEDULED MESSAGE OR THE REPLY TO A TS COMMAND.

SCHEDULE LINE - A SORT OF PSEUDO KEYBOARD IN THE TIME SHARING SYSTEM.
CANDE COMMANDS CAN BE STACKED UP FOR BATCH-LIKE JOB STREAM
EXECUTION. SEE TIME SHARING USERS' MANUAL.

SCRATCH - IF THE OL COMMAND CAUSES A TAPE TO BE REPORTED AS SCRATCH AND YOU THINK
YOU JUST WROTE ON IT, TAKE OUT THE WRITE RING.

SD SPO COMMAND TO TERMINATE WITHOUT REMOVING DECK
USAGE IS <MIX INDEX>SD. UNLIKE A DS, THIS LEAVES THE PSEUDO DECK
ON DISK SO THE JOB CAN BE STARTED OVER LATER, USING THE RN#NNNN COMMAND.

SEGMENT UNIT OF DISK SPACE WHICH HOLDS 30 MACHINE WORDS (240 CHARS).
THIS IS THE SMALLEST DISK SPACE WHICH CAN BE WRITTEN.

SEGS $-CARD OPTION FOR COMPILERS, MEANS PRINT SEGMENT BOUNDARIES.

SENSITIVE - FILE ATTRIBUTE. IF SET THE FILE WILL BE ERASED ANY TIME
IT IS TO BE DELETED. INTRODUCED IN MARK XV.2, SYSTEM NOTE 12.

SEPTIC TANK - 1. COMPILE TIME OPTION FOR MCP'S TO INCLUDE CODE FOR
SEPTIC TANK FACILITY
2. FACILITY FOR RECORDING DATA COMMUNICATION INFORMATION TO AID IN
DIAGNOSING PROBLEMS. SEE SYSTEM NOTE 11, APPENDIX G.
SEPTIC TANKING IS STARTED BY THE CS COMMAND: CS WITH NO SUFFIX
TO MONITOR ALL STATIONS, OR CS <STATION NUMBER> OR CS <TU>/<BU>
TO MONITOR A SPECIFIC STATION. THE SYSTEM RESPONDS ON THE SPO
WITH THE NAME OF THE SEPTIC TANK FILE, OF THE FORM SEPTIC/NNNN.
THIS TANK IS OPERATED CIRCULARLY SO THAT WHEN IT FILLS THE MOST
RECENT RESULTS OVERWRITE THE OLDEST ONES. SEPTIC TANKING STOPS
WHEN THE SYSTEM IS HALT/LOADED OR WHEN THE HS SPO COMMAND IS
GIVEN. TO ANALYZE A SEPTIC FILE (TANKING TO THAT FILE MUST BE
STOPPED AT THE TIME) EXECUTE THE PROGRAM ROTO/ROOTER, SETTING
COMMON EQUAL TO NNNN FROM THE NAME OF THE SEPTIC FILE.

SEQ COMPILER $ OPTION TO APPLY SEQUENCE NUMBERS TO THE SOURCE FILE.
USAGE IS SEQ NNN + MMM WHERE NNN IS THE FIRST SEQUENCE NUMBER
AND MMM IS THE INCREMENT BETWEEN SUCCESSIVE NUMBERS.

SEQUENCE NUMBER - A NUMBER PUNCHED IN COLS 73-80 OF A PROGRAM CARD TO
INDICATE WHERE THAT CARD BELONGS IN THE DECK.
UNDER CANDE, SEQUENCE NUMBERS ARE TYPED AT THE LEFT MARGIN; BUT
IN THE FILE ON DISK THEY ARE IN THE PROPER PLACES FOR SEQUENCE
NUMBERS.

SEQXEQ - COMPILER $ OPTION TO HAVE RUN-TIME ERROR MESSAGES REFERENCED TO
SOURCE SEQUENCE NUMBERS. THIS IS AUTOMATICALLY APPLIED FOR
TIMESHARING COMPILATIONS. OTHERWISE YOU GET SEGMENT AND RELATIVE ADDRESS.

SF SPO COMMAND TO SET CORE FACTOR. THIS ALLOWS THE SYSTEM FOR
SCHEDULING PURPOSES TO MAKE BELIEVE IT HAS MORE OR LESS CORE
THAN IS PHYSICALLY PRESENT. RAISES HAVOC WITH SCHEDULER.

SHAREDISK 1. SYSTEM IN WHICH FROM 2 TO 4 B-5700 SYSTEMS SHARE
ACCESS TO A COMMON DISK SUBSYSTEM.
2. COMPILE-TIME OPTION ($ OPTION) FOR MCP TO INCLUDE CODE

FOR A SYSTEM WITH SHAREDISK.

SINGLE - COMPILER $ OPTION USED WITH LIST OPTION TO GET SINGLE-SPACED LISTING. (DEFAULT IS DOUBLE SPACED)

SO SPO COMMAND TO SET AN OPTION. USAGE SO<OPTION NUMBER>
OR SO USE <OPTION NAME>, OR LOCALLY SO <OPTION NAME>.

SOFTWARE FLASH - SEQUENTIALLY-NUMBERED DOCUMENTS FORMERLY DISTRIBUTED BY MAIL IRREGULARLY WHICH CONTAIN PATCHES TO SYSTEM SOFTWARE.

SPO SUPERVISORY PRINTER - THE CONSOLE TELETYPEWRITER.
SEE ALSO ALTERNATE SPO.

SQ SPO COMMAND TO CONTROL DISK SQUASH FACILITY. FORMS ARE:
SQ - TO SQUASH ALL OF DISK
SQ 2000 - TO SQUASH UNTIL A 2000-SEGMENT CONTIGUOUS AREA EXISTS
SQ STOP - TO SUSPEND SQUASHING
SQ NEXT - TO SKIP OVER AN AREA IN CASE OF A "FILE INTEGRITY CONFLICT" SITUATION. SEE FILE INTEGRITY CONFLICT.
SQ OK - IN CASE OF INTEGRITY CONFLICT TO MOVE THE FILE ANYWAY WITHOUT MAKING A TEMPORARY COPY. THIS MAKES THAT FILE VULNERABLE TO A SYSTEM CRASH.

SS SPO COMMAND FOR STATION-TO-STATION MESSAGES. UNLIKE QS THIS SAVES THE MESSAGE UNTIL IT WON'T BOTHER THE USER.
FORMS FOR TSSMCP ARE SS <STATION NUMBER> <YOUR MESSAGE> OR
SS ALL <YOUR MESSAGE> TO SEND TO ALL STATIONS THAT ARE ON.
SS SPO <YOUR MESSAGE> TO SEND TO THE SPO CONSOLE.
FORMS FOR DCMCP ARE SS <TU>/<BU> : <MESSAGE TEXT> OR
SS SPO : <MESSAGE TEXT>

STACK TRACE THIS LOCAL FEATURE HAS BEEN REMOVED BECAUSE OF BUGZ.

STATION NOT ASSIGNED - YOU ARE OPERATING UNDER DCMCP AND ENTERED INPUT AT A TERMINAL NOT PRECEDED BY A ?. THIS MEANS THE INPUT IS TO GO TO THE PROGRAM YOU ARE RUNNING, BUT YOU ARE NOT RUNNING ANY PROGRAM.

STOPTEST - IF THIS OPTION IS RESET THE ONLINE TAPE CONFIDENCE TEST WILL BE AUTOMATICALLY INVOKED IF A TAPE APPEARS TO BE BAD.
IF THIS OPTION IS SET THERE IS NO AUTOMATIC TEST.

STREAM - STREAM PROCEDURES AND STREAM STATEMENTS OF EXTENDED ALGOL ARE OPERATIONS WHICH PUT THE PROCESSOR INTO CHARACTER MODE. ANY MORE EXPLANATION IS BEYOND THE SCOPE OF THIS GLOSSARY, BUT IS TO BE FOUND IN THE EXTENDED ALGOL MANUAL.
STREAM OPERATIONS OF ESPOL ARE NOT EXACTLY LIKE THOSE OF EXTENDED ALGOL, AND REQUIRE REFERENCE TO MANUALS FOR BOTH LANGUAGES.

STRING OPERATIONS - SEE "CHARACTER STRING OPERATIONS" FOR XALGOL.
SEE "STREAM" FOR EXTENDED ALGOL, TSPOL, AND ESPOL.
GTL HAS NICE STRING FEATURES.

STUFF 1. COMPILE OPTION FOR ESPOL ONLY, CAUSING A STUFF FILE TO BE PRODUCED. USE THIS OPTION WHEN COMPILING MCP OR INTRINSICS, EQUATING FILE STUFF TO A DISK FILE; E.G. MCP/STUFF, TSSMCP/STUFF, INT/STUFF, TSSINT/STUFF.
2. <FID> OF A FILE PRODUCED BY ESPOL, CONTAINING PROGRAM REFERENCE TABLE INFORMATION. USED AS INPUT TO DCFILL/PRT OR TSFILL/PRT TO PRODUCE THE PRT FILES REQUIRED BY THE DUMP ANALYZERS.
SEE DCFILL/PRT AND TSFILL/PRT FOR MORE INFORMATION..

FORMAT OF STUFF FILE - 80 CHARACTER RECORDS
COL 1-4: CLASS AS FOLLOWS

10	PROCEDURE
12	STREAM PROCEDURE
13	BOOLEAN STREAM PROCEDURE
14	REAL STREAM PROCEDURE
15	INTEGER STREAM PROCEDURE
17	BOOLEAN PROCEDURE
18	REAL PROCEDURE
19	INTEGER PROCEDURE
21	BOOLEAN VARIABLE
22	REAL VARIABLE
23	INTEGER VARIABLE
25	BOOLEAN ARRAY
26	REAL ARRAY
27	INTEGER ARRAY
30	NAME

COL 5-3: PRT ADDRESS IN DECIMAL
COL 9-80: IDENTIFIER, LEFT JUSTIFIED WITH BLANK FILL

SUBROUTINES, ESPOL - AN ESPOL SUBROUTINE IS A SIMULATED PROCEDURE, WHICH IS USED BECAUSE ESPOL DOES NOT ALLOW NESTED PROCEDURES.

SWISS CHEESE CARD - A CARD PUNCHED IN BINARY, SO CALLED BECAUSE IT CONTAINS SO MANY HOLES.

SYSTEM NOTE - A PUBLICATION DISTRIBUTED WITH A SOFTWARE RELEASE. CONTAINS A SUMMARY OF THE CHANGES MADE IN THE RELEASE, DOCUMENTATION OF ADDED OR CHANGED FEATURES, AND OFTEN AN INDEX TO ALL PREVIOUS SYSTEM NOTES. USUALLY THE SYSTEM NOTE IS INCLUDED IN THE SYSTEM TAPE AS A PBD FILE, SO IT CAN BE LOADED BY LIBMAIN/DISK AND PRINTED BY PRNPBT/DISK.

TABLES COMPILER $OPTION. WHEN SET CAUSES SEGMENT ZERO, FIB, ETC. TO BE PRINTED. SET THIS OPTION JUST BEFORE THE END STATEMENT OF THE PROGRAM IF YOU WANT IT TO WORK SENSIBLY.

TANK FILE NOT ON DISK - MESSAGE FROM CANDE WHEN IT STARTS UP, IF THE FILE TANK/DISK IS MISSING OR CORRUPT. FIRST REMOVE TANK/DISK IF IT EXISTS, THEN HALT/LOAD.

TANK/DISK A FILE USED BY CANDE TO STORE TERMINAL INPUT AND OUTPUT.

TAPCOPY/DISK - A UTILITY PROGRAM TO COPY TAPES AND COMPARE THEM.
INSTRUCTIONS:
?EXECUTE TAPCOPY/DISK
WITH NO COMMON CARD, OR WITH ?COMMON=1, ONE COPY WILL BE MADE AND THE COPY TAPE WILL HAVE ITS OWN PRN. WITH COMMON = N, N>0, N COPIES WILL BE MADE. ADD 100 TO THE COMMON VALUE TO HAVE THE COPIES BE IDENTICAL TO THE ORIGINAL, INCLUDING THE PRN.

AFTER THE PROGRAM GOES INTO EXECUTION YOU CAN USE THE SPO COMMAND IN TO ALTER ITS ACTION BY WRITING INTO THE PRT. WITH NO PRT ENTRIES THE COPIES WILL BE COMPARED WITH THE ORIGINAL AFTER COPYING, AND IF AN ERROR IS FOUND THE BAD TAPE WILL BE PURGED. IF YOU COMMAND IN 26=1 AFTER BOJ THE COPIED TAPES WILL NOT BE COMPARED. IF YOU COMMAND IN 26=2 THE PROGRAM WILL COPY, REWIND,

AND COMPARE; OTHERWISE IT WILL COMPARE BY READING BACKWARDS.
IF YOU COMMAND IN 26=3 THE COPY PHASE WILL BE OMITTED AND THE
PROGRAM WILL SIMPLY COMPARE TAPES. THE TAPES WILL BE CONSIDERED
TO COMPARE CORRECTLY IF THEY ARE ALIKE EXCEPT FOR THE PRN'S.
TO INCLUDE THE PRN'S IN THE COMPARISON ADD 100 TO THE COMMON VALUE.

RESTRICTICNS:
1. A MAXIMUM OF 15 OUTPUT TAPES
2. ONLY BINARY, LABELED TAPES
3. USE THE UL COMMAND FOR THE INPUT TAPES
4. TAPE FORMAT IS ASSUMED TO BE
   LABEL
   TAPE MARK
   FILE CONTAINING ONE OR MORE BLOCKS
   TAPE MARK
   LABEL
   AND SO ON FOR ADDITIONAL FILES

SEE SYSTEM NOTE 7, MARK XIII RELEASE FOR MORE INFO.

TAPE 1. COMPILER $ OPTICN TO USE A FILE ON DISK OR TAPE AS THE SOURCE, WITH UPDATES FROM A CARD DECK.
2. USUAL NAME OF THE COMPILER SOURCE TEXT INPUT FILE WHEN THE TAPE CPTION IS IN USE. USUALLY YOU WANT TO USE A FILE ON DISK, SO YOU PUT IN A FILE CONTROL CARD SOMEWHAT LIKE:
? <COMPILER NAME> FILE TAPE = <MFID>/<FID> DISK SERIAL

TAPE MK - SPO MESSAGE INDICATES THE SPECIFIED TAPE DRIVE HAS ENCOUNTERED A TAPE MARK (END OF FILE MARK) AS THE FIRST RECORD ON THE TAPE. THIS MAY ALSO MEAN THE TAPE IS BLANK.

TAPE, TO COPY - SEE TAPCOPY/DISK.

TAPE, TO INITIALIZE - A NEW TAPE WILL ALREADY HAVE THE NEEDED REFLECTIVE MARKERS. YOU HAVE TO ADD A LATCH LEADER. THESE ARE USUALLY LYING ARCUND THE CONSOLE. THEN MOUNT THE TAPE AND USE THE PG COMMAND TO APPLY A PHYSICAL REEL NUMBER FROM THE NEXT NUMBER ON THE LIST THAT IS ON THE CONSOLE. SEE PG COMMAND.

TAPE/COMPARE - UTILITY PROGRAM TO COMPARE THE CONTENTS OF A LIBRARY MAINTENANCE DUMP TAPE AGAINST THE FILES ON DISK. USED TO VERIFY ACCURATE LOADING OR DUMPING OF FILES. CANNOT COMPARE A TAPE CONTAINING THE CURRENT MCP OR INTRINSICS.
TO USE, EXECUTE THE PROGRAM AND USE THE IL COMMAND TO DESIGNATE THE TAPE CONTAINING THE FILE "TAPE"

TEMPORARY CHANGES - SEE PATCH

TERMINAL CONTROL CHARACTERS - SEE "CANDE CONTROL CHARACTERS."

TERMNATE - OPTION 42. WHEN SET, AS IT NORMALLY IS, A JOB THAT BLOWS UP IS CLEANED OUT OF THE SYSTEM PROPERLY. THE ONLY REASON TO RESET THIS CPTICN MIGHT BE IF IT IS DESIRED TO TAKE A CORE DUMP AFTER A JOB BLOWS UP.

TF SPO COMMAND TO TYPE THE MULTIPROCESSING FACTOR. THIS TELLS HOW MUCH CORE THE SCHEDULER THINKS THE SYSTEM HAS, IN RELATION TO HOW MUCH IT ACTUALLY HAS. SEE ALSO SF COMMAND.

TI COMMAND TO GET THE TIME USED BY A JOB. THE REPLY TELLS HOW MUCH CPU TIME HAS BEEN USED AND ALSO THE ELAPSED TIME.

USAGE IS <MIX INDEX>TI
DOCUMENTED IN SYSTEM NOTE 14 DISTRIBUTED WITH MARK XVI.0.

TIME 1. TIME FUNCTION. SEE PROGRAMMING LANGUAGE MANUAL.
TWO NEW TIME FUNCTIONS WERE ADDED IN MARK XII:
TIME (5) RETURNS CURRENT DATE AS 6 CHARACTERS BCL MONTH, DAY, YEAR
RIGHT JUSTIFIED WITH LEADING ZEROS (00MMDDYY)
TIME (6) RETURNS CURRENT DAY-OF-WEEK AS 6 CHARACTERS BCL RIGHT JUSTIFIED
WITH 2 LEADING ZEROS AND BLANKS FILL (00BBBMON,00BBTUES,00WEDNES,00BTHURS,
00BBBFRI,00BSATUR,00BBBSUN)

THREE NEW TIME FUNCTIONS WERE ADDED IN MARK XVI, MAINLY FOR
USE WITH PACKETS.
TIME (-3) WILL RETURN THE CURRENT STATUS OF THE PACKETERR BIT.
TIME (-4) WILL RETURN THE CURRENT STATUS OF THE PACKETERR BIT,
AND THEN SET THE BIT.
TIME (-5) WILL RETURN THE NUMBER OF JOBS RUNNING FROM THE
PACKET AT THIS TIME.
THE USE OF THESE IS TO ALLOW JOBS RUNNING IN A PACKET TO INFORM
ONE ANOTHER OF ERROR CONDITIONS SUCH THAT THE WHOLE PACKET SHOULD
CEASE EXECUTING.

TIME (-6) IS A LOCAL FEATURE THAT GIVES THE MIX INDEX OF THE JOB.

2. FORTRAN COMPILER CONTROL OPTION. WITH NO LISTING, THE TIME
OPTION CAUSES THE END-OF-COMPILATION REPORT TO BE PRINTED.

TIMESHARING COMPILE-TIME OPTION ($ OPTION) FOR INTRINSICS IF THEY
ARE TO BE USED WITH TSSMCP.

TL SPO COMMAND TO TYPE THE PROCESSOR AND I/O TIME LIMITS FOR A JOB IN THE MIX.
USAGE: <MIX INDEX>TL

TO 1. SPO COMMAND TO TYPE OUT THE CURRENT SETTINGS OF ALL THE OPTIONS.
ADDITIONAL FORMS ARE TOR TO TYPE ONLY THE RESET OPTIONS AND
TOS TO TYPE ONLY THOSE THAT ARE SET.
2. CANDE VERB FOR STATION-TO-STATION MESSAGE, EQUIVALENT TO SS. USAGE:
TO <STATION NUMBER> <YOUR MESSAGE> OR
TO SPO <YOUR MESSAGE>

TR SPO COMMAND TO ENTER THE TIME OF DAY. USE 4 DIGITS IN 24-HOUR
CLOCK. EX: TR 1437 FOR 2:37 P.M.

TR PLEASE -SPO MESSAGE MEANS THE TIME OPTION IS SET AND YOU WILL
HAVE TO ENTER THE TIME WITH A TR COMMAND BEFORE PROCEEDING.

TROUBLE - IN CASE OF FREQUENT SYSTEM CRASHES HERE ARE SOME THINGS
TO TRY.
1. IF THE CRASHES OCCUR FOLLOWING HALT/LOAD SET THE
CCI03F INHIBIT SWITCH AT THE TOP OF THE DISPLAY PANEL TO THE
UPWARD POSITION AND HALT/LOAD. AFTER THE USUAL CHURNING
AROUND THE SPO WILL TYPE "TIMER NOT RUNNING..." AT THIS POINT
YOU MAY CHANGE ANY OF THE SPO OPTIONS; IT MIGHT BE A GOOD
IDEA TO TURN OFF AUTORN, AUTOCE, AUTOPRINT, AND CDONLY.
THEN TURN THE INHIBIT CCI03F SWITCH DOWN AND HALT/LOAD AGAIN.
IF THE SYSTEM STAYS UP THEN YOU CAN PD PBD/= TO CHECK FOR
THE PRESENCE OF PBD FILES, AND PP OR CD TO CHECK FOR PSEUDO
DECKS. THEN YOU CAN TRY TURNING THE SPO OPTIONS BACK ON,
STARTING PSEUDO READERS, ETC. ONE AT A TIME TO SEE IF ANY OF
THESE PRODUCES A CRASH.
2. RUN HARDWARE DIAGNOSTICS. THERE ARE 3 PRINCIPAL ONES.

PROCESSOR TESTS:
MOUNT THE "MTR" TAPE ON ANY DRIVE. SET THE CCI03F INHIBIT SWITCH UP, AND ALSO THE OPERATOR STOP SWITCHES OF BOTH PROCESSORS. LOCATE THE SMALL DECK OF CARDS USED WITH THE MTR TAPE. NEAR THE FRONT OF THIS DECK ARE SEVERAL CARDS WITH LETTERS WRITTEN ON THEM. SELECT THE CARD WITH A LETTER CORRESPONDING TO THE TAPE DRIVE CONTAINING THE MTR TAPE AND PUT IT LAST IN THE GROUP OF LETTERED CARDS. PUSH CARD LOAD SELECT ON THE CONSOLE, PUT THE DECK IN THE READER, MAKE IT READY, AND HALT/LOAD. THE DECK SHOULD READ IN AND THE TAPE SHOULD SPIN. AFTER SEVERAL MORE TAPE READS THE SPO WILL TYPE A MESSAGE, AND THEN THE TAPE WILL BEGIN READING RECORDS FREQUENTLY. IF AN ERROR IS FOUND THE SPO WILL TYPE OUT A NUMBER. IF IT TYPES OUT 19008.0 THIS IS A SPURIOUS ERROR INDICATION AND CAN BE BYPASSED; SET A 1 INTO THE A-REGISTER OF THE PROCESSOR BEING TESTED AND PUSH THE SINGLE PULSE BUTTON ON THAT PROCESSOR. TESTING SHOULD RESUME WITH THE LAST RECORD AND THEN TYPE OUT A LAST TEST CASE MESSAGE. TURN THE PA1L/PB1L TOGGLE SWITCH TO THE OPPOSITE POSITION TO MAKE THE OTHER PROCESSOR THE CONTROL PROCESSOR, AND PUSH THE SINGLE PULSE BUTTON ON THE NEW CONTROL PROCESSOR. THE TAPE SHOULD REWIND AND START ALL OVER. IF BOTH PROCESSORS PASS THIS TEST ALL IS WELL. IF ONE PROCESSOR IS BAD, YOU CAN DISABLE IT BY TURNING ITS STOP CLOCK TOGGLE SWITCH UP AND RUN DCMCP (BUT NOT TSSMCP) ON ONE PROCESSOR.

MEMORY TEST:
THERE IS A QUICK MEMORY TEST CONSISTING ON A DECK MARKED "MEMORY TALLY". USE THE SAME SWITCH SETTINGS AS FOR THE PROCESSOR TESTS ABOVE. READ IN THE DECK AS DESCRIBED ABOVE. IT WILL READ IN PART WAY AND START TESTING, THEN READ THE REST OF THE DECK. SHORTLY AFTER READING THE REST OF THE DECK IT WILL HALT. PUSH SINGLE PULSE ON THE CONTROL PROCESSOR. AFTER THAT IT WILL GO AGIN AND SHOULD RUN INDEFINITELY IF THERE IS NO TROUBLE.

I/O AND ADDRESSING TEST:
MOUNT A SCRATCH TAPE ON DRIVE MTA. USE THE SAME SWITCH SETTINGS DESCRIBED ABOVE, AND ALSO TURN THE REMOTE-LOCAL SWITCHES TO LOCAL ON THE FIRST TWO I/O CHANNELS. LOAD IN THE MEMORY I/O ADDRESS TEST DECK. THE TAPE DRIVE SHOULD MAKE A LOT OF NOISE, BUT DOESN'T MOVE THE TAPE VERY MUCH. AFTER A FEW MINUTES TURN THE LOCAL-REMOTE SWITCH ON I/O CHANNEL 2 TO REMOTE. AFTER A FEW MORE MINUTES TURN THE SWITCH ON CHANNEL 1 TO REMOTE. IF THE TEST KEEPS RUNNING ALL IS WELL. IF THE TEST STOPS THERE MAY BE A TROUBLE TYPEOUT, OR THERE MAY BE A TYPECUT TO ALLOW YOU TO CHANGE THE TEST SETUP AND RESUME BY PUSHING START CLOCK.

THERE ARE OTHER HARDWARE TESTS, BUT THESE ARE THE FASTEST AND MOST IMPORTANT ONES. AFTER RUNNING THESE TESTS, BE SURE TO
-----RESTORE ALL TOGGLE SWITCHES TO NORMAL POSITIONS-----
OR THE SYSTEM WILL NOT HALT/LOAD CORRECTLY.

3. IT MAY BE THAT THE MCP IS CORRUPTED. YOU CAN CHANGE FROM TSS/MCP TO MCP/DISK OR VICE-VERSA USING THE DISK-TO-DISK CARD LOAD SELECT PROGRAM IF THE SYSTEM WON'T RUN WELL ENOUGH TO ALLOW YOU TO USE THE CM COMMAND. YOU CAN USE THE TAPE-TO-DISK CARD-LOAD-SELECT PROGRAM TO LOAD MCP/DISK FROM THE SYSTEM TAPE, THEN USE THIS MCP TO BRING IN THE OTHERS FROM A RECENT BACKUP TAPE. (THE ONE ON THE SYSTEM TAPE IS OBSOLETE.)

4. IT MAY BE NECESSARY TO COOL START OR COLD START. TRY COOL START FIRST. IF THERE IS A CORRUPT PSEUDO DECK (AS REVEALED BY THE PP COMMAND) IT WILL BE NECESSARY TO COLD START TO GET RID OF IT. IF POSSIBLE, DO A COMPLETE LIBRARY BACKUP

TC TAPE FIRST, SO YOU CAN RECOVER AS MANY CURRENT FILES
AS POSSIBLE.

TS COMMAND TC TYPE THE CONTENTS OF THE SCHEDULE.
IN THE TYPEOUT THE NUMBER FOLLOWING THE = SIGN IS THE
SCHEDULE INDEX. THE LENGTH OF TIME THE JOB HAS BEEN WAITING
AND THE REASON IT CANNOT BE ENTERED INTO THE MIX NOW WILL BE
GIVEN. USE THE <SCHEDULE INDEX>XS MESSAGE TO FORCE
THE JOB TO BE RUN ANYWAY, AND THE <SCHEDULE INDEX>ES
COMMAND TC REMOVE THE JOB FROM THE SCHEDULE.
USE THE <SCHEDULE INDEX>PS MESSAGE TO ALTER THE PRIORITY OF
A SCHEDULED JOB.

TSDUMP/ANALYZE PROGRAM TO ANALYZE TSSMCP DUMP. EXECUTE
TSDUMP/ANALYZE, EQUATING FILE MDUMP TO "MEMORY/DUMP DISK"
IF THE DUMP FILE IS ON DISK, OR TO THE TAPE CONTAINING
THE MEMORY DUMP TC BE ANALYZED. COMMON VALUES:

0	STANDARD DUMP AND ANALYSIS
1	SPLASH DUMP WITH NO ANALYSIS
2	PRINTS AVAILABLE AREAS
3	PRINTS AVAILABLE AREAS INCLUDING INACTIVE AREAS ABOVE THE FENCE
4	OMITS NORMAL STATE CODE SEGMENTS
8	OMITS MCP CODE SEGMENTS
16	OMITS DUMPING DATACOM ARRAYS ASSOCIATED WITH LINE MAINTENANCE
32	OMITS PRINTING SORTED MCP PRT IDENTIFIERS
64	CAUSES MEMORY TO BE PRINTED ENTIRELY IN OCTAL
128	CAUSES MEMORY TO EE PRINTED ENTIRELY IN ALPHA/OCTAL
256	CAUSES MEMORY TO BE PRINTED ENTIRELY IN ALPHA
384	CAUSES NONE OF THE CONTENTS OF MEMORY TO BE PRINTED
512	DISPLAYS THE CONTENTS OF THE ARGH ARRAY

TSFILL/PRT PROGRAM WHICH PRODUCES THE PRT FILE (USED BY THE DUMP
ANALYZER) FOR TSSMCP, TAKING INPUT FROM THE STUFF FILES FOR MCP
AND INTRINSICS. TO RUN, EXECUTE THE PROGRAM AND <MIX>IL THE
#NO FIL MESSAGES WITH THE NAMES OF THE STUFF FILES.

TSPOL - LANGUAGE IN WHICH CANDE AND SOME OF ITS PROGRAMS ARE
WRITTEN. TSPCL IS IDENTICAL WITH EXTENDED ALGOL EXCEPT FOR THE
ADDITION OF THE COMMUNICATE FUNCTION.

TSSEDIT $-CARD OPTION FCR FORTRAN ONLY. IF THIS IS NOT USED, A DISK FILE
ACCESSED FROM A CANDE TERMINAL IS ASSUMED TO BE IN FREEFORM STYLE.
BY APPLYING THIS OPTION IT IS POSSIBLE IN A LIMITED WAY TO COMPILE
FROM A TERMINAL WHEN THE FILE CONTAINS CARD IMAGES IN TRADITIONAL
FORTRAN STYLE (STATEMENTS STARTING IN COLUMN 7, ETC.). LIMITATIONS
ARE A MAXIMUM OF 66 CHARACTERS PER LINE, AND QUOTED OR HOLLERITH
STRINGS MUST NOT BE CONTINUED FROM ONE CARD TO ANOTHER.

TU/BU - TERMINAL UNIT AND BUFFER NUMBERS. THESE ARE THE HARDWARE
IDENTIFICATION OF THE DATACOM PORTS. OUR MACHINE HAS ONLY TU #1
AND BUFFER NUMBERS 0,2,4,6,8,10,12, AND 14. WITH THE DATACOM MCP
IT IS NECESSARY TO USE TU/BU NUMBERS IN ALL REFERENCES TO A
TERMINAL. WITH TSSMCP AND CANDE IT IS USUALLY POSSIBLE TO USE
STATION NUMBERS INSTEAD OF TU/BU NUMBERS. FOR OUR SYSTEM THE
FOLLOWING CORRESPONDENCE EXISTS. (SUBJECT TO CHANGE WITHOUT NOTICE)

STATION	TU/BU	LOCATICN
4	01/00	A.S. 254-A OR PDP-11/20
5	01/02	
6	01/04	A.S. 254-A

7 01/06
8 01/08 A.S. 254-A
9 01/10
10 01/12 PDP-11 ROOM (213 APPL SCI)
11 01/14 ELSEWHERE
THE REASON FOR EVEN BU NUMBERS ONLY IS THAT IN OUR SYSTEM EACH PORT IS ASSIGNED A PAIR OF BUFFERS. STATIONS (LINES) 1,2, AND 3 ARE "SCHEDULE LINES" AND DO NOT HAVE HARDWARE PORTS.

TWXONLY - COMPILE-TIME OPTION ($ OPTION) FOR TSSMCP IF THE ONLY TERMINALS ON THE SYSTEM ARE TELETYPES OR EQUIVALENT. THIS IS TRUE AT UCSC. IF THIS OPTION IS RESET CODE IS INCLUDED FOR SOME OTHER COMPLICATED TERMINALS THAT WE DON'T HAVE.

UL SPO COMMAND TO INDICATE THAT A REQUESTED FILE RESIDES ON AN UNLABELLED UNIT. USED TO REPLY TO A NO FIL MESSAGE. EX: UL MTA MEANS THAT THE DESIRED FILE RESIDES ON TAPE UNIT A. THE USER PROGRAM WILL READ WHATEVER DATA IS ON THE MEDIUM. IF THE MEDIUM CONTAINS A STANDARD LABEL WHICH THE USER PROGRAM SHOULD NOT INTERPRET AS DATA, USE THE IL COMMAND INSTEAD OF UL.

UNIT MNEMONIC A THREE-LETTER NAME FOR A PERIPHERAL UNIT OR PSEUDO-UNIT.

UNLOAD - LIBRARY MAINTENANCE COMMAND TO REMOVE A FILE OR FILES FROM DISK AFTER WRITING THEM TO A TAPE. SAME AS THE DUMP TO COMMAND, EXCEPT THAT THIS ALSO DELETES THE FILES FROM DISK. A LOCAL UCSC FEATURE PROVIDES THAT FILES ARE NOT DELETED UNTIL THE COPYING IS COMPLETED.

UNLOCK - 1. CONTROL CARD TO UNLOCK A FILE. EX: ?UNLOCK <MFID>/<FID>
2. CANDE VERB TO UNLOCK A FILE. USAGE: UNLOCK FILE1, FILE2, ETC.
WHEN A FILE IS UNLOCKED ANYONE MAY READ IT BUT ONLY THE OWNER MAY WRITE.

UNLOCKED - ATTRIBUTE OF AN UNLOCKED FILE

USER JOB CONTROL CARD. FORMATS ARE
?USER=<USER NAME> AT UCSC, AND
?USER=<USER NAME>/<PASSWORD> ALMOST EVERYWHERE ELSE.
THIS CARD GOES AT THE BEGINNING OF YOUR DECK OR PACKET.
(IN FACT THE WHOLE CARD IS OPTIONAL AT UCSC, BUT WE WANT THEM USED SO THE ESTABLISHMENT CAN TELL THAT THE SYSTEM IS EARNING ITS KEEP.)

USER/CANDE PROGRAM TO CREATE THE FILE USERS/CANDE. SEE PAGE 1-37 OF THE TIMESHARING SYSTEM REFERENCE MANUAL.

USERCODE THE NAME A PERSON GIVES WHEN LOGGING IN AT A TERMINAL. IN TSSMCP THIS BECOMES THE <FID> OF ALL FILES CREATED BY THE USER.

USER DISK BEGINS AT MESSAGE FROM COLD START PROGRAM TELLS THE STARTING DISK ADDRESS FOR USER FILES (ABOVE THE DISK DIRECTORY AND OTHER SYSTEM STUFF).

USERS FILE NOT ON DISK - SPO MESSAGE IF FILE USERS/CANDE IS NOT PRESENT WHEN CANDE IS STARTED.

USERS/CANDE - FILE CONTAINING USER CODES, PASSWORDS, ETC. FOR TIME SHARING USERS. CREATED BY USER/CANDE PROGRAM. SEE PAGE 1-37 OF THE TIME SHARING SYSTEM REFERENCE MANUAL.

USERS/CANDE NOT A 1 ROW FILE - A LOCAL FEATURE AT UCSC REQUIRES THAT THIS FILE OCCUPY ONLY ONE ROW ON DISK, TO HOLD DOWN THE CORE REQUIRED BY CANDE. IF THIS MESSAGE APPEARS ON THE SPO IT MEANS THAT THE USERS/CANDE FILE NEEDS TO BE RE-CREATED TO ELIMINATE ANY UNUSED ACCOUNTS AND TRY TO COMPACT IT INTO A SINGLE ROW.

VOID COMPILER CONTROL $ CARD. THIS CARD MUST HAVE A SEQUENCE NUMBER IN COLS 73-80. IF IT HAS NOTHING BUT A SEQUENCE NUMBER THE SOURCE CARD WITH THAT NUMBER WILL BE DELETED. IF IT HAS A NUMBER AFTER THE WORD VOID, ALL SOURCE CARDS WITH SEQUENCE NUMBERS LESS THAN THAT NUMBER AND EQUAL TO OR GREATER THAN THE ONE IN CCLS 73-80 OF THE VOID CARD WILL BE DELETED.

VOIDT COMPILER CONTROL $ CARD. SAME AS VOID, BUT THE VOIDING APPLIES ONLY TO RECORDS FROM THE TAPE FILE.

WAIT CONTROL CARD USED WITH PACKETS. WHEN ?WAIT CARD IS ENCOUNTERED IN A PACKET ALL PREVIOUS JOBS IN THE PACKET MUST RUN TO COMPLETION BEFORE ANYTHING AFTER THE ?WAIT CARD WILL BE STARTED. IF SOMETHING PREVIOUS TO THE ?WAIT CARD ENDS ABNORMALLY THE REST OF THE PACKET WILL BE FLUSHED TO THE END, OR TO THE NEXT ?CONTINUE CARD.

WD SPO COMMAND TO GET THE SYSTEM TO TELL YOU THE CURRENT DATE, OR WHAT IT THINKS IS THE CURRENT DATE.

WHICH UNIT? THIS MESSAGE COMES FROM THE MEMORY DUMP PROGRAM, EITHER AS A RESULT OF RUNNING THE MEMDUMP DECK, OR AUTOMATICALLY FOLLOWING THE -SYSTEM HANG MESSAGE IF THE HALT OPTION IS NOT SET (AND AUTODUMP IS COMPILED INTO MCP).

IF YOU WANT THE DUMP ON A TAPE, MOUNT A TAPE AND GIVE THE SPO THE <UNIT MNEMONIC> OF THE TAPE DRIVE. OTHERWISE REPLY DKA, WHICH WILL CAUSE THE DUMP TO GO TO DISK IF THE FILE MEMORY/DUMP EXISTS ON DISK. OR, YOU COULD HALT/LOAD AND SKIP THE DUMP ALTOGETHER. A VERSION OF THE MEMORY DUMP PROGRAM IN USE AT UCSC DOES NOT ASK WHICH UNIT, BUT DOES A DISK DUMP ALWAYS.

IF CRASHES OCCUR FREQUENTLY SEE "TROUBLE" FOR HINTS.

WI SPO COMMAND TO GET THE SYSTEM TO TELL YOU THE NAME OF THE CURRENT INTRINISCS FILE AND ITS COMPILE-TIME OPTIONS.

WM SPO COMMAND TO GET THE SYSTEM TO TELL YOU THE NAME OF THE CURRENT MCP AND ITS COMPILE-TIME OPTIONS.

WORKSET - A COMPILE $ OPTION FOR MCP (AND NOT TSSMCP) WHICH CAN BE USED TO TRY TO IMPROVE THROUGHPUT BY AUTOMATICALLY SUSPENDING JOBS WHEN THRASHING OCCURS. SEE SYSTEM NOTE 13, APPENDIX A.

WORKSETMONITOR - COMPILE TIME $OPTION FOR DCMCP WHICH INCLUDES CODE TO GATHER STATISTICS, SHOWING HOW WELL WORKSET IS DOING.

WT SPO COMMAND TO MAKE THE SYSTEM TYPE WHAT IT THINKS IS THE CURRENT TIME OF DAY (24 HOUR CLOCK).

WU SPO COMMAND TO INQUIRE WHO IS ON THE SYSTEM

WY SPO COMMAND TO INQUIRE WHY A JOB SEEMS NOT TO BE RUNNING. USAGE IS <MIX INDEX> WY. REPLY WILL GIVE THE SPO MESSAGE INDICATING WHY THE JOB IS WAITING, OR WILL SAY

WY NOT? IF THERE SEEMS TO BE NOTHING THE JOB NEEDS FROM THE
OPERATOR AT THE TIME.
IF THE JOB HAS BEEN WAITING FOR SOMETHING THAT HAS BEEN SATISFIED, WY
WILL GET IT GOING AGAIN.

XALGOL - SEE "COMPATIBLE ALGOL"

XALGOL DECK SETUP - ?USER = <USER NAME>
?COMPILE <MFID>/<FID> XALGOL
?XALGOL FILE CARDS AS REQUIRED FOR COMPILATION
?FILE CARDS AS REQUIRED FOR EXECUTION
?DATA029 CARD
$SET LIST SINGLE
XALGOL SOURCE CARDS
?DATA029 <FILENAME> IF REQUIRED AT EXECUTION
(DATA DECK, IF ANY, GOES HERE)
?END

XD SPO COMMAND TO MAKE A BAD SPOT ON DISK UNUSABLE. CREATES A
FILE NAMED BADISK/<DISK ADDRESS> . IF THE BAD AREA IS OCCUPIED
BY A FILE ALREADY YOU WILL GET A SPO MESSAGE .BADISK/NNNNNN NOT
CREATED (MM SEGS IN USE BY <MFID>/<FID>) . HENCE THIS IS
A HANDY COMMAND TO USE TO LEARN THE NAME OF A FILE THAT HAS
SUFFERED AN INCURABLE PARITY ERROR AND GIVEN A *DKA PARITY MESSAGE.

USAGE: XD <STARTING ADDRESS>,<NUMBER OF SEGMENTS>

XREF COMPILER $-CARD OPTION TO PRODUCE A CROSS-REFERENCE LISTING.

XREF/JONES UTILITY PROGRAM WHICH CAN CROSS-REFERENCE PROGRAMS, FORMAT
DOCUMENTS FOR PRINTING, DO MANY OTHER WONDROUS THINGS. DIRECTIONS
ARE PART OF THE SOURCE OF THE PROGRAM. NOTE: THE FILE "CARD" REQUIRES
A NINES CARD - 99999999 IN COLS 73-80.

XS SPO COMMAND TO FORCE A SCHEDULED JOB TO RUN NOW (EVEN IF THAT
WILL INCREASE SWAPPING AND DEGRADE THROUGHPUT.)
USAGE IS <SCHEDULE INDEX> XS

XT SPO COMMAND TO EXTEND THE TIME LIMITS FOR A JOB.
USAGE IS <MIX INDEX> XT <MINUTES>,<MINUTES> WHERE THE FIRST
<MINUTES> IS THE AMOUNT TO ADD TO THE PROCESSOR TIME LIMIT AND THE
SECOND IS THE AMOUNT TO ADD TO THE I/O TIME. EITHER OF THESE MAY
BE OMITTED.

ZIP 1. CONSTRUCT WHICH ALLOWS A PROGRAM TO PASS A CONTROL DECK TO
MCP FOR ACTION BY A PSEUDO-READER. SEE ALGOL OR XALGOL MANUAL.
2. $ OPTION OF PATCH/MERGE PROGRAM TO CAUSE THE OUTPUT TO BE
ZIPPED FOR COMPILATION.

ZIP ERROR - MESSAGE MEANS THAT A PSEUDO DECK HAS BEEN ZIPPED
AND SOMETHING IS WRONG WITH IT. IT WILL BE IGNORED.
THE MESSAGE INCLUDES THE MIX INDEX OF THE JOB THAT DID THE
ZIP AND AN INDICATION OF THE CARD IN ERROR.

ZIPARRAY OPTION FOR PATCH/MERGE PROGRAM, CAUSES ZIP TO BE DONE
WITH ARRAY ROW RATHER THAN WITH FILE. THE PRACTICAL EFFECT IS
THAT WITH PLAIN ZIP THE PACKET PAGE FOR THE PATCH/MERGE
JOB COMES OUT WHEN THAT JOB ENDS; WITH ZIPARRAY THE PACKET PAGE
IS HELD UNTIL THE ESPOL COMPILE JOB ENDS.

ZONE SEE DISK ADDRESSING.